GEOGRAPHIES OF CHILDREN'S VULNERABILITY: HOUSEHOLDS AND WATER-RELATED DISEASE HAZARD IN THE KARAKORAM MOUNTAINS, NORTHERN PAKISTAN

By

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ABSTRACT

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Geographies of Children's Vulnerability: Households and Water-Related Disease Hazard in the Karakoram Mountains, Northern Pakistan

Dissertation directed by Professor James L. Wescoat, Jr.

In this dissertation I examine the social construction of children's vulnerability to water-related disease hazard in a mountain community in Northern Pakistan. I posit that one way to approach the problem of children's vulnerability at the local scale is to focus on three interconnecting dimensions of the problem: perceptions, resources, and coping. The crosscutting theme of gender is also central to this approach, especially the ways in which gender intersects with perceptions, resources, and coping to influence everyday aspects of exposure and susceptibility to diarrheal disease hazard. This study uses the example of households in the mountain community of Oshikhandass, District of Gilgit, Northern Pakistan to understand the dynamics of children's vulnerability during a time of dramatic social and economic transformation, shifts in the structure of households, and changes in local livelihood systems. I employ a set of qualitative data sources including household micro-studies, specialized interviews, and focus group interviews to explore the dimensions of children's vulnerability.

The empirical evidence, including the words and perspectives of the women who participated in this study, highlight the ways in which children's vulnerability to diarrheal disease is continually constructed in the everyday circumstances of

livelihood and care-giving. Central to the work is an analysis of the effects of local perceptions and access to resources on mediating the micro-environment of risk and response to water-related disease hazard. Further, the effects of gender, in terms of how health crises of girls and boys are responded to and also in terms of how gender ideologies shape mothers' coping, are examined as part of a broader interpretation of vulnerability. The conceptual framework adopted in this research suggests that by focusing attention on the household-scale the construction of children's vulnerability can be better understood within this specific geographic context.

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CHAPTER I

INTRODUCTION

Oh, I am still all alone here! My in-laws have passed away. My husband is working in Chilas...I am with the five children...I will bring them up as usual. I sell eggs and vegetables. I get by with [the children] in this manner. Last year I earned Rs. 5,000. We work hard. But when I was ill, our expenditures doubled...My daughter is twelve years old. She does all the kitchen work and every sort of housework... Basically, we are farmers. We cannot take much time to care for our children. That is why they usually suffer from many diseases. We cannot maintain cleanliness.

– Naseema Bibi [1]

In the future how can we give [children] a good upbringing? All of the time we are stuck in our work and are busy. How can we protect their health? In the morning we only have time to wash their faces and hands. We do not have time to keep them from sitting in the dirt and to keep them clean. [My] other children are often sick with colds, diarrhea and pain in their stomachs... My husband scolds me because I have only given birth to daughters. He wants a son.

– Afsana Begum[1]

For most young children living in the developing world, survival is precarious. This precariousness of survival has been recognized in the international health and development discourse as a problem rooted in poverty, environmental crisis, and mal-development (Scheper-Hughes, 1992; Scheper-Hughes and Sargent, 1998). The above fragments of narratives from women in Oshikhandass, Northern Pakistan suggest a view of the everyday challenges of trying to deal with this precariousness in the face of resource scarcity, powerlessness, and gender

discrimination. They remind us that the household is the site in which the child population, which accounts for 43 percent[2] of the total population in least developed countries, receives food, is taken care of when sick, and is provided the material and social support necessary for survival. In the case of childhood illness (e.g., diarrheal disease), it is within the household that remedies are administered, decisions about treatment are initiated, and the labor of care and coping is divided. A child's immediate health environment is the household, and it is at this scale that children's vulnerability to disease hazard is most directly influenced and experienced. Additionally, other scales of social, political, and economic activity interact in profound ways to further shape the geography of children's vulnerability to disease in developing countries. These scales include the neighborhood, the community, the district, the region, and the nation.

The health risks of diarrhea, dysentery, and dehydration are very real for children under five years of age in the developing world. Childhood diarrheal disease, much like malnutrition and pneumonia, continue to prevail as major child killers (UNICEF, 1994; UNICEF, 1997). These dangers fall into the domain of what Hewitt (1997) refers to as "chronic" risks. These risks are the accepted, routinized, and normalized facts of the day-to-day experience of raising children. They persist without interrupting society's major modes of production, administration, and organization. Unlike the unexpected calamities of Hurricane Mitch, floods in Mozambique, or ethnic cleansing in Kosovo, the danger and death associated with diarrhea and dehydration are not reported by popular sources as anything exceptional. Yet, it is well documented that children in the developing world are at risk of some of

the most persistent and everyday hazards: those caused by micro-organisms and viruses that are among the most preventable in the modern world (Esrey et al., 1990; Esrey et al., 1991; Nash, 1993; Wallace and Giri, 1990).

Even though the likelihood of dying from a major infectious disease like diarrhea has decreased for under-five children since the mid-1980s,[3] still almost two million children die needlessly every year from diarrhea-related health problems. The continuing susceptibility to these diseases jeopardizes young children's state of being and well-being in the world. Ironically, hundreds of studies, reports, documents, and conventions have provided information on how to reduce the incidence of water-borne disease hazards. Yet, these risks continue to persist while their impacts are concentrated and absorbed, often silently and unremarkably, into the spheres of life and work of households and individuals who are usually the poorest and least powerful in the developing world.

One way to approach the problem of childhood diarrhea is to focus on vulnerability, and the question of why some under-five children are more or less vulnerable to diarrhea than others. In hazards geography, vulnerability has been a distinct subject of discussion in recent decades. There have been numerous studies focusing on vulnerability to hazards and parallel debates on the socially constructed dimensions of being vulnerable. However, the study of children's vulnerability, and specifically children's exposure to health hazards, has been less of a subject for discussion in geography. This dissertation takes up the problem of children's vulnerability, and seeks to unravel the underlying factors contributing to the everyday geographies of vulnerability to diarrheal disease.

What does vulnerability mean? Vulnerability is a difficult term to define, but there is common agreement that it implies the proneness or susceptibility to damage or loss.[4] In this project, the state of being vulnerable can be viewed as both the degree to which children are exposed to disease risk, and the capacity of caregivers and households to respond to childhood diarrhea. I suggest that children's vulnerability to diarrheal disease is continually constructed in the everyday circumstances of two sets of processes: livelihood and care giving. These circumstances are important in influencing both children's exposure to health hazards (and in this case diarrheal disease agents) and the forms of social action aimed at prevention and/or treatment.

While the transmission routes of disease pathogens explain some of the differentials in exposure and survivorship among children under five years of age, an analysis of transmission routes lies beyond the scope of this project. Instead, this dissertation is focused on the social determinants of children's vulnerability to disease hazard. A social vulnerability perspective is adopted due to the underlying interest in understanding why certain types of differentials in exposure, susceptibility, and recovery exist and what reasons might be offered to explain why they exist. Although a vulnerability perspective has been minimally applied to the topic of biological hazards, it offers a conceptual framework for examining how households and communities experience the impacts of this child health hazard.

In this study I use the example of families and children in the community of Oshikhandass, Northern Pakistan (Figure 1.1) to build an understanding of the construction of children's vulnerability during a period of economic transformation,

shifts in local livelihoods, changing dynamics of households, and regional and national level water and child survival programs. Central to this study is the role that gender plays in the construction of meanings of diarrheal disease risk and uncertainty, the adoption of childcare strategies, and the household responses to child health crises. By focusing on the everyday circumstances of health risk, and how these circumstances are influenced by gender, the construction of children's vulnerability to diarrheal disease can be assessed within a local historical and geographic context.

In Pakistan, the setting of this study, the picture of childhood diarrheal disease and deprivation is generally bleak although it has slightly improved in some areas. The relative progress in child health in some regions of the country is partly a function of four interconnecting factors: investments made by the state and development organizations in maternal and child health; the position of children in the health and human rights movement; economic growth that has led to a better quality of life for some families; and epidemiological, social science, and public health research that has focused study and attention on children's health. The majority of the attention and scientific literature on diarrheal disease and child survival in Pakistan has been concerned with the technical strategies of survival and the quantitative determinants of mortality and morbidity (Bennett, 1995, 1998). This study presents an alternative perspective on under-five vulnerability to water-related disease hazard. While national and international policies and interventions play important roles in addressing child health problems in Northern Pakistan, the primary focus of this study is on the micro-scale in which health risk is produced, as well as the effects of livelihood and gender on children's vulnerability to diarrheal disease.

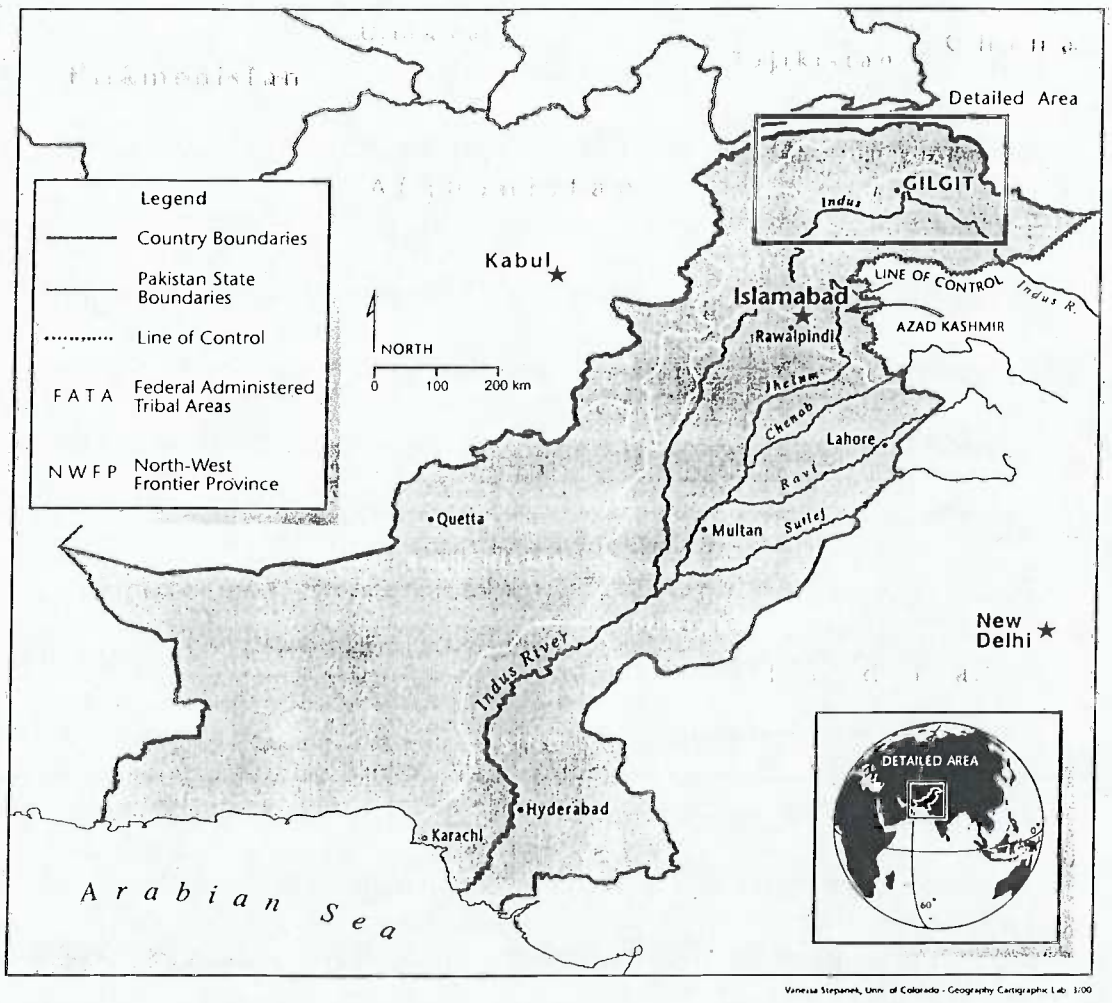

Figure 1.1 Map of Pakistan showing the study area

This project fills critical gaps in the understanding of children's vulnerability to water-related disease hazard which have not been well-addressed in the literature on hazards or on the geography of children. Until recently, children in general have been an understudied social group in the hazards field in geography. This picture is beginning to change with new directions in geographical research addressing the quality and safety of children's social and physical environments. In this dissertation, I posit that one way to approach the problem of children's vulnerability at the local scale is to focus on three interconnecting dimensions of the problem: perceptions of risk, the resources of livelihood and care-giving, and coping with disease outcomes (discussed in more detail below). This project builds upon and expands both the hazards and geography of children literatures and adds analytical complexity to the understanding of children's vulnerability by also including the theme of gender. The inclusion of gender is central to this analysis because of the crucial ways in which gender ideologies impact children's opportunities and vulnerabilities. Further, by addressing the intersecting factors of gender, livelihood, and childcare that have a bearing on disease exposure and response, this project contributes to resolving this child health problem and to saving young lives. This dissertation also contributes to policy discussions and debates concerning the directions of mountain development, approaches to reducing vulnerability, and the avenues through which women farmers might be empowered in their roles as child health and livelihood sustainers in Pakistan.

BACKGROUND: CHILDREN, VULNERABILITY, AND DIARRHEAL DISEASE IN NORTHERN PAKISTAN

The persistence and enduring nature of water-related disease hazards such as diarrhea and dysentery is a prevailing public health problem. The incredible prevalence of risk of these health problems is apparent in the data on mortality and morbidity. Despite the extensive efforts to address a range of child health concerns in recent decades, diarrheal disease continues to be one of the leading causes of mortality and morbidity in children in the developing world (UNICEF, 1998). According to UNICEF, more than two million children die annually in developing countries as a result of acute or chronic diarrhea (UNICEF, 1997). Among under-five children in poor countries, the morbidity of diarrhea is estimated to be 3.5 episodes per child annually (WHO, 1988). In Pakistan, approximately 33% of the infant mortality rate (S.R. Khan, 1997, cited in Mitchell, 1998) and 54% of the under-five mortality rate (Akram, 1997, cited in Mitchell, 1998) are associated with diarrhea. Annual health surveys carried out in Northern Pakistan indicate that water-related disease hazard is a critical issue, noting that 25% to 50% of mortality in children between one and five years of age is related to diarrhea and dysentery (AKHS,P, 1996; AKHS,P, 1997).

Which children die (reflected in mortality rates) and which children contract disease (reflected in morbidity rates) is a function of age, location, gender, health status, environmental setting, and socioeconomic well-being (Jamison et al., 1993; Mosley and Chen, 1984). Besides these local conditions, global forces (e.g., globalization and international monetary policies) have a bearing on the situation of

children in space and time and on the quality of the physical environment in which children are born and raised (Scheper-Hughes and Sargent, 1998). These conditions and forces are compounded to create notable risk inequalities between groups of children in the early years of childhood.

Not all poor children are equally vulnerable to water-related disease hazards just as the poorest people are not necessarily the ones who face the greatest risk to famine or flood hazard (Blaikie et al., 1994; Hewitt, 1997; Swift, 1989). In general, children by the mere fact of their age, dependency, and social status are vulnerable to certain sets of risks, stresses, and shocks. Diarrhea is one such shock, especially when prolonged, that upsets the balance of vital salts and electrolytes in the body that are necessary for preventing dehydration (Islam, 1996; Wallace and Giri, 1990). In young children diarrhea can increase the risk of malnutrition by compromising the body's ability to absorb micro-nutrients (Fauveau, 1994; Mata, 1992; Mitchell, 1998). Diarrhea, combined with poor diet and nutrition, is considered an important contributor to low growth rates and to keeping children in places such as Northern Pakistan at risk to other diseases such as acute respiratory infection and malnutrition (Rasmussen, personal communication, 1996). Various social forces and circumstances are certainly decisive in determining why some children, rather than others, will likely face diarrhea, dehydration and death; yet the specifics of children's vulnerability to diarrheal disease, and more specifically the causes of girls' vulnerability in relation to boys' vulnerability, remain vague.

The inequality of child mortality resulting from water-related diseases is a social fact in Pakistan. The steep social gradients in childhood risk to water-related

health hazards among the rural and urban poor have been quantified over twenty years by various non-governmental organizations such as UNICEF and the Aga Khan Health Services, Pakistan. The inequalities they have signaled over the years have been targeted as important areas for action and investigation. In the remote and mountainous northern region of Pakistan the prevalence of chronic diarrhea and dysentery among children under-five years of age has been identified as a major public health problem (AKHS,P, 1996; Directorate of Health Services Northern Areas, 1995; LeSar et al., 1990; Rasmussen and Hassan, 1989).

In the past two decades researchers and development practitioners have paid attention to the poor health status of the child population in Northern Pakistan, and the prevalence of childhood diarrhea. While data on the prevalence and impacts of water-related diseases throughout this mountainous region are limited, the direct effects of unsafe water, inadequate sanitation, and poor hygiene practices on child health have been documented by regional non-governmental organizations working in the health and development sectors (Langendijk, 1996; Muneeba et al., 1994; Rasmussen et al., 1996; van de Korput et al., 1995; WASEP, 1998). Local communities have also expressed that the prevalence of disease related to unsafe water is an impediment to their social and economic well-being (Halvorson, 1995). Recent epidemiological studies have elucidated some of the parameters of the incidence of diarrhea and the effects on child mortality and morbidity (Karim and Aqil, 1986; Sultana and Rasmussen, 1996). The social and environmental context of Northern Pakistan is frequently described as "inhospitable," and the overall health status of children in the region is found to be lower than the rest of the country

(Government of Pakistan and UNICEF, 1992). This points to differentiations in levels of poverty, resource access, isolation, and health services that creates imbalances between mountainous areas and other rural and urban areas in the rest of Pakistan, with spatial variations in proneness to diarrheal disease hazards. This dissertation seeks to extend and expand upon these studies by focusing on the social construction of children's vulnerability to water-related disease hazard in one particular local context.

The heavy toll of diarrheal disease in Northern Pakistan cannot be described only in terms of the physical drains on child health. Disease and the poor health of children exact a tremendous burden on families, communities, and the regional economy. This burden is most immediately experienced in the household and particularly by mothers who are the principal caregivers to children suffering from illness. The care of a sick child implies negative effects on a mother's individual productivity, her capacity to meet other household needs, and her overall mental and emotional well-being. Mothers along with other family members are also faced with critical decisions about how to stretch already constrained financial resources, how best to care for sick children, and how to divide the time and energy reserves of households in order to cope with frequent and/or persistent diarrheal episodes.

Securing the survival prospects of children in Northern Pakistan has been responded to by several non-governmental and governmental organizations. They have promoted new health technologies such as oral rehydration therapy (ORT) as an effective home-based treatment for diarrhea (AKHS, P, 1995). More recently, other interventions have focused on preventive measures such as improving safe water

supplies, environmental health, and sanitation at the community level (Halvorson, 1995; WSHHSP, 1995; WASEP, 1998). Additionally, community-based Primary Health Care (PHC) programs and hygiene education have become means of extending the curative and preventative components of child survival programs into areas lacking the infrastructure or the resources to maintain other health interventions besides simple health technologies. While these measures have given rise to new and important child survival paradigms and practices, their local impacts on children's vulnerability to disease hazards are not as apparent. There has been little discussion as to how to empower women in their roles as child care and health providers. Further, there is a conspicuous absence of debate about how social and economic transformations and policy orientations towards mountain development effect the intersecting factors of gender relations, livelihood, and child care that, in turn, have a bearing on disease exposure and prevention.

APPROACH OF THE STUDY

Children's vulnerability is examined in this study from the position of mothers and households[5] in Oshikhandass, Northern Pakistan. As mentioned above, the epidemiological literature charting the distribution of child diarrhea and mortality provides an important starting point for building an understanding of children's vulnerability as a socially constructed phenomenon. This objective is part of a larger project of conceptualizing vulnerability in which I argue that children's vulnerability needs to be considered as produced by the conditions of livelihood and gender. The conceptual framework is elaborated in Chapter II, where I develop the core concepts

and propose a conceptualization of children's vulnerability to health and environmental hazards.

A key conceptual question in the dissertation is: How can the concept of vulnerability be reconceptualized to explain children's vulnerability to health hazards in the local context of a "developing" country? To answer this question I consider three important dimensions of the social construction of children's vulnerability with regard to illness and disease. I see children's vulnerability as a function of: 1) caregivers' perceptions of the risk of diarrheal disease as well as children's susceptibility to this disease; 2) the ability or capacity of caregivers to respond to risk within the parameters of their access to the resources of livelihood and childcare; and 3) caregivers' coping with child health crisis and disease outcomes. I suggest that the study of these three dimensions of children's vulnerability should center on the household scale and assess the everyday experience of children and their families. It is within households where choices over resource allocation are made, key decisions regarding the treatment of an ill child are taken, and the moments of child death due to diarrhea are most perceived.

The first dimension of this analysis of children's vulnerability addresses the effect of perceptions, or what I am defining as the awareness of risk or hazard, on the response to that risk or hazard. This dimension concerns specifically how caregivers perceive or subjectively evaluate aspects of risk and disease exposure to which children are susceptible. The susceptibility of infants and young children to dangerous pathogens underscores their vulnerable physical condition. Their physical susceptibility is, in part, a function of the virulence of some disease organisms. In a

developing country context, a long list of risk-posing water-related diseases caused by parasites (e.g., *Giardia lamblia),* bacteria (e.g., *Vibrio cholera),* and viruses (e.g., rotaviruses) assault young bodies (Table 1.1).

Table 1.1 Classification of water-related infections

Category	Infection	Pathogenic Agent[1]
1. Fecal-oral (waterborne or water-washed)	Diarrheas and dysenteries	
	Ameobiasis	P
	Campylobacter interitis	B
	Cholera	B
	E.coli diarrhea	B
	Giardiasis	P
	Rotavirus diarrhea	V
	Salmonellosis	B
	Shigellosis (bacillary dysentery)	B
	Enteric fevers	
	Typhoid	B
	Paratyphoid	B
	Poliomyelitis	V
	Ascariasis (giant roundworm)	H
	Trichuriasis (whipworm)	H
	Strongyloidiasis	H
	Taenia solium taeniasis (pork tapeworm)	H
2. Water-washed:		
Skin and eye infections	Infectious skin diseases	M
	Infectious eye diseases	M
Other	Louse-borne typhus	R
	Louse-borne relapsing fever	S
3. Water-based:		
Penetrating skin	Schistosomiasis	H
Ingested	Dracunculiasis (guinea worm)	H
	Clonorchiasis	H
	Others	H
4. Water-related insect vector:		
Biting near water	Trypanosomiasis (sleeping sickness)	P
	Filariasis	H
Biting in water	Malaria	P
	Onchocerciasis (river blindness)	H
	Mosquito-borne viruses	
	Yellow fever	V
	Dengue	V
	Others	V

[1]B: bacterium; P: protozoan; S: spirochete; M: miscellaneous; H: helminth; R: rickettsia; V: virus.
Source: Adapted from White et al., (1974) and Nash (1993).

Exposure of children to these waterborne diseases is a function of geography as well as the complex interactions between behavioral, socio-economic, environmental, and spatial factors. For example, factors such as the child's age, physical status, position with regard to social and material life, and the activities of the household setting in which they are born and raised have a bearing on disease exposure and susceptibility. Significantly, the gender of children and the structure and type of care and resources provided to girls and boys can also affect patterns of differential exposure (Elahi, 1993; Fauveau, 1994). The nature of exposure to diarrheal diseases has been extensively studied elsewhere and is not a central focus in this study. Instead, the focus here is on the role of local perceptions of disease risk in providing insights into the circumstances of exposure and response to this health hazard at the household scale. These perceptions, as filtered through the values of a local culture of health care, result in various responses to this disease hazard. Chapter V concentrates on this aspect of the problem.

The second important aspect of this dimension regards the capacity to respond to this particular health risk. A critical starting point for understanding the capacity to respond to risk and child health uncertainty is to center attention on care giving. To analyze mothers' care giving in the context of rural livelihoods, one key concept used to guide the analysis is *the resources of livelihood and care-giving.* In this dissertation resources are broadly defined and include a range of tangible and intangible resources that facilitate childcare. Resources include not only the material resources such as income, but also a range of human and social resources (or capital) which serve to enhance the ability of mothers to provide care. Implicit in this

understanding of resources is the idea that resources are, as Kabeer (1999:437) states, "acquired through a multiplicity of social relationships conducted in the various institutional domains which make up a society (such as family, market, community)." *Access to resources* has implications for the ability of mothers and households to reduce and/or cope with risk. Access to resources is understood as the ability of individuals and households to acquire and to use resources that are necessary to secure and maintain child health. The premise here is that less access to certain types of resources leads, for example, to increased vulnerability of children to childhood diarrhea. This aspect of the problem is addressed in Chapter VI.

Linked to this understanding of vulnerability and access to resources is the third dimension of children's vulnerability which concerns the issue of *coping*. Coping can be defined broadly as the manner or process by which an individual, household, or community responds within a range of resources and expectations to obtain a particular end result (Blaikie et al., 1994). In this study, coping means what individuals and households decide to do or plan to do, given a certain set of resources, when faced with child health crisis due to diarrhea, dysentery, and dehydration. Children who are five-years of age or younger are unique because they have little power beyond their own physical capacity and resistance to cope with diarrheal disease. In overly simplistic terms, once micro-organisms and parasites are ingested, a child's body fires its own line of defenses. If symptoms worsen and complications such as diarrhea, vomiting, and dehydration rapidly ensue, the coping shifts to the primary care givers, namely family members and mothers, and their capacity and capability to deal with a young child's condition.

By focusing on how individuals and households cope with childhood illness, an understanding of the ways that people mitigate child health risks is developed. There are two aspects of gender that are central to this dimension. One aspect is the sex of the child and the role that gender ideologies play in motivating response to diarrhea episodes experienced by girls and boys. The second aspect of gender concerns how gender relations operate within the household to influence the types of social and economic resources mothers can draw upon in their care and coping with regard to childhood illness. This third dimension of the conceptual framework – coping with the health outcome of a diarrhea episode – reflects the gendered processes guiding the care, treatment, and the choice of action in response to a child's condition.

The social complexities surrounding this dimension of children's vulnerability converge in powerful and disturbing ways when children under five years of age die of diarrhea. I suggest that the health outcomes of childhood illness reflect the gender relations of resource access and coping. Policies and programs to reduce children's vulnerability—to make child health more secure—are not the same ones addressing the gender aspects of access to resources and coping. Nor do they address the gender relations and structures of power within households that are central in shaping how families cope, i.e., choose to act, in the face of child health crises. This aspect of the analysis is critical to identifying a range of potential individual and collective actions to reduce children's vulnerability and to improve child survival in the region.

In addressing the dimensions outlined here, children's vulnerability is viewed as engrained in everyday social relations at the local scale. Although the household

environment of health risks has been the topic of numerous studies, the dimensions of children's vulnerability as constructed at the local scale have been less treated in the literature. The crux of the argument is that vulnerability to diarrheal disease means that children stand to experience illness to varying degrees, based on their position in the social, spatial, and material geographies of families and households.

Failure to distinguish these dimensions of vulnerability has serious consequences. One consequence is that the stereotypes of poor and helpless disease-stricken children are sustained. As a result, factors such as the child's age, ethnicity, caste, class, religion, and gender and how these factors intersect with vulnerability are obfuscated. Diarrheal disease hazard is linked to poverty, but more fundamentally, it is related to social relations and the circumstances of exposure and coping. Poverty may put children at risk of water-related diseases, but it does not explain the discrepancies in the provision of care they might receive within families and communities.

A second consequence of the failure to distinguish these dimensions of children's vulnerability to water-related disease hazard is that the important distinctions between caregivers and their capacity to respond and cope with risk are ignored. Ignoring the crucial distinctions in the forms and quality of care giving results in the failure to recognize the values, actions, and decisions that shape family members' response and coping. Vulnerability of children, perhaps above all other factors, involves the role of the perceptions of parents of the exposure of children to disease as well as caregivers' access to resources to help children recover from illness following exposure. Hence, to understand children's vulnerability one must look into

the internal functionings of the household, the livelihood system, and gender relations. These are critical aspects of the social context influencing a child's life and his or her ability to avoid or withstand particular health stresses.

Clearly, I cannot claim a general representativeness, especially not in a comparison between Oshikhandass and villages in the down-country plains of Pakistan or in other parts of South Asia. I do feel, however, that the experience of households in Oshikhandass is far from singular with regard to the problems of diarrheal disease and child health uncertainty faced by mountain communities in the developing world. My analysis offers one approach to addressing vulnerability not at the large scale at which epidemiologists, public health practitioners, and population researchers often assess child health problems, but at the scale at which care givers and their families commonly respond to the immediate risks of health hazards. In this manner, I bring together feminist empirical research on child health in Northern Pakistan in order to argue for extensions to existing hazards theory. I further argue that understanding children's vulnerability requires culturally specific research, and it is for this reason that I draw on empirical research from Oshikhandass to illustrate these ideas.

THE RESEARCH CONTEXT: OSHIKHANDASS, NORTHERN PAKISTAN

The theoretical questions raised in this dissertation are explored using data drawn from intensive interviews and household studies in the community of Oshikhandass, District of Gilgit in the Northern Areas of Pakistan (Figure 1.2).

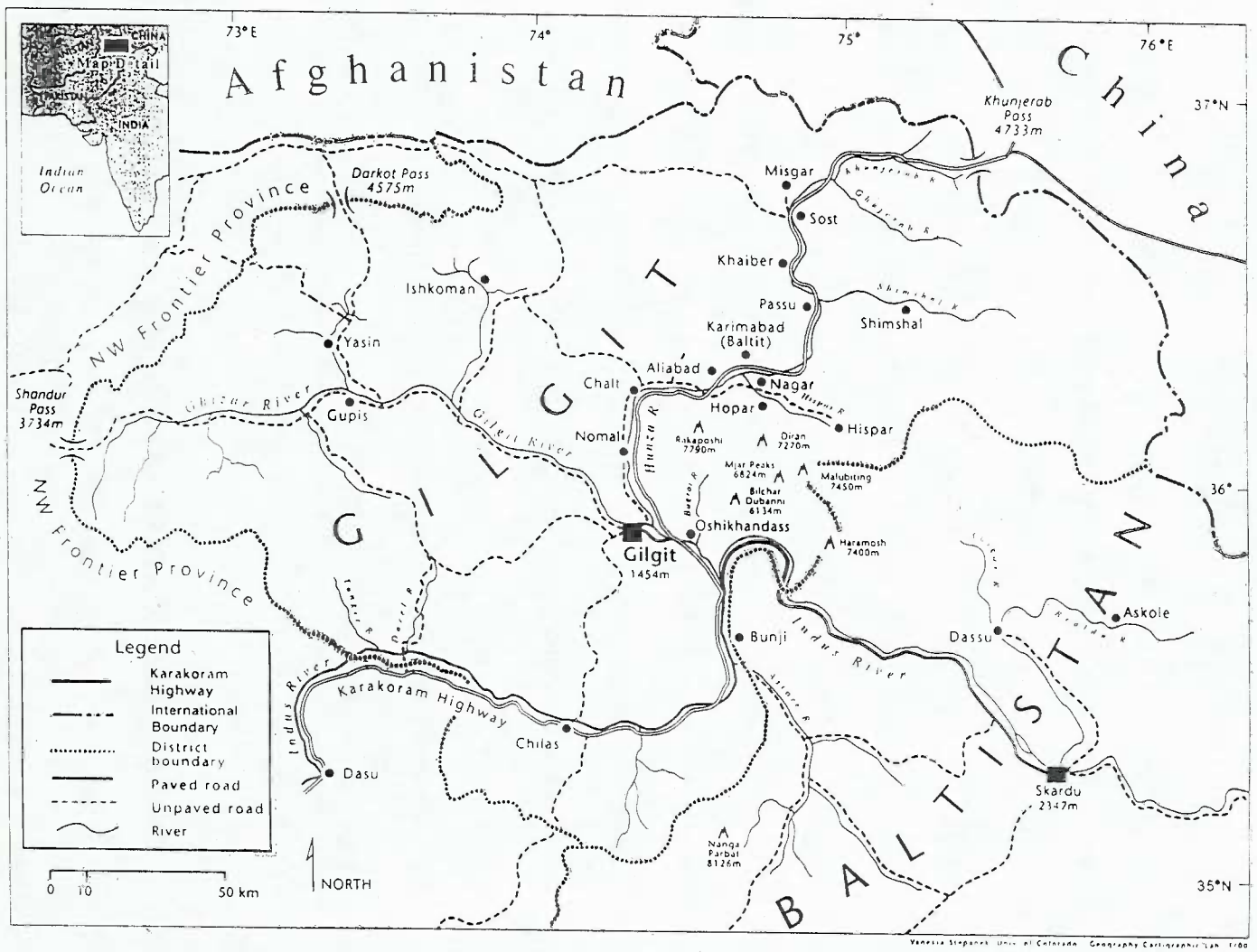

Figure 1.2 Map showing the location of Oshikhandass in the District of Gilgit, Northern Areas, Pakistan

Oshikhandass is located on the mountainous margins of a country, which by human development categories, is considered to be "low income" (UNDP, 1997).[6] Indeed, the few efforts contributing to meeting basic needs in Pakistan are extremely incremental and poorly coordinated. With an average life expectancy of 62 years, an under-five mortality rate of 136 per 1,000 (UNICEF, 1998), and an adult literacy rate of 38% (50% for males and 24% for females), Pakistan is ranked in the "poor human development" category (UNDP, 1997). When the definition of poverty is taken to mean "minimum income," then a quarter of Pakistan's population is below the poverty line (ul Haq and ul Haq, 1998). Nearly one half of the estimated 140 million people living within the country's borders are deprived of vital opportunities for education, clean drinking water, proper sanitation, health care, job security, material well-being, and political freedom (ul Haq and ul Haq, 1998).

One key factor in explaining the profile of poverty and deprivation in Pakistan is the indifferent role played by the government towards land reform, expansion of basic services, and the distribution of benefits from economic growth (ul Haq and ul Haq, 1998). As the country stumbles into economic crisis and intensifying debt, it is no surprise that international organizations are concerned about investing new resources in a country marked by state corruption, sectarian violence between Shi'a and Sunni Muslims, and extreme mismanagement of the economy. One positive note, though, is that the overall rural-urban poverty gap (48.1% in rural areas and 34.9% in urban areas) has narrowed since the previous decade as a result of some improvements in literacy and the provision of water, roads, health services, and credit

systems (ul Haq and Haq, 1998). This suggests that the concentration of the poverty burden in rural areas has decreased somewhat.

Despite some inroads made by the state towards meeting basic needs, child survival rates remain tenuously low in rural and urban areas. The causes of death are varied, but diarrhea, gastro-intestinal diseases, pneumonia, and malnutrition are common killers throughout Pakistan. Diarrheal diseases alone are estimated to cause 250,000 child deaths per year (UNICEF, 1997). This serious public health problem is linked to unsafe drinking water, adverse environmental health, and poor domestic hygiene practices. A transformation in this disease pattern can only take place through a commitment to improving the health infrastructure and the inter-related socioeconomic problems.

Cutting across, and often exacerbating, the major deprivations in social, political and economic realms are gender disparities. These disparities and the gender relations supporting them are institutionalized at every level of social activity and governance, from the household and the market, to local and state policy-making (Weiss, 1992). For a woman in a typical rural Pakistani household, participation in any form of economic activity, mobility outside the home, and personal autonomy are determined by local and state norms and policies. The public schools, the state-controlled PTV station, and the mosques all impart messages about women's *sharafat* (honor) and *izzat* (respectability) which uphold and reinforce men's powerful position within marital arrangements and in public life. These gender relations combine with economic and resource constraints to dramatically affect women's capacity to deal

with childhood illness. This issue will be addressed more thoroughly later in the dissertation.

Focusing more closely on the Northern Areas, a key issue to note is that this region, historically characterized as remote, impoverished, and "backward", has been part of a larger nation-building project. The state-sponsored construction of the Karakoram Highway, completed in 1978, encouraged trade and political relations with China and served to more solidly incorporate this disputed mountainous land into Pakistan's "official" territory (Allan, 1989). The spin-offs have been remarkable: a flourishing tourism industry, trade and commercial activity with the markets of Punjab and Sindh as well as Central Asia and China, infrastructural improvements, and the introduction of basic needs programs through government and non-governmental initiatives (Kreutzman, 1993). These changes have brought transformations in the region's social organization, mountain livelihood systems, and gender divisions of labor. For example, the distribution of economic benefits is leading to greater social stratification along class, ethnic, and religious lines. Additionally, male out-migration has increased as men seek off-farm wage labor, thereby causing an intensification of women's agricultural workloads. It is important to keep in mind, though, that government insolvency and economic instability continue to force the majority of mountain families to rely on local resources and family-based coping strategies. This reliance on local agricultural resources and local coping strategies characterizes, in particular, the case for women farmers who are economically and socially disadvantaged.

The circumstances that transform environmental hazards such as water contamination into infections and epidemics are closely linked to economic and social processes in the Northern Areas. Provisions for maternal and child health, which prior to the 1980s were virtually non-existent, have become more accessible in some mountain valleys and in communities such as Oshikhandass. Despite these changes in the health infrastructure, water and sanitation provision is severely lagging as most households rely on poor quality irrigation water to meet their domestic needs. As noted in Chapter V, for both men and women in the study site, the short and long-term impacts of poor environmental health on children are perceived to be serious concerns. Yet, ultimately, men are not responsible for their children's health maintenance. At the household scale, traditional gender divisions of labor ascribe health-related work and care-giving to women. Hence, women confront the crises in family health quite differently than men. Crises, as in the case of severe childhood diarrhea, create a situation in which the gender disparities underlying everyday life are further compounded. As one might expect, these issues surrounding the treatment and care of children in the home are often invisible to policy makers and development practitioners.

The points raised above about deprivations, changes in livelihood, and the implications for women's capacity to deal with childhood disease apply to the study community. In one sense, the pathways of social "development" in Oshikhandass -- electricity, paved roads, schools, and a health clinic – are symbolic of "modernity" and certainly reflect a greater state and NGO presence in the Northern Areas. At the household scale, male out-migration and changes in household structure have led to

profound changes and new tensions within families; however, many traditional social and cultural norms upholding traditional structures of resource allocation and decision-making persist or are deepening. The perceptions of male authority, the boundaries creating gendered space, and the ideas about the value and place of girls and women remain rigidly entrenched. The dominant development paradigm operating in the region effectively legitimizes men's monopoly over household decision-making despite some attempts to incorporate gender issues into agriculture, forestry, and credit programs. Meanwhile, efforts to build women's child care-giving capacity at the household level lack clear definition and coordination as men continue to be defined as the providers and maintainers of family well-being and child health even in spite of their physical absence from households and communities during parts of the year.

The features briefly mentioned here make the community of Oshikhandass a distinct setting for investigating the linkage between children's vulnerability to diarrheal disease. On the one hand, diarrheal disease and early childhood health have been addressed by a set of public sector interventions aimed at decreasing infant and child mortality rates in the community. At the same time, children's vulnerability in this community continues to be powerfully influenced by social relations, household livelihood strategies, and child care practices which are constructed along gender and generational lines, sanctioned by local custom, and reinforced by socio-cultural and religious institutions. These intersecting issues are addressed using data from a relatively small number of households (total of 30) and interviews with mothers and

other key informants in Oshikhandass. A greater elaboration of the methodology and data sources is provided in Chapter III.

ORGANIZATION OF THE DISSERTATION

This dissertation is divided into eight chapters. Chapter II presents a review of the literature on vulnerability. It begins by highlighting the core concepts and theoretical frameworks for studying vulnerability and the ways in which vulnerability is socially constructed. The review is concerned mainly with the geographic literature on vulnerability since much of the current research on risks and hazards grows out of this tradition. In this chapter I make a case for expanding the notion of vulnerability to include the unique vulnerabilities of under-five children. I argue that past approaches to conceptualizing and modeling vulnerability in hazards geography recognize the crucial role of social context in the vulnerability process, but are not wholly adequate for examining the dimensions of children's vulnerability in general or in the particular situation of disease and environmental health hazards in the study site. The last section of the chapter is devoted to building a case for conducting qualitative studies that examine the social and cultural construction of children's vulnerability in the context of everyday life. To this end, the chapter presents a conceptual framework for analyzing children's vulnerability to diarrheal disease in Oshikhandass, Pakistan.

Chapter III presents an overview of the methodology employed in this study. It provides a discussion of the rationale for adopting an ethnographic approach to carrying out this research. The methods employed in selecting the field site, the study

households, and the focus groups are outlined. The process of interviewing and analyzing the interview data are detailed. In addition, I address several methodological dilemmas encountered during the gathering of narratives and in the narrating of mothers' lives and child health realities.

Before turning to the empirical research, Chapter IV develops a narrative of the historical and local geographical context necessary to situate the analysis of children's vulnerability to diarrheal disease in Northern Pakistan. It centers on a description of three periods in the history of Oshikhandass and traces several broad trends in health, development, and community dynamics that have implications for the contemporary child health situation. Of greatest concern are the settlement history, the transformations in health and livelihood, the socioeconomic changes affecting households, and the growing importance of the state and non-governmental organizations in linking Oshikhandass to wider national and international child health and development policies and programs. The last part of the chapter provides demographic and socioeconomic information about the households that participated in the study.

Chapters V, VI, and VII describe the findings derived from the analysis of empirical data. Chapter V is idealist in approach and considers the local meanings of diarrheal disease in the broader context of concerns about health and vulnerability. In particular, the chapter draws attention to how mothers conceptualize diarrheal disease risk in relation to existing concerns about children's health and security. It suggests that mothers' interpretations of childhood diarrhea are rooted in local definitions of health and well-being. This examination of local perceptions and meanings of

disease, illness, and health contributes to an understanding of the factors that enhance or constrain how risks are locally articulated and responded to in this context.

The next chapter, Chapter VI, takes a materialist approach and develops a central thesis of the dissertation that children's vulnerability reflects, in part, the structure of livelihood and childcare within the household. It examines a range of resources, as well as the nature of access to these resources, in two sets of study households. A comparison of the resource characteristics of these households reveals the differential capacities of mothers to influence the risk environment. The argument is made that mother's access to the resources of livelihood and childcare have a significant effect on the construction of children's vulnerabilities to diarrheal disease. The chapter focuses on the complex processes by which women's access to resources is constructed, negotiated, and redefined in a changing social and cultural context. Further, local networks of mutual assistance and support are shown to be one set of resources arising out of the cultural and social context that have the potential to foster a reduction in children's vulnerability to diarrheal disease. The chapter concludes by highlighting how resource strategies reflect patterns of social interaction, exclusion, and dependence, whereby women's options for meeting the dual demands of child health and livelihood are either enhanced or constrained.

Chapter VII addresses the most extreme outcome of being vulnerable – child death. Drawing on four mothers' narratives of the death of their children, the chapter demonstrates how two factors -- gender ideology and the social relations of response to childhood diarrhea -- are instrumental in shaping illness outcomes. Two of the four accounts of child death provide a ground-level view of how gender relations and

discrimination influence particularly girls' vulnerability to disease hazard. The approach to these two accounts disaggregates the category of "children" and adds analytical complexity to the discussion of vulnerability by looking at how the vulnerability of girls and boys is differentially constructed. The remaining two accounts suggest the many ways that social relations of response to childhood illness can operate to constrain women's care and access to resources, thereby making them dependent on male decision-makers and men's incomes and weakening their position as child health care providers in the household. These case histories are based on the poignant details that remain salient to the mothers in the many months following their children's deaths.

In Chapter VIII I return to the main theoretical considerations underlying this analysis of children's vulnerability. I weave together the findings from the empirical chapters to articulate some of the theoretical and practical implications of the study for hazards research and for rural development. I reflect on the future directions of research and how these align with current discussions in the discipline of geography. These discussions relate to the role of perceptions in motivating response to environmental health problems, the effect of gender on access to resources, and the role of social capital and social networks in responding and coping with risks and hazards.

ENDNOTES:

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[1] This name as well as all of the other names employed in this dissertation are pseudonyms.

[2] This figure is based on data for mid-1998 and represents the percentage of the population in least developed countries that is under the age of 15. The percentage of the population under age 15 of the total world population for mid-1998 is 30 percent (United Nations Statistics Division, 1998).

[3] From 1983 to 1992 the number of under-five child deaths from dehydration caused by diarrheal disease was cut from 4 million to less then 3 million. One of the main reasons to explain this decline has to do with the increased use of oral rehydration therapy (ORS) to combat dehydration (UNICEF, 1994). In 1997 UNICEF (1997) reported that the number of deaths related to diarrhea dropped to 2 million. While diarrhea-related mortality rates among children under 5 years of age have been reduced, the diarrhea-related morbidity rates have remained largely unaffected (Molbach, 1997 cited in Mitchell, 1998; Ruxin, 1994).

[4] This basic definition of vulnerability grows out of a large body of work devoted to defining and clarifying the meaning of vulnerability. A review of this work is provided in Chapter II. For more detailed discussions of vulnerability and the vulnerability perspective, see Blaikie et al. (1994), Cutter (1996), and Hewitt (1997).

[5] For the purposes of this study, households include the individuals, usually kin relations, who pool their resources (e.g., incomes, land, labor, support) together. However, it is important to recognize that the definition of what constitutes a household, how resources are allocated within a household, and how decisions are reached among household members are extremely complex issues and differ greatly depending upon social context. A large body of feminist scholarship has been devoted to defining households in various contexts. See, for example, Agarwal (1994), Carney (1988), Folbre (1986), Kabeer (1994), and Silvey (1997).

[6] In a recent report published by the Human Development Centre in Pakistan, the region of South Asia (Pakistan, India, Bangladesh, Sri Lanka, Bhutan, and the Maldives) was rated as "the poorest, most illiterate, the most malnourished, and the least gender-sensitive region in the world" (ul Haq and ul Haq, 1998:14).

CHAPTER II

SITUATING CHILDREN'S VULNERABILITY IN THEORY AND PRACTICE

INTRODUCTION

Vulnerability is part of the vocabulary of exposure to disease and health hazard. In the discipline of geography, for instance, the scope of concern and knowledge about vulnerability and disease has broadened in recent decades (Hewitt, 1997:157-164). There has been an explicit interest in the study of how individuals and populations perceive, cope with and respond to disease as a hazard (Lewis and Mayer, 1988). The salient issues and concerns that arise from the study of health hazards, either from human ecology, disease ecology, or health geography perspectives, are central to the discipline as well as the wider social sciences. The issues taken up have received focus in public health policy, environmental justice, and development literatures. While the contemporary contributions are many, disease and health are ancient environment-society concerns as demonstrated by Hippocrates' famous manuscript On Airs, Waters, and Places written over 2,000 years ago. This text laid the foundations of Western views of disease, health, and geography. Since

that time, science has sought to unravel the forms and associations between people, place, and health (Kearns and Gesler, 1998).

A major theme arising from the study of disease as hazard is that the impacts of disease are usually unevenly distributed between people, social groups, communities, regions and within and between nations. Over the past decade the issue of vulnerability has become a rallying point for research on the impacts of natural, biological, and technological hazards (Hewitt, 1997). It has been argued that vulnerable people and groups are likely to suffer a disproportionate share of the effects of health hazards. In this sense, vulnerability is certainly relevant to the debates surrounding social justice, gender equity, environmental relations, and sustainable development. Beginning with this concept, it is possible to work towards a framework for examining the dimensions of children's vulnerability to diarrheal disease hazards.

In this chapter I chart out some of the core concepts of vulnerability and how vulnerability has been conceptualized in recent decades. I review the important intellectual and practical contributions made to the development of definitions and causal models of vulnerability that are useful for this project. The review especially draws on numerous studies in geography that have addressed vulnerability to environmental hazards. This body of literature reflects the international shift from the view of natural hazards as isolated events to a broader conceptualization of hazards as socially produced phenomena. In the last section of the chapter I consider some key issues regarding the vulnerability of children, and then address more specifically several dimensions of the construction of children's vulnerability to diarrheal disease.

An argument is made for the use of social and cultural theories of vulnerability in the examination of the ways in which infants and young children experience health risks and hazards.

VULNERABILITY: PERSPECTIVES ON MEANINGS AND MODELS

In examining the relationship between disease hazards, child health, and the micro-levels of livelihood and care giving, the concept of vulnerability is an important starting point. The idea of vulnerability has emerged as an important and distinctive interpretation of risks, hazards and disasters (Hewitt, 1997). It is also a central concept in assessments of potential damage and loss and in the development of hazard mitigation strategies. Significantly, an increasing number of publications and meetings have emerged on this topic in recent decades. As a subset of the larger discourse of environmental hazards, the body of vulnerability literature seeks to explain why societies and social groups are vulnerable to risks and disasters, and whether they are becoming more or less vulnerable to extreme events (Cutter, 1996).

Meanings of Vulnerability

> Vulnerability is the state of powerlessness in the face of a known or unknown hazard. (O'Riordan, 1990:295).

While vulnerability is a key concept in environmental hazards and development research, its meaning remains vague despite the growing amount of work on the topic. Research on vulnerability has included a broad range of topics including, but not limited to, hunger and the socioeconomic conditions leading to

famine and food insecurity (Bohle, 1993; Bohle and Hallberg, 1994; Watts, 1983; Wisner, 1988), natural hazards (Blaikie, 1985; Blaikie and Brookfield, 1987; White, 1945, 1974), diseases and health hazards (Wilson et al., 1994), and human impacts of global environmental change (Chen, 1994; Clark et al, 1998; Liverman, 1990; Wescoat, 1993). In the discipline of geography, vulnerability studies have been undertaken for almost two decades in countries like Bangladesh, Nepal, Nigeria, Burkina Faso, and the U.S. (Mitchell et al., 1989).

As the definitions of what constitutes an environmental and social hazard have expanded in recent decades, the application of the concept of vulnerability in risk and hazards studies has been increasingly expanded as well. The collective results of this work has led to the development of explanatory frameworks, the identification of a range of major conceptual and theoretical concerns, and the building of a general understanding of vulnerability. The concept has been applied in a wide range of contexts to examine the characteristics of people, social groups, and societies and the conditions and processes of susceptibility to environmental hazards acting among and upon them. Within the social science hazards literature, however, the concept of vulnerability is still not clearly defined or theorized, and consensus about its meaning and its measures has not been reached (Watts and Bohle, 1993; Cutter, 1996). Indeed, as Chambers (1989) and Anderson and Woodrow (1989) note, the term is often employed synonymously with descriptions of the poor, poverty, and underdevelopment. As a result, the current use of the term: 1) lacks the analytical power to clearly explain the causal mechanisms behind vulnerability; and 2) lacks the

power to effect policy and planning because its theoretical underpinnings and accepted indicators have not been clearly articulated in the literature.

The question of the definition of vulnerability is a particularly problematic one noted in the risk and hazards literature. A basic and broad definition of vulnerability is the proneness or susceptibility to damage or loss. While this definition seems straightforward enough, Cutter (1996:530) argues that it "never clearly articulates what type of loss and whose loss we are describing." In the mainstream hazards research paradigm, vulnerability has often been considered a "hypothetical" and "predictive" term which can only be proven or verified when a hazardous event occurs (Blaikie et al., 1994:58). In other cases it simply explains exposure to hazards, or what Liverman (1990) describes as "being in the wrong place at the wrong time." As theoretical orientations (e.g., human ecology, political ecology, feminist theory), methodologies (e.g., GIS, qualitative, historical, descriptive), and foci of study (e.g., floods, droughts, disease, technology, war) have changed and diverged in time, so too have the definitions of vulnerability continued to change and differ (Cutter, 1996).

Examples of how vulnerability has been approached can be broadly grouped. Some approaches describe vulnerability as tied to the likelihood of risk and exposure to a specific biophysical event (e.g., earthquakes, floods, or drought), and the degree of loss associated with the probability of the occurrence of that event. Other examples explain vulnerability to risk and disaster in terms of external agents and their impacts (Burton, Kates and White, 1992; Cutter and Solecki, 1989; and Hewitt and Burton, 1971). Some discuss vulnerability in relation to differential outcomes of disasters such as the impacts of drought or famine on marginal social groups (e.g., rural

farmers, urban poor, women, children) and the ability of these individuals or social groups to resist and respond (Blaikie et al, 1994; Chambers, 1989; Chen, 1994; Hewitt, 1997; MacDonald, 1994; Watts and Bohle, 1993). Another set of definitions which Cutter (1996) describes as an emerging direction in the literature conceptualizes vulnerability as both potential exposure to a biophysical risk and a society's ability to cope within the bounds of a specific location or geographic space. This conceptual approach to defining vulnerability includes the work by Blaikie and Brookfield (1987), Lewis (1990), Liverman (1990), and Dow (1996).

In effect, the culmination of work on vulnerability has led to an emerging "vulnerability perspective" that symbolizes a departure from the established hazards research paradigm in geography and other social sciences (Cutter, 1996; Hewitt, 1997). Until recently, the mainstream hazards paradigm has predominantly focused on either the study of physical processes as they affect human communities and societies or phenomenological approaches to the study of perceptual and behavioral aspects of human-disaster interactions. Within this orientation, the distribution and variability of risk and loss has been viewed as directly related to the magnitude of the hazard event. Indeed, the underlying factors or processes which lead to the social construction of vulnerability within societies have been largely overlooked. As Hewitt (1997:142) puts it, "losses have been viewed as 'indiscriminant' and survival as a matter of chance." In challenging this viewpoint, scholars have employed the concept of vulnerability to expand the hazards research paradigm and to provide an alternative "vision" of how vulnerability and hazard operate. This vision places

emphasis on "the ways in which social systems operate to generate disasters by making people vulnerable" (Blaikie et al., 1994:11).

The various definitions of vulnerability have been previously cataloged (Cutter, 1996). Therefore, I will briefly mention five definitions put forth by authors working from critical perspectives on the social construction of vulnerability. I argue that definitions are the most relevant to research on how children's vulnerability to disease hazard is linked to the issues of livelihood, childcare, and gender that are of concern in this study. First, Chambers (1989:1), in addressing issues surrounding environment and development, defines vulnerability as "exposure to contingencies and stress, and difficulty in coping with them." His definition gives particular attention to the nature of people's internal capacities (or incapacities as the case may be) to reduce vulnerability and insecurity in the face of crisis. Chambers (1989:1) states:

> Vulnerability has thus two sides: an external side of risks, shocks, and stresses to which an individual or a household is subject and an internal side which is defenselessness, meaning a lack of ability to cope without damaging loss. Loss can take many forms – becoming or being physically weaker, economically impoverished, socially dependent, humiliated or psychologically harmed.

He highlights the conditional nature of vulnerability, noting that increases in vulnerability concomitantly lead to reductions in security for individuals and households. He adds a cautionary note that is very relevant for assessing child health risks in Northern Pakistan: the definitions of vulnerability posited by Western/elite researchers can easily be distorted or over-simplified when local perspectives and

interpretations, especially those of the poor, are not taken into account when establishing the criteria of well-being, deprivation, loss, and defenselessness.

A second definition comes from the work of Watts and Bohle (1993). When Watts and Bohle (1993:45) define vulnerability, they distiguish three aspects or "coordinates" of vulnerability: "(1) the risk of exposure to crises, stress and shocks; (2) the risk of inadequate capacities to cope with stress, crises and shocks; and (3) the risk of severe consequence of, and the attendant risk of slow or limited recovery from crises, risk and shocks." Hence, their definition of vulnerability is based on three inter-related terms -- exposure, capacity, and potentiality. In this perspective, vulnerability reflects an aggregate level of human well-being and the social, economic, political, and environmental exposure to "harmful" risks and disasters (Bohle, Downing, and Watts, 1994). To really understand the nature of vulnerability, these authors call for a "careful disaggregation" of the structure of poverty itself through a sensitivity to temporal and geographical scales of variability, including a recognition of how different social groups experience and recover from perturbations.

In an attempt to further refine the definition of vulnerability, Blaikie et al. (1994:9) posit that vulnerability means:

> ...the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone's life or livelihood is put at risk by a discrete and identifiable event in nature or in society.

This definition implies that some individuals, households, social groups or communities are more prone than others to damage, loss, and suffering, as well as more (or less) constrained in their ability to cope with the destabilizing effects of

disasters and hazards. In this view vulnerability involves the complex inter-relations of factors that influence the degree to which people's lives and livelihoods are put at risk by the impacts inherent in natural hazards. Livelihood is an important component of their definition because it highlights the important ways livelihood shapes an individual's, a household's, or a community's command or access to opportunities (in the form of income, land, social networks, etc.) to deal with or recover from the impacts of hazards and disasters.

A fourth definition is found in Hewitt's (1997) Regions of Risk. Working from a human ecology perspective of risk, Hewitt describes vulnerability as embedded in and dependent upon the social geography of communities, the spaces of economic and political organization, environmental use, the distribution of power, and the moral frameworks of civil society. His definition stresses that vulnerability is socially produced through forms of powerlessness and social inequalities, and argues that empowerment may be the key to increasing people's security. This perspective treats vulnerability as one of the "elements" of risk that can reveal important aspects of the origin and nature of damage, loss, and survival. Hewitt suggests that the forms or degrees of vulnerability arise from people's situational realities that often have very little to do with the causes and patterns of hazards, yet they are key to the impacts of risks. Table 2.1 describes the some basic forms of vulnerability that reflect broader patterns of societal conditions and the characteristics of people.

Table 2.1. Some Basic Forms in Which Vulnerability Arises (Hewitt, 1997:27)

1. *Exposure to dangerous events* and environments.
2. *Weaknesses:* predisposition of persons, buildings, communities or activities to greater harm.
3. *Lack of protection* against dangerous agents and for weaker persons and items.
4. *Disadvantage*: lack of resources and attributes to affect risks or respond to danger.
5. *Lack of resilience*: limited or no capability to avoid, withstand or offset and recover from disaster.
6. *Powerlessness*: inability to influence safety conditions, or acquire means of protection and relief.

A final, alternative definition that is particularly appropriate for examining gender and vulnerability comes from feminist theory and gender scholarship. This literature treats the definition of vulnerability in relation to gender and seeks to redress the historical marginalization and under-representation of women in studies of environmental risk and hazards (Cutter, 1995; Fothergill, 1996; Rocheleau et al., 1996). It builds on a large body of evidence that points to the socially marginal position of women resulting from anti-female biases, patterns of exploitation, and social inequalities that are found to be amplified during crisis and disaster (Agarwal, 1990; Kabeer, 1994; Sen and Grown, 1987; Shiva, 1989). Pioneering research on hurricanes, drought, food security, famine, and environmental crisis have found gender to be a key marker of different kinds of social inequalities (e.g., unequal access to resources), discrimination, and outcomes during and after disasters that render women more at risk than men (Cutter, 1995; Downs et al, 1991; Gray, 1993; Morrow and Enarson, 1996; Schroeder, 1987; Seager, 1993).

Most importantly, this body of scholarship defines a specific *gender vulnerability* as a process rooted in the idea that people's capacities to avoid or cope

with disaster results from complex issues of gendered forms of domination, ideological practice, and socioeconomic and political power. Schroeder (1987:33), for instance, articulates gender vulnerability to be "the inability to prepare, adjust, or adapt due to constraints inherent in a particular form of gender relationship." While the focus on gender has been suggested and is somewhat underway in vulnerability research in geography, gender has not been consistently infused into definitions of vulnerability. This study attempts to illustrate how a gender-based definition of vulnerability is one way to analyze the pervasive and vast asymmetries in vulnerability and the gendered nature of exposure, coping, and recovery.

These definitions, taken as a whole, suggest two directions of thinking about the social production of vulnerability. One direction is the need to give close examination to people's social situations as they influence abilities and capabilities to cope and recover from an environmental hazard. These views of vulnerability challenge the notion that people are passive victims of disaster, but rather raise important questions about the agency of people when exposed to risk, and the way that social forces can improve or impinge people's capacities to cope with and recover from calamity. Along this line, these definitions underscore the centrality of people's capabilities and defenses in the ways in which vulnerability is produced. A second direction underscores the idea that vulnerability is created out of daily life (Wisner and Luce, 1993). This line of thinking suggests a general view that recognizes the impacts of environmental hazards as dependent upon the everyday relations that people have to each other and to the environment (Hewitt, 1997; Blaikie et al., 1994).

Overall, these definitions of vulnerability share the idea that even though hazards events may disrupt daily routinized activities, on-going societal conditions influence the patterns of exposure to risks and disasters, and provide men and women with differential capacity (or differential recovery potential) to respond and cope with crises (Blaikie et al. 1994; Watts and Bohle, 1993). For this investigation of disease hazard in Northern Pakistan, these definitional directions serve as guides in establishing a usable and workable definition of children's vulnerability to health hazards that will be discussed in the second part of the chapter. In the following section, I provide a survey of theoretical and conceptual frameworks for modeling the causal structure of vulnerability. The discussion is focused on the broad distinctions between models of vulnerability that have the most relevance for this study of water-related disease hazard.

Modeling Vulnerability

> The challenge is to create ways of analyzing the vulnerability implicit in daily life (Wisner and Luce, 1993:128).

Several models providing causal explanations of vulnerability can be found in the literature on risk and hazards. These models reflect the various conceptual frameworks for analyzing vulnerability. A broad set of factors are considered in these models. For example, the characteristics of environment, individuals, society, decision-making, livelihood, and power all find a place in this discussion. Some view the social constructs of gender, class, and ethnicity as central issues; others focus on factors that contribute to specific hazard events. These models are acutely sensitive to

a social geography of vulnerability because of their explicit concern for the everyday experiences and contexts of risks and hazards.

In the following paragraphs I illustrate the range of theory-informed conceptual approaches to modeling vulnerability. It becomes apparent from this survey that attention to scale (e.g., household, local, national) stands out as a key component in these approaches. One outcome of studying vulnerability with attention to scale is a more complex and deeper explanation of vulnerability as a bi-product of local environmental, historical and social conditions interacting with macro-scale processes (Kates and Burton, 1986). Working across scales, from the local to the global, these models attempt to explain the causal linkages between physical and social processes that produce environmental hazards. These are distinct, but by no means exclusive, treatments of vulnerability.

Hazards of Place Model of Vulnerability

A useful beginning for this discussion of models that explain the social production of vulnerability is the work by Cutter (1996). Cutter (1996) provides us with a "hazards of place" model that recognizes the diverse physical and social elements that contribute to the causal structure of vulnerability in particular places. Citing Hewitt and Burton's (1971) idea of the "hazardousness of place" as the source of inspiration for the term "hazards of place," Cutter shows that the various elements that constitute vulnerability – potential exposure to risk (biophysical), mitigation, hazard potential, the social fabric of society, and the geographic context – interact in localities to produce the overall vulnerability of specific places. Her model attempts

to demonstrate that the intersection of biophysical/technological vulnerability and social vulnerability create the vulnerability of places. As a result, the vulnerability of places (or place vulnerability) provides a "feedback loop" to influence the potential exposure of risk and the capacity of people to mitigate hazards in various places. Building upon this model that underscores the role of place in risk and hazard analysis, this study focuses on the community of Oshikhandass, situated in the Karakoram mountains of Northern Pakistan, as a place of vulnerability to disease hazard.

Space of Vulnerability

A second model that has relevance for this study concerns the "space of vulnerability." Working from a focus on poverty and famine, Watts and Bohle (1993) develop a framework to assess the "space of vulnerability." They construct a tripartite model of vulnerability consisting of three main theoretical axes: entitlement (economic capacity), empowerment and enfranchisement (social and political power), and political economy derived from historical-structural class analysis (Figure 2.1). Each side of their explanatory model represents one of these three theoretical dimensions.

The intersection of these processes results in what the authors refer to as a "space of vulnerability" which can be mapped with respect to the multi-scale and multi-dimensional coordinates that determine risk exposure, coping capacity, and recovery potential. This model provides an interesting approach to exploring the political and economic realms of the problem. A second version of the model is found

in Bohle, Downing, and Watts (1994). This version incorporates the risk environment which vulnerable groups experience by replacing "empowerment" from the earlier model with "human ecology."

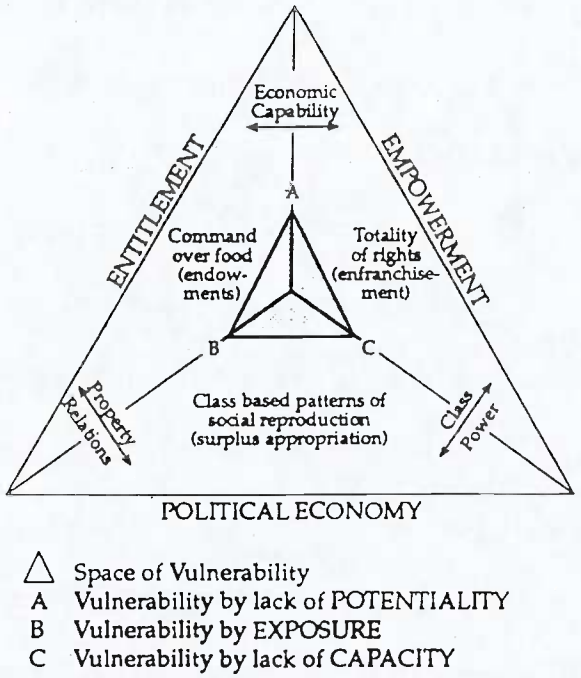

Figure 2.1 The causal structure of vulnerability (Watts and Bohle, 1993:120)

The two versions of this predominantly social model have been applied to the problem of famine vulnerability in South Asia and Sub-Saharan Africa, and vulnerability to climate change in Zimbabwe. This study applies the concept of the "space of vulnerability" articulated by this model to assess the ways in which the household is constructed as a specific space of vulnerability. Because of the child's immediate health environment is the household, a consideration of the household as a space of vulnerability is critical to this study.

Perceptual Models

Perceptual models represent another set of models upon which this study expands and extends. As noted by Mitchell (1984, in Saarinen et al., 1984), perceptual models approach vulnerability in terms of how perceptions have an effect on behavior and adjustment to hazard in ways that render people more or less vulnerable. The focus on perceptions as they are linked to behavior and adjustment choice has been a central theme of analyses of human vulnerability to hazards since the 1960s (Saarinen, Seamon, and Sell, 1984). In the perceptual approach, vulnerability is taken to mean the cumulative effect of the recognition/awareness of a hazard or the physical processes contributing to hazard, the decisions to adopt certain precautionary measures, and the choices about how to cope with risk and hazard (Slovic, 1987; Douglas and Wildavsky, 1982). A major contribution of this model is the recognition that the risk perceptions of those who experience hazards, and the risks associated with them, play a role in influencing the behaviors and practices that affect vulnerability. Primarily building on behavioral assumptions, this model suggests that vulnerability must be understood in relation to individual and collective decision-making, the autonomy and capacity to choose how to mediate experiences, and the existence of constraints on individual freedom and power to make decisions about how to deal with hazards. In this line of thinking, risk perceptions, as filtered through sets of value systems and cultural biases, can play a significant role in guiding choice and action. In this study, an analysis of local perceptions of diarrheal

disease and environmental health risks and their relevance to the understanding of the dimensions of children's vulnerability is presented in Chapter V.

Models from Political Ecology

An additional approach to explaining the social production of vulnerability that is informed by political ecology is the work by Blaikie et al. (1994). These authors suggest that degrees of vulnerability differ between people depending upon their circumstances and the complex mix of socioeconomic, political, and ecological factors underlying those circumstances. An important aspect of this perspective is human agency and how the "specific things people do, situated in time and space, affect their vulnerability to various kinds of disasters." Blaikie et al. (1994) suggest two models to explain the factors and causes that give rise to hazard and disaster situations. The first model is called the "pressure and release" model (PAR), and the second model is the "access to resources" model.

The PAR model is used to uncover "the pressure from both hazard and unsafe conditions that leads to disaster, and then how changes in vulnerability can release people from being at risk" (Blaikie et al., 1994:12). The main idea behind this model is that disaster reflects the intersection between the processes that produce vulnerability and the exposure to and impact of an actual hazard. In this way, the progression of vulnerability occurs through the interactions of three factors: "root causes" (economic, power, and resource structures; ideologies of political and economic systems); "dynamic pressures" (lack of local institutions, skills, local markets, press freedom; macro-forces of rapid population growth, urbanization,

deforestation); and "unsafe conditions" (fragile physical environment, lack of disaster preparedness). "Release" from the risk created by these interrelated factors comes through mechanisms to reduce vulnerability, including disaster relief, policies to achieve safe conditions, the development of local institutions, and the strengthening of livelihoods. The PAR model focuses the analysis within the wider macro-level of structural constraints and dynamic pressures on people's lives that give rise to vulnerability.

The second model -- the "access to resources" model -- shifts the focus from the macro-level to the local scale of social relations and circumstances (Figure 2.2). This model is a step towards refining the chain of explanation in the PAR model to "show how social systems create the conditions in which hazards have a differential impact on various societies and different groups within society" (Blaikie et al., 1994:46). The idea of "access to resources" is used to demonstrate how patterns of livelihood, of resource distribution, and use of resources effect which people become more or less vulnerable to hazard. In this model access implies the command of an individual, household, community or social group over resources which are necessary for securing livelihoods or which can be used and/or exchanged to satisfy certain needs or concerns (Blaikie et al., 1994). A central premise of this model is that less access to resources, or what the authors refer to as poor "access profiles," leads to increased vulnerability especially in the absence of other measures to provide a living and a safe environment. The attention this model gives to access to resources leads to an understanding of how differential vulnerability is produced. This model of

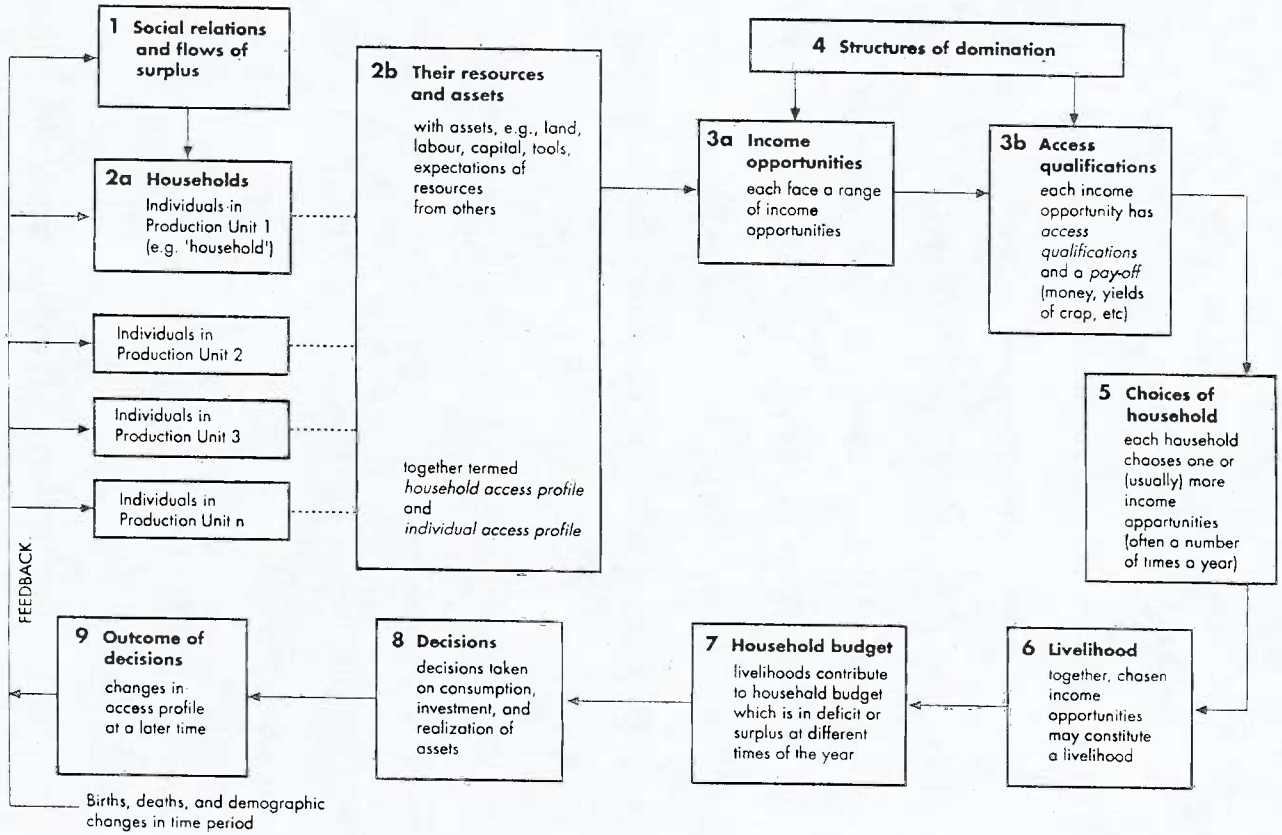

Figure 2.2 Access to resources to maintain livelihoods (Blaikie et al., 1994:50)

"access to resources" suggests that differential vulnerability is firmly rooted in the social conditions and social relations influencing the access individuals, households, or social groups have to adequate shelter, food, water, health care, incomes, and personal rights and freedoms.

Taken together, the PAR and "access to resources" models attempt to reconcile an examination of the structural constraints on people's lives with attention to individual agency and choice of action at the local scale. By providing a general framework for carrying out vulnerability analyses, these two models have the potential to accommodate a range of concerns and theoretical perspectives about the underlying causes of vulnerability. In this study, the "access to resources" model is of particular relevance; the analysis provided in Chapter VI serves to test the idea that resources and access to them play a role in influencing children's exposure to and the impacts of diarrheal disease. Further, the "access to resources" framework is employed to guide the identification and assessment of the range of household and maternal resources that affect the quality of children's immediate household environments, the type of care and supervision children receive, and the overall health status of children.

Gender-Based Models

Gender-based models have recently been employed in addressing the social construction of vulnerability to hazards. The relationship between gender and vulnerability has been particularly highlighted in the literature by feminist geographers and other social scientists who have investigated problems such as

environmental degradation, health hazards, misguided social policies, exposure to risks, and women's experiences during and after a disaster (for a review of the literature on gender, risk, and disaster see Fothergill, 1996). Feminist scholarship postulates that forms and degrees of vulnerability can be related to, or are brought out by, particular forms of gender relations and gender hierarchies. During recent decades, this perspective has increasingly drawn attention to the causal linkages between the forms and degrees of vulnerability and the gendered processes structuring people's frailties, defenses, and survival capacities (Agarwal, 1996; Carney, 1988; Ikeda, 1995; Morrow and Enarson, 1996; Rocheleau et al., 1996; Schroeder, 1986).

A number of frameworks for studying gender vulnerability have been taken up by gender theorists. Some of the central components of these approaches concern the theme of reconceptualizing the processes structuring vulnerability, drawing particular attention to constructions of gender differences which perpetuate inequalities and differences between men, women, and within and between social groups, communities, regions, and nations. Three points need to be made regarding the relevance of gender analysis for this project. First, in explaining gender vulnerability, a high degree of attention has been given to the structure/agency debate in which social structures (e.g., patriarchy, capitalism) partly shape the conditions in which women as agents avoid, cope, and respond to damage and loss (Dréze and Sen, 1989; Rivers, 1987). Within this framework, women's (as well as families' and households') local vulnerabilities and responses to them have been linked to wider structural as well as macro-level economic, political, ecological, and social processes.

Recently, empirical research has correlated increases in the social and economic vulnerabilities of women to the patriarchal practices of development organizations (e.g., World Bank, IMF, USAID). Kandiyoti (1988:273), for instance, has found that "contemporary development projects...tend to assume or impose a male-headed corporate family model, which curtails women's options without opening up other avenues to security and well-being." These narrow and ill-conceived perceptions of women's roles in livelihood and health work can actually exacerbate women's vulnerabilities. Other examples such as Carney's (1988) research in The Gambia and Shiva's (1989) work on South Asia demonstrates how development policies and aid distribution is often designed with men in mind, thereby funneling resources and opportunities through men in ways that further destabilize and aggravate gender inequities.

Second, it has been asserted that women and children are often the "forgotten casualties" because of their particular defenselessness and lack of control over assets that would help them respond to environmental and social crisis (Cutter, 1995; Gray, 1993; Ikeda, 1995). The relationship between vulnerability, access to resources, and gender varies widely depending upon the social context as well as the nature of gender relations in particular places. Scholars (for example, Momsen and Kinnaird, 1993; Raju and Bagchi, 1993; Rocheleau et al., 1996; Thomas-Slayter and Rocheleau, 1995) have demonstrated how women, on an individual or collective basis, employ certain resources and resource strategies to cope with stress and uncertainty. There is evidence that women's coping strategies are affected by their control over the flows of household income and decision-making in the context of everyday life and/or in

situations of disaster. Agarwal (1990) and Kabeer (1999) point out that intra-household and kinship-based entitlements are particularly significant for women's well-being and security in contexts where women are dependent on men. In this way, social relations have the potential to restrict women's livelihood options that place them at a disadvantage in the face of hazards and disasters (Gray, 1993). Evidence suggests that these processes generating vulnerability are further complicated by the effects of other social constructs such as class, caste, ethnicity, age, race, and religion.

A final issue highlighted by gender-based vulnerability models is that women's knowledge and experience has, and can in the future, make valuable contributions to the prospects for coping with and reducing the vulnerability of households to hazard and disaster. This perspective, and particularly that of feminist political ecologists, has been informed by international women's movements, environmental scientists, and feminists who have mobilized to raise a global awareness of women's and indigenous people's own "sciences of survival" (Rocheleau, 1994; Thomas-Slayter et al., 1996). Feminist critiques of science and technology have argued that "modern" or technocratic ways of reducing risk and vulnerability are often blind to the everyday life experience and knowledge possessed by women (Sen and Grown, 1987). This scholarship specifies the need for focusing on women's own views and interpretations of vulnerability causation because of the implications this perspective has for hazard mitigation and response (Enarson and Morrow, 1998).

Summary

Each of these models adds a theoretical layer to broaden the explanations and understandings of vulnerability and how the distribution of vulnerability to risk, damage, and loss occurs across space and time. Furthermore, they open up new avenues for analyzing vulnerability, for mapping risks and hazards, and for questioning the social inequalities underlying these patterns. They provide a mixed, though often uneven, picture of how to model causality. While in some ways these models compete with each other (i.e., the perceptual model and radical models operate from entirely different theoretical perspectives), they offer important alternative and critical perspectives and new intellectual directions for broadening hazards research.

In terms of analyzing biological hazards, the vulnerability perspective seeks to understand the relationship between disease and people's vulnerability to health hazards. An attempt has been made to develop a framework for identifying the processes and relations that create vulnerability to biological hazards. For example, it has been suggested that a number of features of the micro-environment of the household (e.g., diet, shelter, location, environmental conditions, demographic composition) may affect vulnerability to disease. Additionally, there is evidence that regional and international-level social and physical phenomena such as large-scale migration, war, economic breakdown, or environmental degradation play important roles in further exacerbating people's vulnerability to biological hazards (Blaikie, et al., 1994). In general, though, the hazards literature produced by geographers has tended to neglect biological hazards despite the fact that health is a critical aspect of

vulnerability to other hazards (Lewis and Mayer, 1988; Mitchell, 1989). According to Blaikie et al. (1994:104), more systematic attention to biological hazards is needed in order to "...permit better comprehension of the health problems integral to vulnerability to many other types of hazard."

The next section takes up the challenge of developing a vulnerability model for addressing the specific hazard of childhood diarrhea. The models reviewed in this section are conceptually relevant for building an understanding of children's vulnerability to water-related disease hazard. A key summary point underscored by this review of the meanings and models of vulnerability, and which is relevant for this project, is the role of context in the social construction of vulnerability. This study supports this point by demonstrating that children's vulnerability stems from several context-dependent factors. These factors include (but are not necessarily limited to) children's location in space and time; the organization of households; the resources of livelihood and care giving; and the wider political, societal, and historical situations that shape the places where children are born and raised. The rest of the chapter is devoted to developing a framework for addressing these concerns. The framework adopted here for analyzing children's vulnerability gives treatment to three areas of concern: under-five children as a social group; risk factors for diarrheal disease; and dimensions of children's vulnerability. The following paragraphs elaborate how these concerns are key to this project.

TOWARDS A FRAMEWORK FOR ANALYZING CHILDREN'S VULNERABILITY TO DISEASE HAZARD

Before moving on to the main themes of this section, it is important to stress that children's experiences with diarrheal disease at the household scale is highly situational. Some children are more or less vulnerable to exposure to certain risks of diarrheal disease according to their individual characteristics and their socio-spatial locations. Children under five years of age who are living under conditions of poverty and deprivation are the most vulnerable to diarrheal diseases. Evidence suggests that children living under such conditions may experience repeated episodes of acute diarrhea, even as many as ten episodes per year (Black et al., 1989). Repeated episodes result in incredible drains on the health of children and on the capacity of families to deal with these cases while facing already precarious, desperate, and stressful situations.

Under-Five Children as a Social Group

Why has the vulnerability perspective been rarely applied to the situational realities of children, especially those of young children? Until recently, questions about children as a generational group have been neglected because children as a whole have not been considered a suitable social group for research (Matthews and Limb, 1999; Philo, 1992). Roberts et al., (1995:1) write:

> Children, it is still widely assumed, should be seen and not heard...Of course, there are specialist branches in a number of disciplines which are explicitly concerned with children's circumstances and problems – child psychology, paediatrics, and so on. And there are special areas of public policy devoted to children's concerns – the child abuse machinery, the primary and secondary education systems and other essential children's services. But within the

> mainstream of social science and the mainstream of policy-making, children are often marginal or absent altogether. They don't vote, they aren't a feature of the social contract, they don't make money and, as far as the public arena is concerned, it has seemed until recently that they don't much matter.

This picture is beginning to change in geography with new directions of research to "define an agenda for the geography of children" within the discipline (Matthews and Limb, 1999:61). Recent geographical research favoring children and children's affairs has focused on concerns such as: the social construction of childhood (Aiken, 1994; Valentine, 1996); children's environmental knowledge and perceptions (Eisele, 1999; Katz, 1991, 1993; Matthews, 1995), children's environmental and spatial behavior (Aiken, 1994; Hart, 1984:99-129 in Saarinen et al., 1984; Katz, 1993); the provision of child care in the developed world (Dyck, 1996; England, 1996; Holloway, 1998), and children's safety (Roberts et al., 1995; Valentine and McKendrick, 1999). While the inherent susceptibilities of children have been noted in some of this work, attention to under-five children and the social construction of their vulnerabilities in the developing world has not been apparent in the geographical literature.

Under-five children, especially infants, are a distinctive social grouping because of their sheer dependence on caretakers for survival. Their dependence is a constant characteristic influencing their health and well-being. Young children in Pakistan, like elsewhere, are a largely dependent population, and the degree of their vulnerability is related to the situations of their dependency, i.e., the care they receive, the families they rely on, the food they are given, and the conditions in which they are

brought up. Often their needs and dependencies, and the impacts of their needs on the lives of their caregivers, are ignored or unnoticed.

When children in the developing world do receive attention in the development discourse, they are usually represented as a target group for programs and policies, furthering the stereotype of disease-stricken, deprived, unfortunate children. The classic images of children in UNICEF posters and fundraising advertisements work to uphold this "victim" paradigm in the minds of people in the developed world. Last (1994:3) notes how there is a tendency to ignore or subordinate the needs of young children in public discussions, and this is further exacerbated when the families themselves hold a certain marginality, powerlessness, and voicelessness in society. It is notable, however, that an important change in this victim paradigm has come in the past ten years in various international fora to promote children's rights to a safe and healthy environment, rights to health, and rights over survival (see the UN Convention on the Rights of Children in UNICEF, 1990; also Scheper-Hughes and Sargent, 1998).

Children under five years of age in developing countries constitute the population at risk for diarrheal diseases (Mosley and Chen, 1984). The questions of why and how children under five lack available protections from dangers, specifically in the case of health hazards like diarrhea, direct us to examine how both their vulnerabilities and the social space of risk to diarrheal disease are produced. How vulnerable individual children and groups of children are depends to a great extent on their biologic and social/environmental conditions in the moment they are exposed to disease agents. The various risk factors for diarrheal disease are key in explaining the

circumstances of under-five children's exposure and susceptibility and receive critical treatment in the model I develop for analyzing children's vulnerability at the household scale.

Risk Factors for Diarrheal Disease

As previously noted in Chapter I, the category of diarrheal diseases is comprised of many types of infections caused by the ingestion of bacterial, viral, and parasitic enteropathogens. The list of risk-posing agents includes, for example, *Escherichia coli*, *Campylobacter jejuni*, *Cryptosporidium*, rotavirus, shigella, amoebiasis, and *Vibrio cholerae* (refer to Table 1.1). Children are exposed to diarrheal diseases mainly through oral-fecal modes of transmission. This simply means that the disease-causing pathogens in the environment are transmitted in various ways via the feces of infected individuals. When ingested in sufficient quantity, these pathogens can cause new infections in individuals.

A complex and varied picture of the key risk factors (socioeconomic, behavioral, environmental, and spatial) for diarrheal diseases has been documented in the literature and is beyond the scope of this chapter. However, some attention to several risk factors which are key to this analysis of children's vulnerability at the household scale is needed. These risk factors can be grouped into several broad categories: geographic and environmental variables; local perceptions of disease risk; household resources; and gender disparities.

Geographic and Environmental Health Variables

Geographic and environmental variables which influence risk to diarrhea

include the ecological setting and political-economic context (Boot and Cairncross, 1993a, 1993b; Esrey, 1996; Jamison et al., 1993; Mosley and Chen, 1984). Ecological factors such as climate, soil, temperature, humidity, and seasonality can have an influence on vector-borne disease transmission, the availability and quality of the water, the rate of proliferation of bacteria, the survival of parasites, the drainage of sewage, and the quantity and quality of food crops produced in various places.

Second, political-economic factors operate to influence children's risk to disease hazards through the organization and production of food, the distribution of benefits (e.g., income, entitlements) among social groups, the socio-spatial distribution of productive resources (e.g., land, water, pasture), the stability of food-fuel-water supplies, the physical infrastructure of roads, water systems, and sanitation facilities, aspects of institutional development that influence collective decisions about investments in preventive measures (e.g., potable water supply, health services), and the forms of governance determining decisions about health and development.

The aforementioned geographic and environmental health variables interact with factors at the household scale to further produce a space of hazard. There are many possible transmission routes and sources of exposure in children's environments that have been identified as potential risk factors (Laston, 1992). In-house contamination is a major risk factor for diarrheal disease (Bilqis et al., 1994; Vanderslice, 1991; White and White, 1986). One common in-house transmission route is through the ingestion of contaminated drinking water. Drinking water can play a role in the transmission of enteric pathogens either by becoming contaminated

via fecal material if the water source is unprotected, or it can become contaminated through storage. Household water sources may contain pathogens from human feces inside or outside of the household. The provision of a high quality potable water supply would eliminate this source of contamination, thereby significantly reducing the household's and child's overall risk of diarrhea disease (primarily in the case of water-born diseases).

Increasing the accessibility and reliability of water may also reduce the potential for contamination within the child's environment by increasing the amount of water used for hygiene, bathing, washing, and cleaning. This measure would reduce the overall risk of exposure to water-washed disease pathogens. Another factor is the absence of sanitary facilities and indiscriminant defecation which can increase the risk of exposure. Rahman et al. (1985) and Han et al. (1990) conclude that the lack of sanitation is associated with a higher incidence of childhood diarrhea. Improving sanitation and the safe disposal of wastes are viewed as measures that are just as important as improving water quantity and water quality for the reduction of disease infections (Boot and Cairncross, 1993)

Other factors in the household environment which influence the risk of exposure include: the presence of animal and livestock feces deposited in or around the house or yard (Baltazar and Solon, 1989); flies which are another potential source of contamination of food and water (Esrey, 1991); exposure to contaminated soil or surfaces in areas where children's play or where child care activities take place; the use of contaminated utensils and toys, bottles, or other inanimate objects that a child might put in its mouth; food hygiene; the number of people living within a household

(Vanderslice, 1991); and the presence of sanitation facilities (Mertens et al., 1992). Other household level factors include the quality of housing (e.g., the plumbing and sewer situation) and the spatial location of housing. The spatial location of housing establishes children's location geographically within communities, neighborhoods, and cities. The location of the household in relation to environmental health hazards and sites of contamination can further define the nature of the risk environment.

Local Perceptions of Disease Risk

This category of risk factors – local perceptions of disease risk – includes a wide-range of factors such as value systems, cultural biases, and indigenous knowledge that shape and modify the health-related practices of people. These factors are important in influencing the environment of risk because awareness of disease risk and attitudes and beliefs towards disease causation are important factors guiding health behavior. For instance, hygiene behaviors and views of disease transmission reflect the norms and attitudes towards considerations of what is clean, dirty, pure, impure, hygienic and unhygienic (Boot and Cairncross, 1993). Zeitlyn and Islam (1991) state:

> Hygiene behavior is likely to be related to fundamental issues about cleanliness that are inculcated and absorbed at a very early age so that one of the first things that small children are taught is the distinction between what is clean and what is dirty. This knowledge becomes almost instinctive and it may therefore be hard for people to … be aware of their own patterns of behavior.

The implication is that health-related behavior is rooted, in part, in cultural traditions and societal norms; therefore, attention has to be paid to what people in communities already know and think about disease transmission and the prevention

of water- and sanitation-related diseases. One specific example of the power of beliefs about disease causation in shaping behavior is seen in the case of attitudes towards children's feces. It is well-documented that in many contexts infant feces are not perceived to be dangerous to health, and therefore are not carefully disposed (van Wijk-Sijbesma, 1998). This perception has been found to have deleterious consequences for human health and has been identified as an international public health concern that is being addressed through hygiene promotion.

An additional aspect of perceptions of disease risk has to do with the perceived susceptibility of children. Family investments in child health and in reducing the risk factors in the household environment may be conditioned by the values and attitudes towards children's susceptibilities. Nancy Scheper-Hughes' (1992) extensive and compelling research on child illness and death in northeast Brazil serves as a powerful example of the ways in which recent research in anthropology and international health is making important links between socio-cultural factors (e.g., religious beliefs, perceptions, values, attitudes) and the response to and management of childhood illness. In her work Scheper-Hughes suggests that mothers' emotional and psychological responses to the death of children reflect both their perceptions of childhood illness and the multiple constraints on mothers' abilities to minimize the threats to survival faced daily by their children.

Marcia Nations (1982) has also used findings from northeast Brazil to support the hypothesis that perceptions, as shaped by culture and belief systems, play a salient role in the response to enteric disease in children. Using community-based research, she develops an integrated view of how childhood illness relates to the larger socio-

cultural context of health and health care. Blending both the biomedical and the popular spheres of care and treatment, she argues for a model of diarrheal disease control that is sensitive to traditional disease concepts and perceptions. Other studies centering on the micro-level of analysis include studies conducted by Bentley (1988), Declerque's (1987), De Zoysa et al., (1984); Eickmeier (1989), and Mull and Mull (1988) on how mother's knowledge and perceptions influence the incidence and treatment of infant and child diarrhea.

Research notes that education can have a significant impact on perceptions and awareness of health risk and concomitant reductions in the exposure of children to diarrhea pathogens. The mechanisms that link parental education and childhood risk to diarrhea are very complex and related to the role that education plays in household economics and social change (Barrett and Browne, 1996). Parental education may result in greater awareness of the biomedical links between disease transmission and behavior and lead to changes in hygiene practices. Education is also seen as an indicator of socio-economic standing, whereby education results in better employment opportunities and greater parental capacity to invest in the household health environment, e.g., through investments in the water supply, purchase of soap, or the construction of a latrine, better housing, improvements in water and sanitation, and more nutritious diets.

Particularly, maternal education is associated with lower risk of childhood diarrhea and mortality (Barrett and Brown, 1996; Caldwell, 1986; Esrey and Habicht, 1988; Glewwe, 1997; Ware, 1984). Evidence suggests that a mother's educational level can effect her skills in health care provision, hygiene, nutrition, and preventive

care, and her knowledge and awareness of disease transmission routes (D'Souza, 1997; El Katsha and White, 1989). Mothers who are educated may be more insistent on keeping the home environment clean and hygienic and encouraging other family members to uphold hygiene standards (White and White, 1986). In addition, it has been found that education brings about status effects in the household, thereby improving women's control and autonomy over decision-making that can ultimately affect the survival of their infants and children (Lindenbaum et al., 1989). Education has also been found to influence decisions to seek health care outside of the home (Paul, 1992). As such, education, both formal and informal, has been linked to both health perceptions and to decisions concerning the allocation of household resources to childcare and child health.

Household Resources

A complex array of livelihood resources impact the risk of exposure. Income is one resource that has been found to be a major factor in achieving reductions in the transmission of pathogens and levels of risk (Mosley and Chen, 1984). Without a certain amount of financial resources, it is a major challenge to achieve levels of individual, domestic, and environmental health. The nature of household income may significantly affect nutrition, quality and location of housing, access to potable water, and quality of childcare. Income has also been found to correlate with the nutritional status of children, another risk factor for diarrheal disease. It has been established that children under five are at the highest risk for malnutrition that predisposes them to diarrhea. The cycle of poverty, malnutrition, and disease further exacerbates the

downward spiral of poor nutritional status. The synergistic relationship between nutrition and diarrhea is well-documented, yet some unanswered questions remain regarding this relationship (Black et al., 1984). Certainly, though, good nutrition has been found to provide a barrier against disease transmission.

Income also influences the purchase of health-supporting items such as food, water storage vessels with lids, bars of soap, and sanitation. The type of economic activity adopted to generate income is also significant. Evidence suggests that the circumstances of employment and economic activity impacts the availability and quality of childcare (England, 1996). For example, women's time may be devoted to productive, income-generating activities that are unrelated to childcare but essential for household survival (Leslie and Paolisso. 1989).

These points illustrate why income is a powerful determinant of child well-being and survival. Yet, the idea of resources used in the context of this research not only applies to financial assets such as income; it also applies to productive and social assets such as land, materials, technical skills, information, child support networks, and time that are critical to attaining and maintaining good health (Blaikie et al., 1994). Importantly, access to the resources of health and livelihood has been found to be influenced by social relations (Kabeer, 1999). Sen's (1981) concept of "entitlements" is particularly useful in explaining how access to resources is structured and determined by social relations. There is evidence that ethnicity, class, gender, and age may also determine which people or social groups are allowed to use certain facilities or access certain kinds of knowledge or skills to promote child health. The risk to exposure of diarrheal disease further depends on caregivers' access

to time for supervising children, washing clothes, cleaning, filtering water, preparing nutritious food, and so forth.

Access to resources such as education, childcare networks, and time can also impact health and hygiene behaviors. Health and hygiene behavior includes a whole range of practices and activities that could negatively affect child health: hand washing, food handling, preparation of weaning foods, water handling and storage practices (Boot, 1991; Boot and Cairncross, 1993; Feachem, 1984). Poor health and hygiene behaviors and practices of individuals involved in care giving (i.e., parents, siblings, grandparents, neighbors, and relatives) increase the risk of exposure to diarrheal diseases (Almedon, 1996; Bartlett et al., 1992). Studies in Bangladesh indicate that proper hand washing and household hygiene practices can decrease the spread of diarrheal disease among members of a family (Fauveau, 1994). Zeitlyn and Islam (1991) found that the dirty hands of mothers were associated with rates of diarrhea in children. Within or between households, care-givers infected by a pathogen can spread the disease agent to children, other family members, and other care-givers (Ware, 1984). Additional sources of pathogens include the points of contact in time and space that children have with caregivers. The hygiene behaviors of children themselves can have an effect on their exposure.

Gender Disparities

Gender disparities have several effects on risk to diarrheal disease. First, the sex of children, and the structure and type of care and hygiene provided to girls versus boys, can affect patterns of differential exposure to disease (Elahi, 1993;

Fauveau, 1994). In places where there is a strong preference for sons, boys tend to receive preferential treatment in feeding, care, and medical treatment. In Pakistan and elsewhere in South Asia, preferential treatment of male infants in the way of parental care, feeding patterns, food distribution, and the treatment of illness has been linked to higher female child mortality rates (DasGupta, 1987; D'Souza and Chen, 1980; Hafeez, 1993; Koenig and D'Souza, 1986; MacCormack, 1988; McKee, 1984; Sathar, 1987a, 1987b). In this way, sex preference is manifested in differentials in childcare. The actual measurement of the relationship between discrimination against girls and exposure to disease risk is very complex. The complexity of this relationship is complicated by the composition of families, the number and sex of surviving children, and the order in which children are born (Muhuri and Menken, 1997).

Scholarship in the area of gender offers insight into the structures of discrimination and resource allocation within the household which effect the allocation of food, who eats first, who receives medical treatment, and when certain child needs are met. Elahi (1993) demonstrates that discrimination in health care and feeding practices towards girls reflects how they are generally undervalued in rural Bangladeshi society. Some contend that as a result of the social construct of gender, women and children frequently experience the greatest degree of impact from health hazards and environmental degradation (Cutter, 1996; Seager, 1991; Shiva, 1989).

A second aspect of gender and its effect on diarrheal disease outcome concerns how gender relations operate to influence the types of social and material resources mothers can draw upon in their care and coping with disease (Bolt, 1994). Constraints on maternal access to resources have been found to result in increased

risk for diarrheal disease. For example, strict ideologies of seclusion confining women to domestic spaces and limiting their mobility and activity outside the home have been linked to women's poor access to information, education, and decision-making institutions. Also, time for childcare has been identified as a scarce maternal resource because of the competing claims on women's time and energy within the household (Leslie and Paolisso, 1989; Ware, 1984).

Dimensions of Children's Vulnerability

Keeping in mind the unique characteristics and dependencies of under-five children and the numerous risk factors for diarrheal disease, a definition of children's vulnerability can be constructed. The term vulnerability it taken to mean: the differential potential for young children to be exposed to and adversely affected by water-related disease hazard. In this project, vulnerability is seen as a function of the interaction between three dimensions:

(1) Local perceptions of risk and children's susceptibility

(2) Access to resources of care-giving and livelihood

(3) Coping with child health crisis and disease outcomes

For the purposes of this project, these three dimensions of perceptions, resources, and coping need to be distinguished. First, there is the aspect of local perceptions of risk of exposure to diarrheal diseases as well as perceptions of children's susceptibility to water-related disease hazard. As noted above, exposure stems from a complex array of individual, geographic, social, and livelihood factors and includes the child's age and gender, nutritional status, position with regard to

social and material life, and the activities of the household setting in which they are born and raised. While these factors of risk and exposure are significant, the identification and quantification of these factors in Oshikhandass, Pakistan is beyond the scope of this study. What is a focus, however, are *local perceptions* of disease risk, children's susceptibility to water-related disease hazard, and how diarrheal disease and child health risks are conceptualized in relation to other health and development concerns (Chapter V).

The second dimension – *access to resources* – is closely related to disease susceptibility. The physical susceptibility of young children is partly a function of the virulence of some of these disease organisms mentioned above. The susceptibility of infants and young children to dangerous pathogens underscores their vulnerable physical condition. However, susceptibility is not simply the relation of the child to the parasite, microbe, or virus; it includes the aspects or characteristics of the child's life that may affect his or her ability to withstand the impacts of exposure to diarrheal disease pathogens. In this way, susceptibility also has to do with family agency in promoting resistance and reducing risk.

A critical starting point for understanding susceptibility in this study is to center attention on family agency, and in particular, on access to the resources of childcare and livelihood within the household. The idea of access to resources in this conceptual framework for examining children's vulnerability is borrowed from Blaikie et al.'s (1994) model presented in the first part of this chapter. *Access to resources* has implications for the ability of mothers and households to reduce and/or mitigate environmental health risk in everyday life. Access to critical resources to

support a child's survival is based on social and economic relations, including the ways in which these relations are intersected by gender, class, religious, and ethnic lines (Agarwal, 1996). The premise here is that less access to resources leads to increased vulnerability of children to childhood diarrhea.

In Chapter VI, I argue that both tangible (e.g., income, preventive health assets) and intangible resources (maternal education, time, status, social networks) have an effect on the levels of vulnerability among children. I suggest that the lack of access to certain resources can constrain individuals and families in effective care giving and physical support, thereby predisposing their children to higher health risks. Since access to resources varies between households and mothers, it is important to identify in detail the differences between households' access profiles[1] and the significance of those access profiles for dealing with child health. One important aspect of this dimension involves constructions of gender and how gender hierarchies operate to determine specifically mothers' access to resources at the household scale. Women generally have the main responsibility for maintaining child health, and the care of children tends to be provided by women in domestic spaces; however they do not necessarily have control over household resources or the allocation of the resources that are critical to both child health and survival.

The third dimension of children's vulnerability – *coping with child health crisis and disease outcomes* – is closely related to both perceptions of risk and access to resources. Coping reflects both the recognition of the hazard occurring and the established patterns of response to a type of hazardous event (Blaikie, et al. 1994). Under-five children are unique because they have little power beyond their own

physical capacity and resistance to cope with diarrheal disease. Once micro-organisms or parasites are ingested, a child's body fires its own line of physical defenses. If symptoms worsen and complications such as diarrhea, vomiting, and dehydration rapidly ensue, the coping shifts to the primary care givers, namely family members, and their capacity and capability to deal with the young child's condition. The coping of caregivers reflects both the recognition of the hazard occurring and the established patterns of response to this type of risk (Blaikie et al., 1994). The coping of caregivers as it influences disease outcomes constitutes a germane concern of this dimension of vulnerability and is a primary focus of Chapter VII.

The treatment of coping in this framework centers on two primary factors: one, the relations of response, and two, the role of gender ideology in shaping vulnerability outcomes. The relations and negotiations of coping influence the distinct and complex ways individuals and households respond to diarrheal disease episodes. Linked to this understanding of coping is the idea that the relations of response effect household and maternal access to the resources necessary to facilitate coping. When a crisis event occurs, for example when a child is severely ill or when there is a cholera epidemic, individuals and families mobilize resources at various levels and in often complex ways to cope with the adverse situation. Following Swift's (1989:11) interpretation, mothers' coping strategies greatly depend upon the "range of tangible and intangible stores of value or claims to assistance" which they can mobilize to respond to child health crisis. Coping strategies, as it is employed in this research, refers to the manner by which mothers and families respond within specific sets of social relations, resources, and expectations in order to obtain a particular end result.

An investigation of the relations of response alone does not provide a complete picture of the individual and household coping strategies employed to deal with diarrheal disease. Another critical aspect is the role of gender ideology in shaping disease outcomes. There are two aspects of gender ideology that are central to this dimension. One aspect is the child's sex, and the role the child's sex plays in motivating response to illness. Hence, the category of "children" is disaggregated to look at how responses to the disease episodes experienced by girls and boys is differentially constructed. The second aspect of gender concerns how gender relations operate to influence mothers' capacity to care and cope with severe child health crisis.

What factors influence a mother's coping with an ailing child? Mother's strategies to cope with adverse circumstances are generally under recognized and under studied in vulnerability research. Previous scholarship has suggested that mothers' livelihood activities are factors influencing childcare and health seeking behavior (Leslie and Paolisso, 1989; Mosley and Chen, 1984; Paolisso, Baksh, and Thomas, 1989). The limits on women's time have been found to be impediments to health seeking and approaches to mitigating disease hazards at the community level. The forms of social networks which constitute important sources of support and mutual aid, what Scott (1985) refers to as a "moral economy," may be other significant factors in the types of coping strategies adopted by mothers and households. By focusing on the coping side of childhood illness at the household scale, a broader understanding of the possibilities for and constraints on mitigating death due to diarrhea is developed.

As noted in this section, a central theme running throughout this framework is the relationship between gender and children's vulnerability. While the focus on gender has been suggested and is somewhat underway in vulnerability research in geography, gender has not been consistently infused into analyses of the social relations that create the conditions in which hazards result in differential impacts on various societies and social groups within society. Attention to gender in this study sheds light on the ways in which these dimensions of children's vulnerability outlined above are socially produced. In the context of disease hazards and child survival a gender-focused model of inquiry leads one to ask a particular set of questions: "Who is sick and why?" "Who provides care and why?" "Where does the coping, care, and illness take place?" and "How are decisions and actions affecting child health allocated through social constructions of gender, social status and skill?" Further, a gender approach to this vulnerability analysis is adopted because of its emphasis on care-giving which necessarily implies attention to women's position as care givers and contributors to household well-being. Men's roles and the roles of other household members are also relevant for shaping the household circumstances of children's vulnerability, maternal access to resources, and relations of coping.

CONCLUSION

In this chapter I have reviewed a broad set of conceptual and theoretical frameworks that will be utilized throughout this dissertation to examine the construction of children's vulnerability. As this chapter points out, the meanings of vulnerability are varied and expanding due to the increasing awareness and attention

to the complexity of the social systems upon which degrees of vulnerability depend. While the dominant hazards paradigm has been critiqued for its "top down" approach to vulnerability, I argue that these models – "hazard of place," "space of vulnerability," perceptual, "access to resources," and gender-based – provide diverse and alternative views of how vulnerability studies have been recently approached in the literature on risk and hazards.

Indeed, a large body of recent work particularly at the local scale and in developing country contexts seeks an understanding of vulnerability to risk and disaster from the ground-level of human agency and activity. A major thrust of this vulnerability research has come from the agencies, practitioners, and researchers working at the local scale in areas experiencing conditions of social and environmental distress. This view from the ground provides a very different understanding and explanation of vulnerability than the ones derived from deterministic models of damage and loss emerging from the positivist tradition.

Since much of this work is grounded in experience from the developing world, it is fundamentally concerned with processes of uneven development, issues of equity, and sustainable alternatives and policies (Blaikie et al., 1994; Hewitt, 1983; Watts, 1983). Further, the vulnerability perspective sustained by these models represents vital move away from what has been criticized as ethnocentric, Western, urban, gender-blind, and generationally-biased perspectives on risk and disasters (Cutter, 1993; Hewitt, 1997). Hewitt (1997) points out that much of the vulnerability research is unique in that a large portion of it has been conducted in non-Western contexts and has attempted to apply principles that are sensitive and responsive to the

realities of people in the developing world. Another strength of these vulnerability models is their explanatory power to explain the underlying processes of risk and disaster. These approaches offer an understanding of how political-economic forces drive pressures on local patterns of subsistence and access to productive resources that can deepen vulnerability. As a result, these studies offer new measures and indicators of vulnerability and insecurity based on local realities and everyday contexts (Chambers, 1989, 1997).

As this chapter points out, there are relatively few empirical studies that examine the specifics of children's vulnerability. I proposed an extension of vulnerability theory to the particular case of young children. Under-five children constitute a social group with distinct dependencies due to age and physical development. I argued that in order to understand the geography of children's vulnerability to diarrheal disease, three dimensions need to be considered: *local perceptions of disease risk and children's susceptibility, resources of care-giving and livelihood*, and *coping with child health crisis and disease outcomes*. I further argued that attention to gender is critical to understanding how these dimensions of vulnerability operate at the household scale. The state of being vulnerable can be viewed as being rooted in a combination of factors which influence the degree to which a child's life is exposed to disease hazard and the capacity of a household and caregiver to cope with disease hazard. It is for these reasons that I draw on empirical research from Northern Pakistan to illustrate these ideas. Before I begin the analyses of these dimensions of children's vulnerability in Oshikhandass, Northern Pakistan, Chapter III presents a narrative of the methodology adopted in this study.

CHAPTER III

NARRATING CHILD HEALTH:

METHODOLOGY, METHODS, AND DATA

INTRODUCTION

> After traversing several fields and gardens along the edge of the cliff overlooking the Gilgit River, we finally arrived at Zainat's house. We were told by her mother-in-law that she was working in the lower forest. We took the steep path winding down to the forest. At the bottom we found Zainat chopping wood while her two small children played in the shade of some very tall poplars. She was surprised, and a little embarrassed, to see us. 'I am doing *zamin ka kam* (farm work),' she said with a touch of laughter. And then added, 'I am just a farmer' in the same deprecating manner so many of the women have uttered this statement since I have been living here. She put down her axe, bundled up her children -- one on her back and the other in her arms -- and we headed up the steep trail to her house.
>
> Fieldnotes, January 1998

This is the way my relationship began with one of 40 mothers who took part in my research on childhood diarrhea and vulnerability in Oshikhandass, Northern Pakistan. As the scene of Zainat working and caring in the family forest demonstrates, the sites of childcare are simultaneously the places of women's productive activities in Northern Pakistan. These sites are methodologically and theoretically significant because of the ways in which women must continually

negotiate their time and space to accommodate their multiple roles and responsibilities as mothers and farmers. In this dissertation research, these sites provided the local context for feminist inquiry of children's vulnerability. They also provide the "politically situated location" (Oberhauser, 1997:168) for the consideration of the production of knowledge and narration about children's health in this particular place.

Like other dimensions of social and material life, the factors that influence children's vulnerability to health hazards in Northern Pakistan are difficult to observe, identity, and quantify. As Chapter II pointed out, there is no easy or straightforward way to measure vulnerability. The issues that lie at the core of this dissertation – risk perceptions, resources, and coping -- present a challenge to data collection, analysis, and representation. There are few situations, if any, when one can assume that the circumstances of children's well-being or deprivation can be reduced to a neat set of quantifiable variables. Furthermore, few secondary sources exist to describe the meanings and experience of childhood diarrhea in Northern Pakistan. Indeed, families and mothers do not formally document their knowledge and experience of disease episodes, illness histories, or changes in child health in records or ledgers.

The challenges to collecting data about child health raise practical, ethical, theoretical, and personal questions regarding how best to explore this highly sensitive and complex topic. Many scholars have identified similar challenges regarding data and data collection and have raised practical issues about how best to approach field-based research (Dyck, 1993; Jones et al., 1997; Katz, 1994; Rocheleau, 1994, 1995). In this chapter, I aim to contribute to these methodological debates through the

example of my own research in Northern Pakistan. Specifically, I discuss how qualitative research and ethnographic methods allowed the dynamics of child health in this particular place to be narrated. Paralleling this theme, I provide my own narrative of the research process, researcher/researched relations, and some methodological limitations encountered during fieldwork.

The chapter is organized around what I will refer to as my own "research narratives": the methodological approach to this study; the process of selecting the field site; the description of methods and data sources; and methodological dilemmas and limitations. I first report on the methodology employed during field research in Oshikhandass over a 14-month period from 1996 to 1998. Drawing upon recent scholarship in health, hazards, and feminist geography, I explain how a qualitative approach and ethnographic techniques are especially appropriate to the questions posed in this study. The second section provides a summary of the circumstances surrounding the choice of Oshikhandass as a field site. The chapter then moves on to a description of the methods and data sources used in the study. The data used in this dissertation was primarily based on words of study participants as revealed through household micro-studies, specialized interviews, and focus group discussions. In addition, I blended these oral narratives with my own observations to explore the range of factors influencing childhood diarrhea and the structure of coping with severe cases of illness. The combination of these methods and data sources allowed the salient issues of vulnerability to be traced and narrated through various families, individual actors, social groups, and community organizations in the study site.

In the final section, I consider how, despite attempts to capture a range of perspectives and experiences, several methodological dilemmas[1] emerged during the study that led me to gain a critical awareness of the dynamics of creating health narratives. These types of dilemmas are rarely addressed in descriptions of the research process in health and vulnerability studies. Scholars have noted some of the difficulties in measuring health and well-being (Kabeer, 1999; Saith and Hariss-White, 1999). These views certainly accord with my experience of research, but I was also faced with other sets of issues. For although, like Katz (1994), I found myself to be an outsider who gained a type of insider status in the field site, I was often unprepared or unable to reconcile certain dilemmas I encountered. The last section of this chapter explores several of these dilemmas and limitations of data collection through the themes of: local field sites and gender, personal and institutional relations, representation and translation, and local acts of resistance.

Before moving on to the next section, I want to emphasize that this chapter reflects my own personal narrative, as informed by the work of feminist geographers and ethnographers, of the research process. This is not to say that it is the only rendering of events and relations that occurred during the research. There are other narratives of this study that exist and are mainly those of the study participants and other people who live in Oshikhandass and who contributed in direct and indirect ways to this dissertation. However, these narratives regarding my presence and impact on the community remain inaccessible to me and necessarily fall outside of the account presented in this chapter.

RESEARCH NARRATIVE I: THE METHODOLOGICAL APPROACH

At present, there is little understanding of how the broader circumstances of risk, resources and coping affect the ability of households and mothers to promote the health of their children in Northern Pakistan. In Pakistan, studies on child health are scanty; the data that do exist have been conducted primarily from epidemiological and clinical standpoints, and to a lesser extent, from anthropological perspectives. These studies focus mainly on the situations in large urban areas such as Karachi, Lahore, and Rawalpindi. These studies have been successful in ascertaining the prevalence of different children's morbidities, but have not treated specifically the social construction of children's vulnerability to diarrheal disease. In Pakistan, gender segregated data are not available for health problems and so it is difficult to establish gender differentials in vulnerability. Information that provides a clear understanding of the context in which child health problems arise, how women define these problems, how they manage their children's health, and how they choose health care options in Northern Pakistan is not widely available. Awareness of the circumstances under which women manage their children's health could provide insights into both research needs and feasible and sustainable strategies for improving child health.

In thinking about the gaps in knowledge about child health problems and the theoretical concerns of this study, a guiding question comes to mind: Is there a distinct methodology that can enrich geographical research on childhood disease and vulnerability? My approach to this question is embedded in health, hazards and feminist geography, all three of which have brought new insights to debates concerning methodology and the production of scientific knowledge (Hewitt, 1997;

Kearns and Gesler, 1998; Jones et al., 1997). I do not intend to review the full breadth of discussions concerning methodological theory in health, hazards, and feminist geography here, but it is important to underscore the ways in which this dissertation builds upon and contributes to current debates in the discipline.

First, practical and theoretical insights from these literatures, particularly from feminist studies, have raised an important critique of science and the scientific paradigm (Haraway, 1991; Harding, 1987). Recent scholarship by feminists and others have argued that traditional positivist social science is elitist, sexist, and ethnocentric in its approach to scientific inquiry. Their work has raised important questions about the way research is structured, how questions are generated, and how the subjects of research are approached in the process of creating knowledge. It has also been argued that both quantitative and qualitative research is inherently bound up in social relations and social contexts that influence all phases of research, from research design and data collection to analysis and documentation (Jones et al., 1997; Wolf, 1996). A central issue in this critique of traditional social science is the notion that it is not possible to determine or assess "one truth" or "the truth." Rather, research necessarily results in partial or situated truths because of the situated and subjective "knowledges" of individuals, households, and social groups (Nagar, 1997). This awareness calls for a fundamental shift in thinking about how knowledge is produced, implying that there are multiple truths (and multiple "knowledges") just as there are multiple identities and multiple ways of living and being in the world.

The outcome of this questioning has been a rethinking of the broad principles about how to conduct research that are sensitive to the complexity and diversity of

experience. These discussions and debates have resulted in a turn towards methodological pluralism and new rigor in the ways in which critical theory, qualitative methods, and empirical fieldwork are blended in cultural and social geography (Rocheleau, 1994). Contemporary feminist critiques of science have pointed to the obscurity and misinterpretation of women's lives and activities, thereby adding additional weight to more general calls to centrally locate subjects and their "subjective knowledges" in social scientific projects.

This turn towards new rigor in qualitative research is one evident current in health geography. Until recently, much of the research on health has been based on quantitative studies that do not necessarily explain how disease is experienced by different people and social groups. As Kearns and Gesler (1998) point out, a past reliance on quantitative and survey-based methods have ignored the complexity and diversity of geographies of health. While quantitative data captures broad patterns in disease incidence and in health seeking behavior, it does not capture the nuances of social relations or social processes that contribute to creating patterns of disease risk. Furthermore, survey data does not capture the individualized experience of disease or the profound meanings people ascribe to illness. In response, an emphasis on "putting health into place" (Kearns and Gesler, 1998) has broadened the traditional disease ecology concept in medical geography with sensitive readings of health and disease achieved through ethnographic and other interpretive methodologies. This treatment reflects a trend towards developing relational views of health and disease. As Kearns and Gesler (1997:6) put it:

> For although the biomedical dimensions of such realities as disease, infirmity, and death cannot be denied, there are profoundly *social* [authors' emphasis] ways in which each of these experiences is constructed. The way one sees the world will be largely predicated by the categories that are given preeminence, and we believe that a perspective that uncompromisingly starts with the social and cultural opens horizons to see richer connections between experience, health, and place.

Recent work in health geography advocates the use of people's narratives, stories, and experiences in interpretive research (Kearns, 1997). For example, Dyck (1995) works closely with her subjects and uses intensive interviewing to explain how groups of immigrant women in Canada experience the health care system. In other examples from international health research, the use of qualitative research in connection with women's and child health programs in non-Western contexts has resulted in valuable social policy outcomes (Coreil and Mull, 1990; Gittlesohn et al., 1994).

Indeed, some of the recent work in hazards geography reflected a move towards utilizing qualitative data to capture how people experience and adjust to hazard and disaster. This move represents, in part, a shift away from conventional studies in the field of hazards that have primarily maintained a positivist stance to studying hazards and disasters (Hewitt, 1997). The value of quantitative studies has certainly been seen in their ability to use large data sets to measure the degree to which members of a group, community, or nation-state are at risk to or affected by a natural hazard or disaster event. While this research conveys broad patterns of exposure and recovery, it does not necessarily uncover or explain the individual or household level of meaning, impact, or capacity to cope with risk and hazard. Hewitt (1997) suggests that the "dominant view" and approach in hazards research has attempted to construct an objective, rational, and scientific view of disaster and risk.

The result of this view, Hewitt argues (1997:352), is a vision of disaster and risk "from outside and in effect 'from above.'" Others have suggested that even attempts to measure impacts of risks and hazards is inherently problematic given the challenges of defining how and what to measure (Blaikie et al., 1997).

What stands out in the emerging qualitative hazards studies is the assertion of the importance of social factors (i.e., ethnicity, religion, gender, and age) in positioning subjects in the social contexts of risk and disasters. An increasing number of studies on vulnerability seek ways of capturing these social contexts of everyday life and the everyday context of risk which can then inform theoretical concepts on vulnerability. Indeed, a growing body of literature on vulnerability has increasingly utilized ethnographic methods and qualitative data collected directly with study participants to create a complex explanation of vulnerability, hazard events, and their impacts (Hewitt, 1997; MacDonald, 1994; Wisner, 1988). For example, Schroeder (1987) and Watts (1983) have employed critical theory and empirical research to learn how people's vulnerabilities to famine are socially produced. I would argue, however, that slight attention in vulnerability research has been given to the relations of power that exist between the researcher and researched and how these power dynamics shape the production of knowledge about risk and hazards.

The methodological approach to disease and vulnerability adopted here, then, is focused on incorporating the diversity and complexity of children's vulnerability, and is based fundamentally on what people have to say about local conditions and circumstances. Second, the approach is driven by the explicit feminist aim of incorporating women's perceptions and situations, especially as these are influenced

by the gendered relations of livelihood and childcare at the household scale. For this reason, the qualitative data gathered directly from mothers through ethnographic methods is of central importance. This is particularly the case in the narratives of child death when I asked mothers to recount details about deaths that occurred many months previous to the interviewing. And third, the methodology seeks to engage critically and reflexively on the research process as a way of addressing the power relations manifested in the relations between myself and the study participants.

Ethnographic methods serve an important function in carrying out this methodological approach to the study of children's vulnerability. Even though ethnography has not been widely applied in health and hazards geography, it has been widely undertaken by cultural geographers, cultural and political ecologists, feminists, anthropologists, rural development theorists, and development practitioners (Chambers, 1994). Discussions in feminist geography about the ethnographic stance have particularly highlighted the value of ethnography as a means of addressing gender-blindness in research and in capturing the complexity of the household and domestic spheres of life. To uncover this complexity and diversity, feminist geographers have advocated ethnographic methods as a way of partially overcoming social and physical distances between researcher and researched. The idea of locating oneself in the "strategic" sites and spaces of subject's lives has also been emphasized (Oberhauser, 1997).

Following this thinking, ethnographic methods require that the researcher situate herself or himself in ways that allow the open sharing and exchange of knowledge and information with research participants. As such, the aims of

ethnography are two-fold: it entails both being in the field to observe events as they occur, and participating in the ordinary routines, activities, and circumstances of the study population. Nagar (1997:206) states,

> This approach emphasizes the importance of human action and the continuous construction of meaning; it allows the 'researcher' to describe women's activities and record women's own statements, perceptions, and attitudes; it identifies both researchers and subjects as active agents in knowledge production and underscores the importance of reflexivity in the research process.

Ethnography is advantageous when research questions require explanation of complex social relations and social experience as in the case of this study. The ethnographic approach taken up here draws on examples of alternative research methods (Geiger, 1986; Personal Narratives Group, 1989). These methods, e.g., interviewing, oral narratives, and participant observation, are intended to be inclusive and intensive ways of collecting information about a study population or individuals in everyday life situations.

By promoting trust and respect between researcher and researched, ethnography can be effective in breaking down hierarchical ways of producing knowledge in and about the researched. As the anthropologist Scheper-Hughes (1992) maintains, the ethnographic process of recording, codifying, and communicating experience and knowledge beyond the local context can be a form of empowerment for the researched. In her compelling and provocative research on child survival in the shantytowns in Northeast Brazil, Scheper-Hughes (1992) finds ethnography to be a liberating means of giving voice "to those who have been silenced" by class relations, economic crisis, and gender ideologies.

It is important to note that critiques of ethnography have been put forth in the literature (Wolf, 1996). Some germane points of criticism concern the politics and ethics of ethnographic research. These questions express important concerns about the role of the researcher in defining the parameters of the field, in structuring the research methods, and in determining the knowledge produced about the research setting. As a result of these lively discussions, critical attention has been given to problematizing the field setting as an artificially bounded and politically-situated place in which the researcher engages and interacts with research participants in potentially contentious and/or controversial ways (Dyck, 1997; Oberhauser, 1997). Katz (1994:68) underscores these issues, noting "one goes to the field as a kind of 'stranger,' and draws on that status to see difference and ask questions that under other circumstances might seem (even more) intrusive, ignorant, or inane to those who answer them." Using the example of her research with children in Sudan, Katz (1994: 68) goes on to suggest that working in a field area entails a type of displacement and a fundamental imposition of the fieldworker "on the time-space of others" located in the research setting. The displacement Katz and others refer to is particularly obvious and discomfiting when extreme material, political, and power differentials exist between the researcher and the participants (Nast, 1994).

Some scholars argue that the seemingly insurmountable divides and differences between the researcher and the field should be engaged and critically reflected upon through reflexive analysis. Reflexive analysis, according to Nast (1994:58), requires:

> critical and reflexive questioning of what the research/researcher hopes to accomplish, why a particular area was chosen, and for whom we are working. There also needs to be a recognition that some historical and material realities are beyond our personal and social reach.

Reflexivity is one way of critically assessing and examining both the assumptions of the research and the positionality of the researcher in the field, either as an "insider" or an "outsider," in relation to the study population. As such, reflexivity draws attention to the political, social, gendered, and ethical implications of being momentarily situated or positioned in the geographic context of the research participants. According to this line of reasoning, a reflexive position necessitates an acute awareness of the research participants own positionalities with regard to gender, class, race and religion and how these positionalities affect researcher-researched interactions and relations in the field (Nast, 1994).

In sum, this work applies the ethnographic approach to the study of disease and vulnerability by utilizing a variety of methods to capture people's own views and interpretations of risk, diarrheal disease, livelihood, and coping. In my research with women from a distant and marginalized population group, the issue of reflexivity is of vital concern. Reflexivity has been found to be significant in cross-cultural research in which researchers typically from a majority and in a socially privileged position construct, represent, or speak for a minority "other" (Wolf, 1996). In the rest of the chapter, I explore the layering of research dynamics of the study, particularly with regard to my position in the research and the negotiations and dilemmas that occurred in the process of narrating aspects of child health. The discussion in the following

section draws from the methodological premises highlighted above to detail the factors that shaped my selection of the field site.

RESEARCH NARRATIVE II: WHY OSHIKHANDASS?

One of the initial and most important choices I made when embarking on this study involved the selection of the field site. For me, being in the field meant being in Pakistan, and more specifically in the village of Oshikhandass in the Northern Areas. Over the course of fourteen months, between the periods of September-December 1996 and September 1997-July 1998, I carried out fieldwork in Oshikhandass. During the first period of my research, I collected data on three topics: mothers' knowledge of diarrheal disease causation and treatment; cultural perceptions of health, hygiene, water quality and sanitation; and regional water and child health interventions[2]. This four-month period was incredibly valuable for enabling me to become familiar with several key factors: the social and cultural context; religio-cultural views about disease and health; gender-differentiated aspects of rural households; and the history of development interventions in the community. This period of research provided the foundation for the more intensive second period of fieldwork and helped me to refine the theoretical and empirical framework of this dissertation.

My decision to conduct this research in Oshikhandass was both purposeful and circumstantial. There are several important aspects of my decision to select Oshikhandass as a research site that I want to highlight here. First, I was interested in the larger problem of child survival in Northern Pakistan. Second, my specific interest in child health in Northern Pakistan was derived from my familiarity with and

experience living in the region. I had previously conducted research in the District of Gilgit in 1994 for my M.A. thesis (Halvorson, 1995). During this time, I developed an interest in geographical inquiry of some of the acute child health problems in the region. I also wanted to present a perspective on the social production of vulnerability using the example of children and families in Northern Pakistan. The specific vulnerabilities of children in this region (as well as throughout the Karakoram-Hindu Kush-Himalaya) have received little attention in the geographic and policy discussions on child health, poverty, and disease hazards. Furthermore, the implications of the dramatic socioeconomic and cultural transformations on child health and well-being in Pakistani mountain villages remain largely undocumented in scholarly literature.

My decision to conduct dissertation fieldwork in Oshikhandass was shaped primarily by the fact that the Aga Khan University (AKU) and the Aga Khan Health Services, Pakistan (AKHS,P) had collaborated together to carry out a Diarrhea and Dysentery Research Project in Oshikhandass. As a result of this longitudinal study conducted from 1989-1996, the best database available in Pakistan on the local epidemiology of diarrheal disease was compiled. The project recorded extensive health data on a weekly basis on under-5 children in a total of 485 households in Oshikhandass. Dr. Zeba Rasmussen, the principal researcher and physician working on the project, provided me access to the diarrhea and dysentery database which I used as the basis for sampling households (discussed below). An additional set of data on household composition and socioeconomic variables had been recorded in family folders. Even though much of the family folder data had not been updated since it was

first recorded in 1989, it still provided useful background information on households in the community.

Another critical factor shaping my decision was that there were women in the community who were especially knowledgeable about childhood illness and who were interested in helping me conduct my research. These women had been a part of the administrative and health infrastructure established in Oshikhandass during the AKU/AKHS,P diarrhea and dysentery research project. During the project, eleven women had been trained as community health workers (CHWs) to carry out the bulk of the data collection and record keeping for the project and to identify and treat childhood diarrhea. All of these women were residents of the community. They had been nominated for the community health worker positions by the members of the Women's Organizations (WOs)[3] in Oshikhandass. They were selected because they were well-respected and supported by a large number of women in Oshikhandass. In addition they met the requirement of having at least a primary school education. Over the course of the seven-year project, the community health workers developed close ties with all of the families participating in the project and worked closely with mothers towards improvements in the prevention and management of diarrheal diseases.

Several of the community health workers had expressed to me that they were interested in working as my field assistants. They could speak both Shina and Burusheski, the two languages most commonly spoken by mothers in Oshikhandass. They could also read and write Urdu, a factor that was reassuring to me because I knew we would be able to communicate with each other. Since I had no formal

training in Shina or Burusheski, I realized that it was critical to have field assistants who possessed the specific language skills of Urdu and at least one of the other languages spoken in the community. Furthermore, because they had been associated with the AKU/AKHS,P project, they had the support of their families and the community to work outside of their homes doing health research. In the more remote villages in Northern Pakistan it is difficult to find women who can speak Urdu,[4] who are knowledgeable about childhood diseases, and who are also allowed to work outside of their homes. In addition to their unique characteristics, the three assistants I selected from this group of community health workers played central roles in legitimating my purpose in the eyes of the community. As a result of my affiliation with my research assistants and the AKU/AKHS,P project, people were willing to share their lives and the lives of their children with me. I will return to the dynamics of my relations with my field assistants in greater detail in the last section of the chapter.

RESEARCH NARRATIVE III: METHODS AND DATA SOURCES

The ethnographic approach I adopted to collect data for this research involved a sequence of interrelated methods, both structured and unstructured. These methods included household micro-studies, focus group interviews, specialized interviews, informal conversations, and participant observation. The blending of these methods and data sources made available important elements to situate children's vulnerability within larger livelihood, resource, and health concerns. Furthermore, living and working in the community helped me enter the myriad sites of women's work and

child care that are misrepresented in "objective," empirical approaches (Oberhauser, 1997). This section of this chapter outlines the sequence of methods that were employed to elicit information about child health and vulnerability in Oshikhandass.

Household Micro-Studies

This dissertation begins with the words of the members of households, namely mothers, recorded primarily through a set of household micro-studies. I conducted 30 intensive household micro-studies in Oshikhandass. The household micro-studies had two core components. The first component involved in-depth interviewing of mothers (invariably in the presence of or with the assistance of other family members), and the second component consisted of participant observation in the household. These two components took place simultaneously. These studies served several purposes. First, they provided me with a point of entry into households and a means of collecting information about relevant household characteristics and about patterns of access to resources and coping strategies as they are differentiated by gender, age, ethnicity, and class. Second, these face-to-face accounts in households provided detailed information that is only available through dialogue with mothers and other family members. Finally, and perhaps more significantly, the household micro-studies revealed the complexity of geographies of vulnerability at the household scale.

Sampling

The study households were selected through stratified random sampling of households that had participated in the AKU/AKHS,P Diarrhea and Dysentery

Research Project between 1993 and 1996.[5] From the AKU/AKHS,P project database I compiled a listing of all of the households (N=385) during this period that had reported at least one episode of diarrhea during this period. I selected the period from 1993 to 1996 in order to increase the chances that the households would have at least two children five years of age or younger. Having at least two children under five was one of the major criteria for the selection of study households. Then I stratified the listing of households into two groups based on a logical breakpoint in the diarrhea episode data. The two groups included: households with high frequencies of diarrheal disease (i.e., eight or more diarrhea episodes) and households with low frequencies (i.e., one diarrhea episode). The purpose of the stratification was to allow for comparison between and across these two categories of households. This stratification resulted in an initial listing of 126 total households that were high and low frequency households (63 households in each stratum).

At this point it was necessary to verify that the households on the stratified list were still present in Oshikhandass and that there were no discrepancies between household numbers in the project database and the actual households and family members in the village. I was alerted to this potential discrepancy by the community health workers who had indicated that the demographics of some of the households had radically shifted towards the end of the project or after the project was completed in 1996. Based on their observations, I decided to visit every household on the stratified list that was composed of high and low diarrheal disease frequency households. This provided me the opportunity to confirm whether or not the households on my list were actually still living in the village and whether or not they

had two children under five years of age. In the process of verifying households I was able to introduce myself to about one third of the households in Oshikhandass and to familiarize myself with important features of neighborhoods, mosques, fields, forests, bazaars, and water channels. At least one of my field assistants accompanied me during these house visits. It took approximately three weeks to visit all of the households on the entire list.

This process of identifying and visiting the initial 126 households revealed to me that while a listing of households may have seemed fixed in time, households and their children certainly are not. Some households had completely relocated to other villages. Others had become *akela* (alone), meaning separated from their extended families. I never located some households on the list due to these reasons. In other cases, households had divided and shifted into two separate houses. Also, some households no longer had two children under 5 years of age. And there were four women on this list who did not give me permission to include their households among the study sample.

Once I had verified the inconsistencies on this stratified list, I randomly sampled 15 households from each category of high and low disease frequency households for a total of 30 households. These 30 households constituted the primary study population for this dissertation. While the sampling strategy taken up in this study first identified a group of households which would be representative of high and low disease frequency households in Oshikhandass, it did not allow for the representation of households that had either: participated in the study and had

subsequently moved, had initially refused to participate in the AKU/AKHS,P research project, or had refused to be included on the stratified list from which I sampled.

Methods of the Household Studies

I devised an interview template that included both structured and semi-structured questions to explore the linkages between vulnerability, perceptions, household resources, and coping strategies (shown in Appendix A). Given the substantial length of the interview template, I decided to divide it into 3 major parts focused on 3 broad themes: general household information and demographics; health knowledge and child illness; and women's livelihood activities and childcare. I conducted the three parts of the household micro-study interview through monthly visits to the households in my sample. Each part of the household micro-study interview took two to four hours to complete depending upon the activities of the household members, the nature of interruptions (e.g., drinking tea with flat bread, quieting children, herding goats out of gardens), and the richness of the conversation between myself and the study participants. Due to various interruptions, it was not always possible for me to complete each part of the interview during one visit, and I would make arrangements with the respondent to return within the next week to complete it. It took between 6 and 12 hours total to cover the three parts of the interview template in each household. The total interview time was spread over a minimum of three separate household visits for a total of 90 household visits (i.e., at least three visits to each of the 30 study households).

The structured questions were designed to elicit data on an array of topics: the characteristics of respondents and their households, productive resources, household income-generating activities, consumption and savings, participation in community organizations, access to medical services, and the financial costs of diarrheal disease treatment and prevention (e.g., health clinic and water fees). The semi-structured and open-ended questions allowed for more in-depth probing of several key issues: attitudes towards children and child care; perceptions of risk and health; dynamics of household decision-making; internal family relations; women's control over household resources; recent illness events; knowledge of disease and treatment; the impacts of health and education developments on women's lives; and local criteria of wealth and poverty. Another component of the livelihood analysis entailed creating seasonal calendars and time use-activity lists, paying close attention to gender and age differences in the livelihood strategies of these households.

While these 30 micro-studies provide a wealth of detailed information about households, they do not provide information on the health history of the community, community and social organizations, the range of traditional and modern healers in the village, or a perspective on the extremes of children's vulnerability, i.e., child death due to diarrheal disease. Therefore, I conducted specialized interviews to get at information about these issues.

Specialized Interviews

I carried out 25 specialized interviews with three groups of people: traditional and modern healers; community leaders and activists; and mothers who had

experienced the death of a child due to diarrhea. For each group of respondents, I prepared a separate interview template consisting of open-ended questions that I translated into Urdu and administered myself (see Appendix B and C). When the respondents spoke only Shina or Burusheski, one of my field assistants helped with the translation. The interviews were tape-recorded only when the respondents provided me with permission to tape the interview. These first-hand accounts were essential data sources because they revealed additional insights into the intersections between child health, household livelihood strategies, and community-level response and coping. On average, these interviews took from one to three hours. The intent of this method was not to recreate a "representative" experience of treating diarrheal disease or dealing with the death of a child. Rather, the specialized interviews were intended to impart vital information about social and physical well-being, cultural knowledge, and community values, thereby challenging popular cultural assessments and dominant development paradigms which tend to mask the very textured local scale experience (Nagar, 1997; Personal Narratives Group, 1989; Weiss, 1992).

The interviews with traditional and modern healers addressed primarily the questions concerning the socio-cultural and symbolic meaning ascribed to child health risks in the community and the coping strategies aimed at reducing the impacts of disease hazard. The purpose of these interviews was to assess: who in the community visits these healers; how healers communicate health messages about diarrheal disease prevention; how people structure their coping strategies; what alternatives, indigenous or biomedical, to health and water-related problems seem plausible and possible to local people; and how forces of social, economic and

environmental change have impacted responses to childhood disease. I carried out eleven specialized interviews with "traditional" and "modern" health care providers. The respondents were selected using key informant techniques to ensure the inclusion of all possible approaches to treating childhood illness in Oshikhandass (e.g., Islamic folk medicine, *desi dewai*, and primary health care). The respondents included: four women shamans, one Lady Health Visitor, three *hakeem*, a *khalifa*, an Italian obstetrician-gynecologist working for a non-governmental organization in Gilgit, and a Pakistani pediatrician with extensive experience treating diarrheal diseases in the District of Gilgit. These interviews took place in homes, at the Oshikhandass health clinic, and in private medical offices.

The second group of specialized interviews were carried out with community leaders and activists in Oshikhandass. These interviews centered on the history of Oshikhandass; traditional institutions responsible for law and order and protecting the health of people; environmental, economic and social change in the village; and the histories of communal activities and organizations. Six interviews were conducted with two women elders (the oldest women in the Oshikhandass), the president of a men's organization, and three older men who serve in a leadership capacity in village affairs. Each of these six individuals play several different roles in the village. They are leaders, religious activists, heads of large families, healers, and/or sources of important local knowledge.

The third group of interviews -- child loss interviews -- provided information on the specific circumstances surrounding child death due to diarrhea. A total of ten mothers participated in these interviews. The value of this type of interview lies in the

fact that the circumstances surrounding a child's death are largely hidden from people outside of the family. Families keep no written records about child deaths, and mothers' perceptions of why their children die go undocumented. The child death interviews were significant for this study because they convey the extremes of being vulnerable (that is, death is the most extreme outcome of vulnerability). During these interviews, respondents mentioned their feelings and opinions about the loss event, the people involved, the decisions that were made (and not made), and their control over the situation. These accounts provide powerful evidence suggesting the intersections between gender, access to resources, and the structure of responses to serious cases of diarrhea. The words and experiences of these mothers who had experienced the death of a child underscore the idea that epidemiological data cannot adequately capture the full complexity and meaning of the circumstances that influence children's survival.

These three sets of specialized interviews provide insights into both the context and overall trends of household and community levels of coping and the social relations shaping disease hazards and vulnerability. However, these data did not adequately address other questions that guide this research. The household micro-studies and specialized interviews provide little information about other levels of social organization, networks of resource mobilization in the community, and wider views on child health, motherhood and child care. Therefore, I included focus group interviews to acquire information about these issues.

Focus Group Interviews

I conducted eight focus group interviews in Oshikhandass. Seven of these interviews were carried out with different groups of women. For instance, I conducted four group interviews with Isma'ili[6] women who belonged to formally organized Women's Organizations (WOs) and three group interviews with Shi'a women who were not members of WOs. The groups were selected randomly to represent specific segments of the community based on gender and religion. I carried out another focus group interview with the community health workers who had participated in the AKU/AKHS,P diarrhea and dysentery research project. The number of participants who volunteered to participate in the focus groups ranged from 6 to 15. The interview templates consisted of semi-structured and open-ended questions (Appendix IV).

The interviews with the women's groups focused on five specific themes: perceived changes in environmental and child health in the community; the communication and reproduction of health knowledge between women; the impact of socioeconomic changes on women's lives; attitudes towards motherhood and fatherhood; and local definitions of health and well-being. I used these data for trend and change analysis to explore chronologies of how customs, practices, and child health constraints and opportunities have changed over time. These interviews also revealed local responses to deprivation and conveyed a vision of women's aspirations for themselves and their families.

The group interviews held with the Isma'ili women were conducted at their respective Jamaat Khaana. The Jamaat Khaana was a regular meeting place for these women as defined by their social identity as Isma'ili. The three interviews with Shi'a

women were conducted at women's homes. I had attempted to organize one additional focus group interview with Shi'a women to achieve an equal number of focus group interviews with Isma'ili and Shi'a women. However, I was not able to carry out this interview, as discussed in the next section. The focus group interview with the community health workers centered primarily on their views and perceptions of "healthy" and "unhealthy" households in Oshikhandass and on the messages they conveyed to mothers about child health during the Project. This focus group was held outside in the yard of the health dispensary in Oshikhandass.

The findings from the focus group interviews helped me develop an understanding of how the particular situation of childhood diarrheal disease vulnerability was perceived and coped with on individual, household, and the community levels. This understanding was then used to articulate more general statements concerning the significance of access to resources and coping strategies in mitigating childhood vulnerability and the ability of some individuals and households to adjust or respond to disease hazards affecting the larger community.

Participant Observation

A fourth set of data was derived from participant observation in Oshikhandass, the surrounding valleys, and the regional capital of Gilgit. Participant observation is a commonly employed strategy that relies on the observer's skills to gain an understanding of the subjective experiences and knowledge of a group of people of which the observer is not regularly a member. According to Robson (1993:194), a central feature of participant observation is that

> the observer seeks to become some kind of member of the observed group. This involves not only a physical presence and a sharing of life experiences, but also entry into their social and 'symbolic' world through learning their social conventions and habits, their use of language and non-verbal communication, and so on. The observer also has to establish some role within the group.

In this study, the mode of observation entailed participating as much as possible in the events being studied and being clear from the start about my purpose in participating. The first steps entailed moving to Oshikhandass and settling into the household of Farzana Baji, a 44-year old Isma'ili woman and mother of five sons and one daughter. We negotiated a rent payment, which I paid every month to cover the expenses of my stay in her home.

Participant observation was used for several ends in this study. During the household micro-studies, observations were made in particular sites of household activity: the water channel, fields, gardens, forests, and in the home. An observation guide helped me to loosely structure my observations to maintain my focus on certain behaviors and the use of space (Appendix E). This guided technique highlighted for me the connections between the spaces and activities of children and caregivers in the study households. I also spent time with mothers during their work (or when working alongside them), a technique which revealed certain types of behaviors, resources, and knowledge women utilize in the course of their livelihood and care work. This helped me acquire valuable information about how livelihood and coping strategies are structured and gendered. My primary methods of recording these observed data were systematic journaling of conversations and observations and taking photographs.

When I was with my host family or out in the neighborhood and community, I maintained a flexible and unstructured approach to my participation and observation. The result of this approach was that useful insights into the lives and activities of *Oshikhandassi* (people from Oshikhandass) were revealed in often unexpected ways. Because of the centrally located and socially integrated status of my host family household and the specialized skills and knowledge of Farzana Baji, women and men from the community were regularly stopping by our house. On many mornings people came to wait inside our courtyard for the Suzuki to Gilgit which happened to stop right beside our gate.

These early morning exchanges revealed a wide range of details about family life, work, health concerns, or economic priorities. More regularly, though, people, mainly women, came to our house to exchange seeds, use our telephone (one of the 80 phones in the village), hear Farzana Baji's opinions about a particular village matter, and share recent news and gossip. I benefited from these frequent visits by joining the conversation and the Pakistani ritual of making and drinking *chai* (sweet milk tea) with guests. For the most part, these informal conversations took their own shape and were "speaker-centered" (Patai, 1988:10), though I regularly interjected questions or answered questions that were posed to me. I also applied this unstructured approach to the spontaneous conversations that took place in *gullis* (lanes), the neighborhood, or at important events such as weddings, funerals, and meetings that were held in the village.

Outside of Oshikhandass, my participant observation included reconnaissance visits to the nearby valleys of Bagrote and Hunza. The purpose of these visits was to

develop a perspective on the social relations and social networks that have been established between residents of Oshikhandass and the valleys from which the families of the residents have come. These relationships are significant in the way they influence the differential access to certain types of knowledge, information, and resources, and in the way they provide mutual support to families in times of health and/or family crisis. Once again, in these valleys I found that my identity was constructed through my relationships to people in Oshikhandass, for example, as a member of an Isma'ili household, as a friend of a Shi'a mother, or as a colleague of people working at AKHS,P.

In nearby town of Gilgit, my participation entailed observing the male domain of economic and *bazaar* activity. I observed some of the fathers, fathers-in-law, and brothers from the study households in Oshikhandass at their *dukhan* (shops), *sabzi* (vegetable) stands, offices, and/or official positions in the police or army. As I made my way around Gilgit on these occasions, I found that my identity had become that of an *Oshikhandassi* as people from the village observed and scrutinized me and requested to know where I went, who I met, and why I was there. Just as I was defining people in Oshikhandass in my research, they were defining me as a partial "insider" or as a hybrid "insider"/"outsider" when I was outside of the village.

I also observed the process of how women and girls from Oshikhandass, who work or go to school in Gilgit, negotiate space and gender relations outside of their village. My observations took on an additional layer of meaning for me through my own participation and negotiation of space and gender relations in Gilgit. The uncomfortable experiences of walking alone in an all-male bazaar, sharing cramped

seats in the Suzuki, and being stared at became bonding experiences between me and the few women commuters from Oshikhandass. Moreover, the seemingly mundane trips in the Suzuki underscored for me how women's status and lack of mobility curb their access to transportation, and more significantly, to educational and/or income-generating opportunities in places outside of Oshikhandass. These observations helped to contextualize and give meaning to the data gathered in more structured ways.

Secondary Data Sources

Secondary data have been instrumental in elucidating the social, historical, and policy backdrop of the study and situating this study in relation to broader research and child health programs within Pakistan. The information collected through these sources was also used to triangulate evidence from other data sources. These data were collected during the first period (September-December 1996) and the second period (September 1997-July 1998) of fieldwork . The sources of secondary data were both in published and unpublished forms. The unpublished secondary data included: empirical case studies, foreign consultant assessments, government and non-governmental agency reports, existing studies of child health and survival in Pakistan, reports on rural livelihoods in mountain environments, administrative records, and dissertations.

The published sources include: official government documents (e.g., the 1981 census records for the District of Gilgit), annual commission reports, and statistical profiles on the health of various social groups such as women and children), official

non-governmental agency reports, bi-lateral and multi-lateral development agency documents and country reports, newsletters, books, and Pakistani and South Asian scholarly journals. Additionally, I collected information from historical and contemporary English-language newspapers. These data shed light on the range of extant interventions in Pakistan to address child health and community development. Furthermore, these data uncover the dimensions of institutional arrangements among government agencies, development organizations, and community-based institutions which seek to address child health problems. These data inform the historical and policy context presented in Chapter IV, and they inform household and individual accounts presented in Chapter V, VI, and VII.

RESEARCH NARRATIVE IV:

METHODOLOGICAL DILEMMAS & LIMITATIONS

Despite concerted efforts to remain sensitive to the politics of fieldwork and the power relations between myself and those I researched, I encountered several methodological dilemmas. As others have shown, methodological dilemmas are inherent in field-based projects and are ultimately unavoidable (Katz, 1994; Wolf, 1996). The situations and limitations I experienced made me conscious of my social position, both geographically and socially, and the indisputable structural and material chasms between myself and community members. They had a bearing on my relationships to the community and households being "studied," on the types of information I was and was not able to gather, and on the process of translation and representation of the subjective experience of the study participants.

My identity as a white, urban, American woman *Angrez* did not preclude me from traversing sites of social interaction or from establishing close relations with many people of various ethnic and religious backgrounds in Oshikhandass. In fact, my identity and location in the village facilitated some of my relations and the partiality of my immersion in the day-to-day lifeworlds of *khandan* (family), *humsaia* (neighbors), and those participating in my study. Yet, some social chasms between myself and those in the field site left an undeniable imprint on my record of the subjective experience of women and family members and made me skeptical about the ability to capture the perspectives of every segment of the community. I discuss these dilemmas through four themes: local field sites and gender, personal and institutional relations, representation and translation, and local acts of resistance.

Local Field Sites and Gender

One important aspect of ethnographic field research that has been highlighted by geographers is scale. Work by Oberhauser (1997), Katz (1994), and Rocheleau (1994) demonstrates that an adoption of the appropriate scale of inquiry is essential for obtaining information about daily practices and experience. The work by these feminist geographers has pointed out that the sites of women's work and activities have an impact not only on women's lives but also on the research process. Oberhauser (1997:168) notes,

> In cases where the home is the site of fieldwork, the household becomes a strategic, or politically situated location for both researcher and researched. This situation encourages reflexivity by the researcher who is forced to negotiate the space of the researched and thus become more aware of her own economic and social position vis-à-vis the subject.

Building on this concern for the appropriate scale of inquiry, I identified two key methodological sites at the local scale of social activity and action in Oshikhandass: the household and the community. Methodologically and analytically, the household and the community are the primary sites and spaces in which disease hazard, risk perception, livelihood, coping, and gender intersected to shape children's vulnerability. By starting with the scales of the household and the community, the everyday connections, relations, and networks could be explored and linked with the macro-level influences of social and economic change in the region.

The household as a site of research included not only the living space of the home, but also women's livelihood spaces – fields, gardens, family forests, orchards, and livestock pens. This notion of the household consisting of multiple family and livelihood spaces was adopted for several reasons. First, women's responsibilities and commitments in this setting expand multiple and inter-related spaces of the private sphere. Second, by interviewing women in these multiple household spaces, I was able to observe and learn about many facets of their seasonal activities and how these are situated within the overall family and livelihood setting. I moved to Oshikhandass in the winter at a time when people were spending most of their days inside around the *chullah* (hearth).

By spring and summer household activities had shifted outdoors, and the specific gender divisions of labor continued to be defined by seasonality, an important factor that is often neglected in depictions of child care and the conditions under which women perform their farm work. As the *garam mosam* (hot season) came into full force, meeting women for interviews in their homes became a major

challenge. Women increasingly spent their days working outside their homes in either fields or forests, taking tea and bread with them for a mid-day snack. Children were taken along and usually left in the shade under the care and supervision of older siblings. Under these circumstances, I found that meeting with women wherever they were located was a useful strategy for conversing and observing them without interrupting their work.

The household micro-studies continually forced me to reflect on the complex challenges of building trusting relationships with mothers. The type of research I conducted necessarily relied on the development of a trusting relationship that would allow me into households (Oberhauser, 1997). As a researcher, I was an outsider to these women, and different from them by reason of education, language, socioeconomic background, and foreigner status. Some suspicions were raised about why I was doing research on child health when I did not have any children of my own. This required me to spend time explaining my research, and why I had asked the mothers to be involved in my project. At the outset of interviewing, most mothers considered me a *kas mehman* (special guest) to whom tea and an embroidered cushion had to be provided. I worked to overcome this *kas mehman* status by meeting mothers in their fields, under apricot trees, in the *jangal* (forests) and *bagh* (garden), or next to the *chullah* (stove). They were pleased and surprised that I showed an interest in their work and their families by joining them in "their" sites of family and livelihood.

It was illuminating to see how women negotiated their time and responsibilities in these sites of farm, care, and *ghar* (home). For example, in the

multiple sites of farm, care, and *ghar* (home) women's time was often devoted simultaneously to livelihood and care giving activities. The interview with Zainat was frequently interrupted by various farm tasks and the care of one of her two under-five children. In the setting of Zainat's household, insights about the scope of her everyday activities as a farmer and a mother became evident. Interviewing and observing in the multiple sites of the household also helped to establish how women's family and farm activities are connected to local and regional economies and community social networks.

It was impossible to schedule the interviews given the unpredictable range of activities and spaces in which mothers engaged each day. Sometimes the interviews were interrupted by other activities taking place in the household or unexpected happenings outside of the household. At other times interviews had to be postponed when mothers were not home. I took great care to record what was happening in the households even on these occasions when mothers were absent. Often these times conveyed information about the division of labor and the care giving of children when mothers were working in their fields or orchards or assisting other women with their work. Consequently, I found that multiple visits to the study households regardless of whether I was conducting an interview, proved to be an effective strategy for observing livelihood and child care strategies.

The community sites of research in this project were multiple as well: the bazaar, schools, soccer field, irrigation channels, Jamaat Khaana, the main road, the Suzuki station, and the health clinic. My interactions in these community sites tended to reflect the gender differentiated nature of access and use of space in Oshikhandass.

While these sites may seem "public" to the casual visitor, they are intrinsically bound by patterns of gender segregation. For example, men occupy the shops, benches, and conversations of the *bazaar* (the local commercial center); women observe unspoken norms of gender segregation by quickly passing through the bazaar or avoiding it altogether by following circuitous footpaths through the village.

Generally, it was very difficult for me to strike up conversations with men in these community sites unless they were friends or relatives of my host family or of the study participants. Yet, in spite of the ideologies of segregation which operate in this setting, I found that under certain circumstances I was able to traverse gendered sites of activity and interaction because of my "outsider"/foreigner status. For example, I was invited to observe the annual spring cleaning of the upper water channels, an all-day event in which only the men and the boys from the village participated. Another example was when I was permitted to attend the "public"[7] meetings held by the Water and Sanitation Committee. Observing in these community sites revealed how seclusion ideologies that dictate the parameters of participation and exclusion based on gender have far-reaching consequences on women's access to resources, the marketplace, medical facilities, spheres of decision-making, and institutional arrangements to address water and sanitation problems. Both the household and community emerged as strategically and politically-situated sites that framed where and with whom I spoke, and operated as filters on the way I interpreted what I heard and observed.

Personal and Institutional Relations

Several aspects of the personal and institutional relationships I developed had a bearing on research design and data collection. My relationships with Farzana Baji and her family were particularly instrumental in helping me become a partial "insider" in the community. By living with Farzana Baji's family and participating in life in Oshikhandass, I hoped to give myself and my purpose legitimacy and credibility that would encourage women and men to share their life experiences with me. Farzana Baji became a central figure in my research as she voluntarily took on the roles of cultural guide, translator, key informant, and friend. To Farzana Baji and those in her family, my becoming a member of her household held a certain significance, and meant that I took on the multiple roles of sister, daughter, confidant, and host when relatives and acquaintances of Farzana Baji's family stopped by for a visit.

My participation in my host family demonstrated to people that I was interested in overturning the hierarchical relationships that were setup between Pakistani and the *Angrez* during the colonial era and which have continued to be reproduced throughout Pakistan since Partition. Farzana Baji's commitment to *mera kam* (my work) certainly served to facilitate of my entry into the gendered society of Oshikhandass. However, this relationship had repercussions on data collection. The relationship meant that I tended to be exposed to the Isma´ili segment of the population to a greater degree than the Shi´a community. Also, at family or religious functions, Farzana Baji and her friends often provided their own "editing" of what I

was hearing and observing based on their own judgement of what traditions, rituals, or stories they deemed were important and relevant for me to record.

Like Farzana Baji, my field assistants played significant roles in initiating my contacts with people and in influencing what I heard and recorded. I selected three of the AKU/AKHS,P project community health workers to be my field assistants. Muki Bano, a 27 year old Isma'ili woman, was my main field assistant, and she accompanied me during the majority of my interviewing and observation in Oshikhandass. When Muki Bano was sick or occupied with family obligations, her sister Parveen, a mother of four, served as my translator. During all of my exchanges with mothers from the Shi'a community, I was accompanied by my third research assistant, Fatima, who was a 25 year old Shi'a woman with four children.

My decision to include Fatima was both practical and strategic. Fatima lived in my neighborhood, and I could easily contact her to do translation work in our part of Oshikhandass when necessary (whereas Muki Bano lived on the other side of the village). Furthermore, the message that I should work with field assistants who represented both of the religious groups in the village was conveyed to me early in the second period of my fieldwork. Fatima's selection provided me with a defense against potential accusations that I was aligned primarily with the Isma'ili community and its development agenda in the village. When I launched into interviewing, I quickly realized that the Shi'a women were more relaxed and willing to speak openly with me when Fatima was present. Furthermore, these "all Shi'a" exchanges shed light on social and religious tensions in the community that otherwise would not have come out if I had only worked with Isma'ili field assistants.

My association with the three field assistants allowed me to enter into households and to speak with women (and children and some men) with whom I would have never been about to speak given the tremendous language barriers. I relied heavily on their advice and insights into the community, and I gained tremendously from their years of experience working at the household-level with the rest of the AKHS,P staff during the diarrhea and dysentery project. Also, they regularly "spoke" for me, thereby exerting their own interpretations of my identity and removing some of the obstacles to people's acceptance of my research. Since visiting households usually entailed walks along alleys, through fields and pastures, and past people's homes, my field assistants and I frequently met people who did not know me. On these occasions people politely interrogated Muki Bano, Perveen, and Fatima in Shina or Burusheski about my background, research, marital status, and residence in the village. I could usually follow the gist of these interrogations, and realized that my assistants helped to dispel suspicions about my identity and purpose in the community. With their assistance, I strove to define the relationships between myself and the study participants in terms of friendship, trust, and reciprocity.[8]

My institutional affiliation with the Aga Khan Health Services, Pakistan (AKHS,P) also had a distinct impact on the fieldwork. As I pointed out earlier, this affiliation guided my decision to select Oshikhandass as the field setting, and it served as an important point of access into this particular locality. At the same time, this affiliation was not without consequences. Along with this affiliation I was directly associated with the specific aims and objectives of an Isma'ili development network. Whether people were supportive or not of the organization, my association

with AKHS,P reflected another level of "outside" influence on the space and time of people in Oshikhandass. While this affiliation did not overtly obstruct my research in any apparent way, it had repercussions for how people constructed my identity and role in the community.

During the early stages of my research, the AKHS,P affiliation linked me directly with the AKU/AKHS,P project's infrastructure and purpose. In several cases this perceived linkage was interpreted to mean renewed project benefits for families. Despite my attempts to dispel rumors, I believe false hopes were raised in the minds of mothers that my aim was to reintroduce the project in Oshikhandass. I would not say that this perception was widespread, but it did result in some confusion about my role and aims in the community. For example, during initial village walks and household visits, some mothers perceived me as a medical person and requested that I provide oral rehydration solution (ORS) packets[9] or *dowai* (medicine) that would help them give birth to sons. I reflected on other potential suspicions that people might have harbored about my connection with an Isma´ili non-governmental organization. In a community marked by religious and ethnic tension, I pondered the notion that some people might have thought I was there to further support Isma´ili models of development and religious practice. The perceptions of my identity were taken to a different level when I heard that a few men were convinced that I was really working as a spy for the American government in a larger effort to destabilize Muslim society and Shi´a and Sunni relations, a common perception in South Asia based on experiences from the 1960s.

Their Telling, My Retelling: Issues of Interviewing and Translation

Several aspects of interviewing and translation deserve emphasis here. All of the household micro-studies were carried out with the mothers of the households. At the outset of research I did attempt to draw on male perspectives by interviewing the husbands or fathers-in-law. This turned out to be virtually impossible since many of the husbands or male elders were absent from their homes during the day (or even for the entire spring or summer). In a few rare situations, I had the opportunity to converse with husbands or fathers-in-law. Generally, I found men to be friendly and outspoken. In other situations, I realized that my presence made some male family members extremely uncomfortable, resulting in their quick departure from the household. This reaction might have been a reflection of the reality that men in Oshikhandass rarely interact with women who are not members of their family or close neighbors. During some of the initial interviews with mothers, male family members were present to listen to the beginning of the conversation. Their presence usually had the negative effect of subduing the conversation between the respondents and myself until they left the room. I attributed this response to local attitudes towards male authority that tend to silence women in front of male kin.

Another problem emerging from the household micro-studies was that the collection of accurate information on household income sources and productive assets was sometimes very difficult. A few of the respondents simply did not have knowledge about the financial resources or expenditures of their families. This was particularly true among respondents whose husbands were involved in livestock management in high pastures during the summer or were working as laborers in

distant urban centers such as Rawalpindi or Karachi. In several examples, the respondents relied on their older sons to provide the information on income and expenditure. This observation revealed that knowledge of and decisions about resource allocation in some of the study households was distinctly gendered. As a result of these factors, the household data on decision-making and resources reflects a female bias in information.

I conducted most of the interviews with the help of Muki Bano, Parveen and/or Fatima. I either administered the interview myself in Urdu, or as was most often the case, Muki Bano or one of the other field assistants translated the interview template into Burusheski, or Shina. I requested my field assistants to not discuss the highly sensitive information about these households with members of their own families or friends. Approximately half of the interviews were taped and later transcribed.[10] When interviews were not tape recorded, my field assistants translated the responses into Urdu for me, which I then recorded in a mix of Urdu and English on the interview form. During every interview with a person in Oshikhandass, I was accompanied by at least one field assistant. This strategy was designed to facilitate communication between myself and those in the household (or in the gullies along the way) and to conform to culturally-ascribed norms about women's mobility that strongly advised against women walking in the village alone.

The first phase of interviewing in the 30 households entailed an initial meeting to explain my project to the adults in the family and to seek their participation in my study. In half of the households my field assistants, based on their previous experience working on the AKU/AKHS,P project, advised me to meet with at least

one male member of the household in order to gain his *ijazat* (permission) to speak to his wife. In extended family situations, I met with the fathers-in-law in order to gain their *ijazat* to speak to their daughters-in-law. The conversations between the male "heads" of the households and myself usually took place in Urdu while the mothers sat quietly off to the side or in a neighboring room, listening quietly to the conversation. Since most women in this village do not speak Urdu, I was dubious about the ability of the women to understand the nature of my project or my purpose for wanting to involve them.

This process of gaining *ijazat* revealed much about the hierarchies of gender and power in the study households, and also raised questions about women's authority over their own decisions to participate (or not) in my study. How would I ever know if one of my respondents was participating in the study only because she felt obligated? What about her own feelings towards my project, about sharing critical moments in her life with a complete stranger? Among the Shi'a women living with their extended families, the women were often the first to insist that I ask their husbands or fathers-in-law for *ijazat* to include them in my study. In the Isma'ili households, some of the male members thought it was amusing that I was seeking their permission, and they laughingly said, "My wife can do what she wants!" or "What does she know?" In other cases I was told that getting the permission of the mother-in-law was sufficient since it was the mother-in-law who held authority over the mother's activities. There were several Isma'ili and Shi'a mothers living separately from their extended families who said, "My husband is not even here during the day" or "He does not worry about what I do," and hence, acquiring

permission from their husbands was not critical to the interviewing process. There were no rejections to provide permission among the two groups of households.

I realized that gaining access to women's interpretations of their lives, of raising children, and their priorities and visions of the future necessitated my conformity to the gender norms of the research setting. In an attempt to contribute to knowledge and feminist theory about the ways in which gender influences child health decisions, I was reminded that talking to and working with women required the approval of others, namely the authority figures in women's lives, and my negotiations with gender norms. My observance of these norms was of critical importance for establishing close relations with women. Yet, my feminist concerns about the politics and ethics of fieldwork made me realize that while my conformity was crucial to the research act, it also helped to reproduce the hierarchical gender structures in this rural setting.

From my first phase of fieldwork in Oshikhandass (Fall 1996) I learned that it was virtually impossible to single out mothers living in joint family situations for interviews. Invariably, other mothers, mothers-in-law, or neighbors were present during interviewing. During this second phase of data collection, I was once again reminded that interviewing, much like household life, was a group endeavor. In most cases the presence of other family members had a positive impact on the interview because they added important details to the respondents' answers. Or other family members asked me questions that led to interesting discussions between us. Some mothers-in-law expressed amazement and delight that an American woman had "selected" their daughters-in-law as participants in a study, and they took it upon

themselves to ensure that their daughters-in-law gave me the "correct" answer about their lives. I also observed that young mothers relied on older mothers and mothers-in-law for certain information such as details about family history or property.

The full extent of women's view of their position within the family hierarchy manifested itself when mothers fell silent to allow more senior women to dominate the open-ended questions or even the entire interview. It was common for older women to want to discuss or critique certain aspects of the interview. Several older women seemed skeptical about my purpose and wondered why I was wasting my time asking them questions about their lives in Oshikhandass. On the other hand, I did hear an emphatic *Likho!* (Write this down!) on a number of occasions when older women felt compelled to convey their views on certain questions or issues. In this way, I gained detailed and unexpected information about family life and the social and economic context of Oshikhandass.

Gaining permission to interview mothers continually forced me to reflect on the complexity of researcher/researched relations. I was an outsider to these women, and different from them by reason of education, language, socioeconomic background, and my *Angrezi* status. In order to reduce the problem of intrusive data collection methods noted by the Personal Narratives Group (1989), I took great care to turn the interview into a social visit and an opportunity to develop a friendship. I made it clear to mothers that they did not have to answer all of my questions if they did not want to, and I also encourage them to ask me questions during the interview. I found that this flexible technique encouraged a more egalitarian relationship between the mothers and myself. The interview became less of an interrogation and more of an

opportunity to develop a friendship. I worked to supplement my Urdu skills with enough Shina and Burusheski to allow me to carry out simple conversations with the respondents, an action that they greatly appreciated (and many times laughed at). Mothers welcomed details about my life, and they seemed reassured to learn that I was married and had parents, a brother, and other relatives, rather than being a familially-detached individual living in their village. Furthermore, presenting details about my life made me more approachable. In fact, I found that over the course of my research many of the women treated me as a "neutral ear" that shared similar concerns of a wife, daughter, and daughter-in-law with them. This was reflected by their interest in expressing their feelings and deeper concerns to me, and in their telling of stories about the significant events in their lives.

Another methodological issue concerned my interpretation of respondents' narratives. Feminist scholars have voiced concern over the ethical and interpretive impacts of "speaking for" socially and politically marginalized groups (Personal Narratives Group, 1989; Mohanty, 1999; Mohanty et al., 1991; Spivak, 1988). While this research was directed at exploring experiences that have been "out of sight" historically and geographically, the process of conveying these experiences raised complex questions about interpretation and representation. The basic and fundamental problem I encountered was one of translatability. A number of essential details were not carried over from Shina or Burusheski, to Urdu and then to English during the translation of interviews. Much of the richness of expressions, language, and imagery was lost in the telling and re-telling of what people said. It was evident to me that respondents' narratives reflected what they selectively chose to emphasize or de-

emphasize; likewise, my field assistants and a professional translator in Gilgit played major roles in making and recording these translations. Furthermore, I want to emphasize my role in the translating of what are essentially "partial narratives" (Katz, 1994) for an academic audience. My re-telling of these narratives when I traverse the sites of the research field to the spaces of the academic field of the discipline of geography represents another level of translation to make these narratives fit into the expectations and frameworks of a specific audience.

Local Acts of Resistance?

The final set of dilemmas in the field was linked to the role of subjects shaping the project, and specifically, what I perceived to be acts of resistance to my research. The acts of resistance that I witnessed raised fundamental questions in my mind about how some people in Oshikhandass viewed me and my research. One notable example of this was when I attempted to organize a focus group interview with women from the Shi´a community. The day prior to the interview, five women had enthusiastically engaged in a conversation with me. Due to time constraints, I asked them if I could carry out an interview with them the next day. They agreed and told me they would organize other women from their *mohalla* (neighborhood) for the interview. On the day of the interview, I went to the meeting place at a Shi´a woman's home. Only two women were present, one of whom was a participant in the household micro-studies. They suggested that I reschedule the meeting for that afternoon. In the afternoon no women gathered for the meeting at the woman's home. Muki Bano and I walked down the alleyway to see if we could organize some

of the women for the meeting. The women who had initially agreed to the interview were reluctant to speak to us.

As we departed from this *mohalla,* Muki Bano informed me that she knew these women were not going to meet with me. Later, she learned through various sources that several of the women were home at the time of the meeting, but they had locked their gates. What were the reasons behind this act of refusal? Was it my status as a "non-local" affiliated with AKHS,P? Their distrust of me? Constraints on their time? The lack of permission from their husbands? Despite the fact that I had established a good rapport with other women in this same neighborhood, boundaries remained around my ability to gain access to the space of this particular group of Shi'a women. I had hoped that using a neighbor woman's home as an interview site would have reduced any fears of meeting in the gaze of men. This was also a strategy to reduce any perceived power imbalances between myself and these women. Ultimately, this example of resistance raised a central issue about how people placed me in the "field," and the manner in which they set boundaries to keep me out. While I felt that it was necessary to establish a rapport with this segment of the Shi'a women's community, my efforts were unsuccessful.

The second example of what I perceived to be an act of resistance to my work as a researcher was at the house of a revered sheikh. I was interested in meeting with him because he was the most important authority on matters concerning faith and healing among the Shi'a community in Oshikhandass. After I arrived at the sheik's house, his wife informed him that I was to wait on the porch. From the porch, I watched as several groups of guests came in and went out the main courtyard door.

After all of the guests had departed, the sheikh still had not come forth to meet me. His wife commented that he was busy. After an hour of silence from his office, I asked his wife if I could meet with him. To my surprise, he had departed from the house. Since I saw no one leave by the main door for over an hour, I surmised that he must have used a back door. In Northern Pakistan it is extremely rare for people not to meet guests even if the meeting is just for a brief moment. What was the motivation of this resistance to meeting me? Was it the barrier to meeting face-to-face with a non-Muslim woman researcher? Was it the perception of my project as an Isma´ili project? Was it the chasm of social difference between us? In the end, I did have the opportunity to speak to another Shi´a faith healer in the community. Yet, this example, along with the previous one, underscored the ways in which the geographical and social limitations on my relations with key informants were closely linked to a combination of factors such as identity, social relations, and value systems shaping the context of my research.

The methodological implication of this final dilemma was that the subjective perspectives of those who refused to provide their interpretations and experiences are not represented in this dissertation. Despite my efforts to sensitively situate this study in the field setting, my understanding of the circumstances of childhood illness is necessarily partial. Without making claims to a "privileged scientific neutrality" (Scheper-Hughes, 1992), I want to be clear that despite my attention to provide a just description of children's vulnerability, there was resistance to my interviewing and data collection. Moreover, I found that some people's narratives were more "open" or accessible to me than others, or were open to me because I adopted the gendered,

and I should add generational, terms of social relations. Documenting these experiences suggested that the process itself is not immune to the various social relations in place. Hence, the record provided in the following chapters is based on the views and interpretations of people who contributed to constructing this narrative on child health.

CONCLUSION

This chapter reviews the methodology, methods, and data sources used in this study and outlines some of the methodological issues and dilemmas I encountered in the carrying out this research. The chapter locates this work within new directions in feminist, health, and hazards geography and suggests that the ethnographic stance was suited to the methodological problem of how to capture the everyday experience of childhood disease and vulnerability. As I suggested above, choosing the appropriate scale of research was critical to the collection and interpretation of information. By locating the research at household and community scales, I attempted to redress the imbalances in power between research participants and myself. While people expected me to conform to local norms of behavior as a partial "insider" in the field setting (e.g., covering my head and avoiding walking alone), I also found that because of my "outsider" status I gained a level of privileged mobility and was able to traverse gendered social terrains under certain circumstances.

My goal in recounting several "field" dilemmas is not to portray what Cindi Katz (1994:68) refers to as a set of "war stories." Rather, I want to highlight the idea that ultimately, as Abu-Lughod (1993:36) claims, "positionality cannot be escaped."

These dilemmas were unpredictable at the outset of this research; they suggested to me important concerns about the frailty of methodological control and design that receives slight attention in the conventional literature in health and hazards geography. As these dilemmas show, an understanding of whose narratives of child health are heard and recorded requires careful attention to reflexive analysis and social context. Moreover, carrying out field research on children's vulnerability is by no means a straightforward and impartial process. The issues I encountered forced me to become aware of my social, political, and gendered position vis-à-vis the researched. The conversations to gain the consent of people who have control over the participants in my study brought to light the challenges of overcoming power asymmetries. What these conversations and exchanges might have meant for women and their impressions and feeling towards the research process, however, remain untranslated and unrecorded. As the examples of the Shi´a women and the sheikh demonstrate, there were a number of factors that influenced the research dynamics, some of which I will never come to learn.

While I attempted to construct a complete picture by triangulating the data from household micro-studies, specialized interviews, focus group interviews, and participant observation, there were details of people's subjective realities that were not translated, observed, or recorded. As I suggested using the examples of several limitations to data collection, my influence and the influence of my research created tensions and struggles within certain segments of the community. Likewise, further methodological tensions emerged as I grappled with the problem of accurate translations of interview data. The acknowledgement of these dilemmas reflects

ENDNOTES:

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[1] I owe my use of the term "dilemma" to Diane L. Wolf's (1996) edited volume Feminist Dilemmas in Fieldwork.

[2] The results of interviews conducted with 65 mothers during this first period of research are presented in Halvorson (1999) and are not discussed in this dissertation.

[3] The Women's Organizations are part of the community-based development approach of the Aga Khan Rural Support Program (AKRSP), a non-governmental organization that has been working in the region since 1982. Women's Organizations have been established throughout the AKRSP project areas in the Northern Areas. More details on AKRSP and WOs in Oshikhandass are provided in Chapter IV.

[4] In general in Northern Pakistan few women have had the opportunity to go to school and learn Urdu. As a result, the use of the Urdu language reveals certain gender and generational trends in the region. The majority of older women do not speak Urdu. More men irrespective of age speak Urdu (and sometimes English) as a result of their contact with channels of information (the educational system, TV, radio, and newspapers), and their encounters with urban areas in the Punjab and Sindh. More recently, however, a growing interest in girls' education in Northern Pakistan has resulted in new government and non-governmental schools throughout the region.

[5] The epidemiological data from this research provides an assessment of the magnitude of the problem of diarrheal disease. The source of the quantitative data is the Oshikhandass Diarrhea and Dysentery Project database which has been assembled by the Faculty of the Department of Community Health Sciences at the Aga Khan University in Karachi and the Aga Khan Health Services in Gilgit (see Appendix x for a description of each of the databases which make up the larger database). This extensive database includes seven years of empirical data on 485 households in Oshikhandass. The database includes weekly records on the number of episodes of diarrhea in households and the details of case management for each child under 5 years old (totaling more than 1200 children) in Oshikhandass between 1989 and 1996.

[6] The Ithna Asheri Isma'ili, more commonly referred to as Isma'ili in the region, are members of a denomination which separated from the Shi'a sect of Islam during the 13th century AD. The leader of the Isma'ili community today is Prince Karim Aga Khan, the 49th hereditary Imam.

[7] For the most part, "public" meetings in villages in Northern Pakistan entail meetings between the male elders and male heads of households. Only under special circumstances are women encouraged to participate in meetings that concern the management of communal resources such as water.

[8] The issues of friendship, trust, and reciprocity have been extensively addressed in the writings of feminist fieldworkers. In particular, the concern for reciprocity grows out of the idea that to be truly feminist, field research should have benefits beyond those that accrue to the researcher. For a fuller treatment of this idea, see Abu-Lughod (1993), Geiger (1990), Personal Narratives Group (1989), Scheper-Hughes (1992), and Wolf (1996).

[9] The distribution of ORS was one strategy used to reimburse mothers for their participation in the AKU/AKHS,P research project.

[10] Identifying someone skilled in translation and transcription was a major challenge to data analysis. Through the assistance of several people at AKRSP, I was put into contact with Sherbaz Khan, the Director of the Gilgit Municipal Library. Khan Saheb had undertaken translation work for various foreign and Pakistan researchers in the past, and he had an incredible knowledge of the social and cultural context of child health and healing (particularly traditions of shamanism and religious practice in the region). He was also fluent in the various dialects of Shina and Burusheski, thus allowing him to translate the entire array of interviews I tape recorded in Oshikhandass. I worked closely with him to discuss the interview data in order to ensure the accuracy of the translations.

CHAPTER IV

THE RESEARCH SETTING:

THE COMMUNITY OF OSHIKHANDASS

INTRODUCTION

Before moving on to the empirical chapters that specifically address the different aspects of children's vulnerability to diarrheal disease, an examination of the research setting is necessary to set the context of the study. This study was carried out in the village of Oshikhandass in Northern Pakistan. Oshikhandass is a relatively large community located 13 kilometers southeast of the regional capital of Gilgit, approximately 600 kilometers north of the capital of Islamabad (Figure 4.1). It is situated in the District of Gilgit within the Northern Areas of Pakistan. The village was initially settled by people who migrated from the valleys of Bagrote and Hunza with the hopes of finding land and a secure water supply for irrigation. In the 1930s and 1940s the population consisted of approximately 55-60 households. Today, the community has a population of over 5,000 and continues to experience an influx of people from elsewhere in the region. Due to transformations in demographics, services, physical infrastructure, and livelihoods, local people often refer to it today

as a "town in transition." The purpose of this chapter is to outline the historical and local-scale context necessary to situate later discussions of risk perception, access to resources, and the strategies of childcare that influence child health in this particular community.

Few secondary accounts exist regarding the settlement and residents' lives in Oshikhandass between the1930s and the 1980s. While the British did document aspects of life and culture in the northern region of Pakistan through their various correspondences and commentaries on particular issues,[1] no references are made to this particular community in The Gazetteer of Kashmir and Ladak (Quarter Mater General in India, 1890), the Report on the Gilgit Agency and Wazarat (Godfrey, 1898) or The Gilgit Mission, 1885-86 (Lockhart and Woodthorpe, 1889) since, according to many oral accounts, the village did not exist at this time. Similarly, more recent secondary sources concerning the Northern Areas pay relatively little attention to households in this particular community except for Caroe (1986). Therefore, much of the chapter is based on oral histories collected from elderly men and women in Oshikhandass and in the valleys of Bagrote and Hunza, the primary places of origin for the residents of Oshikhandass. In addition to these oral accounts, the chapter also draws heavily upon several recent secondary sources to provide background on contemporary region-specific trends and policies in the Northern Areas that have had an impact on the community (for example, AKRSP, 1993; Bhatti and Khan, 1992; Malik, 1996; World Bank, 1990, 1996). A discussion of these trends and policies is useful for highlighting the characteristics and vulnerabilities that this community shares with other places in the region.

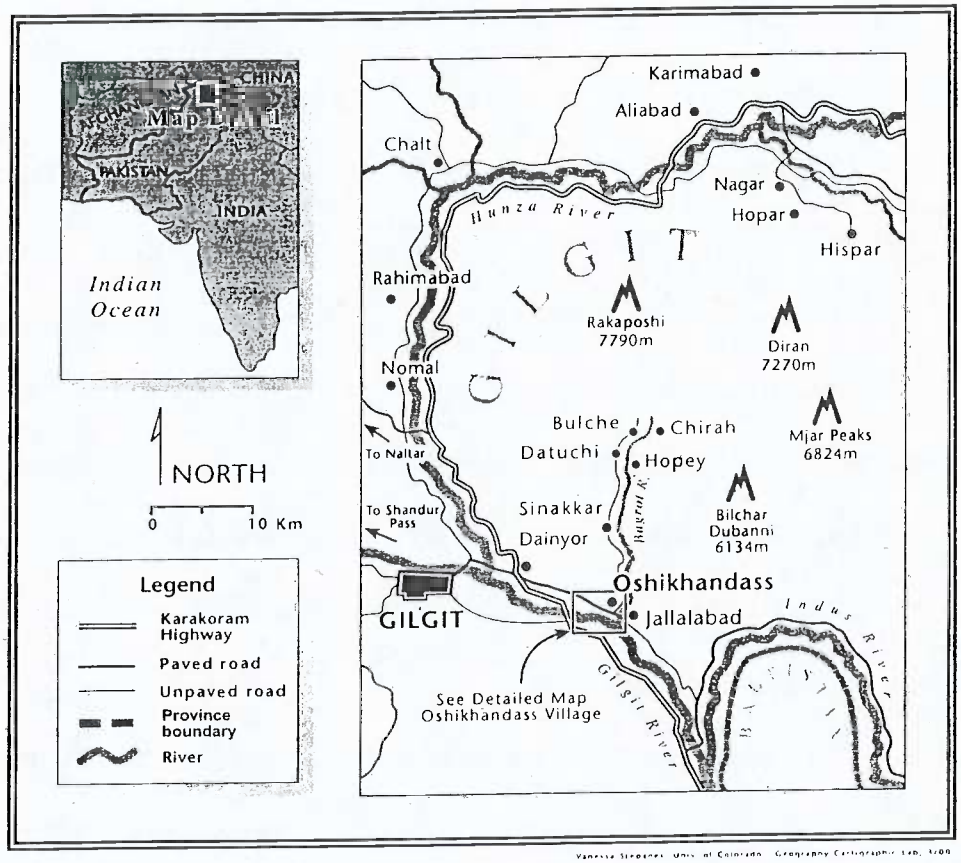


Figure 4.1 Map showing the study area and the Gilgit and Bagrote River valleys.

This account of the research setting is divided into three broad periods. The first period describes the early years of settlement from the mid-1930s to 1970. It deals in particular with the formation of community systems of support which have an enduring impact on health, livelihood, and household relations today. The second and third sections are focused on the impact of various local, national, and international policies and developments on the community, and addresses how these impacts have transformed the local context of health and development since1970. These sections examine several broad trends: 1) the linkage between Oshikhandass and wider development initiatives in the region; 2) the subsequent transformations of people's livelihood and health strategies; 3) the emergence of new discourses of health and development in light of the active role of non-governmental organizations in the community; and 4) the centering of religion and sectarian conflict in social relations, community politics, and daily practice. The second section looks at these trends from 1970 to 1990; and the third section renders an account of the contemporary situation.

These periods of history are important because they reveal the major trends leading up to the contemporary child health situation in the community. They also illustrate how Oshikhandass has been transformed by policy decisions, market forces, and social and cultural changes within and outside the community that have both directly and indirectly worked to forge new patterns of children's vulnerability to diarrheal disease. The last part of this chapter provides some demographic, social, and economic details about the study households which further serve to situate the specific empirical data in the overall context.

OSHIKHANDASS: RURAL VILLAGE AND TOWN IN TRANSITION

The community of Oshikhandass is located along the Gilgit River at an elevation of approximately 5,000 feet above sea level. It is situated in an extremely mountainous region where four mountain ranges -- the Karakoram, Hindu Kush, Western Himalayas, and the Pamirs -- come together. This high-altitude crossroads of deeply-incised valleys has experienced centuries of traders and soldiers, missionaries and mountaineers, all navigating overland passage along routes like the ancient Silk Road connecting northern Pakistan with its neighbors: China to the east and Afghanistan to the west (Dani, 1991). To the southeast, the border of northern Pakistan is demarcated by the "Line of Control" separating Pakistan's Northern Areas and Azad Kashmir from the Indian-held states of Jammu and Kashmir. The region is inhabited by a linguistically and ethnically diverse population of approximately 1,360,000 people (Directorate of Health Services Northern Areas, 1995) living in rural and fairly remote settings. Oshikhandass extends out on a fairly wide and flat alluvial terrace at the base of steep and barren mountains, the typical geologic feature of this "vertical desert" found in the rainshadow of the Himalaya Range. The average annual precipitation in the area is approximately 100-500 mm. From May to October the climate is hot and dry, and it is not unusual for the temperatures to reach more than 105^0 F during June and August. October to March is dry and cold with an occasional light snowfall. Oshikhandass is located in a double cropping zone which permits people to harvest wheat and corn annually.

The political status of the Northern Areas remains under dispute between India and Pakistan. Because it is not an official province within the nation-state of Pakistan, the Northern Areas lacks representation in national legislative bodies, and the residents of the Northern Areas do not have the right to vote in federal elections. Since 1972, elections for local government in the Northern Areas have been held. Only recently, in 1995, did a legislative body, the Northern Areas Council, come into existence to represent regional interests at the national level of policy-making in Islamabad. The Government of Pakistan administers the Northern Areas via its Ministry of Azad Kashmir and Northern Areas (Dani, 1991). The people of the region are exempted from paying taxes to the federal government.

The people in this mountainous region face undeniable inequalities in health and opportunity as compared with their down-country counterparts. In terms of indicators of health and development, the region is well below some of the national averages (Table 4.1). Eight major health problems account for 80 percent of young child mortality, which are neonatal tetanus, diarrhea, acute respiratory infections (ARI), iodine deficiency, malnutrition, measles, tuberculosis, and obstetrical complications (AKHS,P, 1996; AKHS,P, 1997; LeSar et al., 1990). The national figure for infant mortality (IMR) is 95 deaths per 1000 live births (ul Haq and ul Haq, 1998) and the Northern Areas figure is 130 deaths per 1,000 (Directorate of Health Services Northern Areas, 1995). The nutritional status of the population in the Northern Areas is described as inadequate both in term of micro-nutrient deficiencies (especially iron and iodine) and deficiencies in caloric intake (Mitchell, 1998). Although reliable data is not available, it is estimated that 4-6 % of children under 3

years of age suffer from third degree malnutrition and another 34% are below the normal weight for age standards (Directorate of Health Services Northern Areas, 1995). The EPI program in 1989 showed that only 14% of the children are fully immunized at 12 months. The aggregate number of doctors in the region is one per 6,660 people, but the real situation is far worse because these doctors are concentrated in two district headquarters, leaving most of the valleys with little access to trained physicians.

Table 4.1 Health and Development Indicators, 1993-1995

Indicator	Northern Areas	Pakistan
Infant Mortality Rate (per 1000)	130	95
Maternal Mortality Rate (per 100,000 live births)	500-800	340
Annual Population Growth Rate (%)	3.2%	2.9%
Population with access to safe water (%)	30%	60%
Population with access to proper sanitation (%)	13%	47%
Population per doctor	6,660	1,923
Literacy rate (%)	14%	38%
Per capita income	$225	$460

Sources: AKES,P, 1995; Directorate of Health Services Northern Areas, 1995; Mitchell, 1998; Streefland et al., 1995; ul Haq and ul Haq, 1998; WASEP, 1995.

The majority of the people in the region face extreme isolation, limited income generating opportunities, and deprivation in basic needs such as a proper diet and potable water. Oshikhandass, however, cannot be considered a remote and isolated village relative to other villages in the region. As the following sections illustrate, its history is one that has been closely tied with the broader political economy of Pakistan. From its early years as a rural village to its present status as a "town in transition," Oshikhandass has played a role in the expanding economy and the contemporary context of health and social development of the region.

Early Period of Settlement: 1930 to 1970

The contemporary setting in which children are born and raised in Oshikhandass cannot be disassociated from the early history of village settlement. The history of this particular village is interesting in that it is a relatively new settlement compared to the many long-established villages elsewhere in the region. The initial period of settlement of Oshikhandass in the 1930s was largely a product of population pressure and the need for cultivable land that pushed some people to look to other areas of settlement outside of their traditional village and valley boundaries. Its early history was also tied to the former Imperial interests and negotiations that took place between the British agents and the former 'state' of Hunza.

In the 1920s and 1930s, the Mir of Hunza, the traditional feudal lord ruling over the "state" of Hunza,[2] sent scouts to travel beyond the territories of his kingdom to explore possible areas for settlement. In some cases, acquiring new land for Hunzakutz (people from Hunza) settlement involved negotiations with British captains and British aid in designing and financing the construction of water channels. For example, the British, in conjunction with the Mir of Hunza, aided the construction of irrigation channels to develop new lands for resettlement of part of the Hunza population in and around Gilgit. At that time, the Hunza Valley was an area of food deficit and the construction of these channels and the resettlement of part of the population led to greater food security and to reductions in mortality associated with famine (Khan and Khan, 1992). In this way, the presence of the British in Northern

Pakistan subtly altered the social and economic context in which the traditional feudal institutions proceeded with the development of new villages and agricultural land.

Although the British did not assert direct control over the Northern Areas at that time, their economic and strategic interests in the region did lead to various types of alliances with feudal lords such as the alliance they established with the state of Hunza (e.g. see the accounts of David L. R. Lorimer published by Mueller-Stellrecht, 1979; also, Dani, 1991). These alliances were conditional and based on the level of loyalty the princely states exhibited towards the British administration that was headquartered in what is now India. Working within, but not challenging, the structure of the feudal systems in the region, the British initiated a process of social and economic change by investing in the improvement of physical infrastructure as well as the introduction of modern medicine, the establishment of schools, and the provision of public service employment opportunities. While these processes of transformation fall outside the scope of this study, the significance of British influence on this early period of settlement of Oshikhandass needs mentioning.

In the early 1900s, the British frontier policy was spurred by the objective to demarcate a boundary line to the north. The Anglo-Russian rivalry for control over Central Asia in the nineteenth century motivated the British to construct a political boundary that would halt the advancing interests of Russia. In order to establish this northern boundary, negotiations with the state of Hunza were crucial. Up to this time, Hunza maintained a close relationship with China, holding traditional land and grazing rights to certain specified places in Raskam and Minteka Pass in the region of Tashkurgan. In exchange, the Chinese government received an annual tribute and

presents from Hunza. The British greatly begrudged this exchange of gifts between Hunza and China and wanted the Mir of Hunza to cede the rights over this northern territory to the Chinese. As compensation for giving up the territory beyond Minteka Pass, the British offered to give the Mir of Hunza a *jagir* (area of land) at Bagrote Nullah (approximately 125 kilometers south of Hunza). Interestingly, this land deal came about as a consequence of a "lease agreement" the British Viceroy and the Governor General of India signed with the Maharaja of Jammu and Kashmir on April 1, 1935 that authorized the British to assume civil and military control of the *Wazarat* (District) of Gilgit (Dani, 1991:299). In effect, this lease agreement enlarged the 1889 Gilgit Agency boundary, thereby giving the Imperial administration control over the area where Oshikhandass is now located (whereas it had previously been under the control of the Maharaja of Jammu and Kashmir). In an official acknowledgment of this agreement, Muhammad Nazim Khan, Mir of Hunza, wrote to the British Political Agent in Gilgit in a letter dated April 5, 1937:

> I have great pleasure in promising that I will stop exchanging the annual presents with the Chinese, will give up all rights such as the right to graze cattle beyond Kilak and Mintika, the right to collect grazing dues in Taghdumbash and the right to cultivate lands in Raskam... I am very grateful for the increase of Rs. 3000/per annum in my subsidy as Mir of Hunza, and for the grant of a *jagir* in the Bugrot Nullah so long as the agreement in respect of the Gilgit sub-division between the Government of India and His Highness the Maharaja of Jammu and Kashmir remains in force. (Muhammad Nazim Khan, 1937, quoted in Dani, 1991:300).

This *jagir* at Bagrote Nullah was completely barren and rocky alluvium with many large boulders and very little vegetation. Settlement had actually been attempted at this site during the previous decade. According to oral accounts, around 1922 some men from Yaghastan (Kohistan) came to the mouth of Bagrote Valley,

constructed a water channel, and attempted to establish a small settlement. Given the intolerable heat, barren environment, and the lack of tree cover for shade, these people abandoned their settlement after one year. Besides this early attempt, the people living upstream in Bagrote Valley had also considered this alluvial fan at the base of their valley to be an ideal place for settlement because it had two essential elements: flat land (which is a rarity in the Northern Areas) and a close proximity to a water sourse that could be harnessed for irrigation. However, as the people from Bagrote undertook the task of creating a water diversion on several occasions, they found themselves facing a difficult challenge. While they had extensive experience in developing irrigation infrastructure in their valley, the nature of the water diversion problem proved to be extremely challenging from both engineering and construction standpoints.

Familiar with the reputation of the Hunzakutz for their engineering feats in the Valley of Hunza, they decided to seek an agreement to construct the channel with a group of people that did not share their same ethnic or religious background. Linguistically, the two groups spoke different languages: the people from Bagrote spoke Shina, and the people from Hunza spoke Burusheski (although there were some people from the southern part of Hunza who spoke a dialect of Shina). In terms of religious background, the Bagrotis were Shi'a and the Hunzakutz were mostly Isma'ili except for a few Shi'a households. According to Mahmat Abbas, an elder in Oshikhandass:

> In Bagrote, there was a man named Mahmat Shah Numberdar, the son of Bakdur from Bulchi. In the olden days everyone was honest and good. At this time all the people were just Muslims. There were no differences between Shi'a, Isma'ili or Sunni. Mahmat Shah Numberdar called a meeting with the

> people of Danyor to discuss the construction of a water channel and decided to meet with the Mir of Hunza… They decided they would make a contract with the people in Hunza.

Sometime between 1935 and 1936, Mir Muhammad Nazim Khan of Hunza came to the site to meet with the elders of Bagrote. According to one resident's oral account, a British officer named Mr. Cooke who was posted in Gilgit was also present when the agreement to undertake a joint engineering venture was made between the Mir of Hunza and the leaders of Bagrote. Apparently, this British officer also signed the land agreement. The Mir of Hunza then had his *Wazirs* (Ministers) announce that each village in Hunza needed to send 5-7 men from different families to this "land of the Bagrotis" to work on the construction of the channel. While some say the Mir of Hunza often forced people to move in order to relieve some of the pressures of land and food scarcity in Hunza Valley, in the case of the move to Oshikhandass people looked forward to the opportunity to acquire land. As one elderly man put it, "In Hunza there was not enough land for everyone, and there were many people who were interested in moving to gain new land."

At this time, two *Numberdars* (administers acting on behalf of the Mir) were selected to represent the Mir and also to organize the construction of the channel and the allocation of water with the Bagrotis. The construction of the irrigation infrastructure was undertaken in accordance with an extensive and elaborate system of reciprocal exchanges whereby the feudal administration was in a position to garner rents from subjects in the form of labor in exchange for access to resources (i.e., land and water), protection from incursions, and community security. Since the power and authority of the feudal ruler was linked to social relationships embedded in a system

of personal loyalties, familial and clan responsibilities, and social obligations, the Mir was able to organize the labor of these settlers to undertake the relatively large water works in Oshikhandass.

Once the arduous task of constructing the diversion and channel was completed, the men of Hunza and Bagrote divided the land between their two groups. The Mir then gave the land freely to the people from Hunza who had worked on the channel. One village elder came to know of this history through his wife's family said:

> My wife's grandfather, Dado, came from Hunza and was the Numberdar. In Jangeer [this is the oldest section of Oshikhandass] there were 54 families, and they divided up the land giving each family 50 kanals. Then, the Mir gave [his people] this land as a gift. The Mir supplied some of the equipment like the long metal pipe for breaking rocks which was necessary to make the channel. They came by foot. At this time there were no horses. The Bagrote wallahs were A-1. They were rich and had a lot of milk, butter, and livestock. The Hunza people were the poorest of the entire region. They had nothing and were all very poor. The people from Hunza came with nothing but a little food. The Bagrote wallahs gave them plows to use and provided them with everything they needed to farm.

As the above quotation points out, the people from Hunza relied heavily on the Bagrotis for assistance since they were only able to bring a few rations with them during the journey from Hunza to the site of this new village. The new settlement was subsequently named "Oshikhandass" which is a mix of Shina and Burusheski, the two languages spoken by the people from Bagrote (Shina) and Hunza (Burusheski). *Oshi* in Shina means wind, and *dass* is also a Shina word for barren and rocky land that is unpopulated. *Khan* is a Buruskeski word for "settlement" or "stronghold." Taken as a whole, the name means "settlement on a barren place of wind" (or also "windy barren

land") and reflects the coming together of these two ethnically and religiously distinct groups of people. In this cooperative trade of water diversion know-how for basic supplies and equipment, the two communities were able to eke out a meager living in this place.

Following the initial channel building, most of the attention was given to building irrigation infrastructure and clearing land. The reality of the time was one of hard work and laboring to prepare the land for agriculture. Older women in the community recount spending days hauling large rocks in order to clear the land for cultivation, and some blame their current health problems on these years of difficult labor. At the time most people built simple stone shelters to protect themselves from the wind and the intense heat in the summer. They relied on the forests at the upper end of Bagrote Valley for wood for cooking and for fashioning roofs. A picture of hardships, excessive heat in the summer, cold temperatures in the winter, and deficits in production emerges from the stories shared by elderly residents today:

> When we came here, this land was totally uncultivated and barren. We had nothing to eat. We made tea from the bark of the *gindawar* [Russian Olive]. We ate a type of brackish water as a salt. When we felt hungry, we ate *churkuee* [a local wild herb]. There were no vehicles so we brought our children on our shoulders from Nasirabad. Not enough to eat. Nothing to put on. There was no employment. My husband was the Numberdar. In Nasirabad we ate our fill.... In Hunza we did not observe purdah. When we came here we started to observe it. There lived those who belonged to one sect. There lived people who belonged to different sects. So we had to observe [purdah] strongly...We had good relations with [other sects] therefore we settled this barren area. Those old days were very tough. There was no shade to sit under. There was no water to drink. There was no relief. Whenever we went on the roof we suffered with sunstroke. There was no cool breeze.
>
> – Dadi Bano

A woman from Focus Group Interview #3 shared similar thoughts on this period:

> Oh, we led a miserable life. Now it is far easier. Now we are happy. Those who came in the early days faced many hardships. There was no proper food, no shelter, no proper clothes. We had no soap to take a bath. We washed our hair in ash water. We washed our clothes in a water made from soap herbs. We collected herbs or soap grass, chopped it up and put it in boiling water. Then we filtered it. It became like soap when it was mixed with water so we washed clothes in it. Now there are different brands of soaps both imported and made in this country.

The ash mentioned in this quote was from poplar bark and the soap water used at that time was made from *sabon ka gaz* (the local rendering of the English words soap grass) which the women collected themselves when they went into the nearby mountains to collect wood and fodder.

One of the most common themes that emerges from conversations with older women and men who experienced life in Oshikhandass during these decades is the theme of food scarcity. People at that time had genuine fears of periodic famine and seasonal food deficiency, and were occasionally compelled to search for roots and herbs to eat when harvests were poor. The threat of famine during the spring, coupled with the difficult cold in the winter, made basic survival in this barren place a great challenge for families. Cash was extremely rare and a system of bartering was used for transactions and the exchange of goods and services within the village. Non-farm sources of income were minimal since there were few off-farm employment opportunities at that time (except for a few positions in the civil service with the British administration or later with the military troop known as the Gilgit Scouts). Given the lack of cash and the relative isolation of this mountainous region, the market did not play a role in household consumption and production. Furthermore, the lack of roads and means of transportation in the region prevented access to

"outside" information and products such as tea and processed sugar. Transportation between Oshikhandass and surrounding areas was extremely difficult and virtually impossible for the young, frail and/or sick. As one older woman put it, "There was not just one problem. There were many problems:"

> There was no proper dress for the newly born infants. We ourselves made simple clothes for them. We wrapped them in a piece of cloth to protect them from the cold. When we gave birth to a child, we cut his navel ourselves. We never went to the hospital. We gave our own breast. That is why even a two-month old baby looked more healthy than his own age. We had no soap so we washed their clothing in homemade soap water. We brought up our young ones in a way I am telling you. Now times are totally different. There are no hardships. In the past pregnant women were given a simple and poor food, bread, butter and different sorts of soups.
>
> – Participant, Focus Group Interview #3

This quote is interesting in its account of what women settlers faced in carrying out their roles as mothers and caregivers. Many of the elderly women interviewed said that it was not unusual for half of their children to die before they reached five years of age.

Four major locally specific (though not necessarily unique to Oshikhandass) factors influenced the early livelihood and health strategies of people settling this *dass* land. These factors are articulated in locally specific ways: strategies of health and livelihood; the spirit of active cooperation and mutual support; the emergence of local forms of governance; and the reliance on religious identity and community. These factors were important for the political and economic survival of the community. In terms of early survival and health strategies, people made investments in the clearing of land, the acquisition of livestock, and the construction of houses. They developed their fields, orchards, and plots of fodder trees in order to gradually

overcome the harsh and difficult times. Having a large number of children was also seen as a source of security especially given the expectation that some would die before adulthood. Furthermore, people relied on themselves and their own skills and labor to sustain their families through subsistence agriculture. People produced everything that they ate which was mainly a diet of potatoes, fenugreek, and barley. People today are adamant to point out that despite the hardships it was a matter of honor and pride for families to manage to survive on whatever they were able to produce from their land.

The spirit of cooperation and mutual support was a crucial aspect of daily life. Not only did people from Hunza and Bagrote cooperatively work together (e.g., in the management of the irrigation infrastructure), but they also relied on their extended families and places of origin for support. Though irregular, people from Hunza continued to have overland communication and exchange networks with relatives and friends in Hunza. Some people, especially women, often went for years without seeing their natal villages or extended families because of the absence of roads and means of transportation, yet goods and messages were occasionally brought by mule or horse. Necessities such as seeds or trees to plant were also sent from Hunza to relatives in Oshikhandass, as was the case with exchanges of productive assets between the people from Bagrote. The use of these networks had a significant impact on the village of Oshikhandass, directing people's trade networks north to Hunza or to Bagrote Valley.

Sustaining village livelihoods on this barren and treeless site was also made possible through local forms of governance. In order to manage common property

resources such as water or related practical matters, local institutions based on informal codes of use and access emerged. For example, the *chowkidari* (guard) system functioned to regulate the allocation of water and to assure that water was flowing into the community at all times via irrigation channels known locally as *kuhls*. Disputes or conflicts that arose within the community were arbitrated by a council, or *jirga*, made up of the Numberdars and elder farmers that had the power to levy sanctions against water use violators when the need arose. In the case of serious disputes involving people from Hunza, the Mir, along with the aid of his governing body of Wazir, retained authority over matters until the 1970s. However, he seems to have had less direct influence on the construction and repair of the irrigation system and on land deals than in other areas where he exercised greater and more direct feudal control.[3]

Besides disputes, the Mir's government was the only formal government that the people from Hunza followed. The long-term social contracts between the Mir of Hunza and his subjects in Oshikhandass were characteristically strong in that they had evolved over a long period of time. In return for protection and state security from the Mirdom, people conformed to a system of taxation:

> … the Mir took taxes from us. We gave him one maund [40 kilograms] of corn and one of wheat. He gave justice to us, his subjects. The Mir was a good man.
>
> – Dadi Bano

These taxes paid in kind were taken from household surpluses and given to the Mir to support his state and its public service. Some people describe the system of taxation and the relationship with the Mir in abusive terms:

> Our past was very tough. Now it is over. Now there is peace and relief. That was the time of Tham [Mir]. He was very powerful. The old rulers delivered foolish orders. Sometimes he ordered his subjects to make rope with sand…
>
> – Dadi Bibi

The fourth factor – the role of religious identity and community – helped to create social cohesion and a common purpose among people. Despite the different religious backgrounds of the people from Hunza and Bagrote, people tended not to draw divisions among themselves. As the quote earlier stated, people look back on this period as a time when "all the people were just Muslims. There were no differences between Shi'a, Isma'ili or Sunni." People eventually established governing bodies of both Isma'ili and Shi'a residents that have existed in the village until the present. The Isma'ili and Shi'a communities also established their own separate councils to plan religious events and to resolve disputes within their respective communities. The first Jamaat Khaana and Mattam Sara were established in the early 1940s.

On August 14, 1947 Pakistan gained official independence from the British Raj, and the British administration withdrew from northern Pakistan between 1947 and 1950 (Dani, 1991). In the first decade following independence, minimal formal efforts were made to include the mountainous northern region within the scope of national development plans, or to recognize that mountain communities had vulnerabilities distinct from other rural areas of the country. However, the Government of Pakistan did seek to extend some facets of rural development to the Northern Areas through its Village Aid Five Year Plan in 1956, which encouraged the construction of irrigation channels, sanitation facilities, wells, and suspension bridges in larger towns like Gilgit (Clark, 1960). The introduction of this program and these

new technologies had very little impact on village life in Oshikhandass and elsewhere, and for the greater part of the decades following Partition, the villages of the Northern Areas remained largely outside the purview of formal policy and legislation.

While the early period of settlement is characterized by poverty, hunger, high infant mortality, and hard work, as the village matured into the 1970s, conditions somewhat improved. Food security increased, as evidenced by the number of people, mainly relatives of those early settlers, who moved to the village between 1950 and 1970. By 1970 life in Oshikhandass continued to be marked by poverty, but social and physical living conditions were not as insecure and grim as they had been in the previous four decades.

In sum, there are several social, economic and political trends that emerged during this period which are critical to shaping the decades after 1970. First, Oshikhandass was transformed from barren *dass* to a site of productive agriculture. This production relied heavily on men's, women's, and children's labor. Only a few families had men working off-farm either running small shops or working in civil service or with the army. Furthermore, the cash economy played a minimum role in people' s lives. As recently as 1950, there was one shop in the community which sold only a few consumption items such as tea, processed sugar, salt, and a few spices. These items could be traded for potatoes, wheat, corn and other goods which people produced themselves. Second, cooperation between families and at the community-scale was guided by understandings of mutual support and reciprocity and also by informal institutions of governance. Systems of mutual support were particularly

strong between a number of core families who were well-established in the village by 1970. Three, networks linking families to their place of origin and to people of similar language and religious affiliation continued to be developed and utilized. And four, both Isma'ili and Shi'a families played a role in establishing the settlement. In this way, Oshikhandass was culturally and religiously diverse unlike most villages in the region that are culturally and religiously homogenous. According to oral accounts, there were few political, ethnic, or religious disputes during this period.

Second Period of Transformation: 1970-1990

The next two decades, from 1970 to 1990, brought notable transformations to the community. Food supplies and agriculturally-based livelihoods became more secure. During this time, the village became well known for its vegetable and fruit production. This was undoubtedly related to the close proximity to Gilgit markets that were expanding as a result of population growth, market forces, and diversifying commercial activities (e.g., trade and tourism). Maximizing agricultural production required skill, labor and land, and the core families of the village continued to rely on the foundations of cooperation and mutual support established during the early years of settlement to maintain their production. By this time, a dirt road linked Oshikhandass with Gilgit and other towns, and a few vehicles occasionally passed through the village. Oshikhandass continued to be an important site of settlement for Isma'ili and Shi'a families who had well-established relatives in the village. It also became a destination for several Sunni families. Generally, these families came in search of land for agriculture, access to urban markets (in Gilgit or down country),

and better living conditions and facilities than in their place of origin. In addition to the changing social dynamics, a number of externally-driven forces had important impacts on the health and development of Oshikhandass during this time.

One significant force driving change in the region, and similarly in Oshikhandass, was political in nature. In 1974, the vestiges of the feudal system were dismantled by the Government of Pakistan under the leadership of Pakistan's President Zulfiqar Ali Bhutto. The Government of Pakistan abolished the feudal political structures using the Land Reform Acts. All hereditary feudal rulers like the Mir of Hunza were deposed, provided with pensions, and essentially replaced by the administrative and political authority of the Government of Pakistan (Kreutzmann, 1993). Northern Pakistan became formally defined as the Northern Areas, an administrative unit consisting of three primary districts: Gilgit, Baltistan, and Diamer. For the Hunzakutz living in Oshikhandass, this change in the political regime meant that they were no longer under the influence of the Mir or required to conform to his system of taxation. In some places the abolition of the feudal system resulted in what Khan and Khan (1992) refer to as an "institutional vacuum" whereby the independent authority of the Mirdoms in mediating issues of rights and access to natural resources was terminated and not similarly replaced by the state. In Oshikhandass, however, the demise of the feudal system seems to have had little effect on informal institutions, and coordination and cooperation for the purposes of water and land management remained strong. Due to the strength of social and cultural customs based on reciprocity and obligation, local forms of governance, manifested in informal

institutions, continued to serve as important mechanisms for addressing matters of resource access and decision-making at the community level.

A second transformative factor was the role the Government of Pakistan played in influencing the development agenda in the Northern Areas. The Government of Pakistan initiated a range of development projects in the region including communication networks, hydroelectric power, and irrigation schemes in the urban centers of Gilgit and Skardu. These social and economic development projects were carried out under the direction of regional government agencies such as the Northern Areas Public Works Department and the Local Bodies and Rural Development Department. Despite policies to maximize coverage of water supply systems and health care in the region, very few direct investments were marked for social sector improvements in villages. However, probably the most significant and lasting impact the Government of Pakistan had on the development of the region during these two decades was the construction of roads and bridges to link the Northern Areas with the rest of Pakistan. These initiatives emerged mainly out of strategic interests related to the Kashmir conflict, and the need to facilitate the military's access to this northern-most territory. One road in particular, the Karakoram Highway (KKH), has been very influential on patterns of development and social change in the region. Known as the "Friendship Highway," the construction of the KKH resulted in part from diplomatic and trade relations between Pakistan and China. The opening up of the KKH in 1978 marked the process of escalating social and economic transformations in Oshikhandass, as well as elsewhere in the region (Allan, 1989; Kreutzmann, 1991, 1995).

A third trend related to the opening up of the region was the growing importance of the market economy in the lives of the residents of Oshikhandass. The growing role of the cash economy was a consequence of road construction (especially the KKH), transportation networks, the movement of goods, improved access to market areas, and changes in perceived household "needs." The shift towards the market economy, in combination with the increasing strategic and economic importance of the region for the nation-state of Pakistan, set the stage for a pattern of mountain development that has been pursued since the late 1970s-early 1980s (Butz, 1991). During this time, Gilgit grew in its importance to the regional economy when it became the center for imported goods arriving via the KKH. As a result, the thriving commercial area in Gilgit took on an important market function for the sales of vegetables and fruit produced in Oshikhandass. One of the most significant aspects of the increasing participation in the market economy was that households in Oshikhandass gained access to disposable cash incomes from fruit sales. Even though some transactions within the village continued to be based on bartering (especially those transactions between women), cash started to assume a key role in people's lives.

The increasing importance of cash in the community fueled the growing demand for non-farm products such as tea, spices, and cooking oil, as well as fertilizers and pesticides to maintain high fruit and vegetable production. Another reason cash grew in importance was that families found it increasingly difficult to support all of their members from subsistence farming. Increasing interest in acquiring the growing array of "modern" or "outside" products, coupled with the

need to supplement household production, added to people's growing dependence on local and external markets. By the mid-1980s, cash incomes had attained a certain degree of criticality in household economies, thereby delimiting new measures of wealth, and differentiating the patterns of resource use and access within the community. Men in the community were increasingly taking advantage of off-farm employment and educational opportunities outside the village, thus widening the divisions between men's and women's contributions to farm maintenance. Some men decided to migrate out of Oshikhandass to urban areas. For these men, both kinship and religious networks and Oshikhandass-affiliated connections played a role in shaping their options in location and types of employment. Cultural and structural exclusions precluded most women from working outside the home.

A fourth trend that emerged during this period was that Oshikhandass was increasingly being transformed by its linkages to wider health and development initiatives at regional, national, and international scales. Non-governmental organizations played a key role in shaping the health, education, and development sectors in the village during these two decades. The most important NGO to arrive in the region and to have a role in shaping the health context of Oshikhandass was the Aga Khan Development Network (AKDN). The three specific organizations under the AKDN umbrella organization that had an influence on Oshikhandass were: the Aga Khan Education Service, Pakistan (AKES,P); the Aga Khan Health Service, Pakistan (AKHS,P); and the Aga Khan Rural Support Program (AKRSP). To promote literacy among girls, the Aga Khan Education Service constructed a Diamond Jubilee Girls' Primary School in Oshikhandass in 1972.

In term of health services, the AKHS,P[4] began working in the Northern Areas and Chitral in 1974 through a program comprised of small health centers staffed by Lady Health Visitors (LHVs). In 1987, the AKHS,P program in the Northern Areas implemented the first phase of a Primary Health Care program[5] which increased the access to health care for the people in Oshikhandass. Linked with the objectives of the Primary Health Care program, the AKHS,P in conjunction with the Aga Khan University in Karachi selected Oshikhandass as the site for an intensive diarrhea and dysentery research and surveillance project. This research project proceeded to have a major impact on child survival and maternal and child health in the community. The details of the project pertain more directly to the period after 1990 and will be addressed in the next section.

The most ambitious program addressing poverty and underdevelopment in Oshikhandass and elsewhere in the Northern Areas was spearheaded by the Aga Khan Rural Support Program (AKRSP), a non-governmental organization with bilateral and multilateral support (World Bank, 1990). Through a bottom-up participatory approach to defining local problems, priorities, and interventions, AKRSP's initiatives introduced new possibilities for addressing livelihood concerns. AKRSP began working in northern Pakistan in 1982 and initiated its activities in Oshikhandass shortly after this. Following a model of participatory development, AKRSP introduced the idea of Village Organizations (VOs) in Oshikhandass to function as institutional arrangements through which communities could address their development needs and priorities. In addition to Village Organizations, Women's Organizations were formed in Oshikhandass in the mid-1980s.

The Village Organizations and Women's Organizations began playing significant roles in shaping livelihood options and governance within the community. This did not mean that these organizations replaced the informal institutions established in the community, but it did imply that these community organizations had become formalized and positioned to allow members to access information, technical support, and resources outside of the community. The VO/WO organizational structure provided people access to a range of inputs and services including: savings and credit; marketing and technical support; training; and "green revolution" technologies (e.g., improved seeds, fruit sprayers, fertilizers, and equipment).

A second important outcome of the introduction of community-level organizations was that women were encouraged to become actors and activists in articulating their vision of development in Oshikhandass. A third implication of these organizations was that they introduced a brand of development that maintained a strong religious affiliation. This may have had repercussions for Shi'a women's participation in these organizations in Oshikhandass (despite the fact that there are many examples of WOs that have been formed in Shi'a villages). Even though AKRSP stressed the necessity of involving residents from both Isma'ili and Shi'a communities in the Women's Organizations, the Women's Organizations grew out of the Isma'ili community, the meetings were held at the Jamaat Khaana, and membership was made up of mostly Isma'ili women rather than equal membership of Shi'a and Isma'ili women. The implication was that for the most part Shi'a women did not participate in directing the women and development agenda[6] in the

community at this time, nor did they partake in these new forms of institutions providing women with access to savings and credit and income-generating possibilities.

These organizations of the AKDN had the combined effect of linking Oshikhandass to wider development initiatives taking place in the region and internationally. They reflected the growing rise of the NGO movement in the 1980s and the emergence of new forms of social networks of international reach (Bebbington, 1999). These social networks proved to have profound impacts on the exchange of knowledge, information, and resources within the community and on local discourses on health, household economies, productive strategies, and women's roles in development. Besides the AKDN network organizations, other NGOs were operating in the Northern Areas during this time, but they did not have the deep and lasting impact on Oshikhandass in comparison to the AKDN-affiliates. UNICEF,[7] for example, in 1982 launched a Community Basic Serivces Programme in conjunction with the Government of Pakistan. This program aimed to improve the health and educational status of women and children, to provide water and sanitation facilities, to reduce infant and maternal mortality and morbidity; and to increase women's participation in rural development. According to oral accounts, the project did make any water supply or sanitation interventions in Oshikhandass. Aggregated data is available on the numbers of pour flush toilets distributed and the number of water supply systems implemented in the region (CBS Programme, 1988), but data disaggregated by village is not readily available. After the project, many of the water supply systems fell into complete disrepair, the water quality in these systems was

found to be contaminated, and some of the toilets were never actually distributed to families (Ahmed et al., 1996; Halvorson, 1995). A review of the shortcomings of the Community Basic Services Program in Northern Pakistan is provided by Maliha Hussain (1988).

A final salient trend that led to social change within the community during this time period was related to sectarian conflict within the community and in the region. Militant conflict and rivalries between the Muslim sects in Pakistan have a long and bitter history (Zaman, 1998). However, Oshikhandass had not directly experienced these types of conflicts until the late 1980s when one of the worst clashes between Sunnis and Shi'a in the Northern Areas to date occurred in the neighboring village of Jallalabad. As the story goes, a band of marauding Sunnis came upon Jallalabad, an entirely Shi'a village, and burned the village to the ground. Hearing the gunfire and seeing the burning of houses, the people of Oshikhandass, fearing that the incursion would continue northward, fled for their lives. Many men in the village organized weapons in preparation to defend their farms and houses. Bullets were fired from across the river separating Oshikhandass from Jallalabad and are still lodged in the walls of houses overlooking the river. The Sunnis living in Oshikhandass either found protection hiding in the homes of Shi'a relatives or fled to Gilgit. One Sunni man was shot dead in the street as he attempted to leave his home. The Pakistani military was brought into Oshikhandass to quell the uprising and to prevent the militant group from crossing the Bagrote Nullah into Oshikhandass.

People often mention the 1988 *tension* (as it is referred to locally) as one of the most important events in their lives. One woman described the event:

> The unforgettable event was the sectarian violence that occurred in May 1988. Many people suffered so much. Many families fled to other safer places as armed people from Kohistan invaded Jallalabad. But we were safe here. In spite of it, we went to Danyor. We took food with us. We went there in our own tractors. … We untied the [livestock] and let them free in our orchards. There was no problem for us. After a week we returned to our homes. It took that long to restore peace.
>
> – Participant, Focus Group Interview #5

In addition to the fear and horror felt towards the murdering and the apparent abduction of several young girls from the village, oral accounts of this event often express shock about the trespasses which took place against rural forms of livelihood. These feelings came out in one woman's interpretation of the event: "They killed all of the cows and threw them in the river. Then they burned down all of the fruit trees. Not one apricot tree remained! Even the wheat fields that were ready for harvest were burned." The social, psychological, and symbolic impacts of the 1988 *tension* on the community were dramatic. The event helped to fuel a growing distrust and suspicion between the three religious communities. Furthermore, the event served to center religion and sectarian differences in social relations and community politics, thereby creating feelings of suspicion and distrust of each other. These feelings translate into impacts on social transactions and networks of support in the contemporary context.

Contemporary Period of Transition: 1990-1998

> ...As we told you before, there is a great change. People are employed and educated. They are well to do. They earn a lot. They send their young ones to English School. They send their children to colleges. We put on good clothes. We build modern houses. We have luxuries, TV, radio, telephone, vehicles. In the past, this was beyond our approach. We lead a far better life than in the past. Now there are resources. We grow crops and vegetables. We sell these things in the Gilgit bazaar. We get a lot of money, and we purchase our daily needs. This credit goes to AKRSP because it taught us how to set up an organization, how to save money, how to grow crops, vegetables, and trees. It has brought tremendous change in our lives. There are plenty of fruit and vegetables now.
>
> – Participant, Focus Group Interview #3

Since 1990, the transformations that were set in motion during the previous period continue to effect the contemporary context of child health, livelihood, and social relations in Oshikhandass. When asked to characterize the community today, people usually reply: "It is a town in transition;" or "It is becoming like a city. It is no longer a village." Certainly, the population increase to over 5,000 people living in approximately 600 households has played a role in this transition. The population growth rate (i.e., the natural growth rate) is around 4.3% (Community Health Workers, 1996). Approximately 18% of the population is comprised of children under 5 years of age (Dr. Zeba Rasmussen, personal communication, 1996).

The population growth in Oshikhandass is driven in part by complex social and economic pressures in other mountain valleys that are encouraging migration to Gilgit and towns surrounding this growing urban area. This influx of people has been accompanied by land sales, subdivisions, and the construction of houses. Furthermore, the ethnic and linguistic makeup of the population has changed with the arrival of migrants from Astore, Skardu, Haramosh, and Chitral rather than from

mainly Bagrote or Hunza as in the past periods of migration to Oshikhandass. As a consequence, the social composition and the views and attitudes of residents are much more diverse and diverging than they were twenty years ago. Underlying prejudices and differences operate to keep the groups, particularly the core families and the newer arrivals, socially separated. Conversations are marked by discriminating expressions such as "our people and theirs," "he is one of ours," or "she belongs to those people" to indicate who does and does not belong to the different social groups.

Social and Physical Infrastructure

Oshikhandass is now readily accessible given the recent completion of a paved road in 1990 (Figure 4.2). Whereas in 1989 only one wagon van made the round-trip to Gilgit, in 1998 over twenty vehicles such as wagons and small Suzuki transporters covered this route on a daily basis. Most agree that these changes in transportation have enhanced the quality of people's lives. One man stated:

> These changes have been very beneficial. If someone is sick, they can easily be taken to Gilgit hospital. It is easy to get transport back to Oshikhandass. For a time there were only three vehicles and if you missed one, then you had to stay in Gilgit. People can go to Gilgit for work. These changes have all been very beneficial.

Accessibility to the down-country and the cumulative impacts of developmental interventions since the mid-1980s have resulted in new forms of social and physical infrastructure. While the landscape remains punctuated by the traditional agricultural features of fields, gardens, forests, and orchards, it is also marked by many signs of modernity: a *pacca* (or paved) road, electricity, schools, cement block homes

surrounded by high rock walls, satellite dishes on roofs, regular transportation systems, tea shops, video rental stores, men's tailors, flour mills, drug stores, and a *nulka pani* (piped water) system providing potable water to one third of the community. In 1994, hydro-generated electricity was installed and over eighty phone lines have been extended to the homes that have been able to afford them. Vehicle ownership (tractors, motorcycles, jeeps, and Suzukis) and the expansion of commercial activities are the most striking signs of prosperity and alterations in people's lifestyles. Shops in the bazaar are now stocked with a range of products from radios, toys, jewelry, shoes, ready-made clothes, biscuits, powdered milk, and school supplies.

Nevertheless, it is important to keep in mind that prosperity is not experienced equally throughout the community. Sharp contrasts in wealth are evident, and certainly a number of households struggle to cover school fees, water and electrical bills, and food costs. Other extreme differences between households are found in education levels, land ownership, and consumption patterns. Contrasts are also evident in language, suggesting differences among individuals in access to education, modes of communication, and social mobility. While fluency in Urdu, the *lingua franca* of Pakistan, is common among men from middle-income or wealthy families, the ability to speak Urdu well is minimal among people who are less mobile such as men from the poorest families or women. Similar patterns of social stratification have been documented in other places in the region. For example, AKRSP (AKRSP Proposal, 1995) noted that regional inequities are increasing because of the differences in access to trade, employment, and social services (e.g., education and

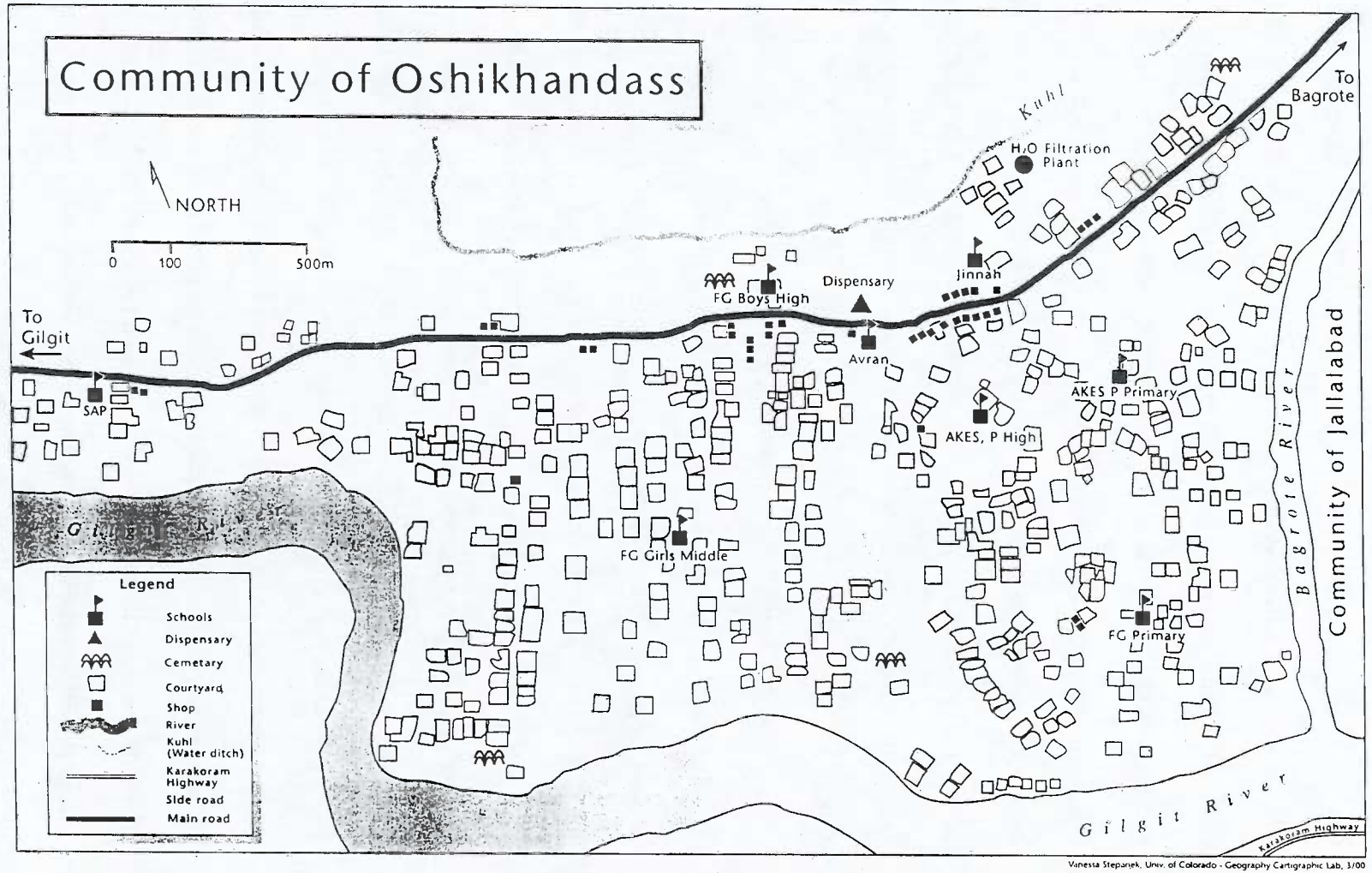


Figure 4.2 The community of Oshikhandass

health). This is certainly the case when comparing AKRSP program and non-program areas or villages that are near the KKH with remote villages. The World Bank (1996), in its evaluation of AKRSP activities, found increasing social differentiation between households as a result of differential access to program benefits. In terms of the specifics of social stratification within Oshikhandass, some of the core Hunzakutz families in Oshikhandass have accessed new forms of material wealth as a result of their close kinship ties to Isma'ili villages located along the KKH and in Hunza.

Livelihoods and Gender

The significant changes at the household scale are related to trends in livelihood and resource strategies. Over the past decade important transformations in rural livelihoods have been the result of economic processes taking place locally, within Pakistan, and internationally. People offer a range of reasons to explain the growing need for cash. Changes in local dietary habits, especially the trend towards increasing consumption of milk tea and sugar, compound existing household expenses. Also, market products such as seeds and chemical fertilizers that are purchased in the bazaar occupy a central role in agricultural production strategies. Changes in architectural styles, such as replacing local materials with cold and non-insulated cement block unsuited for the climatic conditions, are driving new investments in construction. The growing importance of and dependency on cash for survival, as well as new cultural orientations towards large weddings, gift exchanges, and dowries,[8] have heightened the need for incomes. To satisfy these "needs," a

major shift in resource strategies in the region has been towards male off-farm employment.

This has also been true in Oshikhandass as many men take up employment outside of the community in the growing private sector, or to a lesser extent, in non-agricultural sectors (e.g., education, carpentry, or small enterprise) within the community. For some men, off-farm employment entails commuting daily to Gilgit. A few educated women have also taken advantage of (or have been allowed to take advantage of) the shifting employment opportunities and make the commute to Gilgit as well. Given widespread unemployment in the Northern Areas, many men and teenage boys are migrating to the urban centers of Rawalpindi, Lahore, or Karachi. A few men are even working in Saudi Arabia and Oman and send remittances to their families in Oshikhandass. The decision to work off-farm is usually made out of necessity and is dependent upon household dynamics and access to productive and financial resources. Furthermore, gender is an important factor since men have the mobility to take advantage of wage earning opportunities in distant urban areas.

On a regional level, these trends toward male off-farm employment and male out-migration to urban domestic and foreign areas of wage-labor opportunity have had two significant effects: one, a dramatic change in the social dynamic of rural households; and two, an increase in women's agricultural responsibilities (Felmy, 1993; F. Hewitt, 1989, 1991; Joekes, 1995). Reconfigurations in family structures are apparent. For example, extended families from Bagrote pass the winter together in Oshikhandass so that men can access off-farm labor; then these men (and sometimes entire families) return to Bagrote during the summer months to take their herds of

sheep and goats to high pastures. Other examples provide evidence of increasing numbers of women becoming the *de facto* heads of households while their husbands are working in down-country cities. Further, there is evidence that many extended families are breaking up into smaller household units. The breaking up of large households is one of many adaptive strategies adopted by families to deal with the increasing costs of living and/or a growing disinterest in having to subsidize non-income earning family members (Chapter VI). Some believe it is a way of maximizing benefits from family land holdings that have been divided or reduced in size because of land sales. It also reflects changing attitudes towards family and family obligations. Nizam Jan, a village elder who has spent most of his adult life in Oshikhandass, remembered a time when everyone lived together with their extended families:

> ... at one time we all sat together to eat out of one common bowl. We ate together and worked together. Now times have changed. Every person is off here and there thinking of himself. Everyone eats from his own plate today.

The image of people eating from separate plates is a metaphor for the breaking up of families. For some, the breaking up of families has meant increasing health security for children, but this trend has also created new risks and vulnerabilities for nuclear families (Chapter VI).

Male off-farm employment coupled by out-migration has resulted in greater on-farm workloads for women and girls as they take on the bulk of the farm and family responsibilities. This pattern has been observed elsewhere in the Northern Areas and Pakistan (Carpenter, 1991; Hewitt, 1989, 1991; Government of Pakistan, 1990; Joekes, 1995; Kazi and Raza, 1991; Mumtaz and Shaheed, 1987; World Bank,

1989). These changes have had important implications for livelihoods (Chapter VI). Women in Oshikhandass have traditionally made a significant contribution to agricultural production and rural livelihoods. Today, women farmers' roles in feeding families, managing agricultural resources, and maintaining the economic and physical health of households has become even more visible and salient. The following quotations reveal aspects of the changing work and household conditions that women face today:

> Obviously, women have to do a lot of work. You know, without jobs we cannot get a lot of money so our men go to far away areas [for work]. Here, we women do all domestic work. Especially village women have to do all sorts of work. It is our necessity.
>
> – Participant, Focus Group Interview #6

> What can women do? The men are gone. The women do all the work even putting water on the fields. Before men and women both worked in the fields, and men did the irrigation.
>
> – Farzana Baji

> ...There is a lot of work for women. If there were no men, how could we get tea and salt and other needs? If men and women both remain in the house, how can a house be run properly? So our men work outside...
>
> – Dadi Bano

Increasing pressure for cash has led some women to take up additional income-generating activities that are viewed as socially acceptable (e.g., teaching, tailoring, or work in the health sector). Similarly, many women are cultivating cash crops (leafy greens, potatoes, cabbage, onions, and fruit) for sale in Gilgit.

This productive work, however, does not imply a lessening of family and community obligations. At the same time that women's work is intensifying, women's participation in and contributions to collective decision-making over productive resources have been constrained by household gender relations, social and cultural

issues, and the realities of physical and time demands required by household maintenance. Furthermore, perceptions of women's roles in society are changing. For some, this has meant increasing freedom and the opportunity for education and off-farm employment. For others, attitudes towards women's position in society has meant a tightening of control on women's mobility and freedom. There are also examples of religious extremism, implying stricter adherence to seclusion ideologies. In order to cope with these pressures on their time, workload and mobility, women rely heavily on kinship and friendship networks for support (Chapter VI). One example of how these networks remain directly linked to ethnic backgrounds and to place of origin is seen in the fact that I did not find one Hunzakutz woman who had traveled up the Bagrote Nullah (even among women who had lived in Oshikhandass for 40 or 50 years). Likewise, not one of the Bagroti women had ever traveled up the KKH.

Some dimensions of social change in Pakistan in recent years remain distinctly gendered (Haq, 1996; F. Hewitt, 1989; Mumtaz and Shaheed, 1987; Weiss, 1992, 1998). These gendered process are also evident in Oshikhandass. For example, the road, the bazaar, and the Boy's Government School schoolyard in the middle of town are male spaces of social interaction. On holidays and weekends these spaces are dominated by men and boys passing time by drinking tea, gossiping, or playing cricket and soccer. Women do frequent the bazaar, but they are usually elderly women, women in groups of five or six, women accompanied by their children, or women accompanied by their mothers-in-law or husbands. Other spaces of distinctly male interaction include the five hotels (restaurants) where men gather to watch

satellite TV, drink tea, and exchange ideas about news and politics. Women never frequent these places, and come together instead in women's spaces such as homes, gardens and fields. The gendered nature of these spaces have important implications for women's access to transportation services and health facilities (Chapter VII). A routine visit to the health center which is located in the middle of town requires crossing these invisible boundaries into male space. This experience of walking through the bazaar can be an incredibly uncomfortable one for even young girls, and attempts are made to avoid it altogether by taking the back alleys (what I call the "paths of purdah") through neighbors' gardens and fields.

The Context of Health and Development

In terms of the contemporary context of health and development, there have also been important changes. Two major changes in the health sector include: the provision of maternal and child health services, and environmental health improvements. The most significant intervention in health has been the Diarrhea and Dysentery Research Project run by the Aga Khan Health Service, Pakistan and the Aga Khan University. In 1989 diarrhea and dysentery were confirmed to be responsible for 50% of the child deaths (Dr. Zeba Rasmussen, personal communication, 1996). At this time, however, very little was known about the etiology of diarrhea and dysentery in northern Pakistan, and little research had been conducted on the epidemiology or the management of diarrhea cases in specific village settings. Given its close proximity to Gilgit and the District Headquarters

Hospital laboratory, Oshikhandass was selected as the site for a longitudinal study of diarrhea and dysentery (Rasmussen and Hannan, 1989).

The initial objectives of the project were to develop a surveillance system to determine the morbidity and mortality rates due to diarrheal disease and to develop guidelines for the management of these diseases by community health workers and mothers. Later, as the scope of the project expanded, activities included monitoring by age-for-weight, providing families with education on the prevention and treatment of diarrhea, and improving household access to effective treatments for childhood diarrhea. Eleven local women were selected to serve as a community-based team for data collection. This team eventually developed into a type of para-medical infrastructure through which data could be collected, children could be monitored, and mothers could receive health education. This project came to an end in September, 1996.

Oral accounts particularly from women confirm the benefits received from the education and child health monitoring components of this project, and many regret that the reliable and dependable services of the project have been discontinued. Other tangible impacts of the project include reductions in diarrhea cases, and a reduced infant mortality rate to 66 per 1000 live births in 1995 (Mitchell, 1998). During the research period 1989-1993, Sultana and Rasmussen (1996) reported the following epidemiological findings on all children under the age of five (an average of 670 children were monitored each month):

- 2054 cases of diarrhea were recorded
- 270 (13%) of these cases were bloody diarrhea

- 37% of children who had diarrhea had three or more episodes
- The median duration of episodes was 5-6 days
- 70% of the cases of diarrhea occurred between May and September
- The incidence of diarrhea was 75 episodes per 100 children per year (with a range of 54-89 episodes/100 children/year)
- 64 % of diarrhea cases occurred predominantly in children less than 2 years of age
- Regarding treatment, many mothers continued breast feeding and gave extra fluids

By the end of the project in 1996, the children under the age of two in Oshikhandass had on average less diarrhea than the data for other places in the Northern Areas indicates (AKHS,P, 1996, 1997). About 20% of children experienced diarrhea lasting 14 days or longer as compared to 60% reported in a 1986 survey of child health in Punial Valley (Karim and Aqil, 1986). Greater awareness of disease transmission and hygiene, improved access to health services in Gilgit, and improved treatment of cases are the likely reasons for the reduced incidence of diarrhea and severity of the problem (Sultana, personal communication, 1998; Health Workers Focus Group Discussion, 1998). It is important to keep in mind, however, that even though the incidence of diarrhea in Oshikhandass has been found to be lower than in many other parts of the Northern Areas, diarrhea still accounted for five (36%) of the 14 infant deaths reported in 1995 (AKHS,P, 1996).

In addition to specifically addressing the problem of childhood diarrhea and dysentery in the community, the AKU/AKHS,P health program played a central role in organizing emergency control efforts during a cholera outbreak that affected Oshikhandass in 1993. That year, several cases of "viral gastroenteritis" were documented in mid July by the District Headquarters Hospital in Gilgit and by the end of July 46 deaths due to this illness were reported (AKHS,P, 1993). Although cholera was suspected in these cases, it was not confirmed by laboratory results until August. By September cholera had spread to areas surrounding Gilgit. In Oshikhandass, there were 34 confirmed cases of cholera *(Vibrio cholerae)* between August and October, 1993 (AKU/AKHS,P Diarrhea and Dysentery Research Project Database, 1993). Fifteen of the 34 cases were under five years of age (ibid., 1993). Control efforts organized at the community level placed a heavy emphasis on household water hygiene (using chlorination with bleaching powder) since water used for domestic purposes was known to be grossly contaminated with high fecal coliform counts.[9] The AKU/AKHS,P project was instrumental in mobilizing health education, case management guidelines, and a surveillance system so that new cases of cholera could be quickly detected and treated. Similar control efforts were made (i.e., health education, surveillance, and radio messages) in Gilgit, but these were severely limited by resource constraints and the imposition of a curfew in Gilgit on August 19 that was intended to curb sectarian tension.

Besides the extensive seven-year project to address diarrheal diseases and improve maternal and child health, other interventions have linked Oshikhandass into wider health sector initiatives. In Oshikhandass there is a dispensary that is staffed by

a dispenser and a government Lady Health Visitor (LHV). Other health services are available through the AKHS,P Health Center in Danyor (5 kilometers away), the government District Headquarters Hospital in Gilgit, the AKHS,P Maternity Hospital in Gilgit, and private clinics run by child health specialists in Gilgit. These facilities are readily accessible given the improved means of transportation, yet they are plagued by a lack of running water and electricity (Obstetrician, personal communication, 1998). Since 1996, the Prime Minister's Program for Family Planning and Primary Health Care[10] has employed nine health workers in Oshikhandass who regularly visit women and children in their homes, give health advice, and distribute family planning services. Most women in childbirth are attended locally by traditional midwives (*dais*), but in the event of complications or emergencies, women are taken to Gilgit to give birth at the hospital or the maternity home.

In terms of environmental health, Oshikhandass has been recently brought into the scope of regionally- and internationally-motivated rural water supply interventions aimed at improving water quality. Working through the AKRSP Village Organization structure, community members and the Water and Sanitation Extension Program for the Aga Khan Housing Board[11] (formerly known as the Water, Sanitation, Health, and Hygiene Studies Project under the Aga Khan Health Service, Pakistan) planned and implemented an experimental water filtration system to provide potable water to one third of the community. The Water and Sanitation Extension Program worked closely with a community-based construction and management team made up of village elders and activists. The experimental water

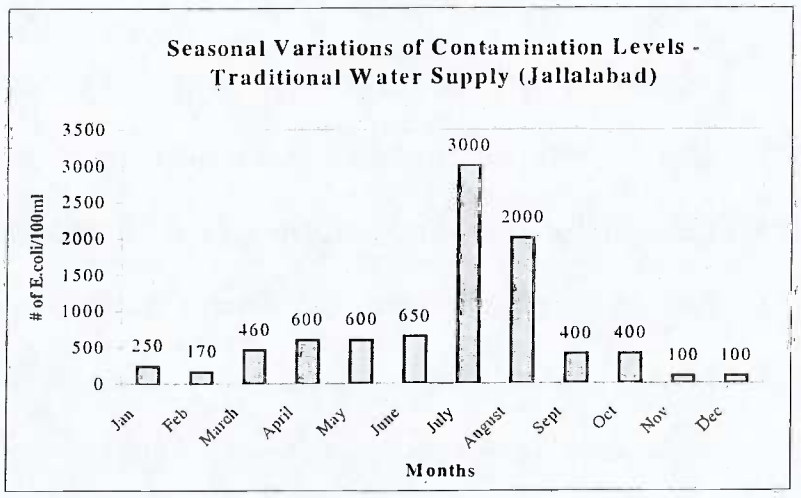
filtration system was completed in the fall of 1996. In conjunction with the implementation of the distribution system, education on water handling and management was promoted in the community to ensure that the supply would have the intended impacts on child health and the health of the wider community. Further investigation is crucial for evaluating the overall effects of potable water on the incidence of diarrheal diseases in the community.

The experimental water filtration project has the potential to serve as a model for community-based interventions aimed as addressing water quality. For decades tremendous effort has been given to constructing and maintaining the physical infrastructure of water delivery in Oshikhandass; however, this is the first successful effort towards securing a potable water supply for domestic purposes. Until 1996, water delivered by irrigation channels, known locally as *kuhls*, served as the primary domestic water source in Oshikhandass. Since these channels are open and unprotected, the incidence of direct and indirect contamination from the dual function of providing irrigation and domestic water is very high (WSHHSP, 1996). Uncontrolled wastewater and drainage and the inadequate provision of sanitation facilities are additional factors that compromise water quality. Furthermore, the water flowing into Oshikhandass is highly turbid due to the fact that it is mostly glacial melt water and has high contents of glacial sediment.

Traditionally, the pattern of domestic consumption of water in the community has tended to coincide with the following scenario: In the household, water from a main irrigation channel is generally funneled into the household courtyard via a sub-channel. Once the water is used within the household for domestic purposes and

subsequently exposed to contamination, the discharge is recycled back into a larger irrigation channel. The down-channel user then receives the water, further contaminating the water from use within the household. From household to household the level of water contamination rises. Meanwhile, each time the water flows out of a household, it is also potentially contaminated by irrigation run-off as it joins with other main irrigation channels. Research conducted in the neighboring village of Jallalabad found that fecal (*E. coli*) counts in traditional water supplies, i.e., irrigation channels, are the highest during the summer (Raza et al., 1996) (Figure 4.3). Similar water quality figures would be expected for Oshikhandass (Manzoor Hussein, personal communication, 1998).

Figure 4.3 Seasonal variations in contamination levels – traditional water supplies



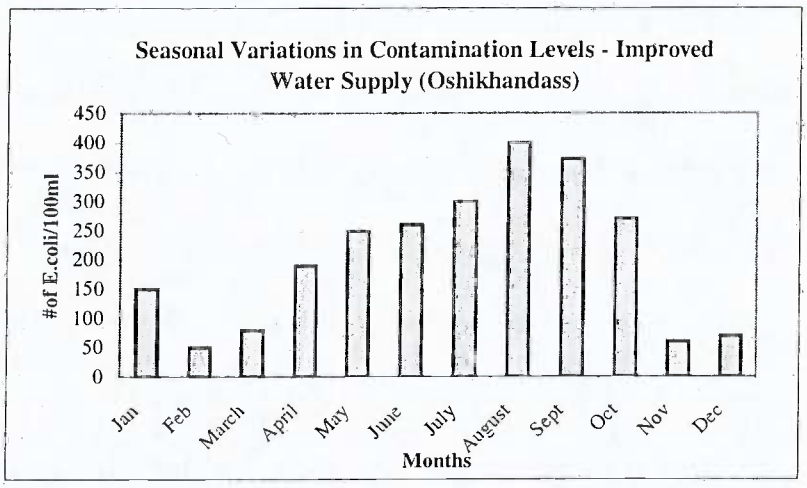
Source: Raza et al., 1996

The contributions of multiple users to the water quality problem is compounded by the traditional means of storing water in household and communal earthen water pits (called a *gulko*). The use of these water pits is widespread

throughout northern Pakistan. The water pits serve multiple purposes: to settle turbid water, to store water during periods when there is no flow from irrigation channels, to provide an easily accessible water supply, to keep food items (e.g. butter, milk, and food) cool in the summer, and to provide water that is generally colder than other sources. The pits are filled or flushed out daily using water diverted from irrigation channels. Most women make filling the *gulko* an early morning task in order to avoid collecting and storing water which has been flowing in fields throughout the middle of the day. Researchers have observed that in some villages where a water supply scheme might be functional, people still prefer to use *gulko* water for drinking in the summer because it stays very cold (WSHHSP, 1994). The water in these water pits is the most consistently contaminated of all water sources mainly due to the lack of cleaning and draining and because the main source of water for these pits is highly contaminated channel water (ibid.).

The experimental water filtration system has the potential to improve water quality in part of the community. The water system is managed by a local Water and Sanitation Committee that was organized in 1996 and which continues to receive technical and operation support from the Water and Sanitation Extension Program for the Aga Khan Housing Board. One important area of concern is protecting the quality of the water from contamination as it flows from the filtration system to neighborhoods via the distribution system. Raza et al. (1996) found that while the piped water in Oshikhandass is less contaminated than traditional water supplies (shown in Figure 4.3 above), the water quality does not meet the World Health Organization (WHO) guidelines[12] (Figure 4.4).

Figure 4.4 Seasonal variation in contamination levels – improved water supply



Source: Raza et al., 1996

Water quality testing confirms that nearly a five-fold increase in contamination levels occurs from the source of water to the end point of the delivery system occurs seasonally (e.g., from 73 E.coli/100ml at the source to 350 E.coli/100ml at the end point) (Raza et al., 1996). In spite of the water quality shortcomings, the perceived benefits of the potable water supply on family health and the notable clarity of the water following filtration have influenced the rest of the community to engage in a dialogue about extending the system. Meanwhile, for the remaining two-thirds of households the irrigation channels and the water pits are the main modes for accessing, collecting, and storing domestic water supplies. Additional concerns about improving sanitation in households have been vocalized, but no community-level measures have been taken to develop a sanitation policy or program.

In addition to the efforts in the realm of health, other important changes have been made in education and community organization. Regarding education, a variety

of schools now exist that offer education to boys and girls. The schools are operated by the government, the Aga Khan Education Service, Pakistan; and private groups. There are four government schools: the Federal Government Boys High School, the Federal Girls Middle School, and the Federal Government Primary School, and the Social Action Program[13] school. The Aga Khan Education Service, Pakistan operates two schools, a high school for girls and a Diamond Jubilee primary school for boys and girls up to class five (see Mitchell, 1998 for more details on education system and the numbers of children enrolled in the various schools). More recently, three private not-for-profit primary schools have been opened and include the Jinnah Public School, the Avran Model Academy, and the Vision School. The private schools represent strong community and activist initiatives to promote education. Avran Model Academy, for instance, is the product of a group of community members who formed a legally registered society called the Oshikhandass Social Welfare Society.

Today, education is highly regarded and perceived as a way out of poverty. One of the oldest women in Oshikhandass commented:

> Now a very good time is waiting for the new generation. I pray for them to live long. My grandsons and granddaughters take good care of me. They help me too much...this time is very good. There is education. Now one who is illiterate is like a baboon. There were no schools in our time so we are illiterate, and we are like donkeys. Now I am very pleased to see that my grandsons and granddaughters are literate. D
>
> – Dadi Bano

Other important aspects of the access to education is its potential effect on family and community health. Several mothers suggested that the ability of their children to read the back of the oral rehydration therapy (ORT) packets or directions on medicine bottles facilitated their ability to treat illnesses. Also, health and hygiene education

offered through the school curriculum has the potential to impact knowledge of disease transmission and hygiene and sanitation behavior at the household level (Boot, 1991; Boot and Cairncross, 1993a, 1993b).

As far as community organization is concerned, the AKRSP Village and Women's Organizations remain active. AKRSP continues to invest in local capacities, skill, and expertise, resulting in new forms of material improvements for people participating in these organizations. In Oshikhandass there are currently three VOs and seven WOs. Credit schemes, income generation projects, marketing, fruit and vegetable production, forestry, and women's projects remain important foci of these organizations in the community. Recently, the Aga Khan Cultural Service has used the Women's Organizations to promote a cultural heritage/income generating initiative called Threadnet. This project promotes embroidery and handicrafts that are symbolic of ties to a particular Hunzakutz heritage and group identity. In reinforcing the social and economic ties that the majority of WO members already hold with Hunza, this effort is illustrative of how women's experiences and income-generating options in Oshikhandass are influenced by programs initiated that are located in other places in the Northern Areas and funded by multilateral donors.

Clearly, religious and group identity play important roles in shaping women's participation in these organizations. Most Isma'ili women feel that participation is a mandate from the Hazir Imam:

> Our Serene Highness Aga Khan asked us, his followers, to form this organization. This is better for us. Even the government has copied our pattern. In the past we spent everything. We saved nothing. Hazir Imam encouraged savings. Therefore, we started savings through these organizations. Now people living in other areas have formed similar organizations.
>
> – Participant, Focus Group Interview #1

However, there are important questions of power dynamics that make participation in the Women's Organizations difficult for certain individuals. For some women in the community, the right to participate and even the level of participation in these organizations continues to be controlled by men. For example, several Shi'a women said they are not participating in the Women's Organization structure because "our husbands do not give us money. They say the money is going to pay for school fees." Or as another woman described, "My husband does not want me to participate." A former Isma'ili secretary of one of the WOs said that her husband forced her to resign from her position as secretary because her husband said, *Achaa lugta nahi hei* (it does not look good). While she has been allowed to continue participating in the meetings, she deeply regrets that she is unable to play a more active role in the organization. In these ways patterns of exclusion can be discerned. While not having enough money is often cited as a reason for non-participation in WOs (Kuriokose, 1996), there may be other underlying social causes for exclusion or non-participation including the sense of embarrassment that some women feel towards the observable differences in socio-economic standing between their households and those of other people.

Apart from the AKRSP organizations, other informal organizations and councils remain crucial to governance and community mobilization. The issues that come up most often for decision by village organizations involve water allocation,

control of free grazing, and land rights. The maintenance of irrigation networks remains a pivotal binding force between families, and informal organizations of elder farmers cooperated to maintain this infrastructure. These community-based councils serve important roles in conflict resolution as well. As one man put it:

> ...Instead of going through the government, which takes a long time and is very expensive, people prefer to settle their problems here. Sometimes the disputes are over a cow who is eating someone else's crops or a boy who likes the girl of another family...

In light of people's incredible frustration with the current political situation in Pakistan and the high levels of corruption and government insolvency, these councils are key to maintaining village level arbitration and stability between the various groups living in Oshikhandass. Another notable point is that leadership within these organizations has subtly changed. Whereas age and traditional leadership roles (such as the hereditary functionary position of the *Numberdar*) once dominated leadership positions in the village, younger, educated and well-connected men are taking on important leadership positions. New forms of leadership and community organization, manifested in new organizations such as the Oshikhandass Social Welfare Society are emerging.

Religion, Social Cohesion, and Difference

Religion continues to be play an integral role in creating social cohesion and difference in a number of ways. First, religious schools – *deeni* schools (Isma'ili) and *madressah* (Shi'a) – play significant roles in the socialization process of children and the mobilization of group identities at an early age. Second, day to day activities and

social interactions center around religious activities or religious spaces. In this way, many aspects of people's lives are enmeshed in a framework of Muslim identity. Levels of devotion and religious observation varies between individuals and range from fasting during Ramadan (in the case of Shi'a practice) to regular prayer and attendance at the mosque daily or weekly. Most significantly, the linkages made between religious identity and participation differs across the community. Besides providing a space for religious teaching and practice, the mosques function instrumentally in communicating news and information to the wider community. Weekly sermons at the Jamaat Khaana are regularly followed by announcements about needs for teachers, exams, construction needs, and other relevant concerns to Isma'ilis and to the wider community.

Third, religious leadership and religion-based networks significantly connect people in Oshikhandass with international networks of research, policy, and funding. This is particularly true for the Isma'ili community that is linked to the wider programs and agendas of the Aga Khan Development Network. This trend reflects the growing linkages that Oshikhandass now has with regional, national, and international religious and development networks. And fourth, religion has emerged as a powerful force in local politics in the Northern Areas (A. Ahmad, *The Nation*, July 21, 1992; Editorial, *The News,* September 25, 1992; T.A. Khan, 1998; S.M. Khan *The Muslim*, Sept. 14, 1992). In Oshikhandass, for example, the activities of AKRSP, especially the credit services and women's programs, have come under opposition from a segment of the Shi'a population. Claims have been vociferously raised that the credit program is un-Islamic (by charging interest which is forbidden

under Islamic law) and that local women are being corrupted by "outsiders" and female staff who are not upholding purdah. Local sheikhs look to influential imams down country or in Iran for guidance in organizing local opposition to AKRSP programs. Other expressions of Islamic politics include the activities of Tehrik-i-Jaffaria Pakistan (TJP), a national party supporting Shi'a interests and concerns. It is in through these mediums that Islam and approaches to "being Muslim" in this community influence local constructions of gender and gender roles, cultural discourses and debates around the meaning and model of "development," and networks of social support, with implications for child care and child survival.

Summary

This section has provided the historical and local background information about Oshikhandass and its development over the past 60 years. In addressing these three periods of history, trends and issues that are central to this project have been highlighted. In subsequent analytical chapters, greater detail will be provided on several of the issues raised here, including local perceptions of and responses to these changes, the resources of child care (as defined in Chapter II), the role of gender in shaping childcare strategies, and the nature of coping with childhood sickness. The following section is concerned with providing details about the study households and continues to relate these details to the themes that will be analyzed in later chapters.

DESCRIPTION OF STUDY HOUSEHOLDS

The purpose of this section is to narrow the focus from the whole of Oshikhandass to the households where the mothers and children who participated in this study live. As outlined in Chapter III, this research relies heavily on data drawn from thirty households in Oshikhandass. The total number of individuals in these households at the time of interviewing was 337. Additional summary information on these households is provided in Chapters V and VI and in Appendix VII. Here, the information is presented in four subsections:

- Diarrheal disease frequency;
- Place of origin, religion, and family structure;
- Socioeconomic profiles of households;
- Characteristics of mothers and their children.

Diarrheal Disease Frequency

For the purposes of this study, the thirty households are divided into two categories based on diarrheal disease frequency. Data regarding diarrhea episodes in these households between 1993-1996 was drawn from the AKU/AKHS,P Diarrhea and Dysentery Research Project database. For this period, the median number of diarrhea episodes per household in the study population was 3.42. Households in this study are low frequency diarrheal disease households if they experienced one episode of diarrhea during this period. The high frequency households experienced a number

of 8 episodes or more of diarrhea during this period. Much of the data in the following subsections and in Chapters V and VI is sorted by these two categories.

Place of Origin, Religion, and Family Structure

All of the respondents traced their family background to a specific village or valley, with 18 claiming their place of origin to be Hunza, 10 claiming Bagrote, and 2 claiming other valleys (i.e., Haramosh and Astor) (Table 4.2).

Table 4.2 Household Characteristics: Place of Origin, Religion, & Family Structure

Household Characteristics	Low Frequency	High Frequency	Totals
Place of Origin			
Hunza	10	8	18
Bagrote	4	6	10
Other	1	1	2
Religion			
Isma'ili	8	6	14
Shi'a	7	9	16
Family Structure			
Nuclear	7	6	13
Extended	8	9	17

These patterns mirror the overall ethnic make-up of the community. In terms of religious affiliation, 16 interviewees were Shi'a and 14 were Isma'ili. As Table 4.2 shows, family structure was equally varied, with 13 being nuclear and 17 being extended. The typical nuclear family consists of the parents and their children. The

typical extended family is a multi-generational unit made up of the senior parents, along with one or more of their married sons and their families. In comparing the low frequency and high frequency households, the numbers for place of origin, religion, and family structure are roughly comparable.

These patterns of both nuclear and extended family structure do not parallel the trends in the region. The majority of households in Northern Pakistan conform to the extended family pattern that usually includes several generations of family members residing in a one or two room house encircled by a courtyard. In the District of Gilgit, the average size of extended households is 8.4 persons (Khan and Khan, 1992). Household members communally share living spaces, the responsibilities of household maintenance, and the products of the household members' labor. However, implicit in this understanding of household is the notion that a sharing of material resources and labor does not necessarily imply equity or equal distribution because of the nature of gender and generational divisions of labor, access to information, and processes of decision-making.

All of the study households were headed by men. In nuclear family situations these male heads were the study respondents' husbands. In extended family situations the head of the household was the father-in-law if he was alive or a brother-in-law if he was older than the study respondents' husband. Of the 30 mothers in my study, five of their husbands (17%) were living outside the village for more than three months out of the year. In all of these households with absent husbands, the head of the household was the father-in-law.

Socioeconomic Profiles

Improved access to education, non-local off-farm employment, and agricultural sources of cash income are producing new forms of economic differentiation in Oshikhandass. The study households, resembling other households in the community, can be divided into three broad categories of economic stratification: wealthy, middle, and poor. The household profiles in these categories can be summarized as:

Profile of a Wealthy Household: Wealth accumulation in these households is manifested through commoditized forms of consumption and non-agricultural activities such as education, house construction, and participation in community organizations. The wealthier households are characterized by a cement block house that is in good condition, a large rock and/or cement block wall around their compound, a number of cows and goats, over 50 fruit-producing trees, school-going children (both boys and girls), and more than one non-agricultural source of income. The size of their landholdings is also above the regional average of 2 hectares[14] per household. The men of these households either own and operate their own business or they have regular employment with the government or a non-governmental organization (e.g., AKRSP, AKHS,P, AKES,P) working in the region. Another major source of income for these families is fruit sales. The wealthier households either own a tractor or some other vehicle (usually a pick-up truck or a Suzuki transporter) and have also installed flush-toilets and water lines into their courtyards. In addition to these features, the wealthiest families live in extended family situations. There are a

number of signs of conspicuous consumption such as calendars and framed pictures on the wall, satellite dishes, TVs and VCRs, freezer, carpeting, and books. These households purchase labor-saving devices such as washing machines, electric irons, and electric ovens. Urban values and patterns of consumption are indeed visible in the wealthy households. Items that were once considered luxuries such as shampoos, soaps, and toothpaste are regularly used by household members.

Profile of a middle-level household: In Oshikhandass, the households with middle socioeconomic status own land, but this is usually not sufficient to meet the needs of the entire family. They keep some livestock and have 15-40 fruit trees. Their cash incomes are derived from employment and is supplemented with the sale of fruits or vegetables. They are able to pay the school fees for some of their children. They are able to rent a tractor to plow their fields or they borrow a tractor from their relatives. They have constructed a *chukung* (traditional composting toilet) and usually own a *gulko* (water pit). Households in this middle wealth category live in extended family arrangements or have separated from the extended family for various reasons including: inadequate landholdings or the desire to live near wage-labor opportunities. The incipient differentiation between these households and poor households is visible in the ownership of newer houses or houses with cement block additions, a number of pans and serving trays, tea sets, radios, and TVs.

Profile of a poor household: The poorest households in the community do not have a reliable source of income (or the income is minimal). Many of these

households are dependent upon cash earned through casual labor to cover household expenses. They live in one room houses that often do not have doors or screened in windows. They either have no wall around their courtyards or have a partially built wall to delineate their property. These families have few fruit trees and own less than 10 kanals (.5 hectare) of land. They take their water directly from the water channel or a neighbor's *gulko*. They rarely prepare chai (milk tea) more than once a day. Some of these families have become disenfranchised from the extended family. The women of these households often help neighbor women in their fields or gardens in exchange for fodder, flour, or vegetables.

This general profiling of household categories is not intended to gloss over the inherent complexity and diversity of these households. Indeed, a key point to keep in mind is that a number of factors interact to determine the socioeconomic status of the study households. A prominent feature of the study households was landholding: five of the study households owned more than 50 kanals (2.5 hectares) of land, and all of the other study households owned at least 4 kanals (.2 hectare) of land except for one household which owned 0.5 of a kanal. The median land ownership of study households was 40.5 kanals; 19 (63%) of the households owned 0.5-20 kanals. This figure is similar to the average landholding for the Northern Areas of approximately 2 hectare per household, but is higher than the average for the District of Gilgit (Malik, 1996). In 1994, 46% of landholdings in the District of Gilgit fell into the 0-20 kanal of landholding size category (Malik, 1996). For comparison, Table 4.3 provides data on the distribution of total landholdings in the District of Gilgit.

Table 4.3 Distribution of Total Landholding in the District of Gilgit in %

Kanals	Gilgit District
0-20	45.9
20-40	28.2
40-60	11.8
60-80	5.5
80-100	4.1
>100	4.5

Source: Malik, 1996

All of the households maintained kitchen gardens in which women were growing a variety of herbs and vegetables (tomatoes, onions, garlic, mustard greens, chilies, cucumbers, mint, cabbage, etc) for family consumption. In addition to land holding, other important local measures of wealth were size of orchard, number of livestock, vehicle ownership, and household ownership. The data for these local wealth measures are sorted by low and high frequency categories and provided below in Table 4.4. Twelve of the thirty households owned fifty or more fruit trees. Nine households owned vehicles, and one of the study households owned two rental houses outside of Oshikhandass. In comparing the two groups of study households, major differences in land, livestock, vehicle, and house ownership do not emerge, although a greater number of high frequency diarrheal disease households than low frequency households own over 100 fruit trees.

Table 4.4 Household Characteristics: Data on Local Measures of Wealth

Household Characteristics	Low Frequency	High Frequency	Totals
Land Ownership (kanals)			
0-20	10	9	19
20-40	2	2	4
40-60	1	1	2
60-80	1	1	2
80 or more	1	1	1
Do not know/no answer	0	2	2
Orchard (# of fruit trees)			
0	1	1	2
1-20	8	3	11
20-50	3	5	8
50-100	2	0	2
100 or more	1	6	7
Livestock Ownership			
0	0	1	1
1-10	12	12	24
10-20	2	1	3
20 or more	0	1	1
Do not know/No answer	1	0	1
Vehicle Ownership			
One	5	3	8
Two or more	0	1	1
House Ownership			
One	14	15	29
Two or more	1	0	1

The husbands of the study respondents were working in various capacities: engineering, small enterprise, business, military, tourism, casual labor, and livestock (Tables 4.5). Their employment was also located in various locations. Nineteen of the 30 men are working outside of Oshikhandass; they either commuted daily or weekly to Gilgit or they lived in Skardu, Azad Kashmir, or Islamabad and returned on a

monthly, annual or seasonal basis (see Appendix G for tables on the regularity of employment and the frequency of returns for husbands who are living and working outside of Oshikhandass).

Table 4.5 Household Characteristics: Husband Employment and Employment Location

Location of Employment	Low Frequency	High Frequency	Totals
Oshikhandass			
Carpenter	1	0	1
Mason	1	0	1
Laborer	2	1	3
Mill operator	0	1	1
Unemployed	2	3	5
Gilgit or surrounding villages			
Business	1	1	2
Police	1	2	3
Shop owner	2	1	3
Laborer	1	0	1
Driver	1	1	2
Airport Officer	1	0	1
Livestock herding	0	1	1
Engineer	0	1	1
Skardu			
Army	0	1	1
Azad Kashmir			
Army	1	0	1
Islamabad			
Driver	0	1	1
Student	1	0	1
Northern Areas/Islamabad			
Tour guide	0	1	1

The households with multiple members participating in economically remunerative off-farm employment see themselves as prospering. In terms of male employment, 32 out of the total of 42 male household members over the age of 15 years were engaged in off-farm employment at the time of interviewing. In the two

categories of households (i.e., low and high diarrheal disease frequency), the majority of the study respondents' husbands returned daily to Oshikhandass regardless of the location or type of their employment. A little over half of the husbands, or 17, had regular employment and the rest were engaged in irregular and sometimes sporadic employment. Five (17%) of the respondents' husbands were unemployed. The data on husband employment is roughly comparable across high and low frequency categories.

The level of off-farm employment is evidence that subsistence agriculture or even the production of cash crops (especially fruit and greens) cannot cover household expenses. The importance of off-farm employment for cash has made the education of children a priority. Particularly, the prioritization of boys' education is reflected in household labor allocation strategies and gender-based entitlements to scarce household resources.

The average household income reported was Rs. 6,572 (at the time of interviewing US$1 = 47 rupees). However, the income figures do not accurately reflect all of the forms of income earned by family members and from the sales of agricultural produce. Households were receiving incomes in the form of salaries, pensions provided to men retired from military service, as goods provided in exchange for services, and in remittances brought during periodic visits or sent with a relative. Study participants were unable to provide exact figures for the earnings of businesses and transportation services that male family members were operating. While twelve households reported that they did not have a secure source of cash, they did gain some livelihood security through the ownership of land and/or orchards. The

lack of information regarding incomes provided by some of the study participants suggests that not all household members have equal access or control over financial resources and household expenditures. The fact that several woman were not able to respond to how much land the family owned, nor the ages and education of their husbands, further demonstrates how women's and men's lifeworlds differ.

Mothers and Their Children

Thirty women living in the study households constituted the primary group of respondents. Almost all had been born and raised either in Oshikhandass, Hunza, or Bagrote, and all of them spoke Shina and/or Burusheski. As such, the study group is representative of the ethnic makeup of the population of Oshikhandass. Thirteen mothers spoke Urdu. The respondents were mainly in their late twenties and had on average 5 children (Table 4.6 and 4.7).

All of the respondents were occupied in the rearing of at least two children under the age of five at the time of the study. Eleven infant deaths had occurred among these women, with two of the 30 mothers experiencing two infant deaths each. Birth control was a dominant feature of discussions among both groups of study respondents. The majority of the respondents expressed interest in learning about state-sponsored family planning services supplied through the Prime Minister's Program (described in the previous section), although many suggested that they have little control over the decision to adopt family planning.[15] The decision to adopt family planning usually rests with husbands and mothers-in-law.

All of the mothers were contributing to household livelihoods through the production of grains, fruit and vegetables, and in three cases, through tailoring and

alcohol brewing. Fruit and vegetable sales, and to a lesser extent alcohol production, were mentioned as the main means of generating incomes by uneducated women in the region who are facing the constraints of rural capitalism and a host of restrictive measures on their mobility.

Table 4.6 Characteristics of Mothers Interviewed in Oshikhandass: Low Frequency Households

Characteristics	Number
Median age in years	27.7
Median years of education	3.1
Urdu speaking	8
Median number of children	4.4
Total infant deaths	5
Formal employment	0
Husband in household, daily	11
Regular husband employment	7
Unemployment of husband	2

Table 4.7 Characteristics of Mothers Interviewed in Oshikhandass: High Frequency Households

Characteristics	Number
Median age in years	28.8
Median years of education	1.5
Urdu speaking	5
Median number of children	5.7
Total infant deaths	6
Formal employment[1]	2
Husband in household, daily	9
Regular husband employment	10
Unemployment of husband	3

[1]The two respondents are locally employed in education and health services.

As shown in Table 4.7 above, two mothers from high frequency households were formally employed: one as a teacher at the Federal Government Girls' School and the other as a health worker with the Prime Minister's Program. Educational level

as well as their families' support of their employment outside the home played important roles in their formal employment in the community. These two women were among six respondents (20%) to have achieved the educational level of "matric," the degree awarded after the successful completion of the eighth grade. The median years of education as well as fluency in Urdu was higher for mothers from the low frequency households than for mothers from high frequency households. Greater detail on the study participants and their socioeconomic circumstances are provided in Chapter V and VI.

CONCLUSION

This chapter has been focused on setting the context of the study by providing background information on Oshikhandass and its development. The chapter outlined how the context of health and development in the community has changed over the past 60 years since the village was founded in 1935. During this time, Oshikhandass has experienced its portion of changes in physical infrastructure, services, local religious and ethnic conflicts, and periods of poverty and livelihood security.

Without a doubt, the major influences on Oshikhandass can be attributed to the presence of two ethnically and religiously distinct groups (i.e., Hunzakutz and Bagroti), with members who came with valuable skills and knowledge gleaned from their production systems in their places of origin. Over the past history of settlement, a number of core families have been successful at establishing local forms of institutions and governance to guide resource use and conflict resolution. More recently, non-governmental organizations have come to play a significant role in

providing health, education, and community development services. While it initially developed around an agricultural base, more recently the local economy has diversified as a result of its close proximity to transportation routes, markets, and commercial activity. The town's main street and commercial area have emerged as key sites of (male) social interaction, economic activity, and integration into the market economy. Issues that are central to this research and that are examined in greater detail in subsequent chapters such as divisions of labor, gender relations, livelihood and health strategies, the role of religion in people's daily lives, and the community organizations and interventions have been highlighted here.

The chapter also describes some of the major features of the study households and attempts to capture the similarities and differences based on family structure, religious affiliations, and socioeconomic status. One important pattern that has impacts on child health is that the subsistence economies of previously isolated households in Oshikhandass are being transformed. As demonstrated in the discussion of the contemporary period of transition, the households in Oshikhandass are being increasingly integrated into the global economy and international development networks. A similar trend has been identified elsewhere in the Hindu Kush-Karakoram-Himalaya (F. Hewitt, 1989, 1998; Jodha, 1995; Kreutzmann, 1993; Ives, 1997; Ives and Messerli, 1989; MacDonald, 1994; Mehta, 1994; Messerli and Ives, 1997).

The recent changes in social and physical infrastructure, local livelihoods, social organization, and community dynamics have important implications for children's vulnerability to diarrheal diseases. Differentiated patterns of access to

resources that are partly an outcome of the integration into the market economy have a big impact on how mountain families cope with the potentiality of diarrheal disease. For some households, these changes have resulted in an increase in opportunities for improving health and family well-being. For other households, however, these processes have resulted in economic impoverishment, social isolation, and diminishing resources. Individuals, especially women, are being confronted with new challenges in the changing economic and social environment of rural, or "rural transitional," society. To cope with these challenges, mothers continue to rely on a range of strategies and networks of mutual support. It is important to keep in mind as well, that it remains difficult to generalize the impacts of some of the trends due to the inherent complexity and diversity of households and people's lived realities.

Concerning the status of child health, the situation found in Oshikhandass differs from that of most mountain villages in the region. The international and regional organizations that have introduced new health technologies and practices have had a tremendous impact on child survival. The effects and linkages of global civil society are visible in technologies such as oral rehydration therapy (ORT) and new forms of organization (e.g., Water and Sanitation Committee). Certainly the options for health care and access to health education for these mothers and their families are uniquely dependent upon this locality (since no other village in the region has experienced a rigorous diarrhea intervention program).

In sum, the community is changing tremendously, reflecting the changing structure of Northern Pakistan's economy, the policy directives towards health, social welfare, and development, and the context of livelihood and child rearing. Several

ENDNOTES:

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[1] Written records were crucial to the empire's bureaucratic organization (Arnold, 1994; Gilmartin, 1994; Hume, 1986; Michel, 1967).

[2] Historically titled as Mirs, Rajahs, Rais, Tham, or Mehtars depending upon the valley and social context, these hereditary feudal lords carried the ultimate political power within their states. The mini-states over which they ruled are referred to in the colonial literature as "petty states," "political districts," and "tribal areas." More recent literature refers to them as *Mirdoms*.

[3] Water resources management and development in Hunza was once highly influenced by the centralized power of the *Mirdoms* in which the political power of the *Mir* was formally manifested. Extensive research on the construction and subsequent reparations of the irrigation system in Hunza Valley have established the important role of the Mir's vision of increasing societal wealth and security within his territory through these water works (Sidky, 1990).

[4] The Aga Khan Health Service, Pakistan (AKHS,P) is one of the largest and most reputable private health services networks in Pakistan. AKHS,P began working in Pakistan in 1924 with a maternity home in Karachi and now operates more than 130 health centers in various parts of the country.

[5] AKHS,P has been operating the Northern Pakistan Primary Health Care Program in selected service areas since 1987. The program has two objectives: (1) To develop sustainable measures to improve the health and nutritional status of children below five years and women aged 15-45 years; and (2) To work in partnership with community, local government, and Aga Khan Development Network agencies to establish a permanent primary health care delivery system at an affordable cost. During the first phase, AKHS,P expanded from a small, volunteer-managed organization into a larger professionally managed with multiple financing from international donors. The program has focused on seven key interventions including: immunizations; oral rehydration therapy (ORT) for diarrhea; antibiotic treatment of acute respiratory infections; the promotion of breastfeeding; growth monitoring of children; improved antenatal and delivery care for pregnant women; and iodine treatment for iodine-deficiency disorders (LeSar et al., 1990).

[6] There is a very large body of scholarship assessing and critiquing the particular development approach of Women in Development (WID). See, for example, Moser (1993) and Kabeer (1994).

[7] In 1982 UNICEF launched a 4-year program, the Community Basic Services Program, to influence more directly the water supply, sanitation, and health sectors

through collaboration with the Government of Pakistan's Local Bodies and Rural Development Department.

[8] Spending money on large, elaborate weddings, formal gift exchanges during engagements, and dowry requirements are symbolic of social change and the infusion of Punjabi and Sindhi culture into rural, mountain society. With the introduction of Hindi films and exposure to Punjabi culture through magazines and TV, these traditions are growing in importance. Dowry is now seen as a way to enhance family status and represents a new form of social contract between families.

[9] The factors thought to spread the cholera included the usual practice of defecation in open areas or near water channels, the use of streams for drinking water, the lack of hand washing after defecation, and the heavy rains which might have mixed fecal material into water sources.

[10] This program extends the existing maternal and child health services provided by the government in this region. Currently, the Government of Pakistan is the largest provider of health services in the Northern Areas.

[11] The Water and Sanitation Extension Program (WASEP) for the Aga Khan Housing Board (formerly known as the Water, Sanitation, Health, and Hygiene Studies Project under the Aga Khan Health Service, Pakistan) has been employing various participatory rural appraisal (PRA) techniques, local organizing, and community-based water supply intervention programs in creative ways to spearhead water supply and sanitation efforts in the region (WASEP, 1998).

[12] According to World Health Organization guidelines for water quality, a measure of 0 E.coli/100ml of water is "excellent" and 10 E.coli/100ml is "acceptable."

[13] The Government of Pakistan initiated the Social Action Program (SAP) to improve education and socioeconomic levels in the Northern Areas. During the Eighth Five Year Plan (1993-1998) the Government of Pakistan set objectives to improve primary health care, education, and nutrition.

[14] The local measure of land is called a kanal. The local approximation of a kanal is 1/20 of a hectare.

[15] Family planning is a highly sensitive, private, and politicized issue in the Northern Areas. To avoid making mothers uncomfortable about divulging information regarding this issue, I purposefully asked no direct questions about the use of family planning services, and instead engaged in dialogue on this topic only when study participants raised the issue.

CHAPTER V

CONCEPTUALIZING RISKS: LOCAL PERCEPTIONS OF DIARRHEAL DISEASE, VULNERABILITY, HEALTH, AND WELL-BEING

INTRODUCTION

This chapter utilizes the community setting presented in the previous chapter as an arena for examining how health risks, namely the risk of diarrheal diseases, are locally perceived. Local perceptions of risk are central to this study of children's vulnerability to diarrheal disease because they are important variables in the model of human response and adjustment to environmental health hazard (Baxter and Eyles, 1999; White, 1974; Whyte, 1986). The central thesis developed in the chapter is that perceptions of environmental health risk are influenced by the local context in which risk is embedded and by the manner in which the risk is perceived in relation to other local health concerns. The analysis presented in this chapter links local perceptions of health risks to the broader meanings of health and illnesses as well as the ways in which environmental health risks are being re-defined in the context of social and environmental change.

The chapter is divided into five parts. It begins by reviewing the academic literature on environmental risk perception and introduces the core concepts employed in this analysis. The second section provides an analysis of the perceptions of childhood diarrheal disease that dominate mothers' narratives of disease risk. This analysis gives treatment to the perceived severity of diarrheal disease as life threatening and reviews the factors that are perceived to be disease-causing. In the third section, mothers' definitions of "healthy" and "unhealthy" within the context of Northern Pakistani society are elaborated. These definitions are important for contextualizing the perspectives on diarrheal disease risk in relation to culturally- and locally-specific understandings of health and well-being. In focusing on the meanings of health and well-being, the social and symbolic conceptualizations of health are revealed as dynamic and complex. The fourth section examines the ways in which local perceptions of health risks are changing and being redefined in response to wider social, cultural, and economic transformations affecting this community that were highlighted in Chapter IV. In this respect, the perceptions of new health risks reflect broader local concerns about the health impacts of economic and social transformations affecting the community.

In this chapter, "risk perception" is initially taken to mean: one, awareness of environmental health risks and particularly diarrheal disease risk; two, awareness of the potential causes of diarrheal disease; and three, awareness of children's susceptibility for the actual "fact" of diarrheal disease. Knowledge about diarrheal disease and the factors compromising child health is recognized as important to shaping perceptions of diarrheal disease risk. Starting with the narratives of the study

mothers and then expanding the discussion to include the perceptions of other residents in Oshikhandass, the chapter builds an understanding of environmental risk perceptions as socially constructed. This understanding reveals how mothers perceive these risks within the contexts of their everyday lives and also reveals the cultural and socioeconomic factors within the community that influence the awareness of environmental health perceptions. This examination of the ideational realm of disease risk is one approach to explaining the observable patterns in response and coping with childhood diarrhea. The analysis of local narratives follows the critical interpretive perspective in medical and human geography which explores how perceptions of health, illness, and the environment in various places are socially constructed and historically contingent (Kearns and Gesler, 1998).

Conceptualizations of environmental health risks have underlain a large body of work in the health and development field. In the 19th century, for example, British medical officers used their perceptions of disease risk to validate an imperialist critique of South Asian society and to represent the health status of "native" populations in a particular way (Harrison, 1994; Hume, 1986). The representations of indigenous people as lacking an awareness of risk and response to disease hazard was used to justify certain policies towards the physical and social segregation of Indians from British colonialists (Arnold, 1991; Hume, 1986; Lal, 1994). Perhaps because of the distinctions in health perceptions and attitudes toward risk that were different from their own, the British judged indigenous people and their health practices as needing correction.[1] Similar discussions surrounding public health policies were underway in Europe at the same time (Goubert, 1989; la Berge, 1992; Wohl, 1983).

In contemporary South Asia, discourses on child health support the privileged position of professional health workers through similar assertions of the authoritative perceptions of health risks and the power of experts to establish what is risky for children and their families. A poignant example is found in Bangladesh where the knowledge of health professionals is privileged over local views of breast-feeding to the detriment of child health (Zeitlyn and Rowshan, 1997). Generally, health studies in the region have been dominated by technocratic and biomedical approaches that tend to share the view that South Asians' risk and health perceptions exist within a self-contained cultural and ecological system, with little interaction between knowledge systems and factors external to that system (see Apffel Marglin and Marglin, 1990; Nichter, 1989).

It needs mentioning here that indigenous views of health, such as those held by marginalized groups, are often considered "folk," "soft," or "subjective" in public health discourses while health professionals' narratives are given the status of being scientific and expert-driven. In contrast, this chapter joins a small, yet growing body of scholarship which aims to broaden the view of local perceptions of environmental and health risks in the Hindu Kush-Karakoram-Himalaya by connecting these perceptions to other local concerns about vulnerability and livelihood. Importance is attached to how mothers and other local people conceptualize health risks because their voices are too often ignored or silenced in health policy and development discussions (Gesler, Bird, and Oljeski, 1997).

PERCEPTIONS IN PLACE: THEORETICAL DEVELOPMENTS

This analysis of local perceptions of diarrheal disease and other environmental health risks is situated in the tradition of hazard research in geography. One long-standing focus of this research has been the study of people's perceptions of risk and hazard within the context in which those hazards are experienced (Whyte, 1986; Baxter, 1997; Baxter and Eyles, 1999). The field of perception studies has its roots in western social science, and while it has a strong foothold in geography, it also intersects with the disciplines of sociology, anthropology, political science, psychology, and public health (Slovic, 1987). In this field of study, the term "perception" is employed as a broad and inclusive concept to describe the awareness, attitudes, values, memories, and images that influence human behavior in the face of risk and hazard (Sarrinen et al., 1984). As mentioned in the introduction, this chapter focuses on the awareness aspect of water-related disease risk as well as awareness of children's susceptibility; the other elements included in Sarrinen et al.'s (1984) broad definition are beyond the scope of this study.

Inquiry into perceptions of risk is not driven by goals of establishing the probabilistic qualities of risk in terms of occurrence, percentages of losses (e.g., injury or death), or as measured against other risks. Rather, a broad sociocultural view of risk and risk perception is taken up to move outside of technical concepts of risk in order to get close to the ground level of those who experience risk (Hewitt, 1997; Kasperson et al., 1988). According to White, a central goal of studying perception is to provide an understanding of individual and collective choice of adjustment in a larger effort to improve hazard response through education and public policy (White,

1974). Attention to hazard perceptions has brought about a fundamental alteration in thinking about the linkages between judgements about the degree of risk and social action (O'Riordan, 1986). Furthermore, it has challenged the privileging of "expert" interpretations of hazards over the views of local people. As a result, the realization of differing frames of reference based on social position and location has been underscored by the explicit desire to articulate the perceptions of ordinary local people.

One focus of perception studies has been on examining the views of people most directly impacted by risks and hazards in order to explain their actual behavior (White, 1958, 1974). In this respect, perception is articulated as one salient variable in the model of human adjustment to hazard. The idea of adjustment was put forth by Gilbert White to describe the factors that people consider in order to avoid or prevent a hazard from occurring or to mitigate its effects (White, 1945 in Kates and Burton, 1986). In this model of human adjustment three initial components are identified: the physical environment, the human use system, and the characteristics of the people regarded as the managers/decision-makers influencing the environment. In simple terms, the process of interaction between these three components influences the creation of the hazard, the perception of the hazard, and adjustment to the hazard (Whyte, 1986). In this model, perception acts as a filter that mediates between the hazard and the action taken to adjust or respond to the hazard.

In the particular case of environmental health research, risk perception studies seek to understand people's awareness of biological, toxicological, and other health hazards (Cutter, 1993; Flynn, Slovic, and Mertz, 1994; Johnson and Covello, 1987).

Perception is one salient dimension in the cultural construction of knowledge of health and environmental risks (Baxter and Eyles, 1999). Studies of the perception of environmental health risks, for example, have clearly revealed that most people have a complex and comprehensive conceptualization of risks to their health (Baxter, 1997; Frankenberg, 1993). An explicit goal of this research is to build an understanding of deeper issues surrounding the situatedness of risk in the context of daily life. This method of inquiry allows the meanings of health risks of those who experience them to be understood in the context of the everyday rather than in the isolated contexts of particular environmental and health hazards.

There are at least three key points of concern that have emerged from the debates in environmental health and risk perception research that are important for an analysis of local perceptions of diarrheal disease, risk, and vulnerability in Oshikhandass. First, the meanings of environmental health risk and uncertainty for local people can be understood as socially constructed (Johnson and Covello, 1987; Krimsky and Golding, 1992). The ground breaking work of Douglas and Wildavsky (1982) claims that ultimately the constructions of hazards as "risky" assert significant aspects of people's worldview, that is, how individuals and groups view their place in the world and how the world should operate. Hence, individuals and groups perceive the qualities of risks in a manner that supports their worldview. These authors endorse the idea that social and culture values work to influence what various communities and societies selectively perceive as dangerous or risky and how they choose to address risk. The selection of risk is described as a socially and culturally constructed phenomenon linked to moral, economic, and political factors rather than the physical

reality of risk. As a result, Hewitt (1997:9) notes, people hold varying criteria of "acceptable" and "unacceptable" risks.

Overall, this first point underscores the need to move beyond perceptual frameworks based on western/"modern" constructions to include how different cultures and societies construct risk. The recognition and appreciation of the variations in risk perceptions has led to efforts to understand the discrepancies between perceptions through a focus on how individuals, groups, and communities construct meanings and ascribe values to risks (Hewitt, 1997). An example of this can be seen in the different languages and definitions employed by local people and those of health professionals in their perceptions of health (Litva and Eyles, 1994). Only a few studies in geography specifically address the social construction of environmental health risks. Two examples of this work include the study of local accounts of a severe fire event in 1990 by Eyles et al. (1993) and Baxter's (1997) study exploring the meaning of risk in a community in Ontario, Canada that was a preferred site for a municipal solid waste facility.

The second point from debates in the hazards literature in geography that has relevance here is that place plays an important role in risk perceptions. It is within particular places that hazards, local social contexts, and existing systems of value interact to influence perceptions (Bjonness, 1986; Cutter, 1993). Place-specific experiences have a central role in the meaning of risks. For example, it has been argued that the perceptions and meanings ascribed to risk reflect contextual influences such as people's social position (or place) in society (Hewitt, 1997; Kasperson et al., 1988; Roberts, Smith, and Bryce, 1995). Research on environmental

health hazards suggest that perception is not only influenced by geographical context but also by social position and status (Flynn, Slovic and Mertz, 1994). Various factors such as gender, ethnicity, religion, class, age, power relations, and social organization have been found to be key dimensions influencing risk perceptions in different places (Johnson and Covello, 1987). This theme is evident in the early work by White, Bradley, and White (1972) on risk perceptions of water quality and waterborne disease in East Africa.

The specificities of place and the socioeconomic relations of places is also a central idea in other studies investigating people's perceptions of health and illness (Dyck, 1995). This point is iterated in a significant body of child health research that describes how mothers perceive their children's health and make sense of risks to children's health and safety within specific causal and socio-cultural contexts. In recent decades, important studies on women's own frameworks for conceptualizing health problems and environmental risks have emerged (Barrett and Browne, 1996; Gittelsohn et al., 1994; Scheper-Hughes, 1992). These understandings of risk perception differ noticeably from conventional medical geography which concentrates on disease ecology, disease diffusion, and the geography of health care provision and utilization (Meade et al., 1988). The empirical evidence from Oshikhandass suggests that when risk perceptions are specified by the identities and locations of mothers, many of the critical elements of their interests, priorities, and social positions are uncovered.

Third, perceptions have implications for the range of choice among adjustments that mothers and families make in response to environmental health

hazards. More recently, the models of perception that have been put forth in the social science literature have further elaborated how individual risk perception leads to efforts to prevent dangerous processes or to reduce its consequences (Krimsky and Golding, 1992). In previous research, investigations of environmental health risk perceptions have helped to account for discrepancies between people's estimates of risk or of the potential consequences of a hazard and their adjustment strategies. In the case of childhood diarrhea, research in India, Nepal, and Pakistan has shown that perceived severity of illness is a major determinant of therapy and choice of therapy (Bentley, 1988; De Zoysa et al., 1998; Eickmeier, 1989; Mull, Anderson, and Mull, 1990; Nichter, 1988; Stapleton, 1989). Yet, serious limitations in predicting actual parental behavior from perceptions have been noted by some of these authors as well as by Boot (1991) and Boot and Cairncross (1993). Similarly, the incongruencies between risk perceptions and behavioral patterns are well established in many fields of risk reduction and health behavior research (Weinstein, 1987). As a result, knowledge on how perceptions influence individual and collective responses to risk is limited (Cutter, 1993).

Some of the issues raised in this section are supported by the findings presented in the rest of this chapter. In Northern Pakistan, medical cosmology abounds with representations of human vulnerability to a dangerous and risk-filled mountainous environment. How mothers perceive diarrheal disease risk within this perceptual framework is a central question. Mothers' perceptions are especially critical to this discussion of disease hazards because of their unique socially-defined roles and responsibilities of nurturing and health provision within the household.

Mothers are the main repositories of knowledge about diarrheal disease and childhood health risks in the community of Oshikhandass. Therefore, the discussion in the following section begins necessarily with maternal perceptions of diarrheal disease risk. The latter part of the chapter includes other local perspectives of health, well-being, and vulnerability to broaden the discussion. Local perceptions are one of many factors influencing behavior and social response to environmental health risks. Other factors that have a bearing on response to risk include social relations, access to resources, costs of care, time demands, women's status, and social support networks and will be dealt with in Chapter VI. The following section presents details on mothers' recognition of diarrheal disease as a common and life-threatening condition and their perspectives on the factors that cause disease.

MOTHERS' PERCEPTIONS OF CHILDHOOD DIARRHEA

This section of the chapter explores several aspects of mothers' perceptions of childhood diarrhea. The ways in which mothers describe diarrheal disease suggests important aspects of perceptions of disease causation and factors that threaten children's health. Health perceptions held by Northern Pakistani mothers have been influenced by the two major medical systems that exist in the region: Prophetic/Islamic folk medicine, and "modern" medicine.

Prophetic medicine, or what is sometimes referred to as Islamic folk medicine, encompasses faith healing and folk practices as well as the more formalized medical tradition of Yunani (Islami-Tibb).[2] Taken as a whole, prophetic medicine represents a blending of three sources of knowledge and practice: (1) the ideas and concepts put

forth by Greco-Islamic medicine as it has been organized and developed by Muslim practitioners called *hakim* (Yunani); (2) medical knowledge stemming from both the statements and traditions of the Prophet Mohammed in the Hadiths and the word of Allah as revealed to the Prophet Mohammed in the Qur'an; and 3) local medical customs, magical beliefs, and rituals.

According to Gallagher (1993), prophetic medicine was initially developed and formalized by ulema who were Islamic theologian-philosophers rather than trained physicians. The practice of Yunani (Hakeemi) medicine is not widespread in Northern Pakistan (Rasmussen et al, 1996), however, one *hakim* was living in Oshikhandass at the time of interviewing. Similar to *hakims* elsewhere in Pakistan, he had received specialized training in a *hikmat* (literally means "wisdom") college, and later he went on to apprentice with a well-known *hakim* in Bangladesh. In Northern Pakistan, those who study the compendia of Islamic medical knowledge and make recommendations based on their study of Islamic theology and teachings represent the formalized practice of faith healing in the region. Practitioners include faith healers, *moulvis*, *sheikhs*, *khalifas*, and *pirs* (holy men), and they typically use prayer, water, and auspicious Qur'anic verses in amulets (*taveez)* in their treatments. There is also daily medical practice that is quite different from the formalized version in that it is less formal and more eclectic in the way it is employed for day-to-day needs and purposes. Modern medicine as practiced in the region refers to the use of western medical science to diagnosis, treat, cure and prevent diseases with chemical drugs, dietary recommendations, laboratory tests, and surgery. Homeopathy is not widely practiced in the region (Rasmussen et al., 1996). These different medical traditions,

both prophetic and modern, are especially significant in perceptions of disease-causing factors.

The interviews conducted with the mothers of the two case study groups (i.e., high and low diarrheal disease frequency households) reveal the ways in which perceptions of risk and vulnerability are directly influenced by the aforementioned medical traditions. These results support the findings of recent anthropological work on mothers' perceptions of health in South Asia which indicate that mothers' perceptions are linked to predominant medical traditions and pluralistic bodies of knowledge (Bentley, 1988; Eickmeier, 1989; Mull and Mull, 1988; Winkvist and Akhtar, 1997).

Diarrheal Disease as Common and Life-Threatening

In general, mothers' assessments of diarrheal disease in Oshikhandass demonstrate similarities between the two case study groups. Both sets of mothers were aware of the susceptibility of their children to diarrheal disease. They overwhelmingly perceived diarrheal disease among young children to be a serious health risk that has the potential to be life-threatening. All children were viewed to be at risk to diarrhea, a condition which mothers described as *khatarnok* (dangerous). Mothers strongly viewed infants and young children to be physically vulnerable to these types of health risks. Diarrhea and pneumonia were ranked as the two most common diseases faced by infants and children in Oshikhandass. As Table 5.1 shows, the mothers in the two study groups both ranked diarrhea as the most common health

problem facing children. Cholera, fever, and vomiting were other health conditions mentioned by mothers that are commonly associated with diarrhea.

Table 5.1 Distribution of responses to the question, "*What are the childhood diseases in Oshikhandass?*"

Disease	Low Frequency Households	High Frequency Households	Totals
Diarrhea	12	12	24
Pneumonia	8	9	17
Cholera	4	4	8
Cough	3	1	4
Fever	1	4	5
Vomiting	0	4	4
Dysentery	0	1	1
Asthma	1	1	2
Flu	1	0	1
Worms	0	1	1
Sore throat	1	0	1
Malaria	1	0	1
Measles	1	0	1
Itching	0	1	1
Infection	1	0	1
No answer	2	1	3

The dominant reasons given for why diarrhea is dangerous included mainly concerns about physical *kamzoori* (weakness) and the impact the loss of *pani* (water) and *namak* (salts) has on the body. The Urdu word *kamzoor* for weakness, employed by both Shina and Burusheski speaking mothers, was used to describe a range of conditions including lethargy, inactivity, and weight loss. As noted by Mull and Mull (1988) the word *kamzoor* is a "catchall term" encompassing many feared and life-threatening conditions facing children. In addition to the physiological signs, the behavior and appearance of the child were critical features in mothers' descriptions of

what happens to a child when it has a serious case of diarrhea. The perceived severity of diarrhea is reflected in the following quotations:

> It is very dangerous. It causes weakness and the loss of salts from the body.
>
> Diarrhea is dangerous. This is why we take so much care about it. If children suffer from diarrhea they do not eat anything. They do not drink milk. They do not take meals so they become very weak.
>
> If a patient of diarrhea is not cured in time, he will become very weak and die.
>
> Diarrhea is dangerous when the child is dehydrated. The eyes are sunken, the mouth is dry, and death is possible.

These signs and symptoms, taken to be indicators of a dangerous and life-threatening condition, were perceived to be the outcome of multiple disease-causing factors.

Disease-Causing Factors

According to these mothers' worldview, health and illness were perceived to be bestowed by Allah. The power of Allah, captured in the term *qudrati* (divine), was described as dominating over natural processes and all aspects of life including sickness and death. However, this does not imply that mothers were completely fatalistic and did not identify factors in their environment that they believed to be the causes of disease. Indeed, the ways in which mothers perceived risk were directly linked to their understandings of disease transmission.

Illness events, especially those with symptoms of diarrhea, were given several interpretations. The occurrence of illness or physical harm was considered either accidental and naturally-caused or intentional and deliberate. In the case of accidental or naturally-caused sickness, importance was first placed on the cause-effect

relationship between diarrhea episodes and visible or tangible elements in the environment such as dirt, unclear water, heat, or food impurities. This also included the state of being physically and visibly dirty that was deemed inappropriate within the local notions of personal cleanliness held by mothers. This perceived dirtiness manifests when faces and hands look and feel dirty to the mother or when clothing, water, or food is visibly dirty, smells bad, or looks suspicious.

The range of visible environmental and social factors that in mothers' opinions might account for the high incidence of diarrheal disease and poor child health in Oshikhandass are presented in Table 5.2. The analysis of the causes mentioned by respondents suggests five main categories of factors: elements in the environment such as dirt, heat, and changes in the weather; social and/or behavioral characteristics of poverty, poor hygiene and inadequate child supervision; non-human animate agents such as flies and animals; items such as spoiled or poor quality food and contaminated water; and physiological deficiencies such as an inferior digestive system.

Generally, there was agreement about the factors that predispose children to waterborne disease. The specific qualities of these dimensions varied little according to individual mothers' perceptions. Dietary factors such as dirty food, dirty fruit, or too much food were the most common source of risk perceived by mothers. The mothers from high frequency households emphasized slightly more than the mothers of low frequency households the role of a poor diet in causing children to be vulnerable to disease.

Table 5.2 Distribution of mothers' responses concerning the factors that predispose children to diarrheal disease

Predisposing factor	Low Frequency Households	High Frequency Households	Total
Unhealthy, spoiled or dirty food; poor diet (e.g., hot breast milk, dirty fruit, leafy greens, sweets)	9	12	21
Rubbish and *gundagee* (dirt), unclean household environment, flies, animal wastes	7	6	13
Poverty and unemployment	6	4	10
Sadness, sorrowfulness, worries in the household; bad relations with the community	4	3	7
Impure water	3	3	6
Unhealthy practices and lack of hygiene in the house	3	2	5
Hot season, excessive exposure to the sun, heat	2	3	5
Children's digestive system is not working or is bad	2	1	3
Children's behavior & their lack of hygienic practices	1	2	3
Farmers are busy & cannot give attention to children; lack of parental supervision	1	2	3
Fate	1	0	1
Changes in the weather	1	1	2

Mothers suggested that a poor diet weakens the body's resistance to illness, thereby increasing the risk that the child will experience diarrhea and other diseases such as pneumonia. One respondent disagreed, stating, "An unhygienic diet does not cause diarrhea." In general, though, the concern about diet reflected a broader cultural concern about the role of high quality food in maintaining health. People in

Oshikhandass frequently make comments about the role of *accha khaana* (good food) for maintaining the body, a robust body weight (described as *mota* or fat), and a clear mind.

In talking with mothers, the environmental qualities contributing to children's poor health and diarrhea were described in terms of *gundagee* (dirt), unclean conditions, poor quality water, and heat or the hot season. Women in Oshikhandass were very cognizant about the quality of their water, although this may not have a direct bearing on the maintenance of actual water hygiene standards. While mothers related health risks to water quality and were clearly concerned about the quality of environmental health, few of these mothers actually mentioned sanitation as a factor in water and environmental quality.

The perceptions of heat and the hot season as causes of diarrhea are similar to the prevailing beliefs in many places around the world (Bentley, 1988; Mull and Mull, 1988). Principles of hot and cold as elaborated in the Yunani medical system explain why excessive exposure to heat, sitting in the sun, and extremes in climate were thought to be risky and diarrhea-causing by some of the mothers. The social and/or behavioral characteristics making up the different factors that predispose children to diarrheal diseases were described in terms of poverty, the state of mind of family members, and poor personal and household hygiene.

Mothers of both categories suggested that there are no places that are unhealthy and should be avoided except two mothers from each group mentioned that the *chukung* (local composting toilet) is a dirty place. In response to the question about whether there are any places that should be avoided, Khatija's mother stated,

"Allah knows, and faith in Allah protects us from these places." As stated earlier, belief and faith in Allah were at the center of conceptualizations of risk and vulnerability to disease.

Most of these mothers expressed very solid and detailed knowledge about how diarrheal disease is transmitted from person-to-person or house-to-house via hands, water, and flies. These views stem from the blending of indigenous knowledge and local experience of diarrheal disease and "new" or "outside" knowledge espoused through the educational efforts of Muslim clerics and maternal and child health education programs initiated by the Government of Pakistan and the Aga Khan Health Service, Pakistan. The following quotations convey some of the influences on local health knowledge that have led to changes in the perceptions of health risks in the community in recent decades:

> A decade back or so there was a health project which helped us in health awareness, hygiene, and cleanliness. That project was run by Dr. Ijaz who is a local person. The health workers of that project educated us a lot about health, hygiene, and cleanliness. It is commonsense that the dirt and rubbish cause disease. Where there is cleanliness there is no disease at all. So we are suppose to care about hygiene. We learned through doctors and health workers that to avoid dysentery we should keep our houses clean and tidy.
>
> – Participant, Focus Group Interview #1

> There is a great change. Earlier we knew nothing about diseases, health, and hygiene. When Dr. Zeba came here to Oshikhandass she brought a great change... Dr. Zeba taught our daughters about health and hygiene and how to overcome diseases. On the other hand, our daughters teach us what they have learned from Dr. Zeba. She would come to our houses and ask about the diet we gave to our young ones... Previously we did not know at all about health and hygiene, and when we learned about it we kept our children neat and clean.
>
> – Participant, Focus Group Interview #2

The responsibility for and control of diarrheal diseases in the household was assumed to be in the hands of those who are responsible for the hygiene and cleanliness of children, that is, mothers and other female family members. Some mothers insisted that despite their care and attention there exists a level of risk to diarrheal diseases that is beyond their knowledge or ability to control. These sentiments demonstrate a sense of powerlessness in the face of the multiple and complex social and environmental factors which contribute to sickness among children in the community. For example, comments from respondents included:

> ... There is rubbish and filth everywhere. So such type of illnesses are very common. Water is impure. Children do not know about hygiene. They eat everything without washing their hands. This is why our young ones suffer too much.
>
> We the elders do our best to prevent diarrhea. But it is difficult because children do not take care of what they eat. They eat what they like. They do not take care about purity and cleanliness. They eat mulberries without washing them. In spite of our great care, children suffer from diarrhea. Their digestive system does not work properly, and they suffer diarrhea.
>
> ...We sometimes work in the fields in the sunshine, and we breast feed our young ones during this working time. Then children suffer from diarrhea. Perhaps [diarrhea] is due to unclean breastfeeding.

The third comment above regarding breast milk reflects a predominant view that breast milk, especially when perceived as being "hot" after mothers have worked hard in the fields, is diarrhea-inducing. This belief has also been identified in Guatemalan (Scrimshaw and Hurtado, 1988) and North Indian (Bentley, 1988) perceptions of the causes of diarrhea.

The Child/Society Relationship as a Factor in Illness and Health

In addition to the visible disease-causing factors mentioned above, mothers viewed children to be vulnerable to health-impacting social risks of *kharap mahol* (bad social environment) existing in Oshikhandass. Mothers identified bad society or bad people as having an impact on health either through association and simple contact or through the deliberate purpose of these people to inflict harm on others due to their feelings of jealously, spite, or revenge. Exposure to the bad or ritually polluting elements in society was seen as corrupting and weakening the physical constitution of children, thereby rendering them more vulnerable to diarrhea and sickness.

This concern for children's interactions with "bad society" increases as children grow up and become more mobile outside of the protection of the extended family and the Isma'ili or Shi'a religious communities. Mothers' views about children's exposure to diseases in public spaces mostly concerned children's potentially inauspicious contact and interactions with these types of impure people. Messages about avoiding these aspects of society are communicated to children through health and hygiene education in the home. For example, Mas Bibi said, "We stress to [our children] that they should avoid bad society. They should keep themselves clean." When asked about the type of hygiene and health education she gives her children, Lal Begum, stated, "We tell our young ones to go to school in time, to avoid bad company, and to keep clean and neat." This type of social contact is thought to lead to a sort of moral "dirtiness" associated with unacceptable social behavior.

As a consequence of these views, children were portrayed as vulnerable to unfamiliar or morally-corrupt people and lacking the ability to either negotiate relations with these types of people or to avoid them entirely. To reduce risk, mothers stressed the need to educate their young children about staying away from people who are corrupting or who are doing *kharab kam* (bad work). Health education particularly for boys who are socialized to interact with people outside of the extended family and kinship networks reflected this concern for teaching children to avoid contact with bad people. One mother elaborated on this concern in response to the question, How do you teach your children to stay healthy?:

> ...We take too much care about our young ones. We massage their body with kernel oil. We give them proper food. I do not sell almonds in the market since we have a lot of almonds in our own garden. I prefer to give almonds to my children. I give dried apricots to them. Above all I keep them clean. Besides we warn them not to mingle with bad society. We teach them that one who adopts good society will succeed and reach his goals. We also teach them that they should take a bath daily in summer and twice a week in winter. And they should wash their hands with soap before having their meals.
>
> – Participant, Focus Group Interview #2

The evidence from Oshikhandass suggests that the type of health education children receive as they are growing up is part of the process of normalizing social values and gender roles. Developing a Muslim identity is also central to this education and learning about being and staying healthy. Ashrafi, for example, elaborated on this notion of Muslim identity and practice as constituting a set of values and attitudes toward hygiene. She stated, "Cleanliness is half of the belief. One should keep himself clean before taking meals and saying prayers."

Similar to other Muslim societies, at the base of this interpretation is the notion of the community as containing impurities and purities (Leslie and Young,

1992). As this notion has been interpreted and reinterpreted in the context of socioeconomic change in Oshikhandass, the discursive and ideological beliefs have taken a tangible and material form through behavior, care-giving arrangements, and social relations. Mothers' concerns for children's exposure to the insalubrious social elements in the community and how that contact might affect the health and well-being of the children paralleled other expressions of anxiety about children's contact with bad or evil people. This theme is demonstrated in the following excerpt from my fieldnotes:

> *Fieldnotes, April 4, 1998*: The shaman had talked about churrells (female witches) in the village during the interview. On the way home from the shaman's house, I decided to ask Muki and Parveen what they think about churrells and if churrells still live in the village like the shaman had said in the interview. Parveen said there is one, but Muki said there are three or four. As we walked they began to tell me the story of their brother Mustafa who was attacked by a churrell: "Ami (mother) told us that when Mustafa our brother was little, a women came to our house. After she left our house, Mustafa quickly became sick. He had been very healthy before then and suddenly became sick. Ami was very worried. Our dadi (grandmother) took the baby and went to the woman's house. Dadi knew she was a churrell. Dadi said to the women that if the boy did not become well it would be her responsibility. She said to the woman, 'I know this [baby's sickness] is your work.' After this, our brother got better." Parveen added, "If a child is walking alone and a churrell sees it and shakes the child's hand, the child will die three days later. This means that, say, if I am walking alone, and I meet a woman who is a churrell, and I shake her hand, then I will die three days later. The churrells have families and relatives here. They are members of the community. If the churrell sees a child and touches the child on the shoulder or takes its hand, the child will die."

Children, then, are advised by their parents and elders to avoid the dangerous social elements, such as a *churrell*, that can potentially threaten their health and safety in the community. Children themselves speak of avoiding the women who are suspected of being a *churrell*. Overall, the concern for a morally and socially safe

environment is linked to ideas about the place of children in this Islamic society. As one village elder stated, "In Islam a child belongs to everyone. A child does not just belong to one family. Everyone is responsible for looking after that child." In addition to *churrell*, other metaphysical forces are perceived to have an influence on child health.

Influence of Metaphysical Forces

Another theme dominating mothers' views of disease factors was a religio-cultural interpretation of the centrality of invisible supernatural forces in influencing health and the risk environment. In the case of childhood diarrhea, mothers first assigned a natural cause to the early stages of sickness, and then a deliberate or intentional supernatural cause when a natural cause had been eliminated or when the symptoms were of a sufficient severity to suggest a metaphysical dimension to the sickness. In addition to the role of Allah in arbitrating health, health was also described to be partly influenced by supernatural spirits or forces such as *nazar* (evil eye), *jinn* (demons, evil spirits), *bhud* (ghost-like figures), *dev* (giants), and *yamalo* (beasts). The results of other studies on mothers' knowledge of diarrheal disease in Northwest Pakistan and elsewhere in South Asia confirms the pervasiveness of strong beliefs in supernatural forces affecting child health (Bentley, 1988; Mull et al., 1990; Sweetser, 1992). According to Sweetser (1992), these beings, which are classified broadly as *jinns* in the Qur'an, occupy a supernatural hierarchy that is beyond human perception. She found in the Kaghan Valley, Northern Pakistan, that pre-Islamic notions of varieties of supernatural beings have become enmeshed with Islamic

conceptions of *jinn*. A similar situation was observed in Oshikhandass, where a hierarchy of various types of spiritual beings were perceived to dwell in their own realms. In this framework, the local interpretations made of these entities do not conflict with Islamic precepts about *jinn*. Rather, beliefs in the existence of *jinn* are rooted in Qur'anic teachings and are widespread in Pakistan (Eickmeier, 1989; Mull et al., 1990).

The influence of religio-cultural views on risk perceptions is strongly shown in attitudes toward supernatural or malevolent forces that can potentially strike children down. Children's bodies (as well as the bodies of adults and livestock) were viewed as easily taken over by spiritual forces existing in the environment. The belief that at any time a child is vulnerable to malevolent forces invading the body was strongly asserted. These beliefs are based in the Northern Pakistani worldview that sees life, especially living in a mountainous environment, as erratic and unpredictable. For example, the forces driving the extreme climatic, temperature, and natural hazard conditions in the region are considered ready to support or punish people depending upon people's own virtue and righteousness. One example of this interpretation occurred during the time of interviewing. News of a particularly unusual rockfall that affected only one house in the valley of Hunza spread rapidly through the area and was the subject of many conversations. The event was interpreted as extremely rare, unexplainable, and incomprehensible, and therefore a sign of some larger force administering punishment for either internal strife among the family members or for unethical behavior that was going on in the household. In this sense, Northern Pakistani ideas about the relationship between the corporal and

spiritual domains are similar to those observed by Larme (1998) in her research on Andean ethnomedicine.

None of the mothers spontaneously mentioned *nazar* or possession by *jinns* as the cause of childhood illness, yet when asked directly, the majority of women said they believed that children are susceptible to these metaphysical forces. *Nazar*, or the evil-eye, was considered one of the most common risks in the social environment that can lead to illness. In *nazar*-caused ailments the targets are believed to be mainly infants and young children, however, in this region wheat fields, high-yielding fruit trees, milk-producing cows, ripening wheat fields, and adults were observed to be vulnerable to *nazar* as well. When asked directly about the frequency of these conditions, mothers said they believe that *nazar* is most likely to occur if a child is *khobsurat* (beautiful), *sehatmund* (healthy), or *aacha lugta hei* (good or nice looking). A second malevolent disease-causing force was attributed to the work of *jinn* and the local variants of *bhud* (ghosts) and *dakal* (beast, evil-faced monster). Human health was perceived to be extremely vulnerable to these personified forces and their actions. These spirits or creatures were described as running loose in the wastelands, hills, and mountains and coming down to the valleys to inflict illness on young children. Another local variant called *subian* was described as a female spirit who attacks children when they are in their cradles.

Diagnoses of these conditions are based on a wide range of symptoms including diarrhea, shivering, relentless crying, fever, vomiting, convulsions, abnormal sleeping patterns, clenched fists, loss of appetite, and joint pain. These symptoms could also describe a range of serious diseases and conditions in addition

to diarrhea and dysentery (Mull et al., 1990). Both *nazar* and *jinn* were also identified as the cause of any sudden, hazardous situation that might befall a child, e.g., tripping and falling into the hearth or breaking an arm. The following quotations underscore the influence of religio-cultural views on mothers' risk perception:

> Yes! Children who suffer from *nazar* do not grow properly ...Such types of people with *jinn* become senseless.
>
> With *nazari*, children do not feel happiness. They seem dull. They do not grow properly... People say *jinn* cause illness in children. A common man does not know about it. So we take the patient to the Khalifa.

Adults and children regularly share folklore and personal accounts about encounters with these supernatural and malevolent forces. These stories have the effect of instilling fear in children about the unseen dangers in the environment. In this way, religio-cultural beliefs strengthen parental restraints on the behavior and mobility of children. In addition, these stories reinforce norms regarding the conduct of women and of motherhood in this context. The following conversation with a man and a woman who grew up together and have both spent the majority of their lives in Oshikhandass, reveals interesting insights into local notions of *jinn* and the changing culture of storytelling:

> *Mahmat:* In the olden days there were many *jinn*. Our forefathers have told us. Now there are not so many, but they are still here. The *jinn* at one time lived with humans, and we have heard they used to live right with our grandparents. If there was some work that needed to be done, and 10 or 12 men could not do it, then they would call a *jinn* to help them. We are made of earth, but *jinn* are made of fire. They do not have to eat. They have souls.
>
> *Afzana:* In Hunza the *jinn* used to love women. Many *jinn* loved women. If a husband was away from the house, then a *jinn* would change his face to look like the woman's husband's and would come to her. There were many babies

born with only one eye on their face. They were half human and half *jinn* and this is why they looked this way. These were the children of the *jinn*.

Sarah: What would happen to these babies?

Afzana: Sometimes they would die. Or they would be born and after birth they would kill them. They would not let babies like that live.

Sarah: I have heard from people here that *jinn* will come to mothers who have small babies and will make their babies sick.

Afzana: If there is a baby in the mother's stomach, and she is frightened then the child will become sick.

Mahmat: Prince Beram Shezada, who was from Russia near Qaf Mountain, had a wife whose sister was taken by a *dev*[3] (giant).

Afzana: My father used to tell us so many stories when we were children, but I do not remember one of them.

Sarah: Why do you not write these down?

Afzana: How can we write them? We are all illiterate!

Sarah: You could have a literate person write them down.

Mahmat: Our minds do not remember these stories. The only thing in our minds is depression. How can we remember these stories when only depression fills the thoughts? We have to feed many children and send them to school, pay for their school fees, pay for their illnesses. Before there were less people and they had everything they needed. They had enough food and could rest at ease so they could tell stories and remember them. Now we only think about how to keep our children from falling behind.

Afzana: Everyone worries these days. They [pointing to Qamar] have 8 children to feed and take care of. It is difficult so there is depression. In your country there are only 2 or 3 children so the parents have enough for them.

Although depression was not cited specifically as a disease-causing factor by study participants, excessive worrying and sadness was recognized by 7 mothers as factors that predispose children to diarrheal disease (Table 5.2). It is notable that informal conversations with women of Oshikhandass showed women's great concern about the

negative effect of depression on physical health, and depression was often cited as a cause of their own physical condition. Women's narratives of depression and sadness specifically among the Pakhtun in Pakistan have been documented by Grima (1993).

Summary

The findings from this section reveal that mothers' perceptions of health risks were based on a range of knowledge, beliefs, and experiences. Disease perceptions were not compartmentalized into one sphere of life concerned only with health. Rather, the conceptualization of disease risk from the viewpoint of those most responsible for keeping children healthy suggested that poor environmental quality as well as behavioral, physiological, social, and metaphysical factors are what account for the discrepancies in the types of risks that underpin children's susceptibility. Exposure to disease was explained in relation to visible factors as well as in relation to social relations and ethno-medical beliefs. In many instances, disease risk was articulated through distinctions in Muslim beliefs and practice. The influence of cultural knowledge as well as "outside" biomedical views ran through many descriptions of causal factors and were deliberately utilized to make sense of why some children are sick. Making sense of risk in terms of metaphysical forces might reflect a form of resignation to forces over which the individual has no control (Scheper-Hughes, 1992). In the next section, the broader meanings attached to health and well-being are presented and shown to reflect a complex set of impressions and views. From these meanings, the notion of health as a resource can be theorized as critical to life and livelihood in Oshikhandass.

MEANINGS OF HEALTH AND ILL-HEALTH

In this section, I continue to examine mothers' narratives with a deeper focus on the meanings ascribed to two concepts -- health and ill-health -- in the context of general priorities of livelihood and family well-being. This section builds upon the inherent meanings associated with disease-causing factors presented in the proceeding section. Mothers' interpretations of diarrheal disease and disease-causing factors reveal broader meanings of health and social relations as well as views on the circumstances of disease and risk faced by children in Oshikhandass. This section reports on the descriptions and definitions of "healthy" and "unhealthy" households provided by mothers. In this way, the theoretical notion of health as "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity" (WHO, 1946) is reworked with attention to the interpretations of mothers in Oshikhandass.

The culturally-specific understandings of health presented here delimit the circumstances of life, both materially and ideologically, and challenge conventional medical categories of health. The oral history interviews and structured interviews further reveal the ways these meanings are distinctly influenced by local value systems and worldview (Baxter, 1997). The ways in which mothers think of health and ill-health directly reflects judgements against which mothers compare their family situations, the health of their children, and the situations of their households. In this sense, health can be understood as a "moral code" representing a "standard against which people see themselves...The code shapes people's conduct, their self-

management as well as their health-seeking behaviors..." (Litva and Eyles, 1994:1089).

In order to set the local perceptions of diarrheal disease risk into the broader context of local conceptualizations of health and well-being, I asked mothers to identify the characteristics of *sehatmund* (healthy) and *besehatmund* (unhealthy) households. I requested them to make judgements about the factors that might account for the health differences between the general categories of "healthy" households and "unhealthy" households in Oshikhandass.

Healthy Households

"Healthy" households were overwhelmingly associated with the terms *khobsurat* (beautiful), *khush* (happy), and *amir* (rich). Common features of healthy households included land, nice houses, employment, neatness, independence, *taqara* (strength), and blessings from God. According to the narratives, in a healthy household the people do not complain unnecessarily, and they work hard in their jobs and in their fields. The qualities of cleanliness, physical strength, and toughness of people living in these households were emphasized. Some spoke of the mental strength and state of mind of healthy people because they do not worry excessively about their health, money, or their future. Living a good life through the maintenance of a clean house, a proper diet, and prayer was considered a major preventive measure and a guarantee to securing individual and family health.

Many mothers described healthy households as being independent and never bothering their neighbors or relatives with their problems or needs. They spoke of

health as a state of being, suggesting that people of healthy households are good citizens because they fulfill their roles and social obligations and find peace and fulfillment in their work. Some added that the *mahol* (atmosphere), peace, and good cooperation between household members is equally important dimensions. Dilshad echoed the sentiments of many of the mothers when she said, "In a healthy house there is cleanliness. There is clean food. There is a clean bed. It looks very beautiful and attractive because there are always luxuries. A healthy household is happy." Dilshad's mother-in-law added, "They take care of their guests, wash the bedding, wash the children and are clean." Other comments suggesting various criteria mothers used to describe a healthy household included:

> A healthy household looks good because a healthy household is a guarantee of wealth, health and prosperity.
>
> It attracts others because it is always neat and clean. If children and family members are healthy, then we [the women] can do our job with peace and calm.
>
> A healthy household is blessed by God. Family members of a healthy household are good citizens. They are not a burden on others.
>
> In a healthy household it is clean, and they sit on kalims [rugs] and other rugs on the floor.

Mothers' attitudes towards health clearly connected health with prosperity and modernity. This was evident in the emphasis on possessions such as rugs and luxury items (e.g., soap, shampoo, expensive foods such as meat or rice, nice clothes, and a new house) as well as secure employment or business opportunities. Mothers spoke of these households also in terms of social position, emphasizing the security these households gain through income, sons, land, and other productive assets.

Unhealthy Households

Contrasting the descriptions of healthy households are those of unhealthy households. *Gareebi* (poverty), *budsurat* (ugly), and *bimar* (sick), mothers commented, were the physical signs provided to portray unhealthy households. Unhealthy households were described as living in an illness-stricken state as a result of *gundagee* (dirt), poor diet, and lack of money. Many women identified the lack of money, especially the lack of employment, as the main constraint to good health in these households.

Some descriptions of unhealthy households revealed that these types of households are viewed as a burden to their relatives and the rest of society because of their inability or lack of desire to fulfill familial and societal obligations. It was suggested that these types of households should be avoided. Mothers spoke of unhealthy households as socially dependent, stressing the types of demands for assistance they make on others and the trouble they create for their relatives and neighbors. This form of dependence, manifested in the inability to independently address problems and financial needs, was viewed as a sign of weakness and susceptibility to harm such as illness. Some of the perceptions of unhealthy households included:

> An unhealthy house is a sign of sorrows.
>
> An unhealthy household always suffers because there is poverty and unemployment.

> It does not look good. Everybody looks gloomy and one cannot do his job with joy...Where there are well to do people that is a good house because they have money and they can afford health and hygiene.
>
> That type of house is hell. Nobody likes that sort of house as there is always poverty. There are always diseases and worries.

One of the major themes brought out by these narratives was the connection between health and social relations and social expectations, thereby calling attention to appropriate behavior and the responsibilities of individuals to maintain the cleanliness and moral uprightness of oneself, children, and family. These images of health are similar to those of women in an urban slum area in Lahore reported by Winkvist and Akhtar (1997). The indication, then, is that from the point of view of these mothers, the degree of risk in the environment is closely linked to social context and to the material and moral discrepancies between healthy and unhealthy households. For these mothers, social behavior interacts with elements of contamination (e.g., dirt, pollution, and unhygienic conditions, poverty) to determine why some people's children become sick and why others do not.

Narratives also revealed strong concerns about transformations in the local economy that lead some people into prosperity and good health and others into poverty and misery. These attitudes towards risk have been shaped within a local culture and social setting where families have very recently become stratified into social classes. Both the mothers from low and high frequency disease households agreed that poverty, unemployment, household worries, and bad social relations contribute to creating an environment of risk that is differentially experienced by households in Oshikhandass. While mothers made clear distinctions between these two categories of "healthy" and "unhealthy" households, there was an attitude that

people ultimately do not have much control over their circumstances. As Zenoor concluded, "Allah gives *daulat* (blessings) to some, poverty to others, health to some, *bimari* (sickness) to others." This statement reflects the importance of religiosity and faith in these mothers' perceptions of being and staying healthy and the nature of the risk environment. Similar attitudes towards faith of Muslim women are borne out by research conducted by Weiss (1992) in the Walled City of Lahore.

In sum, there were no major differences between views of health and unhealthy held by mothers from the low and high frequency households, very similar descriptions were reflected in their narratives. By examining the meanings of the concepts of healthy and unhealthy, mothers responses demonstrated that health is not perceived simply as the absence of disease as in the biomedical paradigm (Kearns and Gesler, 1998; Litva and Eyles, 1994). The social value placed on household health emerges in the following quotations:

> Only a good building is not an ideal house until there is harmony and peace among the family members. A good building and furniture are secondary things. A good house means a peaceful house... According to our definition, a good house is that which is clean, where there is harmony among family members, where all the family members respect each other, where the atmosphere is good and healthy. If there is not harmony among family members that is not a healthy house.

> A sick house means that they do not care about hygiene and cleanliness or they take bad food. People avoid that house. Ultimately, that ill-fated house causes problems for others. So people avoid meeting and mingling with them. But we should help them to remove their problems. A good neighbor is one who shares in their problems. We should care about others too. This is our religious teaching.

Certainly, health was spoken of in terms of the physical absence of disease, but more importantly for this analysis, are the depictions of health as a critical resource that emerged from the descriptions of healthy and unhealthy households. The "resource"

quality of health has been theorized as essential for the ability to carry out daily activities (see Litva and Eyles, 1994). This perspective suggests that the meaning of health as a resource is rooted in what Nazarea et al. (1998) refer to as "internally-defined standards" that are relevant to local people.

There are several dimensions that emerged, both in terms of the way health is constructed, and also in terms of the resource implications attached to being healthy. The dimensions of health as a resource that emerged from mothers' narratives included: one, health as a physical resource of strength, power, and tenacity that is critical for living in a severe mountain environment; second, health as an interconnectedness and interdependence of individuals and families that is manifested through social relations, social support networks, and being a good citizen; third, health as a mental resource in terms of the capacity and mindset to deal with worries and hardships; and fourth, health as a moral resource which rests on living a life of ethical behavior, moral uprightness, thankfulness, and piety.

These aspects of health as a resource have relevance for the discussion of the relationship between household resources and children's vulnerability in Chapter VI. The next section introduces several broad themes that emerge from the everyday local discourses on environmental health risk. These themes help to locate mothers' perceptions of disease risk and definitions of health within a broader context of perceptions of social and environmental change. The themes concern people's perceptions of newly emerging diseases and dependencies that are having an affect on health and livelihood in this particular mountain community.

REDEFINING ENVIRONMENTAL HEALTH RISKS: EMERGING STORIES OF DISEASE AND DEPENDENCY

This section is devoted to several themes arising from the ways in which environmental health risks are being re-defined in the context of social and environmental change in the region. In discussions of health and social change that occurred in the spaces of orchards, fields, and homes during this research, local accounts centered on individuals and families participating in a negotiation and struggle for a way of life that is being threatened by various forces of change. As Hewitt (1997:47-49) notes, change is "experienced as the upsetting or collapse of feelings of security." The experience of change in Oshikhandass was also expressed in terms of perceived insecurities and vulnerabilities. In some cases, the discussions of the present situation were contrasted with a previous time or history that was depicted as secure and safe. Conversely, stories portraying the current situation related elements of instability and insecurity. Despite the contradictions in some narrative accounts, all share key elements of images of change, be they positive or negative, for health and livelihood. Further, they reveal some of the tensions between the struggles to sustain families in a tenuous environment and under shifting conditions of control over lives and resources.

Mothers and other local people were asked to comment on the wider social and physical environment of Oshikhandass and to identify any features of it that influence the occurrence or likelihood of diarrheal disease or that influence health more generally. One of the main issues of concern expressed by mothers and other residents was the ability to secure health in the present context and in the future.

People were all too aware of changes in their society that can potentially affect health and that have introduced new risks into society. And in formulating this awareness, they provided a conceptualization of health risks that situates environmental health risk firmly in daily life and in interactions with outside forces.

The germane themes emphasized by people in their discussions of health, disease, and risk can be organized into the following three categories: socioeconomic change; contemporary geographies of worry; and new sources of disease. Livelihood sustainability, financial security, education, social support, changes in consumption, and community dynamics were discussed as having relevance to the realization of good health and the upbringing of children. Anxieties particularly about household income, loss of land, unemployment, loss of independence, and changing community values emerged as important factors in perceptions of emerging environmental health risks. The following paragraphs address these interrelated themes that are salient to people's lives, the lives of their children, and their concerns about the future.

Socioeconomic Change

The first theme identified relates to changing socioeconomic circumstances and the growing sense of dependency on outside forces. Comments reflecting concerns about increasing livelihood dependencies were expressed repeatedly. These concerns influence immediate and future outlooks and reflect to how people perceive their current socioeconomic situation. The tenuous circumstances of livelihood and increasing dependence on markets and cash incomes were perceived as having negative impacts on family life, the community, and the environment in which

children are raised. These concerns about livelihood were expressed in the context of individual and family health. Importantly, dependency was understood as compromising health, and the immediacy of changing livelihoods was directly associated with perceptions about the role of outside forces that have to potential to threaten local health. The following except from fieldnotes provides insight into the strong feelings of suspicion and skepticism about newly-introduced commodities and health technologies:

> *Fieldnotes, April 11, 1998*: I asked Nizam Jan to tell me what he thinks about changes in the village. He said, "When we buy flour we do not know what is mixed in it. We do not know what is mixed with the meat from the bazaar. We have no way of knowing what we are buying." There are parallels here with the story I heard during my interview with Ambreen yesterday. During the interview, Ambreen and her neighbor told me that half of the people in Oshikhandass will not give their children polio vaccines because they believe it is mixed with family planning dowai (medicine). This is a good example of how people are questioning the things coming from "outside" into their community. People receive misinformation and feel like the government is lying to them. This is also similar to when AKHS,P first introduced iodized salt, and people thought it had family planning dowai mixed in it as well.

These notes point to a local concern that products that are new to the area, or that are made and packaged outside of people's homes or the community, are more likely to have other things mixed into them. Further, people feel that they have no way of knowing who is making them, how they are prepared for consumption, or the real purposes of the product.

In general, though, people acknowledged the benefits that participation in the cash economy and regional health and development programs have brought them. For example, many respondents emphasized that their lives are not as hard as their mothers' lives were during the early years of settlement in Oshikhandass:

> Before everything was expensive. They didn't have clothes. Money was expensive. Now everything is cheap for us. We can buy everything now.
>
> They had to clear the land themselves. It was very difficult. There was no road to travel on. There was no shade. For me there is much peace.
>
> Well, my mother saw many hardships. They were pioneers over here. They were hand-to-mouth. They dug the land and cultivated the land. They dug channels. They grew fruit trees for us. We see no hardships. We are leading a good time.
>
> My mother saw a very difficult time. She wore less. She ate less. She had no money at all. Now we have everything. We can travel easily. Our children go to school.
>
> There was no medicine and diarrhea was less. It was a very different time for her. There was no medicine for disease. They sat in the sun because there was no shade. It was not expensive. Now everything is expensive, but my life is not as hard.

At the same time, however, in evaluating the changes that have taken place since their mothers' time, some respondents singled out social change as a culprit in creating constraints on women today:

> Our mother did all the work. She went to the mountains to collect wood, to pastures to graze the animals, and she used to play with boys and girls together when she was younger. People did not mind then when the boys and girls were together. We do not go to the mountains or to the pastures or play with anyone. This period in time is very bad. The situation today for us is not good. The boys are very naughty, and this why no one lets their girls out of the house.

Other respondents singled out the impacts of structural constraints such as the need for cash and employment on the integrity and strength of families to meet their own needs. The image of people eating from their own separate plates rather than from a communal bowl is a particularly popular and telling metaphor that is often employed to describe and define what is perceived to be a shift away from working together towards a common purpose. This perception is partially related to the

breaking up of large households which is one adaptive strategy for families to deal with the increasing costs of living and a disinterest in having to subsidize non-income-earning family members (discussed further in Chapter VI). Further, the concern about loss of family values reflects the perception that the local economy, production orientations, and changing cultural values have introduced new dependencies on the market economy that lead to the fracturing of families.

These realities were captured in statements relating to cultural values, views of community relations, health, state of mind, and social stratification. For example, one result of development and change in the Northern Areas has been changing demographics as people move closer to areas of employment opportunity. The influx of new people, new cultures, and new value systems from outside the community has spurned local expressions of anxiety about the changing nature of community dynamics:

> Before the [KKH] road, everyone stayed in their village and worked on their land. Since the road came, people no longer stay in their village but are moving. Ever since the road opened all the people from different places are mixed together and living together in one place. This is not good. Before we only lived with our own people.
>
> – Iqbal Khan

> The original people are good people. Like the people in Bagrote, and Hunza, all the people who were here first are good. In Gilgit there are people from Ishkoman, Yasin, Nagar, Baltistan, Kohistan, every place. They are all living there. The people who are not from here are the ones who thieve and are bad. They make a budnam (bad name) of Gilgit and of us who were here first.
>
> – Mahmat Abbas

> *Fieldnotes, May 25, 1998*: Today I asked Nizam Jan, Why does everyone build a wall around their house? "This is a new thing," he said. "These days people need a wall to keep the thieves from coming in. Before there were no thieves here. If you go to Hunza, you will see that all houses are open and there are no walls. It is because they are all one religion and one type of people. Here there is every type, Astori, Bagroti, all types. The houses cannot

> be in the open anymore because then everyone would see the women. People mind so they make walls around their houses. Today there is a new generation, a new way of thinking, the boys are bad now and do bad work so people build walls."

A prevailing attitude is that there is no longer a sense of shared experience or shared purpose among people in the community. As the above statements suggest, people's cynicism about change stems from two issues: one, the assessment that economic pressures and opportunities have resulted in negative impacts on livelihood, health, and community; and two, a growing sense of dependence on unpredictable external sources of support, i.e., the market, trade networks, cash flows, and government subsidies. In many ways, people see themselves and their families as losing control over their lives, becoming less independent, and more individualistic. In a culture that strongly values self-sufficiency, self-reliance, dependence upon kinship and friendship networks, and caring for other people, the changes have brought deep feelings of anxiety and concern about the deterioration of community values. Women old enough to remember another period in the history of Oshikhandass agree that the erosion of people's reliance on informal networks for practical and psychological support is affecting the sense of collective welfare:

> We fear that there will be severe scarcity of food and unemployment. Famine is also feared as the population is increasing very rapidly. People have become lazy. They do not work hard.

For mothers in Oshikhandass, these features associated with new dependencies in Oshikhandass have significance for securing and maintaining child health (Chapter VI).

Contemporary Geography of Worry

In the context of discussing sources of worry in their lives, the greatest concerns mentioned by mothers were related to employment and being able to afford the education of their children, as shown Table 5.3.

Table 5.3 Responses to the question, *"What is the greatest worry in your life?"*

Source of Worry	Low Frequency	High Frequency	Total
No worries	9	5	15
Building a separate house apart from the extended family	1	0	1
Husband's employment	3	1	4
Workload	0	1	1
Quality and access to education for children	0	4	4
Relations with kin	0	1	1
Future of children	0	2	2
Raising children	1	1	2
Multiple concerns	1	0	2

It is interesting to note that over half of the low frequency household mothers felt that they have no worries to speak of mainly because they feel secure in knowing that male members of their households are educated and/or have regular employment; five of the 15 high frequency household mothers also shared this opinion. Some of the comments regarding sources of worry included:

> If the children do not get a good education then how will they spend their lives? If my husband doesn't get a good service and salary then how will we pay for their education? Everything costs money.
>
> I worry about the education of my children if my husband does not have a job. The flour mill belongs to the brother so it is not [my husband's] own business.
>
> I worry about the children's education. They may not get a pencil, a book, a notebook. How to give them a good education in the future?

As these quotations suggest, the well-being of their children was one of the respondents' greatest source of worry. The future of their children, rather than their children's health status per se, was a constant worry for some of the mothers from high frequency households. Their concerns about raising their children were accentuated by their perceived economic vulnerability. Several quotations expressed these worries:

> I worry about the future of our children because there is no land. How will we pay for their education?
>
> I worry about taking care of all of these children.
>
> Because we are not well to do, we cannot give the proper food and clothes.

While many mothers strive to bring up their children in accordance with the local notion of a healthy household expressed in the previous section, the reality of attaining and maintaining this standard is difficult given the constraints of resources and the realities of widespread unemployment in Pakistan. Narratives of the meanings of healthy and unhealthy households discussed above revealed what is considered an "ideal" household in the village. However, there is a social contradiction reflected in these constructions of healthy and unhealthy households. The challenges of living up to this idealized image in light of economic breakdown and poverty were reiterated

by mothers' narratives of worry. Being able to afford good health, *jadeed* (modern) houses, a clean living environment, a proper diet, and education were seen as accessible only through wealth and employment. This theme presents a tension rather than an ongoing contradiction in emerging perceptions of environmental health risks.

Mothers also highlighted the constraints on their work and time as farmers that prevent them from keeping a close eye on their children and away from *gundagee* (dirt). Responses underscored the challenges of maintaining a safe environment and of reducing risk because of the conditions of poverty and resource scarcity that some of them face. Statements from interviews with mothers speak to multiple pressures and the present challenges faced in securing a healthy environment for their children:

> You know we farmers cannot give much attention to our children. So they play as they like. They remain unhealthy. They eat unhealthy food, and they fall ill with diarrhea and vomiting. In the winter they usually suffer from pneumonia.
>
> ... We are not happy now. It is difficult. When [my son] gets big and can feed us, then we will be happy... Everything is *takalif* (difficult). For us there is not one worry, there are many. There is the worry about building a new house, about the weddings of our daughters, about house expenses, about the lack of a job.

Even though they identified poverty and time constraints as major sources of worry for them in their care giving, mothers' commitment to maintaining health despite these factors was strongly conveyed throughout the narratives. Many of the preventive measures mentioned by mothers were directly related to what they viewed as their own capabilities as mothers to support and take on in spite of economic constraints. The cornerstones of mothers' views about how to keep their children healthy centered on precautionary measures. These measures were, in part, encoded

with religious ideology about how to be a good Muslim mother. The majority of mothers mentioned the importance of cleanliness and hygiene. Other strategies that they felt they have control over included keeping children presentable in public and maintaining a good attitude towards work and mothering. Diet also figured prominently in reducing the exposure of children to childhood disease, however, some mothers mentioned that securing a nourishing diet is more difficult for them because of their lack of access to land, agricultural inputs, and cash for the purchase of tree seedlings, poultry, livestock, and so forth.

Despite some of the overwhelming everyday worries, the majority of mothers remain optimistic that their children, especially their daughters, will have opportunities to overcome similar problems in the future. Some of the responses to the question, "What about the future and future changes?" included:

> What can we tell you [about the future], but that we are hopeful. A good time is waiting for us. Our girls are going to schools and colleges. They will face their troubles and fight.
>
> – Participant, Focus Group Interview #6

> For [the future], we are looking towards our new generation. Those who are in the cradle now, those who go to school, will bring a real change. We want that our young ones get an education in English. We wish that our area is known as a place that people say is *pacca* [pure] and free of diseases. There should be improvements in health. We wish that our children would not have to play in a dirty environment. Change can be achieved through modern and scientific education.
>
> – Woman, Focus Group Interview #1

New Sources of Disease

In striving to prevent health problems, mothers' accounts of health and environmental trends in the community suggested that notions of health and risk are being redefined. In the context of conversations about health that occur around the

hearth, in fields, and at community gatherings, local narratives articulated a range of interpretations of the changing patterns of disease in the region. Men and women tend to agree that improved health conditions in the community have resulted from the market economy and the extension of social services to their area. The majority of people agree that there is a higher standard of living, increased education levels, and easy access to products because of improved transportation networks. Medical facilities are now accessible and medicines can be purchased in local shops. Recent initiatives in local development have given people a sense of hope that they are not being neglected by regional and national programs. Yet, there are strong expressions of cynicism in regards to the impacts of these changes on the population's health, security, and well-being. For example, one woman commented:

> There is a remarkable change. Now very easily we can get medicines. There are hospitals. But to be frank, in the past there were not so many diseases. Now fatal diseases are very common. Cholera is very common. Minor diseases are very common. Parallel to this, there are effective medicines and treatments. Now Dr. Zeba goes door to door carrying medicines for treatment. Now there is the Prime Minister's health program. Newly born babies and children are weighed and medically examined. Medicines are distributed among people. Now we are satisfied...It is a pity that in spite of all of these measures diseases are being spread rapidly.
>
> – Participant, Focus Group Interview #1

Lively debates around these issues often ensued during discussions. The following dialogue that occurred during a the focus group interview (Focus Group Interview #3) demonstrates the range of opinions that emerge in local discourses about health trends:

Participant One: [In the past] they gave fenugreek tea to those suffering from dysentery. They gave apricot water to those who felt laziness. Believe us, that sort of treatment was effective. Now we take medicines, but we do not recover. For fever we took *tumuro* [wild thyme] tea or apricot *dowdo* [soup] and we recovered. For diarrhea we took *shoto* [fenugreek] *dowdo*, for pneumonia we took *pong* [saffron] *dowdo*. For throat soreness we took a *dowdo* made from fried flour. So these were the simple ways of cure. But one thing we will tell you is that in the olden days there were not too many disease. For severe diseases especially fever we took only *dowdo*. Olden days were good indeed. No doubt that at that time there were no medicines at all. Almighty Allah helped us... Our area was free of diseases. Now there are plenty of diseases and plenty of drugs...

Participant Two: Nai! In the olden days there were many diseases, but generally people did not know about it. Because there were no doctors, no hospitals, nobody could diagnose. You know this world has never been free from diseases. In olden times people died of unknown diseases. But now you look there are proper cures and a lot of medicines. Now we survive when we fight against disease. If one does not survive, it is his own fate.

The various opinions about changes in health and quality of life are synonymous with changing perceptions of disease risks and health hazards. Alterations in diet are a case in point. Local foods were frequently mentioned by mothers as critical to maintaining the health of children and families. Locally-grown and homemade foods were considered clean, fortifying, and *taqatwar* (full of strength). For example, local apricot kernels, apricot kernel oil, and dried apricots were classified as uniquely disease-preventing and their consumption a way of securing health. Other foods that were also considered essential for health included milk, meat, eggs, and nuts. Contrasting with locally produced food, food purchased in the bazaar was commonly viewed as a potential source of disease. For example, flour, unground wheat, and packaged or powdered milk were deemed inferior in *taqat* (strength or nutritional value) to local products. As noted above in the comments by Nizam Jan, the quality of purchased products was often viewed as suspect. People

often complained about *bazaari* food being tainted or adulterated in some way. In addition, the arrival of Punjabi style cooking which is much heavier and greasier than local dishes was said to predispose people to health problems. These views were connected to attitudes towards changing eating habits and lifestyle that were noted especially by older people:

> Now the time is totally different. Now there are no hardships. In the past pregnant women were given simple and poor food, marzipan, butter, and different sorts of soups. But I will tell you frankly that simple food was full of energy. We ate roasted kernels and apricot juice which were pure food. Now everywhere is chai, chai, chai! In the olden days we kept ourselves busy with spinning and making woolen thread. Thus we helped our elders in every way. We did a lot of work both at home and in the fields. We brought heavy loads of firewood from near and far flung areas to home. It was exhausting but we never felt it. After this sort of fatigue, we took very simple food like buckwheat bread with apricot juice. Our children also led a very simple life. They wore simple cotton cloth for clothing, both for uniforms and normal dress. No pants, no tie. They had no shoes to put on. But the new generation is leading a luxurious life. On thing in particular that I will tell you is that in former times nobody purchased edibles from the bazaar. The society never encouraged those who brought edibles from the bazaar. It looked very bad. People grew their own crops, vegetables, and pulses. But now we bring everything from the bazaar.
>
> – Participant, Focus Group Interview #3

> ...Well, I came from Gojal. We led a good life. We never sold our crops, vegetables, or other things. We slaughtered yak and ate meat marzipan and plenty of good food. Now people sell their crops, kernels, walnuts, and purchase their other needs. In the old days we the people of Gojal enjoyed our own food. Now people sell kernel oil and purchase Dalda. In other words, we sell the good things and purchase diseases. In the past we ate dowdo (soup), but now we take tea which is not a good sign.
>
> – Participant, Focus Group Interview #3

Dalda® vegetable oil, which is widely used as a substitute for local clarified butter and apricot kernel oil, and tea have emerged as symbols of ill-health and sources of disease in the community. People regret that the high cost of household expenses and preferences for tea and sugar have forced families to sell their fruit.

Although people admit that they have gained a much-needed source of income through fruit and vegetable sales, the trade-off is that these products are no longer available for household consumption.

Another symbol of change is the introduction of packaged Markor® brand iodized salt to reduce the prevalence of goiter in the region. Some people believe this salt is mixed with family planning *dowai* (medicine) and is a part of an international campaign to curb population growth among certain Islamic sects. This salt, despite its wide use, is considered by some as an additional reason for distrusting external development efforts, outside inputs, and non-local products. The narrative of Iqbal Khan, a village elder, is indicative of people's apprehension about the impacts that social and economic change on health, relations between people, and community well-being:

> Ever since this big road was built, this road you can see from across the river over there which is called the KKH, our health has suffered. When the road was opened this was the same time that these strange *bimari* [diseases] started to spread. In the olden days people were never sick with these illnesses. Before the time the road was constructed we had never even heard of these *bimari* before. Perhaps we did not know the name for some of these illnesses, and we had no name for them, or maybe we only called them by the local names we gave them. But now there are *bimari* such as cancer and heart diseases that we never had seen or heard of before. We never went to doctors, we only used *desi* [indigenous] treatments which we made, and went to local doctors if needed. If someone broke his arm, we would set it ourselves by taking pieces of wood to keep the arm from bending and to keep it straight, and then we would tie it with cloth, and it would heal and be fine...
>
> ...We would eat all of our fruit. You know, apricots are just like a *desi* medicine. This is the very best medicine for all illnesses. But, now people do not eat their own fruit. They sell all of their fruit in the bazaar because they need the money. These children today are no longer healthy like we used to be because they are not eating the fruits. Anyone could come into the courtyard and eat fruit until his stomach was full and then could leave. The fruit was there for anyone to eat. People did not have to ask permission or give money to eat the fruit like they do now. Now, if you eat apricots off someone else's

tree, they ask you what you are doing and why you are eating the fruit. Before it did not matter...

...In the past we men from here were very big and strong. There used to be very big men, much bigger than me. The men were much bigger than those now. The younger people, the new generation, cannot eat these local foods like apricots like we used to do. Their digestion is not used to these types of rural foods and is very weak. When they eat a lot of apricots and *giri* [apricot kernels] they become sick. Their bodies are weak and have no power. They work in offices, shops, and drive cars all day, and they do no work on their land...

...When the KKH came, things like Dalda oil and *bazaari* [store bought] foods came as well. The reason for joint pain is this Dalda oil. It is very bad. Everything comes from the bazaar now. All of these *tabdilian* [changes] have been very bad for health...

The older generation tends to point to changes in diet, medicine, reliance on local knowledge, the rural-urban encounter, and transformations in tastes and lifestyles as perpetrating negative impacts on people's health. Another concern is that new varieties of vegetables, grains, and fruits require chemical inputs in order to maximize productivity. Fertilizers and pesticides are viewed as one more level of *dowai* (medicine) that has destabilized health. Nizam Jan, who was born in Oshikhandass and has lived there most of his life, commented:

Fieldnotes, May 3, 1998: Today Farzana was concerned that about the goat's health and said the goat needs to be vaccinated. Nizam Jan was hanging out in the yard watching us so I asked him what he thought about vaccinations. He started to tell me about livestock diseases and a recent epidemic in the region that affected people's goats. I asked them what people did in response to the epidemic. "Before there was no medicine, there was no medicine for humans so how could there be medicine for the goats? But the diseases were not here before. Before people lived off of what they grew. They would store a little wheat for the following year, they would store seeds, they would store apples. If, say, I did not have a good type of wheat, but my neighbor did, then I would go to him and trade some of my wheat for his. This is the way things worked then. They used their own fertilizer. Today everyone is using the bazaari fertilizer. When the bazaari fertilizer came, all of the illnesses came. What a strange time! Now you need medicines for goats, for fields, for apples, for everything."

These perceived new risks and vulnerabilities threaten people's sense of security in a particular way of life, livelihood, and tie to place. These outwardly stated concerns about chemicals in the environment, deteriorating diets and food quality, and new diseases can be seen as indicators of much deeper worries about maintaining a certain quality of life and a set of social and cultural values. In addition, these quotations illuminate a degree of distrust in the authority of the state or "outside experts" and also opposing views about the impacts of development and modernity on health and community dynamics. In trying to deal with changing life and work circumstances, people themselves are constructing new meanings of environmental health risks in Oshikhandass.

CONCLUSIONS

This chapter began by highlighting the idea that attention to environmental health risk perceptions can make important contributions to the study of health hazards and constructions of vulnerability. In particular, it argued that an understanding of the "broad vernacular interpretation of risk" (Hewitt, 1997:24) is central to local understandings of children's susceptibility to childhood diarrhea. A general conclusion is that cultural values and context should play a greater role in conceptual frameworks to understand environmental health risk perceptions.

More specifically, three important points about risk perceptions have emerged from this chapter. First, risk perceptions at the local level are influenced by factors in the social context in which the risk is embedded. In the evidence presented here

religious, cultural, social, and economic factors seemed most important in shaping local perceptions of the health risk. In the case of diarrheal disease, multiple factors were shown to interact to explain risk perceptions. A high awareness of the severity of diarrheal disease and the impacts that nutrition, personal hygiene, water quality, and household environment have on the exposure of children to disease were expressed in respondent responses. Furthermore, the social environment and supernatural forces emerged in these narratives as significant forces that shape the risks of disease faced by Oshikhandassi children.

Mothers' perceptions were simultaneously intertwined with ideologies from religio-cultural tradition and western/biomedical conceptions of disease causation, thereby influencing much of what is regarded as disease-causing in Oshikhandass. Had the mothers not participated in the AKU/AKHS,P diarrhea and dysentery project, differing perceptions of the disease-causing factors might have emerged. The chapter also demonstrated how mothers' perceptions of childhood disease fit into broader frameworks of Muslim beliefs and socio-cultural definitions of health. The local narratives on disease and health were shown to be significant to developing an understanding of the experience of environmental health risk in this particular place. From this analysis it is apparent that mothers' perceptions of diarrheal disease are critical for understanding mothers' experience with childhood illness and the contexts in which behaviors that either promote or compromise child health are realized. Mothers were aware of disease risks associated with poor hygiene, water quality, and environmental health. To reduce risk, they mentioned strategies that reflect normative concerns about disease and children's health based on experience with sickness,

healing, and care-giving. Nevertheless, many see the health of children is compromised because of the inordinate pressures to sustaining livelihoods.

Second, risk perceptions undergo redefinition and reinterpretation. Local perceptions reflect changes in livelihood and how people perceive the risks associated with a changing social and economic environment. As mothers discussed their idealized versions of healthy households, the constraints to attaining those ideals in the present context were elaborated. Furthermore, the penetration of the market economy and complicated forces of social and economic change have challenged the meanings of development and modernity as risk-free processes. These processes were associated with new diseases and dependencies in the community that threaten livelihoods and the ability of families to meet child health needs. In questioning the varied impacts of development, local people challenge conventional western theories and interpretations of the health benefits associated with progress and modernity.

Finally, the people I spoke to pointed to inherent contradictions in people's views of the process of development. While they highlighted the benefits brought by electricity, a paved road, and better transportation to their community in the past decade, they also stressed that there are increasing and unavoidable problems concomitant with the arrival of "progress" and development. These local perspectives illustrate the ways in which the meanings of health are socially constructed and integrally linked to transformations in the environment, in community values, and in consumption patterns. These interpretations of health contribute to an understanding of how individuals and communities respond to risk and the role of cultural values,

livelihood systems, and social relations in enhancing or constraining how environmental health risks are being framed within local health discourses.

In sum, elements of the redefinitions of risk expressed by local narratives reflect changes throughout the region. More significant than the substantiation of one or another explanation of change, the narratives share salient elements of a local discourse on risk and on health. The problem for all is not a question of the type of disease (or disease prevalence) so much as it is a problem of the unpredictable nature of change and a problem of access and control over health resources. A local narrative of health and environmental change is evident with discrete categories and concerns reflecting the circumstances under which discourses of health are produced. The local narratives suggest that socioeconomic and political forces of status, alienation, the dominance of the cash economy, the breaking up of families, and changes in lifestyle are strong determinants of people's perceptions and articulation of risks. In this way, the life and health circumstances of children and families are described as increasingly complex.

Chapter VI shifts the focus from local perceptions of environmental health risk to the resources of livelihood and childcare at the household scale. It is materialist in nature and examines the tangible and intangible resources that mothers draw upon in their mothering and childcare. The differences between the low and high frequency diarrheal disease households are elaborated to illustrate how resources and access to resources at the household-level contribute to children's vulnerability.

ENDNOTES:

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[1] The process of systematically documenting the health and sanitary conditions in British Army posts is revealed in the Statistical, Sanitary, and Medical Reports for the years 1861, 1862 and 1867 (Army Medical Department, 1863, 1864, and 1869 cited in Halvorson, 1996). These documents provide details on: the construction of a European-oriented sanitary science; the logic of mapping out sources of disease and indigenous places requiring sanitary reform; and the maneuvers and tactics pursued by the medical advisors in an attempt to guard and preserve the health of British soldiers.

[2] Yunani or Islami-Tibb is founded on Greco-Islamic medical knowledge and the teachings of Hippocrates and Galen. According to Yunani medical theory, disease represents an imbalance between the humors of the body and blood, phlegm, and yellow and black bile (Gallagher, 1993). Treatments and cures are designed to restore the balance through foods, herbal remedies, and medicines. See Gallagher (1993) for a review of the history of Islamic and Indian medical traditions and the cross-fertilization of practice and syncretism between the two.

[3] In Persian *div* means a demon. In the Northern Areas *dev* is translated as a giant.

CHAPTER VI

MICRO-ENVIRONMENTS OF DISEASE HAZARD: THE RESOURCES OF LIVELIHOOD AND CHILD CARE

INTRODUCTION

You cannot compare here with your America. There is not progress on a wide scale. We are at the primitive steps. Very recently we have progressed. There are some families who cannot afford expenses for treatment even they cannot take their children to the Gilgit hospital. Sometimes they have not a single rupee to purchase medicine because they are not employed. And they cannot give a proper diet to their children. This is because of unemployment. To remove our poverty and to meet our needs we keep cattle and poultry. That is why there is filth and rubbish. You people of advanced countries keep yourself clean because you have a lot of money. You even wash your hair with shampoo.

– Participant, Focus Group Interview #4

As the above quote suggests, meeting the basic livelihood and health needs of children in this mountain community is complex. A critical starting point for examining this complexity as it specifically affects children's vulnerability to diarrheal disease is to center attention on the resources that influence child health. In Chapter V, the study respondents expressed a strong awareness of the health risks of diarrheal disease and knowledge about disease transmission. Nevertheless, the translation of these perceptions into direct action is influenced by the context of childcare and the broader conditions of livelihood. The main objective of this chapter

is to examine how the resources of childcare and livelihood explain, in part, the geography of childhood diarrhea. A comparison between the two groups of study households is presented to illustrate empirically the differentials between the resources of livelihood and care giving that influence the construction of children's vulnerability at the household level.

The guiding framework for this chapter is the notion that certain resources shape the differential exposure and susceptibility of children to diarrheal disease hazard. As explained in Chapter II, this framework is based on Blaikie et al.'s (1994) theory of the role of resources and access to resources in influencing vulnerability to risks and hazards. Resources are broadly defined in this framework as "the physical and social means to gaining a livelihood" (Blaikie et al., 1994:62). Building on this framework and also borrowing from Chambers (1983) and Kabeer (1999), the approach to examining resources in this study attempts to go beyond defining resources in strict material terms by addressing two categories of resources: tangible and intangible resources.

Tangible resources refer to resources that are material in the conventional sense, and include income and productive assets which help to satisfy basic needs for food, water, and shelter. Intangible resources refer to human and social resources that serve to enhance the ability of mothers to provide for livelihood and childcare needs. This category includes skills, knowledge, and entitlements that are employed to mobilize tangible resources. For example, the category of intangible resources includes the assets of human capital (e.g., maternal education and skill) and other intangible resources such as social capital[1] (i.e., exchanges or relationships based on

reciprocity, trust, and sense of obligation). The types of intangible human and social resources discussed in this chapter serve to enhance the ability and capability of mothers to provide care to young children. Discussions of the relationship between intangible resources such as human and social capital and health have highlighted the vital importance of social relations and systems of obligation in the family and community for dealing with illness and disease (Lomas, 1998).

Implicit in this understanding of resources is the idea that resources, be they tangible or intangible, are as Kabeer (1999:437) states, "acquired through a multiplicity of social relationships conducted in the various institutional domains which make up a society (such as family, market, community)." Access to resources is guided by the norms and rules (i.e., structures of social capital) which govern the distribution of and claims to tangible and intangible resources in the context of this study. As such, access to resources is understood as the ability of individuals and households to acquire and to use resources that are necessary to secure and maintain child health. In this way, access to resources has important implications for the ability of mothers and households to reduce and/or cope with risk. The premise in this chapter, then, is that less access to certain types of resources at the household scale leads to increased vulnerability of children to childhood diarrhea.

One of the implications of this analysis is that gender has a significant effect on the resources of livelihood and childcare. The ways in which resources are rooted in the organization of household economies, the gender division of labor, and inter-household relations serve to structure mothers' childcare and the competing claims on their time, labor, and skills within the household. Constructions of gender and gender

roles operate to determine which resources women have access to in the course of their health and livelihood-related activities. For this reason, access to resources is also gendered; the gendered nature of access has implications for the capacity of mothers to reduce and/or cope with risk in everyday life. Furthermore, access to critical resources to support a child's survival is based on social and economic relations, including the ways in which these relations are intersected by gender as well as generational and religious lines (Agarwal, 1996). Special consideration is given to the way mothers' resources of childcare are tied to the way in which their livelihood and childcare responsibilities are negotiated in low and high frequency households. This is a key point that will be returned to throughout the analysis.

A second implication of this analysis is that access to resources varies between households; therefore, it is important to identify in detail the differences between household access profiles.[2] The notion of access profile in this chapter refers to the profile of access to tangible and intangible resources (e.g., the profile of access to information, income, time, status, social networks, etc.) that have an effect on the form and degree of children's vulnerability. The chapter suggests that poor access profiles can constrain individuals and families in effective care giving and prevention, thereby predisposing children to higher risk of exposure to diarrheal disease pathogens.

Before taking up the objective of comparing the tangible and intangible resources of livelihood and child care in the study households, it is important to keep in mind the context of social and economic transformations taking place in the Northern Areas. As noted in Chapter IV, the resources and strategies of health and

livelihood designed to cope with uncertainty and risk are undergoing change for several reasons:

(1) Many extended families are breaking up into smaller household units. The breaking up of large households is one adaptive strategy for some families to deal with the increasing costs of living and the pressures for a cash income. Some people believe it is a way of maximizing the financial contributions of male family members. It also reflects changing cultural attitudes towards family and family obligations.

(2) There is a pattern of male off-farm employment, including male out-migration to other parts of the Northern Areas or to distant urban centers. For instance, 32 out of the total of 42 male members in the 30 study households were engaged in off-farm employment at the time of the interview. The decision to work off-farm is usually made out of necessity. The type of off-farm work is usually dependent upon existing household resources (e.g., productive assets, financial resources) and social networks of information and influence. Furthermore, men have the mobility to take advantage of wage earning opportunities.

(3) Male off-farm employment coupled by male out-migration has resulted in greater on-farm workloads for women and girls as they take on the bulk of the farm and family responsibilities.

(4) Increasing pressure for cash has led some of the women to take up additional income-generating activities that are viewed as socially acceptable (e.g., teaching or work in the health services). This productive work, however, does not imply a lessening of family and community obligations.

(5) Changing perceptions of women's roles in society. For some this has meant increasing freedom and the opportunity for education and off-farm employment. For others, attitudes towards women's position in society has meant a tightening of control on women's mobility and freedom. For some, religious extremism has implied stricter adherence to seclusion ideologies.

(6) Non-governmental organizations (namely the Aga Khan Rural Support Program, the Aga Khan Health Service, Pakistan, and the Aga Khan Education Service, Pakistan) are playing important roles in expanding the range of child health and livelihood options for individuals and households.

These trends serve as a backdrop to the micro-level resource characteristics of individuals and households examined in the following sections. The next section presents data on tangible and intangible resources in the low and high frequency households. In comparing and contrasting the study households, a picture of the resources of livelihood and childcare emerges from respondents' narratives. Empirical evidence from Oshikhandass is used to create a micro-scale perspective on the ways in which children's vulnerability emerges out of everyday realities. The last section of the chapter summarizes the major findings regarding the resource access profiles of the two study groups.

HOUSEHOLD RESOURCE CHARACTERISTICS

Two inter-related themes need underscoring at the outset of this examination of the tangible and intangible resources that influence children's vulnerability in the study households. First, implicit in the treatment of tangible and intangible resources influencing the construction of children's vulnerability to disease hazard is the understanding that these resources are necessarily the resources of household livelihood. For example, evidence suggests that incomes and accumulation strategies to support household livelihoods have an effect on diarrheal disease prevalence (Chapter II).

The second theme framing this chapter is that a discussion of the tangible and intangible resources influencing child health demands attention to childcare within the household. To illustrate the role of childcare in the construction of vulnerability, I suggest that care-giving and mothering practices are negotiated in daily life and in the

everyday routines of farm and household. This argument is supported through the consideration of the intersections between mothers' livelihood and childcare work. This second area of inquiry concerning mothers' care-giving particularly focuses on several key intangible resources: time constraints, women's status within the household, and endowments of social capital, e.g., relationships of trust and mutual aid, that provide child supervision or access to the time necessary for livelihood and childcare.

Ultimately, constraints on mothers' entitlements to certain livelihood and child care resources (be they tangible or intangible) implies constraints on their capacity to manage the particularities of health risks. An important issue, then, is the role household organization and social relations play in facilitating access to the tangible and intangible resources of livelihood and childcare. For example, the social relations through which mothers access land and labor are also important to the formation of interpersonal child care networks that in turn affect children's vulnerability to disease hazard. The purpose of examining these two inter-related themes is to demonstrate how mothers' strategies for providing care are mutually formed within the context of local livelihoods. Table 6.1 summarizes the resources of livelihood and childcare that are relevant to this study.

Table 6.1 Tangible and Intangible Resources of Livelihood and Childcare

Tangible Resources	Intangible Resources
- Income - Productive assets (land, orchards, gardens) - Housing - Preventive assets (e.g., a latrine or water filter)	- Maternal capital: education, skills, knowledge - Time - Status - Social capital: intra and inter-household relations - Civil society organizations & networks

The following subsection compares and contrasts the key tangible resources of the two study groups that help explain certain characteristics of the micro-environment of risk.

Tangible Resources

Generally speaking, a large body of evidence is available suggesting that socioeconomic assets influence the overall quality of health and the living environment of households. Many studies have been carried out that provide important evidence that economic resources and secure socioeconomic standing translates into improved living conditions and overall gains in child survival (Andes, 1989; Bhuiya and D'Souza, 1994; Young, 1995). In comparing low and high frequency disease households, several similarities and differences in their economic resources emerge that have relevance for children's vulnerability to disease hazard.

One major similarity in the socioeconomic characteristics of the study households is that the majority (70%) of the respondents believe that their overall quality of life has improved in the last 5 to 10 years. When asked if their household situation is better, worse or has remained the same during this period, most mothers in both study groups said their situation has improved in the past 5 to 10 years. As indicated in Table 6.2, 12 mothers in the low frequency group and 9 mothers in the high frequency group feel that their situation has improved. The majority of mothers who said that their household situation is worse than 5 to 10 years ago were from high frequency households.

Table 6.2 Mothers' responses regarding changes in household situation in the past 5 to10 years

Household Situation	Low Frequency	High Frequency	Total
Improved	12	9	21
Stayed the Same	1	2	3
Worse	2	4	6

Table 6.3 below shows the multiple reasons provided for why household situations have improved, or as the case of 6 households, worsened in the past 5 to 10 years. Improvements in employment and concomitantly household incomes are partly credited for why the situations of these households have improved in the past decade. Mothers indicated that male family members have taken advantage of new employment opportunities in business, trade, tourism, transportation, government,

and education. Those who have not secured regular, formal employment have found employment opportunities as casual laborers on other people's land or in construction.

Table 6.3 Reasons suggested for why household situations have improved or worsened in the past 5 to 10 years

Improved	Worsened
Employment opportunities	Unemployment
Increase in wages and salaries	Increase in household expenses
Increase in standard of living	Too many children
No longer living with the extended family	Too many family members
Fewer misunderstandings between family members	No longer living with the extended family
Working hard for oneself and family	Less land
Children have grown up	Land has been divided
Children go to school	Livestock have been divided
Children received better care	Husband not home
Presence of doctors	
Access to better food & clothing	
Fewer family members	
People have vehicles	

The extent of men's participation in wage labor, either in the community, in Gilgit, or in distant places in the down-country has perforce reshaped the quality of life and the workloads of those remaining in the household. It is notable that only one of the 30 study respondents' husbands was solely engaged in farming his family's land and managing his family's herds of goats and sheep. However, his pastoral work still removes him from the household during the summer months. Two respondents from low frequency households have husbands who have out-migrated on a temporary or permanent basis to places other than Gilgit for work. Of the high frequency households, five mothers' husbands have migrated permanently out of the

Oshikhandass/Gilgit area for employment (refer to Table 4.4 in Chapter IV for data on husband employment).

Improvements in economic security associated with employment was suggested as a key factor in these households' capacities to satisfy the basic needs of their households and to acquire health-maintaining items such as food, clothing, and medical care. For instance, mothers in both study groups emphasized the role of increased wages, job security, and the diversification of household income strategies in improving their household situations as the following quotations suggest:

> It is far better now. Previously only the other brother-in-law and his son were employed while now almost everyone is employed. Now my husband is retired, and he started a shop with his military pension.
>
> – Mas Bibi

> [Change] happened due to employment. Most of the people are now employed. People have money. [If the condition was worse], then we would cooperate with each other. We would work hard together.
>
> – Nahida

> The men in the family are employed now. While they were jobless in the past. There was poverty.
>
> – Zenoor

In general, the low frequency households have a higher average income based on the total incomes of all working adults. In the low frequency households, the average income (from all working adults) was Rs. 6,067 and for the high frequency households it was Rs. 4,233 (at the time of interviewing US $1 = 47 rupees). While this Rs. 2,000 difference in average incomes for the study groups could translate into significant differences in the ability to purchase basic items, there are other very important sources of household income that slightly increase the apparent income differences between these two groups. For example, one very important source of

household income for both sets of households included fruit and vegetable sales. When fruit and vegetable sales are factored into household income, the average income for low frequency households was Rs. 10,413 and for high frequency households it was Rs. 7,960, implying a Rs. 2,453 difference between the study groups (Table. 6.4).

Table 6.4 Summary of Off-Farm and Farm Incomes

Tangible Resources	**Low Freq HHs**	**High Freq HHs**
Off-farm income	Rs. 6,067 ($129)	Rs. 4,233 ($90)
Incomes from fruit/vegetable sales	Rs. 10,413 ($222)	Rs. 7,960 ($169)

Because of the close proximity of Oshikhandass to Gilgit, agricultural goods are readily transported and sold in the urban market. Table 6.5 provides a break down on the amounts of income derived from fruit and vegetable sales.

Table 6.5 Seasonal Incomes from Fruit and Vegetable Sales

Incomes derived from fruit/vegetable yields	**Low Freq HHs**	**High Freq HHs**	**Total**
Rs. 500 – Rs.1,000	3	2	5
Rs. 2,000 – Rs. 3,000	4	3	7
Rs. 4,000 – Rs. 6,000	2	5	7
Rs. 7,000 – Rs. 9,000	3	0	3
Over Rs. 10,000	1	2	3
Do not sell/consume	2	3	5

The reliance on fruit and vegetables sales for household income depends to a great extent on the availability of other sources of income within the household. For example, in Dilshad's household, vegetables are not a major source of household income and are sold when there is a surplus:

> We sell the tomatoes if we are unable to dry them all due to the rain. From tomato sales we make about 200 to 300 rupees. Otherwise, we consume all of the produce and dry much of it for the winter.

Some of the mothers interviewed had a difficult time estimating the amount earned from the sale of fruit, tomatoes, and other produce because they are rarely involved in the marketing of these products. The figures above represent their estimates of earnings from these sales. Two respondents, one from both of the study groups, were able to comment on the income from fruit sales but not the income from vegetable sales. They pointed to their lack of involvement in vegetable sales for the gaps in their knowledge:

> I do not know [how much from vegetable sales]. My husband does not tell me. He sells the vegetables and uses the money to buy cigarettes. If he makes 10 rupees he gives me 5 rupees.

> The men sell the vegetables...I do not know how much [is earned], but the money is used to buy salt, soap, and tea for the house.

While women provide most of the labor input into these products, men and boys play integral roles in the marketing of produce. As a result, the gains from vegetable and fruit production are controlled by men and may or may not be reported to women. This does not imply that the income from these activities does not filter down to women and children in the form of food or the purchase of household items, but it may mean that these women have less control over how these sources of

income are allocated within the home. Another source of income for several of the families is the sale of livestock. Here again, the mothers of these households did not report the extent to which livestock sales contribute to their household incomes.

In examining other reasons provided for why household circumstances have improved over the past 5 to10 years presented above in Table 6.3, several other themes related to household accumulation strategies and household demographics emerge. In the case of low frequency households, mothers suggested several factors that have contributed to their improved situations including: the break up of extended family arrangements, the fact that children are grown up, and the ability to afford a separate house. For example, Ambreen and Fatima mentioned directly that their move into a house separate from the extended family and the reduction of crowding are the main reasons for why their family situations are better today:

> Previously we led a joint family system, and that is why we suffered. There were a lot of family members in the house of my in-laws. So I went to live in my parents home. Now I have come back. I am living with my own children. By the grace of Almighty Allah, there is no difficulty at all.
>
> – Ambreen

> There is progress in every aspect. Before we lived together. There was an extended family system. Now we have been separated. We work hard for our own earning. So we are well to do now.
>
> – Fatima

Similar to the situations of these low frequency households, many of the mothers from high frequency households reported experiencing similar improvements in their living situations in the past 5-10 years because they can afford to live in a house that is separate from that of the extended family.

> Yes, now it has improved since there were many family members before the separation. Now we have a small family and we are well to do.
>
> – Lal Begum

> In the past we lived together. There was a joint family system. There were misunderstandings. There were clashes. But now we live separately. We are happy. We are well off. We earn for ourselves.
>
> – Laila

Lal Begum, like Ambreen, Fatima, and Laila, is convinced that her children's health began to improve after she and her husband moved their six children into their own two-room house. A reliable income and access to land (owned by the extended family) are the main factors influencing the decision to build a separate house. Removing the burden of taking care of a large number of children and adults and being able to work hard for one's own children also seem to be critical factors in people's decisions to separate from the extended family. These reasons were frequently given by mothers when they explained why they enjoyed living separately from their in-laws.

Interestingly, data on family size suggest differences between the two study groups. As Table 6.6 indicates below, the low frequency households have on average a fewer number of individuals ranging from age 5 to adulthood (median of 6.9 individuals) than do the high frequency households (median of 9.9 individuals). If the number of male members who live in these households seasonally or who return to the community only on a temporary basis are subtracted from the total number of household members, the pattern remains the same, that is, 6.5 individuals in the low frequency households as compared to 9.5 in high frequency households. Whereas the average number of children under five years of age shows no major differences between the two groups, the low frequency households have on average a lower

number of dependent children, i.e., 5.3 in the low frequency households versus 8.6 in the high frequency households. These numbers support the idea that the health benefits (and lower vulnerability) are associated with smaller families. While only minor variations are evident in the number of households that are nuclear or extended, the actual number of people living in one house might be a critical factor in influencing the risk environment. Elsewhere research has supported this finding that the number of individuals sharing a living space can affect the quality of environmental health (Bhuiya and D'Souza, 1994).

Table 6.6 Demographic and housing data by study group

Demographic and Housing Data	**Low Frequency**	**High Frequency**
Median number of individuals, Ages 5 to adulthood	6.9	9.9
Adults		
Adults (median number)	3.8	4.3
Grandparents (median number)	1.1	.9
Children		
Dependent children (median)	5.3	8. 6
Under-5 children (median)	2.6	2.9
Housing		
Average number of rooms	2.6	2.7

Another theme that emerged regarding the improvement of household situations is that access to cash incomes for some households has at some level

brought a widening array of health-enhancing products and other services that have benefited child health and standard of living:

> Health has improved because of employment. One son runs a shop, one son is in Karachi. The children are better cared for. They go to school and their condition is better.
>
> – Hussanara

This link between employment and family health was commonly expressed by respondents. Khadirah, for example, identified the link between family health and the improvements in their economic position: "Our health has improved since everything has improved. Wages have been increased and with them, our way of life has been improved. Previously wages for labor were Rs. 60 per day. Now the men earn Rs.180 per day. Now we are well to do." At the time of the interview, her husband had hired laborers to construct a new house on their property. To Khadirah, this house represents not only an improvement in the living situation, but represents their improved economic situation and their embrace of modernity. The house they were living in at the time of the interview was one of the oldest households in the community. She explained that it had been built 60 years ago by her father-in-law when the family first settled in Oshikhandass, and in her view was *kharab* (bad). It is interesting to note that at the time of interviewing, five of the low frequency households and two of the high frequency households were investing their incomes in the construction of new houses made of brick with cemented floors, screened windows, and separate rooms for food preparation.

To a certain extent incomes and family size have guided peoples' choices to invest in new houses. Several mothers said the construction of new homes is one way

of saving their money and improving the standard of living. Incomes have also allowed households to invest in assets to improve the water, sanitation, and environmental conditions of their homes. Three out of the 30 households had invested in pour flush toilets. All of these households were low frequency households. One of the most prosperous low frequency households had also installed its own water filtration system to, as Hussanara put it, "remove the *gundagee* (dirt) and dirty things from the water." It is notable, too, that Hussanara's father-in-law is a trained engineer and has personal connections with the regional government public works department which helped him design a water filtration system for his own family's use. A few mothers mentioned the use of soap and Detol®, a disinfectant that is available in the bazaar, as preventive measures that are affordable. Practical economic constraints to using soap on a regular basis were mentioned by Chambelli when she said, "We sometimes use soap. But if we all wash our hands daily with soap, where will we bring the soap from?"

Incomes have also contributed to the increase in access to information through the purchase of radios and television. Given the constraints of purdah on women's mobility, the transmission of health messages via the media is important. The following table, Table 6.7, shows the number of low and high frequency households that own either radios and/or televisions. No major differences exist between the two groups. Increasingly, mothers find themselves benefiting from the arrival of media and "outside" information in their village. The important role of consumer items such as radios and TVs in transmitting health messages was particularly seen in 1993 during the cholera epidemic that the swept through Oshikhandass and other valleys in

the Northern Areas. At this time, mothers received messages concerning hygiene, disease transmission, and the boiling and bleaching of water (WSHHSP, 1994).

Table 6.7 Ownership of a radio and/or television

Radio/TV Ownership	Low Frequency	High Frequency	Totals
Radio	7	5	12
TV	6	6	12
Neither radio or TV	2	4	6

Furthermore, the purchase of labor-saving goods such as washing machines and ovens has been realized by a few of the study households as a result of incomes. Incomes also determine the extent to which families are able to save money for the purchase of productive assets or for times of crisis. Nine mothers from the low frequency households and 8 from the high frequency households reported that they manage to set aside money for future household *zururat* (plural of "necessity").

Contrasting with the expressions of improved well-being and quality of life highlighted above, six mothers (2 from low frequency households and 4 from high frequency households) said that their household situations are worse than they were 5 to 10 years ago. The reasons provided by Nusrat, one of the two mothers from low frequency households, included the high cost of living and increases in household expenses:

> There is no limit to expenses and high prices. We are hand to mouth. How can we say that we are satisfied and happy?

It is interesting that Nusrat, who reported that her family situation has worsened, belongs to one of the more prosperous households in the community. Besides the house that they live in, they also own two houses in Gilgit that they rent out and they are currently constructing a new house for Nusrat and her husband. In addition, Nusrat's father-in-law owns and operates a lucrative fabric store in Gilgit, and his son runs a small transport service. Despite the income security the family finds in these businesses, Nusrat believes that the increases in the cost of living could potentially jeopardize their household prosperity and security. Sazdia, the other mother from a low frequency household who said that her household situation is worse than it was 5 to10 years ago, attributed their deteriorating economic and health circumstances to a recent separation from the extended family:

> Well, it was good previously as we lived together while now we have separated. There is no employment at all. On the other hand, the children are too much. We are not so happy.

Sazdia's comment provides a powerful example of the differential effect the breakup of extended families has on the socioeconomic circumstances of some households. Previously, Sazdia and her husband had access to the in-law's land and orchards, whereas now they struggle to grow sufficient food on less than 6 kanals of land. Yasmeen and Nasreen, two of the four respondents from the high frequency group who stated that their family situations had worsened, echoed Sazdia's sentiments, stating:

> Previously we were well to do. Later on we were separated our family. The property was also divided. The cattle were divided. The land was divided. Everything was divided. So we became poor. We are now hand to mouth. We are jobless.
>
> – Yasmeen

> The blessings [where we were living] were good. Now our situation is worse here. Before we lived with our in-laws. We were not alone. We had land and my husband was home. Now my husband is not home. He is gone. The children are more sick here. We have no land.
>
> – Nasreen

Similar to five other mothers in the high frequency household category, Nasreen's husband was living in a different town and came home only a few times every few months. Even though in Oshikhandass they are closer to where the father is stationed with the army than where they used to live, the move has meant greater dependence upon the husband's income and sense of insecurity for Nasreen. While her children have better access to schools and health facilities in this community, she feels that the move has forced them into greater financial impoverishment with negative implications for their health, well-being, and her own state-of-mind. What makes Nasreen's situation particularly difficult is that, unlike the other five mothers whose husbands are living outside of Oshikhandass, she has no land besides a 0.5 kanal for gardening. She has access to no other source of income besides the small amount of cash her father earns from laboring which he gives to her. In order to compensate, she helps neighbor women in their fields in exchange for wheat or corn flour.

Another view comes from Dilafroz who said, "Well, this is a tough time now since our family size has increased. Previously we were few in number. Now we are many. In short, we are not so happy …We are starting a restaurant." This restaurant,

she hopes, will provide them with a more reliable source of income than the income from her husband's casual laboring. Unable to rely on her husband's meager and unpredictable income to meet the high cost of living as well as the requirements of a larger family, Dilafroz has already turned to making local mulberry wine and alcohol to supplement the family income despite the disapproving attitudes towards this income-generating activity.

Shara is another mother who feels the burden of increasing numbers of household members. Shara's household has a total of 21 children, four mothers, and three fathers. The family members together share three rooms; two of the rooms, however, are considered the domain of the male members of the household so the living space of the women and children is confined to one large room and to the kitchen. One of the contributing factors to why this is such a *balut bara khandan* (a very big family), as she puts it, is that one of Shara's brothers-in-law living in a different village sends his eight children to live with Shara's family in Oshikhandass. In Oshikhandass, school is more accessible for his children than in their village. Additionally, Oshikhandass is where this prosperous family has most of its land and other productive assets. Plus, the brothers in Oshikhandass also have the cash incomes received through tourism and trade to support the additional numbers of children.

The physical challenges of taking care of these additional children, though, are great for Shara and the three other mothers. As Shara put it:

> There are so many children, I do not remember their names! How can I say what age or what grade they are in?

While two of the boys are over twenty years old and are making contributions to the household income, the women are expected to carry out all of the other responsibilities of washing their clothes and preparing their food. This work is an additional burden on top of all the other fieldwork, irrigating, weeding, and gardening that the women carry out.

One of the recurring themes that emerged in conversations with the study mothers was that of child health security – the perception that in many ways child health is more secure today than 15 or 20 years ago (Chapter V). This attitude reflects, in part, the amelioration of poverty levels at the household level. Yet, individual mothers on the periphery of community life, and especially those mothers from poor high frequency households such as Nasreen who has recently moved to the community or Guldusta who feels a sense of abandonment by her husband and in-laws, are very vocal about the difficulties of meeting the nutritional and hygiene needs of their children. Among the respondents interviewed, one of the low frequency household mothers and five of the high frequency household mothers said they experienced aspects of poverty that they believe have a serious and lasting impact on their children's health. Lack of cash in these households was due to unemployment and the lack of skills and training. For these women their husbands are not in a better position today to meet their basic normative obligations towards their families despite new economic opportunities in the region. Their outlook towards their family survival is bleak, and they have an acute sense of their limited capacities and resources to meet the basic needs of their children.

Summary

The similarities and differences pointed out in this section have to do with household socioeconomic assets, accumulation strategies, and other factors which influence investments in health-related assets such as the demographic composition of the households. Although the relationship between socioeconomic conditions and vulnerability to diarrheal disease is only suggestive, the differences between the two sets of households are evident. Wealthy families are not necessarily cushioned from vulnerability. They may possess regular employment and productive assets of land and orchards that produce the necessary incomes to invest into improving their living environment (especially the construction of a new house). Yet, the removal of men from agricultural labor and the requirements necessary for putting land assets into productivity may use large amounts of women's labor that can leave the women in prosperous households at a disadvantage in their ability to provide childcare. Oftentimes, women in medium income households may have more time for childcare because of the fewer livelihood constraints placed on their time. Some of the poorer households find themselves in a double bind, lacking the land to meet fuelwood and food requirements and incomes to satisfy household needs.

From this evidence, children's vulnerability can be linked, in part, to household socioeconomic assets. If the economy of the household is not diversified, then health and well-being depends, sometimes precariously, on limited income generating strategies. How the household uses its productive assets is reflected in household composition and the quality of the living environment. In highly dependent households, the financial resources and livelihood capabilities may not be available to

foster childcare and investments to reduce environmental health risks. If they cannot gain jobs or are limited in their earning capacities, their children's general health status is negatively impacted. Further, the ability of family members, especially mothers, to control the resources affecting their lives and the lives of their children depends partly on diversity in the household and local economy. In sum, exposure and susceptibility are reduced insofar as family members' interests and capabilities to invest in health-related assets are realized.

Intangible Resources

The following discussion of intangible resources is organized around the themes of: maternal capital, time, status, intra and inter-household social capital, and the resources of civil society.

Maternal Capital: Education, Knowledge, and Skills

> We tell them not to eat dirty food, to wash their clothes. We tell them to wash their hands and face before eating. Washing them, feeding them, this is our duty, isn't it? This is our responsibility.
>
> – Marifa

Several studies have indicated the importance of maternal education in diarrheal disease prevention (see Chapter II). For example, Barrett and Browne (1993) found evidence showing that maternal education can have an impact on diarrhea disease rates in The Gambia. A similar pattern was found in Oshikhandass. It is notable that mothers in low frequency households had more education on average than the mothers in high frequency households (Table 6.8). While women with more education did not necessarily have fewer children than women who were uneducated,

they may have received more information about hygiene and health while they attended school.

Table 6.8 Data on maternal education

Education Level	Low Frequency	High Frequency	Totals
No education	7	12	19
Primary (grades 1-5)	3	0	3
Middle (grades 6-7)	1	1	2
Matric (8^{th} grade pass)	4	2	6

The differentials in education levels among these women raises questions regarding the restrictions on the education of women more generally. For mothers with no education, they either did not have access to schools because there were no schools in their villages while they were growing up or else the schools were too distant to travel to on foot. Another pattern that could explain the education levels is the trenchant resistance to the education of girls. Even with the recent positive effects of the Aga Khan Education Service, Pakistan (AKES,P) in promoting female schooling in the Northern Areas, girls still lag far behind boys (Mitchell, 1998). Another critical issue is the poor quality of instruction that girls receive in government schools (Mitchell, 1998). According to the household data, the lack of education among mothers in the high frequency category could potentially have a negative effect on child health.

Education could potentially have an impact on the status of women within families as well. Younger mothers feel strongly that being educated provides more power within the home, and potentially more control over time and work. This could have an impact on their ability to control the type of care they or other family members give to children under five years of age. Furthermore, formal education could impact their ability to understand health messages that are communicated in books or over the radio or television.

Formal education, however, is not necessarily the only source of information about environmental health and hygiene. Other sources of information were mentioned by study mothers. For example, mothers have primarily relied on their own knowledge base and kinship/friendship networks to gain health knowledge. When asked where they receive health information, many mothers asserted a reliance on themselves and their abilities to experiment and observe. This was especially true among uneducated women who assert that they maintain authority over health matters and the communication of health messages within their households. These respondents' responses reflect a certain degree of self-confidence and an assertion of independence and the ability to rely on oneself to make judgements about environmental risks. Mothers related that they learned lessons of health and hygiene from their own experience or from older women in their lives:

> We learned from ourselves.
>
> I learned through my own mind.
>
> We learned through our mind. We came to know that *gulko* water is impure, and it causes illness so we stopped drinking it. We are usually taught by our parents.

Oh! We are not literate. We learn through observation.

I learned through experience. But I am not an educated person.

Religious teachings also play a critical role in the transfer of knowledge about health. Major similarities were found between the two study groups regarding mothers' exposure to religious teachings about health. Religious education seems to have had several effects on the majority of these mothers. First, it had led to increased knowledge and awareness of disease transmission, and second, religious education has emphasized the importance of hygiene and cleanliness. Important lessons regarding the practice of hygiene and sanitation were identified as fundamental to the teachings of Islam.

This understanding and knowledge was clearly a part of women's identities as Muslim women that have formed within the family, neighborhood, and community. For the women in Oshikhandass, the construction of ideals of cleanliness and purity and their roles in upholding these ideals are reflected in their expressions of Muslim identity. Considering the dominance of Islamic beliefs in Oshikhandass and the fact that much of the social life revolves around the strictures of Islam, it is not surprising that most of the respondents talked a great deal about their responsibilities as Muslim women, and their responsibilities to pass on Islamic notions of cleanliness and hygiene to their children.

The most frequently mentioned messages that mothers derived from Islamic teachings were those that involved daily personal cleanliness. The second most frequently mentioned were based around household or collective/communal

cleanliness. The third frequently mentioned category of teachings centered on ritualistic cleanliness. This type of cleanliness often transcends the home to include social relations, allowing a view of a different type of cleanliness besides apparent or physical cleanliness. Sources of health education included the Qur'an and the religious clergy (sheikh or imam) who teach health and hygiene messages at local sites of worship such as the Imam Bargah and the Jamaat Khaana. The following quotations reveal the importance of this knowledge and learning for the respondents:

> Yes, we learn through the holy Qur'an and our religion. What we learn is that we should keep ourselves clean and pure.
>
> There are a lot of lessons in religious books about cleanliness. In Islam, cleanliness is considered half the belief. Half of the belief means a major part of the faith.
>
> The Qur'an Sharif teaches us that health is a gift of almighty Allah. So we should care about our health. We should keep our house, our children, clean. Islam tells us to avoid unclean things.
>
> Islam is very strict about cleanliness and hygiene. To say prayer and to fast, we keep ourselves clean. So it is our habit. We are told by our clergy about health and hygiene.
>
> The Qur'an Sharif strongly emphasizes cleanliness and purity. It tells us to keep ourselves neat and clean.
>
> Islam has always stressed hygiene both personal and collective.
>
> Islam teaches us that we should say prayer five times each day. We fast in Ramazan. We keep ourselves clean as our religion teaches us alike moreover Islam says that we should avoid backbiting. Islam says that we should go to pilgrimage. When we are on fasting we avoid all bad habits
>
> The Qur'an Sharif stresses that one should keep himself clean while he is saying prayers or fasting or taking food.

The responses quoted here highlight the importance of Islamic teachings about health and cleanliness. Statements such as "there is everything about health and hygiene in Islam" and "cleanliness is half of the belief" were commonly made during interviews. Islam was suggested as a major source of information on the importance of protecting the house from houseflies, keeping utensils out of the dirt, and codes of childcare. Attention was also drawn to ritual cleanliness associated with hand washing before meals, prayers, and fasting. Islam was described as offering strict guidance about hygiene behaviors. Several of the respondents mentioned that they had not read the Qur'an or have no way of reading it because they are illiterate. Instead, these mothers rely on the messages and interpretations delivered by the religious clergy in the community:

> I have not read the Qur'an. The Qur'an tells about cleaning, the importance of educating children, and to eat fresh food.
>
> Islam teaches about washing hands and feet. It teaches not to eat dirty foods or feed children dirty foods. The sheikh tells us to wash their pots, clothes, bedding, our bodies, and we show this to our children.
>
> The sheikh read the Qur'an, and the din is written in the Qur'an. It also tells us about how to live in a pure manner.

Taken together, these responses suggest, first, that a Muslim identity frames the way mothers think of health, hygiene, and cleanliness. The teachings of concrete practices of hygiene and cleanliness operate to construct women's health knowledge in this particular place. Islamic belief and practice is a key component in the construction of risk perceptions and attitudes about health. The notions about what is good and what is bad for health; what is clean, hygienic, pure or dirty, and impure influence mothers' daily practice and hygiene behaviors towards their children.

Second, Muslim belief and practice mediates the way mothers view the relationship between individual health and community context. And third, mothers play important roles in reproducing Islamic teachings on health within their households. In this way, they take on important roles as guardians of family health, and educators of religio-cultural knowledge in this rural context.

No major differences were found between mothers' responses concerning the health and hygiene education they give to their children. Some of the important messages imparted by mothers concerned hand and face washing before meals, the importance of a clean house, eating *taza taza* (very fresh) food, and wearing clean clothes:

> We teach them to become clean. We strongly ask them to wash their hands before having meals and not to take stale and dirty food. We ask them to take a bath regularly.
>
> We always tell them about their body hygiene and cleanliness of the house.
>
> We educate our children. Besides we bathe them. We keep them clean.
>
> We tell them that they should wash their hands before taking meals. We tell them that after using the toilet they should wash their hands with soap and they should take a bath daily in the summer and twice in the winter.
>
> ...we tell them that they must wash their hands and mouth before having their meals.
>
> ... that they should not eat fruits without washing them. They should wash their hands before taking meals.

Along the lines of religio-cultural knowledge and its reproduction and transmission through health messages, mothers suggested adopting several measures to avoid the damaging consequences of the effects of bad society and supernatural

forces (i.e., *nazar*, *jinn*, or *bhud*) mentioned in Chapter V. Having amicable relations with neighbors and community members, minding one's business, and conforming to Islamic norms of *izzat* (respect) and decency in public were viewed as risk-reducing measures. Other preventive measures included not walking alone at night and the practice of wearing *taveez* (amulets) to invoke the supernatural realm in protecting health. Leading a life of prayer, hard work, and piety were mentioned as moral imperatives that protect individual and family health. Laziness, speaking poorly of others, and not helping others in times of need or sickness were thought to lead to poor constitution and susceptibility to disease.

Taken as a whole, Islamic teachings represent what can be referred to as a "moral discourse" (Dyck, 1990) about health and hygiene that prescribes what mothers should do and what they should teach to their children. While this discourse offers prescriptions for individual behavior and hygiene practices, it is not possible to tell from the research whether or not this information is accepted and internalized in ways that are reflected in behavior. Nevertheless, this moral discourse provides a key resource that supports mothers in their health and child care work.

Time for Childcare

Time emerged as an important intangible resource that influences children's vulnerability to disease hazard at the household-level. In order to understand how time is a resource and how it can influence children's vulnerability to diarrheal disease, it is necessary to examine how women's time is structured by the intersections of farm and family work. The tasks associated with women's farm and

family work can be divided into four categories: domestic labor, agricultural production, communal responsibilities and obligations, and childcare. Mothers' obligations and commitments to these realms of work and rural life influence the degree to which they have time, or find time, to devote to childcare and to improving the environmental health of households.

The category of domestic labor includes food preparation, food processing, clothes washing and other work that takes up a large amount of women's time and energy in the home. Another important domestic activity in this community is the production of dairy products for household consumption and for sharing with neighbors and relatives. Another form of domestic labor that can also be a major demand on women's time is health work. The care of sick in-laws and parents, as well as children and other household members falls into the hands of women.

In addition to domestic labor, women's time is devoted to agricultural production. All of the respondents considered themselves farmers and all of them had grown up on farms either in Oshikhandass, or as the case of 18 mothers, in nearby mountain valleys. Generally, a picture emerged of women participating in farm work through a number of strategies designed to contribute to household livelihood. For these women, the primary economic activities within the household centered on preparing fields for cultivation, weeding, harvesting, vegetable and fruit production, and livestock management. The range of livelihood tasks reflects the gendered process of negotiating tasks and responsibilities with other family members.

An illustrative example of the gender division of agricultural work is seen in the allocation of responsibility for the management of household wastes from human

to livestock wastes. These responsibilities include: cleaning animal stalls; cleaning up after children; and cleaning out the *chukung* (traditional composting latrine) each spring; and enriching the fields with these wastes. Men and boys rarely engage in these activities except on rare occasions when extenuating circumstances compel men to take over. The animal dung and *chukung* work is extremely energy-intensive and plays a critical role in the agricultural regime. Manure is heavy, and it requires multiple trips to haul it to the fields. If the household does not own or cannot borrow a spade or wheelbarrow, the task requires carrying loads of manure in *giran* (basket) on the back. The manure is then spread and mixed with soil by hand. Women recognize the laborious and filthy nature of this work, yet they feel strongly about its importance for maintaining soil fertility and food production.

The majority of respondents in the two study groups devised strategies such as vegetable and fruit production or tailoring to supplement household incomes. Two respondents were participating in formal work arrangements, one as a teacher and the other as a health worker. These two respondents explicitly reported their income in the interview questions pertaining to household income; the other women reported no income even though they were heavily involved in fruit and vegetable cultivation and the processing of dried apricots and apricot kernels that were sold for a profit in Gilgit. The respondents working outside the home in formal employment arrangements valued their financial contributions to the household, although they considered their incomes secondary to those of male "breadwinners" even in the case of the health worker whose husband finds only sporadic work in tourism and trade.

The two respondents who do work formally outside the home interpreted their off-farm work as both a service to their community and a service to their household.

Only recently have employment opportunities opened up to permit women to earn wages. Women's wage earning is a topic of great debate locally and is a source of conflict within households. The increase in limited employment opportunities available to women in Oshikhandass reflect local and regional changes. In Oshikhandass, for example, the Aga Khan Education Service, Pakistan (AKES,P) schools, the government girls' schools, and the Prime Minister's Health Program have created a few local opportunities for women's employment. These positions in the health and education sectors are characteristic of female employment in the region more generally.

Women in the community who were engaged in off-farm employment at the time of the research spoke of the incredible challenge of balancing employment with the obligations of working in the fields, making meals, and doing house work. Only in a few cases did respondents suggest that their status as wage-earners had resulted in more autonomy and freedom to make decisions regarding their own labor and time. For mothers working off-farm, the employment opportunities implied time away from the household and a reliance on other family members for childcare. Among other things, employment outside the home presented new challenges for women to redefine their rights and obligations towards their kin and wider social networks of family and neighborhood.

The majority of respondents, regardless of their households' wealth category (i.e., poor, middle wealth, and wealthy as profiled in Chapter IV), iterated that they

had incredibly demanding on-farm workloads and responsibilities because their husbands and other male family members were engaged in off-farm employment. The continuing trend toward increases in women's subsistence and non-subsistence farm activities in Northern Pakistan further highlights the complex features of childcare in Oshikhandass. Up until recently the domestic and farm responsibilities were ascribed to men and women in fairly equal proportions, thus leaving an adequate amount of time for mothers to care for children. In less than 15 years, women in Oshikhandass have come to see their lives as complicated by the exigencies of "modern" life: the need for cash and off-farm incomes, the education of children, and the out-migration of men (e.g., see the section on sources of worry in Chapter V). As a result of these changes, the divisions of labor and responsibilities at the household level have been transformed in such a way that the bulk of the farm work has been taken up by mothers and their daughters. For sons who were once highly engaged in farm tasks, these changes have meant a lightening of their responsibilities as their parents place a heavy emphasis on their educational advancement.

As a result of the economic and social processes highlighted here, time for childcare emerged as one of the most important and scarce resources utilized by mothers. In both study groups, respondents suggested that time available for care taking was influenced by agricultural work and household demands. Significantly, the hard work of farming and cultivation combined with social isolation in the case of several high frequency households to further reduce the time and capacity of mothers to provide care. The increasing withdrawal of men and boys from farming seemed to exacerbate the structural and cultural constraints on women's time in these

households. For both study groups, the time-space patterns of mothers' daily activities indicated that mothering work was bounded by the organization and routinization of livelihood work. Descriptions of their day-to-day activities underscored the ways in which childcare was embedded in routines emerging out of farm-based schedules.

Aspects of daily schedules were adopted by women themselves in response two factors: the needs and priorities of family provisioning, and the dictates of other family members. Chambelli's time-space map illustrates some of the specific aspects of women's farm and family provisioning, including other mappable periods of the day which form an extension of these routines. Chambelli had six children ranging from ages 3 to 11 years old at the time of interviewing. Since having her first child at age 20, she has worked as a farmer on her husband's land. The beginning of her day was usually marked by a very early wake-up (4:00 a.m.) and was a time of preparing tea, dressing children, and getting children out the door for school. From her schedule, it was apparent that the rest of her day was organized around the everyday tasks of collecting fodder, feeding the livestock, chopping wood, hauling water, and other household and farm-related tasks. In common with other women in the study was the constant feature of cultivating food in her garden and food preparation. However, similar to all of the other respondents, specific time for childcare did not emerge in her descriptions of routinized activity except for her description of getting the older children ready to leave for school in the morning and serving them food when they returned from school. The interview with Chambelli revealed a range of activities included in her livelihood practices in which mothering work was implicit.

In the context of rural livelihoods in Oshikhandass, seasonality also emerged as a critical dimension of time. The work of Chambers (1983) has underscored the impact of seasonality on nutrition, health, and livelihood strategies. Interviews with respondents from both study groups suggested that while women's work schedules were characterized by a regularity, they were critically affected by the summer season. The wide seasonal variation in women's workloads especially during the summer months affected childcare in virtually all respects. While all family members were affected by seasonal change, women and children experienced some of the negative consequences of this change.

Several points need to be made in connection with these observations of the effect of seasonality on women's workload. First, the peak in diarrheal disease cases -- arguably the season when under five children are the most vulnerable – correlates with the time of year when mothers face the greatest work burdens and time constraints on their childcare. During this period, women's attention to children is diverted to other immediate household concerns such as the harvesting of fruits and crops. The capacity to provide quality childcare especially during peak season months from June to September strikes at the heart of childcare strategies in this region. This is the period when other demands take time and energy away from childcare and supervision. During this time, work obligations and the exchange and sharing of work intensifies among women. This is often a period when people construct houses and women are expected to prepare and serve meals and tea to laborers during the days and weeks of construction. Two of the respondents, for example, were obligated to

prepare and serve food and tea to the laborers while at the same time managing the other agricultural demands on their time.

A second point concerning seasonal workloads is that health risks associated with poor hygiene are compounded because women's livelihood activities spatially removes them from the house environment to the fields. With soil preparation, weeding, and harvesting, labor demands outside the home soar, and the absence of time for childcare within the home takes on an added importance. Third, the seasonal effects on women's work and childcare are clearly not as dramatic for all categories of households because of variations in household composition, productive assets, and so on. And finally, diarrheal episodes that are related to seasonality have important implications for women's workload. A child suffering from diarrhea during the season of wheat and fruit harvests exacerbates mothers' already long work hours during this time.

The increase in women's farm work and concomitant impacts on the risk management have occurred against a backdrop of the gendering of child rearing time and space. Childcare takes place on women's time and in the spaces of home, garden and the field that constitute "domestic" or household space. It is notable that important divisions of care giving responsibilities among family members do exist in these spaces. For instance, men and boys certainly spend time lovingly caring for infants and toddlers. Nevertheless, the actual feeding and cleaning up is invariably left to women. The trend towards the out-migration of male family members, combined with the removal of sons from fieldwork, raises important questions about these effects on the available time devoted to childcare practices and on the reduction

of the risk of disease. Clearly if a child is sick and is taken to the health center, this complicates women's routines and often leads to complex time-space budgeting problems that have to be resolved within a narrow period of time especially in the case of severe diarrhea. In the event that a child had to be taken to a distant hospital, the mothers in both study groups linked the trip with the time-space dimensions of men's everyday lives. One advantage of this separation of time and space based on gender was that the majority of study respondents interacted closely with other women on a daily basis. Their close proximity in space and in their time schedules facilitated mutual child support networks as well as flows of information about, for example, health issues, food production, the marketing of produce, and upcoming events.

A germane question relevant to this discussion of time is: What is the relationship between the feminization of agriculture in the community and children's vulnerability? The increasing time demands on women's labor could impact children's vulnerability especially if mothers do not have access to the social networks that can provide them support in care giving. The available social resources providing childcare at the household scale can help to reduce the instances of inadequate time for sufficient care and supervision. These social resources will be will be addressed below.

Status as an Intangible Resource

Another critical intangible resource that stood out in this study of children's vulnerability was mother's status, i.e., her position or rank, in the household and

society. Social status has been described as an intangible resource that has a bearing on people's ability to adapt and respond to risk (Chambers, 1983). Evidence suggests that the status of women is a critical factor influencing family well-being and child health (Gittlesohn et al., 1994). Furthermore, seclusion ideologies, as manifested in the strict adherence to the practice of purdah, have been found to be means of legitimizing women's lower status within the family, community and society and reinforcing their inferior position relative to other family members (Weiss, 1992).

Purdah refers to the practice of modest behavior and seclusion from the purview of men outside the family. It is practiced either through the use of veiling in public or through limited access to public space and mobility within the community. The relationship between women's status and purdah are complex and varied depending upon social context. Purdah has been closely associated with protecting women's honor and reputation (L. Ahmed, 1992; Abu-Lughod, 1992). In Pakistan, the notion of purdah has been used to strengthen discriminatory policies towards women, thereby institutionalizing their low status socially and politically (Mumtaz and Shaheed, 1987; Sweetser, 1992; Weiss, 1998).

An important point regarding status as a resource is that women's social position restricts their movement and interactions within the neighborhood and community in ways that effect access to other resources necessary for promoting child health. Ideologies of seclusion, for example, define the parameters of women's access to geographical sites and spaces that are necessary for the achievement of many responsibilities such as care over children's health. Restrictions on access to certain sites and spaces within the community can play a significant role in

disenfranchising women from decision-making bodies in the community. One example of these types of restrictions placed on women is seen in the Water and Sanitation Committee charged with the task of operating and maintaining the water treatment plant in Oshikhandass. The committee is made of representatives of all eleven neighborhoods in the community. While the tasks of the committee have a direct bearing on women's roles in maintaining the health of their families, the committee has rejected the idea of having female representation. Although barriers to women's participation are unarticulated, the gender ideologies affect the way in which women are restricted from participation in the functioning of the water supply system. In this example, the status of women affects their ability to influence community-wide measures to improve environmental health.

Women's status was found to be indirectly linked to children's vulnerability to diarrheal disease in several other specific ways First, women's status affected their ability to access resources (e.g., education, training) to reduce risk, in part, because of the view that women's activities should be restricted to the domestic sphere. As a result of gender ideologies, women's dependent status was reinforced by the portrayal of women's roles as care givers and farmers rather than as decision-makers and wage-earners. In both sets of households, farm work was constructed as small and inferior work and less important than the wages earned by husbands and sons. The ideological implication was that women's work within the household and their contributions to household maintenance were devalued. This devaluation of women's work and livelihood contributions was observed to be internalized by study respondents themselves and was captured in Zainat's remark, "I am just a farmer" noted at the

beginning of Chapter III. As off-farm employment gains precedence for maintaining livelihoods, farming is declining in status with the attendant devaluation of women's work.

Second, the ideological stance towards the seclusion of women in many of the study households further legitimized women's lower status and dependency within the boundary of their households. The limitations on respondents' mobility depended on the norms of the religious community to which the respondents belonged and to the particularities of their respective families. Several of the mothers' descriptions of their daily lives were circumscribed by the notion of limits on their mobility and their dependence on other family members. Within these limits women were expected to meet livelihood and childcare needs. For junior women, their subordinate position within family hierarchies influenced their capacities in childcare provision. In particular, the significance of their own control over their workloads cannot be over-emphasized. The significance of this fact emerged poignantly during the planting and harvesting seasons when mothers-in-law decided the work schedules of study respondents. This issue will be examined in the following subsection.

While women's status in the two groups of study households did have an effect on children's vulnerability, it was difficult to compare that effect between households. Status, similar to other indicators of women's position in society such as empowerment, agency or choice (Kabeer, 1999), was found to be difficult to define and measure in the study households. Some indicators of mothers' status within their households included their involvement in household decision-making, their control over investments in, for example, soap, water filters, or the construction of latrines,

and their choice to participate in women's organizations. However, sufficient evidence was not available to draw any major conclusions about the status of study respondents in these two groups of households. Further research on status as an intangible resource of childcare is needed. In Chapter VII, women's status as it relates to gender ideology emerges as a critical variable in the coping associated with severe diarrhea episodes.

Intra- and Inter-Household Social Capital

To compensate for constraints on time and status mentioned above, mothers rely on several sets of social resources to support them in their work and child rearing (Table 6.9). Previous research by anthropologists, cultural geographers, and sociologists have demonstrated the value of social networks for the livelihood of the impoverished (Scheper-Hughes, 1992; Thomas-Slayter and Rocheleau, 1995). Three sets of social relationships were found to be critical to supporting mothers in the basic constituents of their daily lives in Oshikhandass. One set of relationships concerns the mother-in-law or *sass-bahu* relationship. The other is a reliance on daughters and sons for labor and support in childcare. And the third set of relations has to do with inter-household relations.

Table 6.9 Distribution of responses to the question,
"Who helps you with your work?"

Sources of Support	**Low Freq HHs**	**High Freq HHs**	Totals
No one helps me/We help ourselves	1	5	6
Intra-household			
All household members	2	2	4
Husband	1	3	4
Children	1	2	3
Daughter	3	0	3
Son	0	1	1
Relatives			
Relatives (unspecified)	4	5	9
Female relative (sister; sister-in-law)	1	2	3
Parents	3	1	4
Neighbors	5	4	9
Laborer	2	1	3

Sass-Bahu Relations

One of the most influential of all relationships in determining mothers' access to the resources of childcare is the one forged between a *bahu* (daughter-in-law) and her *sass* (mother-in-law). Within the household and family, the *sass-bahu* relationship determines the status and power mothers acquire and maintain within the family. The mother-in-law is extremely powerful in households, and she is the one who retains the most power to determine the work burdens of junior women, the allocation of time to the rearing of small children, and mothers' mobility and freedom within and outside the sites of domestic activity. The relationship between mothers-in-law and their daughters-in-law is influenced, in part, by a tacit understanding of the rights and obligations they have in relation to each other. Misinterpretations or abuse of these rights and obligations can lead to conflict and divisiveness on both sides of the relationship.

Married women with young children who are living under the constant pressure and domination of mothers-in-law are the least in control of their time and labor. This relationship can have important repercussions on the time mothers are able to devote to childcare, the actual quality of care, and the quality of supervision children receive within the family. Children's health care and the management of diarrheal disease episodes are domestic issues where tensions between women and their mothers-in-law are often exposed. Mothers and mothers-in-law may have different understandings of how children should be kept healthy and safe from disease risks. This is certainly true when mothers are engaged in work in the fields or gardens and must rely on their mothers-in-law to look after their children.

Of the low frequency households, six mothers were living with their mothers-in-law at the time of interviewing. In some of these cases the relationship between the mother and mother-in-law was viewed as a tremendous asset. For Nahida, a 21-year old mother with two sons, her relationship with her mother-in-law, Abida, is amiable and supportive. Abida's favorable treatment of Nahida might very well reflect the fact that Nahida has given birth to two boys, but there is not enough empirical evidence to support this claim. Nahida is one of Abida's two daughters-in-law. Nahida's husband is in the Pakistani army and lives outside of Oshikhandass in Azad Kashmir, and the other brother-in-law is a driver for a non-governmental organization in Karachi. As a result of the men's absence, Abida and her two daughters-in-law do the majority of the farm work except for the tasks of plowing and irrigation which the father-in-law does. While Nahida must ask permission to leave the household, she is allowed to regularly visit her parents who live a 10-minute walk away from her in-laws' house. Abida also encourages Nahida to pursue a small tailoring business that she runs out of the house.

While Nahida is cooking or tailoring, Abida takes special care to feed, entertain, and watch over Nahida's boys. Her work situation is eased by the assistance of Abida who, despite her age of 60, takes up the responsibility for various gardening and livestock management tasks, as well as providing important assistance in childcare when Nahida is cooking, tailoring, or working in the fields. What is perhaps the most important aspect of this relationship, though, is that Abida values Nahida's tailoring work and hard work in the fields, and grants her relative freedom of movement to leave her house in order to visit her parents. The nature of this

interaction is cooperative. The outcome of this cooperative relationship is that there is a favorable negotiation of childcare responsibilities through the allocation of tasks and through a common understanding of child rearing.

Nusrat's relationship with her mother-in-law also has had positive impacts on her childcare. Nusrat is a 24-year old mother of two sons and two daughters. Nusrat's mother-in-law, Bibi Soni, places tremendous value on maintaining the health of her grandchildren and the other family members. Bibi Soni said:

> We are afraid of the children or adults becoming sick. So we all watch to protect each other. We try not to do heavy work because then we get sick. If we are sick, then we have more expenses.

Nusrat's mother-in-law's concern for family health reflects her support of Nusrat in childcare and household decision-making. In terms of her own views about her life and concerns about family, Nusrat said, "all the time I am happy," and she has found that she can depend heavily on her mother-in-law if she has a problem or concern that needs to be discussed or solved. Nusrat said she is included in all household decisions and is pleased that all of the women participate equally in the fieldwork and the care of the garden and orchard. Bibi Soni encourages Nusrat to participate in the Women's Organization to which she belongs. As one of the older members of Oshikhandass, Bibi Soni, is known as an activist in the community and has been a member of the same Women's Organization since its foundation over 12 years ago. From her mother-in-law Nusrat said she has learned about child rearing and the running of the household. In this household Bibi Soni has adopted practices which seek to maximize family well-being and a favorable relationship with her daughter-

in-law. Both women seem to have benefited from a sense of companionship and solidarity as far as the hierarchical system based on generation allows.

The narratives of Nahida and Nusrat about *sass-bahu* relations contrast with that of Fatima, another mother of a low frequency household. Fatima is *akeli* (alone) in the house and does not live with her mother-in-law. When Fatima was first married, she lived with her mother-in-law, and then later Fatima and her husband separated from the in-laws. She feels her family is better off now than when they were living with the extended family because she is alone and she can work and manage her household as she likes. In her view she has greater control over the situation of her three daughters and one son. She describes her experience of living with her in-laws as a time of tremendous work. During one of the visits I made to Fatima's house, all four of her children were sick with colds, and she had to take care of them and the gardening, fieldwork, and food preparation by herself. She said, "It is very difficult for me, but if there was another woman in the house it would be more difficult." Nevertheless, she does worry about taking care of the four children herself especially since her husband is unemployed and "leaves the house after taking money from me to buy cigarettes."

In the case of a crisis or illness, Fatima relies on her neighbors and her relatives more than her mother-in-law or her husband. She has also found tremendous support from an older aunt living nearby. This aunt takes care of the children when Fatima is doing fieldwork. This woman's husband has passed away, and she sees herself benefiting from the reciprocal relationship that she has developed with Fatima. The aunt stated:

> I help Fatima at home because I am alone except for my 17-year old son. My husband has passed away. I ask Fatima's husband to help me with work at my house, to do heavy work which needs to be done. In exchange I take care of the children, and I give them food.

Fatima is not accountable to this aunt in the same ways that Najida or Nusrat are accountable to their mothers-in-law. In spite of this difference, the narratives of the three women illustrate the ways in which the relationships with older women afforded them more flexibility in childcare and in their farm management strategies. These older women facilitate the livelihood work of the younger women and provide an important source of moral support and encouragement in an environment where women have little control or power over their own lives.

A fourth example of the relevance of the *sass-bahu* relationship on mothers' lives and on child rearing comes from Chambelli's situation (low frequency household). Chambelli is a mother of 6 children who manages most of the farm work herself since her husband is away during the week working as a policeman in Gilgit. Chambelli is similar to Fatima in that she lives and works apart from her extended family. For Chambelli, her mother-in-law was the major source of information about health and hygiene. She said, "Our mother-in-law did training with AKRSP and learned about cleaning and health. She has books in Bagrote from her training." While she admits that she has gained important skills and knowledge from her mother-in-law, she has no regrets about living in a nuclear family situation. She feels she has more independence and control over her work, family, and own life now. When asked what her happiest day was, Chambelli responded:

> It was when we made a separate house and divided the family land. This was a happy day for me... Now I have no worries. I have freedom. I have done family planning. When [the children] are older they will do all of the work for me.

While frustrations with this relationship are common between both sets of study households, the mothers in the high frequency group seem to have experienced more negative consequences of the *sass-bahu* relationship. At the time of the interview, seven mothers in the high frequency study group were living with their in-laws. One mother, Lal Begum, who is a 28-year old mother of six children in a high frequency household, expressed her frustrations with her relationship between her and her mother-in-law in terms of how the mother-in-law prevented her from properly taking care of her children. At the time of the interview, Lal Begum and her family had separated from the extended family and had moved into their own house during the previous year. Expressing her sentiments about previously living with her in-laws, Lal Begum said:

> Life is better now. Before I was working under my sass. Now it is my *marzi* [choice]. Before when we went to relatives we would be afraid to return because our sass would fight with us... During the Project my two youngest children had a lot of diarrhea. This is because I had a lot of work to do in the house with my in-laws. My sass would scold me to work. I would leave the children to do the work. They ate dirty things and got sick often. I was not able to take care of them... Now the land is divided, and I can work as I wish.

The frustrations that dominated her narrative stemmed from the restrictions placed on her childcare and her lack of control over her labor within the extended family unit. As such, the antagonistic relationship with her mother-in-law is mentioned as the primary factor for why her children were always sick. Her ability to improve her care giving has been strengthened by the move away from the in-laws.

This move is an outcome of increased family wealth that allowed them to purchase the materials to construct their own home. While Lal Begum worries that they now have little land to support her children since separating from the extended family, she feels that overall her children's health and well-being is more secure. Thus, part of the strengthening of her care-giving is related to improvements in her family's economic situation.

As these examples suggest, the particular relationship between sass and bahu, one of the most prevalent and problematic in South Asia (Mehta, 1994), dominates women's interpretations of their work, household situation, and position within the family. In the case of Lal Begum, the relationship supported practices that favored the interest of the household by utilizing Lal Begum's labor in the productive capacity of fieldwork. At the same time, the demands placed on her by her mother-in-law forced her to set aside her needs and rights to provide care to her children. Dilafroz, another mother from a high frequency household, expressed similar frustrations with this relationship:

> Before there was not a happy day. We were all living together, I had to work under my sass, and do everything she wanted. Since we separated, I can work as I want, do what I want. Everyday is a happy one with my children now.

Dilafroz's memory of living in the extended family unit underscores the expectation that daughters-in-law work under the authority of mothers-in-law, and illustrates her interpretation that she has greater control over her labor now. While her workload has increased for her now that the family has separated, she feels that this is an acceptable outcome for having greater freedom within her household. The narratives of Lal Begum and Dilafroz pointed out that childcare along the line of what they felt should

have been provided was not facilitated by the *sass-bahu* relationship. While both Lal Begum and Dilafroz recognize the pervasiveness of the cash economy and the challenges of trying to meet family needs in a nuclear family situation, they both expressed satisfaction with their family situations and their increased control in carrying out gender-ascribed duties of farm work and child care.

Another dimension of this relationship which is notable concerns not so much the restrictions mothers-in-law place on the time and space of their daughters-in-law, but the double burden of care for children and in-laws that is placed on mothers. The situation of Shara is notable. Shara is a 26-year old mother of six. In addition to taking care of her children, four of which were 6 years old and younger, Shara is responsible for the care of her aging mother-in-law and father-in-law who live with Shara and her husband. In terms of her workload, Shara said that it has stayed the same over the last 5-10 years, adding "This work is habit for me so it seems the same to me." Upon hearing Shara's comment, her sister-in-law who was visiting from Skardu exclaimed:

> How can it be the same? Before there was one child, you made *roti* [flat bread] for one, washed clothes for one. Your sass was younger and did more work. Now there are more children, and your sass is old and cannot work.

Shara's sense that life "seems the same" reveals her internalization of the domestic burdens that Lal Begum and Dilafroz express as central to constraining their childcare. The sister-in-law's observations that Shara's work has increased sheds light on Shara's interpretation that everything seems the same. On the other hand, while her workload may not be a source of difficulty as she accepts her responsibilities, Shara is more worried about their financial situation given the dependence of her

children and her in-laws on her and her husband. Shara, in stating that their household economic situation is worse now than 5 years ago, said:

> The land has been divided into five parts for all of the sons [i.e., her husband and his brothers]. Now the land is much less and the food available for the children is less... We cannot think about saving money for the children because the salary goes to the children. There are more children now.

Given the age and health of her mother-in-law, Shara is unable to rely on the assistance of her mother-in-law to help with childcare. While she relies on her mother-in-law for advice in child care and in the management of the livestock and the fields, the extent to which the mother-in-law is able to help is restricted by her physical condition and by the other multiple demands of farm work. As a result, Shara is forced to rely on her own strategies to cope with the constraints placed on her childcare. The choices and opportunities open to her as well as other women in the study were determined to a great extent by how they and their families coped with the daily livelihood needs. This pressure felt by Shara was an extension of changes within the family, the dividing up of assets such as land, the lack of secure employment, and the increasing costs to support a family in rural Northern Pakistan.

The understanding that the *sass-bahu* relationship is founded on hierarchical roles within the family is widely accepted. As these examples suggest, the cultural entitlements to intangible resources such as access to an adequate amount of time for care-giving or to higher status within the household play out in different ways depending upon the relations between mothers and their mothers-in-law. A particularly important way in which gender- and generationally-differentiated entitlements are experienced is in the inherent assumptions made by mothers-in-laws about their rights and claims to junior women's labor and time. This assessment of

sass-bahu relations suggests that there is an association between the quality of these relaitons and the vulnerability of children in the study households with examples of increased vulnerability when mothers-in-law are adverse to supporting younger women in their work to maintain the health and well-being of their children.

It becomes clear from these narratives that the breaking up of extended families has had differential effects on women and their children. For example, nuclear families might face greater restrictions on their range of accumulation strategies and on intra-household relations of support. Conversely, separating from the extended family might imply fewer individuals to take care of and freedoms from the demands mothers-in-law. As these excerpts from narratives suggest, the effect of family arrangements and relations on children's vulnerability is highly complex and varied depending on intra-household dynamics and relations between senior and junior women.

Labor and Livelihood Contributions of Daughters and Sons

A second set of intra-household social relations that has an influence on mothering in the context of the vulnerability of children to diarrheal diseases is the relationship between mothers and their older children. This relationship plays a critical role in the childcare and livelihood strategies in the two study groups. In Oshikhandass, mothers rely tremendously on the labor and assistance of their older children in the management of their households. Women circumvent some of the limitations on their childcare by relying on their other children. Older children are often important in easing the multiple responsibilities of mothers and the tensions over livelihood and health insecurities. As women in both nuclear families and

extended families face an ever-changing set of constraints and opportunities, they continue to depend on the labor of their children, and especially their daughters. The contributions children make to livelihood and childcare represent a critical strategy for mothers who are occupied during the course of the day with livestock management, food production, fuelwood collection, food processing, and other domestic tasks.

Table 6.10 presents the total numbers of study respondents' daughters and sons between the ages of 6 and 18 years (these numbers do not include the children of the other parents living in extended family situations). In terms the daughters of the study participants, the numbers are roughly comparable between the low frequency disease households and the high frequency disease households. Interestingly, more daughters of the study respondents are attending school in the high frequency households than in the low frequency households. This suggests that the labor of daughters might be available to a greater extent for childcare in the low frequency households than in the high frequency category. In terms of sons, all of the sons belonging to the study respondents in the high frequency households are attending school, whereas nine of the eleven sons of the study respondents in the low frequency households are attending school.

Table 6.10 Study Respondents' Daughters and Sons

Daughters and Sons	Low Freq HHs	High Freq HHs
Total number of daughters, Ages 6 to 18 years	20	19
Total number of daughters attending school	11	16
Total number of sons, Ages 6 to 18 years	11	25
Total number of sons going to school	9	25

The use of children's labor at the household level reflects gender-differentiated notions of entitlement that delimit two significant patterns. One pattern similar to other rural contexts in the developing world is that daughters and sons are expected to perform a number of gender-defined tasks around the farm and house. For daughters, the list includes a range of what study respondents described as *chota kam*, or small work, including: sweeping, cooking, making *roti* (flat bread), food preparation, washing clothes, feeding and milking cows, and weeding the fields. Education and training in these tasks begins at an early age. Four-year old Safina, for instance, already has been taught by her mother to rid the ears of the family's goats of ticks and to collect fallen leaves for fodder. Even at a young age the work girls are expected to do becomes routinized for them, a process confirmed by Sazdia's daughter when she said, "I started making *roti* when I was eight."

Daughters are particularly important because they assist their mothers in the care of babies and younger siblings. From the age of 5, girls are socialized to hold,

watch over, and play with small children. Girls are also expected to develop other domestic skills as well such as sewing, knitting, and making clothes for family members. Older siblings, in their holding of younger siblings, provide an important form of care that has been found to be effective in reducing the risk of infectious disease (Paolisso, Baksh and Thomas, 1989). For Khadirah, a mother in a low frequency household, the household and childcare labor of her teenage daughter was so vital to her that she decided not send her daughter to school. This work is rationalized in the context of how best to prepare girls for their roles as wives, mothers, and daughters-in-law after they are married. Mothers' reliance on their daughters for help around the house is reflected in their comments about the necessity for girls to gain certain types of knowledge and skills by the time they are 10-12 years old:

> From the beginning the girl should learn how to do all of the work the women do.
>
> Right now my daughter is too small to help me, but when she grows up she will lend a hand with everything. She will look after the young ones if I am away from the house. She will bring the harvest from the fields... Girls should help their mothers in all the routine work.

More recently, interest in the education of girls has increased in Oshikhandass and throughout the region. The education of girls has implied that mothers are losing the option of depending on their daughters during the morning hours. However, girls are still expected to resume their work upon returning home from school. These types of cultural entitlements to girls' labor are also reflected in the way that parents periodically keep girls home from school or withdraw them from school at an early age because of the necessity of their labor for the family. Families with scarce

financial resources, in particular, tend to view the education of girls as a less viable long-term investment than the education of sons.

By the time girls reach the middle and secondary school levels (i.e., if they are provided the opportunity and resources to pursue their education to this level), they experience a "triple day" with school in the morning, farm and household labor in the afternoon and evening, and homework at some point during the evening (or not at all). Zainat, for instance, explains that after school her daughters "make *roti*, sweep, clean, take care of the younger siblings, and wash the clothes of the adults and children." To Zainat, girls today should be expected "to work in the kitchen, clean the house, learn how to take care of children, keep children clean...and to study."

In contrast to girls' work, the livelihood work of boys is constructed as *bara kam*, or big and important work. This work includes irrigation, chopping fuel wood, harvesting crops, collecting branches and leaves for livestock fodder, and clearing fields of rocks. It is notable, however, that while these livelihood tasks are constructed as part of the domain of men and boys, women and girls regularly perform these tasks as well. Tasks which require a monetary exchange or social interactions outside the house – making purchases in the bazaar, borrowing a tractor from the neighbors, or sending messages to people in the community – are viewed as indispensable for enhancing the life skills of boys.

The rationale for sending boys outside of the home at a young age for various errands underscores parental concerns about preparing sons to responsibly navigate social relations in the marketplace and public sphere. Frequently, people say, "A son should think about helping his *qaum* [clan]" or "They should learn to speak well and

use *accha zaban* [good or proper language]." These concerns are iterated by the following quotations regarding what boys should be expected to know when they reach the ages of 10 to 12:

> They need to learn everything. To study their lessons, to learn to *salaam* [greet] all neighbors and to have manners with guests.
>
> He needs to learn about his education, to learn to do some kind of work, to do a business or a *naukari* [service] after he has studied further.
>
> A son needs to learn to respect for his parents. He needs to learn about his social environment and to think about his education.

As these quotations suggest, the local discourse on children underscores the necessity of education in preparing boys for their future roles as providers and breadwinners. From this discourse a second pattern in the relationship between mothers and their children emerges. As sons are increasingly removed from their menial labor roles because of the emphasis parents place on their schooling, the social expectations of boys have concomitantly shifted in this rural setting. For boys, this shift has meant a relaxation of their fieldwork and obligations around the household and an elevation of their status within the household. This patriarchal view of the superiority of boys raises a key issue of gender inequity at the intra-household level. After school, boys are granted the freedom to study, meet with tutors, play sports, and to visit with their friends. Mumtaz, the mother of eight children and the primary caregiver for her two elderly parents, continues to rely extensively on her daughters rather than her sons to help her around the house even though both her daughters and sons are going to school:

> The daughters help no doubt. They wash clothes. They wash the utensils. They sometimes prepare the food and make tea for us... The sons are all going to school. They are unable to help us. Sometimes the oldest son fetches a bucket of water from the nearby *gulko*. Nothing else. They spend their time in school work. They go to the public school as well as to the *deeni* (religious) school at the Jamaat Khaana.

Dilafroz expresses a similar experience as Mumtaz, adding jokingly, "My son does nothing, what can I do?" Most mothers feel that the loss of sons' labor from livelihood work is a reasonable and minor sacrifice for the contributions they will make to family survival in the future. Khatija explains:

> ...I get help from those in the house, mainly my daughters. My husband helps with the harvesting of the wheat. The son does not help me with this work. He himself does no farm work. We cannot force him to do farm work. Instead, we should be happy to have him work with us. We are happy to leave him alone because he is the only son in the family. When he marries and has children, then he will be responsible for working.

The reduction of boys' contributions to livelihood and childcare is culturally sanctioned and reinforced by the patriarchal ideology that values boys over girls (more on this topic in Chapter VII). Several mothers' comments illustrated this preference in response to the question, "*Which children are good to have, boys or girls?*:"

> A boy because he will be able to take care of himself and feed himself. The girl is a burden, a great burden because she will go to another house. There is the worry about her dowry, and how she will get along with her in-laws and her husband.
>
> A son, because he will do a job and feed us. What can we do with a girl? She will take her dowry and leave the house.
>
> A son because he helps his father. For assistance the girl is good because she helps me. For work at home she is good, buts she will get married and go to another house.

Generally, throughout Northern Pakistan sons are preferred over girls. In spite of this pervasive attitude, over half of the mothers interviewed said that girls are personally just as important to them as boys are specifically because of the important contributions girls make to easing their work burdens and to household livelihoods:

> Both [girls and boys] are good. When the mother is sick, the daughter makes *roti* and takes care of her mother. When she marries the son off, he will bring a daughter-in-law who will help in the house and he will labor and pay the house expenses.

> They are equal. In the olden days they liked boys more. Now we treat them the same because the girl can also have a job.. Before there was no education or employment for girls. Now there are many differences. If some parents do not have a son, the daughter will be able to take care of her parents ... [A girl's] future will be good if she has been educated. If she is uneducated her mother-in-law, her father-in-law, and husband will not respect her, and they will scold her.

> Before I had a son, I thought to myself that a boy would be good. Now that I have a son, I realize that girls are good. The boy does not help me with work around the house. The son does not work, and the husband does not work. This is why the girls seem more important to me now.

These quotations reflect an important transformation in attitudes towards girl children that is slowing taking place in the region.

In relying on their daughters, mothers in both study groups emphasize the role of teaching about the care and upbringing of young children. More respondents from low frequency households emphasized the proper training of girls in hygiene, childcare, and cleanliness during interviews than mothers from high frequency households; however, it was beyond the scope of this study to assess the impacts of girls' health education on childhood diarrhea. Mas Bibi, a mother from a low frequency household, emphasizes the importance of the transfer of knowledge between mother and daughter:

> She should ... learn the good manner which our religion tells us. A girl will be a mother in the future. She has to control the house in the future. She must learn what her mother teaches her.

In this view of girls' domestic education, Mas Bibi emphasizes not only the skills necessary for the conduct of mothering, but also the social role Islam ascribes to girls and women. Sharaja, iterates a similar view as Mas Bibi:

> According to our religious teachings, a girl is supposed to learn her religious responsibilities such as *namaz* (prayer) and *roza* (fast). Then, she must learn home management ...Education is very important for her since she has to take over the responsibilities in the future. If she is educated she will become a responsible mother.

In Oshikhandass, the training of girls in what it means to be an *accha ammi* (good mother) is constructed locally and within the household, and the interactions between mothers and daughters plays a key part in this process. Furthermore, there is an association between Islamic ideals, socially constructed responsibilities, and the conduct of mothering that underlies the informal education and training of daughters. Information about hygiene, cleanliness, and childcare is transmitted in an ad hoc fashion and occurs whenever mothers observe the need to provide instruction to their daughters. The importance of this knowledge transfer should not be overlooked in a consideration of the response to environmental health risks and illness for it is this knowledge which permits girls (and to some extent boys) to mediate the risk environment for their younger siblings. This is certainly the case during the summer season when mothers are occupied in the harvesting of fruits and wheat. The involvement of girls both facilitates their mothers' capacity to look after their children by making it possible for them to share the burden of childcare, and also serves as a

check that girls observe certain care-taking practices to which mothers attach importance.

Informal Networks of Mutual Support & Child Care

A third resource that influences the micro-environment of vulnerability includes other key forms of social relations, namely mutual support and informal childcare networks, that exist at the inter-household and neighborhood scales. These networks are significant because they suggest that mothers create additional ways of responding to changing social and economic conditions and to constraints on their time and labor. My analysis of these types of networks is also intended to contribute to the understanding of the significance of extra-household relationships on the mediation of the risk environment. In Oshikhandass, mothers heavily rely on the involvement of other local women – kinship relations and long-standing friendships – in childcare arrangements. Isabel Dyck (1990), Kim England (1996), and other geographers have made similar observations in their research on the effects of social networks on childcare in Canada.

In Oshikhandass, family and friendship networks based largely on the same religious and ethnic identity are described as enabling support and fostering the existence of flexible childcare strategies. Women's daily interactions with these ethnic-, religious-, and friendship-based networks reinforce women's livelihood work and family activities, thereby contributing another dimension to the local culture of childcare and to spatially significant economic and social relations. The development of these networks is one way in which we can see that social resources, or what has been described as "social capital" (Bebbington, 1997, 1998; Fernandez-Kelly, 1994)

are constructed, in part, out of considerations of risk, livelihood, and family well-being.

Locally-based informal networks represent one strategy mothers of low and high frequency households employ to mediate the instability in childcare provision. These networks also reflect mothers' concern for maintaining strong ties with family, friends, and the neighborhood that serve important elements of children's upbringing and socialization. By linking children into kinship, neighborhood, and religious-based relationships at an early age, these arrangements constitute a reinforcement of local values and ways of doing things.

Mothers utilize these networks to facilitate childcare in several ways. First, during the course of daily livelihood activities, mothers coordinate their work by sharing tasks and work schedules with other mothers or female kin relations. The coordination of activities is founded on long-standing trusting relationships of kinship and friendship. These support networks are particularly critical during periods of intense labor demands (i.e., May-September) or in times of economic uncertainty, thereby creating stability in women's daily lives as mothers and farmers. These networks of work and care function in an impromptu fashion and come together for the completion of certain types of gender-based work such as weeding, harvesting, food processing, funeral preparations, and the organization of weddings. Women usually provide tea, fruit, and *phittee* (homemade bread) to those who come to their house to accompany them in their work. Older women play important roles in helping to organize and coordinate the labor of younger women in the neighborhood and they also have the responsibility of allocating women's labor to work groups.

Generally, women look forward to going to the forests with each other or working in teams to harvest wheat and/or corn. Ashrafi, for example, expressed her excitement and anticipation for the corn harvest when she and the other women of her household invite female relatives from Bagrote to come to Oshikhandass to work in their fields. In this sense, this support has a practical significance. By participating in shared tasks, women receive help in their work and in the supervision of their children. These networks are founded on an understanding of the obligations between women of the same clan, from the same place/valley of origin, or of the same religious background. Within the neighborhood, norms of reciprocity guide the exchanges of labor and the local meaning of assistance and support between women. A primary asset of the study respondents is their ability to rely on these type of kinship and/or friendship networks. Nahida said:

> In summer harvesting, drying apricots on roof tops, collecting the ripened crops into the barn and threshing are the most difficult and time consuming tasks. Likewise, in winter we harvest the maize and collect it in the store house. In this work, our other family members help us. If there is not a family member available at home, then we request some other relatives [to help us].

Ashrafi iterated a similar use of these networks and indicated the continued reliance of the women in her household on their parents for support:

> The other wives [help me] or we call our mothers and fathers to help. If there is some big work to do, we go to our parents. Her parents live here, her parents live there, her parents are in that direction. We call them for help.

A main benefit of the labor exchanges either on a small scale or in more organized work groups is the safekeeping of young children that comes through the

supervision provided by of all of the women participating. Group supervision assures mothers that young children will be cared for in the manner that they see is appropriate and in accordance with their own interpretation of "good mothering" (Dyck, 1990). Working in groups of kin or friends provides these mothers with flexibility in time and space which they require in order to address different types of livelihood-related work without leaving young children alone.

A second way in which these networks facilitate childcare is through the exchange of information. In Oshikhandass, contact between women through formal and informal networks is a major way in which knowledge about diarrheal disease and child health, hygiene, and water quality is disseminated. These networks play an important role as a source of informal education and information transfer. The reserve of information and skills mothers glean from these networks is significant in shaping their understanding of disease hazards, hygiene, nutrition, and child development. The exchange of information emerges during the course of daily activities through chance meetings in the gully, on the way to fuelwood gathering in the forest, during wedding planning at a neighbor's house, and while waiting in line at the health clinic.

Third, these exchanges lead to moral support. The coordinated livelihood activities create opportunities for mothers to share experiences and feelings. In terms of moral support, women turn to these trusted relationships with women of similar family, religious, and ethnic backgrounds for emotional support during turbulent domestic times. For Dilshad, it is through routines surrounding farm and garden-centered activities that she is able to create childcare networks by which she can delegate part of her mothering duties to other members of the household. It is through

these networks that women negotiate their care giving with the requirements of rural livelihoods. The features of a kinship and friendship network of mutual support may well provide the conditions that allow women to balance the occasionally conflicting responsibilities of fieldwork and what mothers interpret as proper mothering. Although Fatima, for example, is not able to rely on intra-household support besides that provided by her daughter, it is through her kinship relations that she has gained access to the care resource of her aunt (discussed above).

Some of these women see these systems of practical and moral support eroding as they describe their personal sense of isolation in light of breakdowns of obligations between family members. The case of Guldusta who describes herself as being emotionally and financially abandoned by her husband and his family is one example. The cost of this isolation is that Guldusta is less endowed with the social resources to help her facilitate the conflicting demands on her time and energy. While she finds some support from neighbor women who help her weed and irrigate, overall she senses that the support exchanges of her husband's family are gradually eroding. In the case of Guldusta as well as that of Bibi, their work and childcare is organized under more isolated social conditions. Their biggest complaint is that the busiest period in the agricultural calendar is also the time when children suffer the most from diarrhea. In the absence of other women family members or ties to other neighborhood networks, these mothers have few other option but to leave small children unattended in the shade while they work in the fields.

This understanding of social relations as resources focuses on the links which mothers build with a constellation of relatives, friends, and neighbors. These

networks of mutual support are adapted for the purpose of coping with pressures on family and childcare. Interviews conducted with study participants emphasize camaraderie and reciprocity, yet this should not mask the fact that for some women these exchanges are less supportive and reliable. Some households have even become deprived of these networks since they have moved to Oshikhandass from other places as is the case of Nasreen's family. The social arrangements have a fundamental importance in the strategies of livelihood and child survival. In several cases the high frequency mothers seem to be less instrumental in establishing or maintaining these relationships.

Resources of Civil Society: Formal Organizations of Support

Civil society organizations also play a role in the mediation of the micro-environment of risk to diarrheal disease in Oshikhandass. The organizations of civil society are important for representing the interests of marginalized groups and for accessing the resources that people require for rural livelihoods (Bebbington, 1998; 1999; Blaikie et al., 1994; Fox, 1996; Narayan and Pritchett, 1997). Mothers in Oshikhandass are finding new and important sources of support and information through the extant resources of civil society. One of the most profound developments of the last two decades in the Northern Areas has been the emergence of state and non-governmental organization (NGO) involvement in expanding an institutional structure for the implementation of health, education, and development programs at the grassroots level (Chapter IV). While the state plays an important role, the NGOs

affiliated with the Aga Khan Development Network are the most significant "outside" actors affecting child health and livelihood security in the community.

The Role of Schools

In recent decades, non-governmental organizations have provided important formal and non-formal education and technical training that women are applying to their work as mothers and farmers. Increasingly, education promoted by the Aga Khan Education Service, Pakistan (AKES,P) has had an impact on women's knowledge and skills in the region (AKES,P, 1996).

As mentioned earlier (Table 6.8), one major difference between the mothers of the two study groups is level of education. Five mothers in the low frequency category stressed that they gained their health knowledge "through study," "through reading," and "through books" whereas only one of the 15 mothers of high frequency households said she learned about health through reading and studying. Several mothers who have not attended school said they defer to those who are educated for advice about how to treat childhood illnesses. Even though these women themselves have not directly participated in the educational system, the benefits of improved levels of literacy in the community as a result of the arrival of schools are being realized for some women.

Health-Related Networks

The second major source of information about environmental health and disease transmission has been the Aga Khan University/Aga Khan Health Service,

Pakistan Diarrhea and Dysentery Research Project described in Chapter IV. This project has become a defining factor in establishing authoritative health knowledge regarding disease transmission and diarrhea treatment in the community. More importantly, the AKU/AKHS project has expanded women's opportunities to learn about environmental health risks, their capacity to recognize child health problems in their households, and to improve the environmental health conditions of their households. Women's participation in these activities has reshaped the health knowledge base of the community. When asked about where they received information about health, many mothers from both study groups cited the importance of their contact with health providers associated with AKHS,P or with the government-sponsored maternal and child health program:

> [I learned] from the doctor and the health workers for the Prime Minister's Programme.
>
> Health workers visit us and advise us.
>
> From the CHW [Community Health Worker] and from neighbors we see regularly.
>
> Earlier we did not know anything about health and hygiene. There are nurses who taught us about it.
>
> We learned through study, relatives, neighbors or from the *tanzeem* [women's organization]. I myself am a health worker, and we are given training regarding health and hygiene.

As these quotations from mothers in both low and high frequency households suggest, one of the primary ways of learning about childhood diarrhea and child health has been through the doctors, nurses, and health workers who were involved with the AKU/AKHS,P project.

Local Organizations

Third, local organizations serve as important channels through which women receive health and agricultural information and mobilize resources. By 1998, the establishment of five formal women's organizations with 15 to 80 members each was facilitated by non-governmental organizations and local-initiatives. Most of these organizations were started in the mid-1980s as part of the Aga Khan Rural Support Program's early efforts to encourage local development in the community (discussed in Chapter IV). These organizations offer savings and credit programs, technical support, and training.

Participation in these organizations is often inadvertently decided along religious and ethnic lines or according to cultural criteria. The variations in women's participation affect the extent to which individuals are tied into these networks and can access resources through them. For example, it was widely recognized in the community that Shi'a women were participating to a much lesser degree in these organizations than the Isma'ili women. Another factor in shaping women's participation in these organizations is intra-household relations. A particularly revealing example is the case of Laila. Laila was a member of one of the women's organizations, but her mother-in-law made her quit. According to Laila, her mother-in-law simply did not like her participation in the group. On the other hand, the mothers-in-law of Nusrat and Farida are very supportive of the participation of their daughters-in-law.

The participation of other family members in either the AKRSP Village Organizations (VO) and Women's Organizations (WO) or in other local organizations

also has benefits for women in the study households. For example, Zenoor, a Shi'a mother of seven, is not a member of an AKRSP Women's Organization because, as she says, "We are illiterate and do not have anyone educated to be in the WO." Instead, she saves small amounts of money through her son's savings account he has with the Village Organization. Table 6.11 shows data on participation in formal organizations in the two sets of study households. No major differences exist between the study groups, except that there is somewhat less participation of members of the low frequency households than in the high frequency households.

Table 6.11 Participation in Formal Organizations

Participation	**Low frequency**	**High frequency**	**Total**
In AKRSP-sponsored organizations:			
Study respondent	1	3	4
Husband	0	4	4
Mother-in-law	3	2	5
Father-in-law	2	0	2
Sister-in-law	1	2	3
Brother-in-law	1	1	2
Daughter	2	0	2
Son	0	1	1
In other organizations:			
Study respondent	0	0	0
Husband	0	1	1
Mother-in-law	0	0	0
Father-in-law	3	2	5
Sister-in-law	0	0	0
Brother-in-law	0	1	1
Daughter	0	0	0
Son	0	0	0

Some examples of non-AKRSP organizations include: Upni Madad Up, a self-help community development group organized by some of the men in the

community; the local Water and Sanitation Committee; and religion-based organizations that are set up to resolve disputes within the community and to mobilize work crews for various events.

The Women's Organization forum has the potential to offer an alternative form of interpersonal support where women come together on their own to discuss issues apart from men and to press for redress of issues on which they feel strongly. In Oshikhandass, women are utilizing the programs of the Aga Khan Rural Support Program to save money "for when there is a need," "for our daughter's wedding," and "for any major purchase in the future." They also acquire credit to strengthen their productive activities including: investing in poultry, planting fruit trees, utilizing improved seeds, and purchasing livestock. These investments are more secure from male control and can be utilized to barter for other goods and services. The presence of the AKRSP Women's Organizations are drawing new knowledge systems and information to Oshikhandass, thus feeding into long-established customs which operate to tie women into their productive and reproductive roles in ways that do not hold true for men.

These organizations operate primarily as networks of support and services (e.g., credit, savings, access to agricultural inputs) which encompass the households with participating members. They also serve to establish and maintain certain relations and moral obligations of cooperation and reciprocity that help households remain resilient and viable in the face of economic crisis or hazard.

Religion-Based Support

Finally, the fourth resource of cultural and social support is found in organized religion. Both the Shi'a and Isma'ili communities work to provide social support as well as to promote good health through religious teachings, training, and texts. The places of worship in the community provide important spaces for the communication of health messages. Sermons and speeches at both the Jamaat Khaana and the Imam Bargah often center around a discourse which mediates the interpretation of health risks. Through formalized participation in religious activities, mothers and family members are encouraged in their duties to sustain the physical and moral health of the local population. Places of worship also provide important meeting spaces for discussing health issues with people from outside of the community. During the AKU/AKHS,P Diarrhea and Dysentery Research Project, for example, the Isma'ili women utilized the gardens and verandahs of the Jamaat Khaana for meetings that concerned child health in the community. The Shi'a women, on the other hand, gathered in more private spaces such as in women's homes.

Both the Isma'ili and Shi'a communities reinforce the cultural norms and values of reciprocity in the community through wider obligations of men and women to assist and provide for those facing adversity and hardship. The practice of *zakat,* or the giving of alms, is one of the principal obligations of Islam that people in Oshikhandass try to uphold in spite of resource constraints. Tithing (*wakf*) to support the activities of the Jamaat Khaana and the Imam Bargah is also regularly practiced. These two examples of local systems of support operating through the two religious

communities are important in upholding cultural and religious value systems as well as the social relations through which resources are accessed.

RISK AND RESOURCE STRATEGIES

Based on the evidence presented in the previous section, it can be concluded that an assessment of certain tangible and intangible resources helps to explain some of the differences in children's vulnerability to diarrheal disease hazard in the two study households. The form and nature of resource strategies adopted by households and by mothers stem from the recognition of the risk of childhood diarrhea and from established patterns of response to uncertainty. In addition, the dynamics of resource strategies are rooted in the social and economic realities in this place as well as the everyday contexts of farm and family life. In this way resources of livelihood and childcare are constantly changing and dependent upon season, household composition, the quality and availability of relations of support, and macro-economic policies. The strategies used to secure childcare resources, for instance, also aimed to maintain other needs such as family and community cohesion, health and well-being, and agricultural production. Each mother responded to her situation and the situation of her family in different ways and had differential access to varying types of tangible and intangible resources. Differential access to certain resources emerges as an important theme in this comparison of vulnerability in the two study groups.

In terms of tangible resources, incomes were found to be a critical factor in enhancing the capacity of low frequency households to invest in better quality housing with less crowding and more preventive health assets, e.g., sanitation

facilities and/or water filters. These investments seemed to have a positive effect on reducing diarrheal disease risk in the low frequency households. For both study groups, attempts to diversify incomes through non-farm employment and the production of fruits and vegetables were key to their ability to access tangible resources. The majority of mothers from both study groups argued that incomes from the employment of male members were the most important factors in improving the conditions of their families and their overall quality of life. However, it is notable that in high frequency households the number of adults and children dependent upon the various tangible resources was higher than in low frequency households. This difference suggests that the benefits from tangible resources are distributed "thinly" among members, thereby exacerbating the level of risk of exposure to diarrheal disease in these households. Related to this observation is the finding that because of household economic situations, mothers in high frequency households (particularly in extended family arrangements) appeared to be more constrained in the sense that they were providing for subsistence while carrying out a wide-range of domestic duties for a greater number of people.

In the cases where low frequency households had minimum access to socioeconomic assets, mothers were able to utilize other resources, namely the intangible resources of support networks or their own human capital, in ways that made up for the deficits in material resources. In the face of their husbands' unemployment, Fatima and Sharaja, for example, exercise their agency to gain certain livelihood and childcare resources either through female relatives or through the support of parents. In contrast, several mothers of high frequency households who

had poor access to tangible resources seemed to also have a lower capacity to utilize social resources to enhance their ability to meet livelihood and child care needs. The situations of Nasreen and Guldusta were particularly telling in this respect. For Nasreen, her recent move to Oshikhandass to be closer to her husband who is living and working in Gilgit left her doubly cut her off from the productive resources (particularly land) and networks of social support that facilitated her livelihood and child rearing in her place of origin.

The analysis of intangible resources presented a complex view of how human and social resources can potentially affect children's vulnerability. Several points regarding the comparison of intangible resources in the two study groups need to be highlighted. First, endowments in maternal capital, especially education levels, was found to be greater in low frequency households. This finding echos that of other studies postulating the importance of maternal education for child health. It is not clear from the evidence exactly how education enhances mothers' understanding of disease risk and their knowledge of health and hygiene except for their increased access to health messages in books or other print media. However, evidence from the study does suggest that education gives mothers clout within the household that might bolster their control over resources, decision-making, and time in ways that enhance their power and ability to exercise choices that positively affect child health. In this context of intensifying farm responsibilities for women and girls, some mothers might constrain their daughters' access to educational opportunities because of the household demands for their labor.

A second point regarding access to certain types of intangible resources is that in both study households, time was clearly a scarce resource. In order to compensate for the scarcity of time, mothers relied on networks of mutual support and childcare within and outside their homes. The development and maintenance of social support networks with family members or with other groups that share the same religious and/or ethnic identity were utilized by both groups of mothers. Mothers in the low frequency group seemed to have better support from either their mothers-in-law, older children, or inter-household and neighborhood networks in their farmwork and childcare to compensate for serious time constraints. Several of the mothers in high frequency households expressed strong statements about how their relationships with their mothers-in-law increased risk within their households. For instance, Lal Begum was convinced that her relationship with her mother-in-law contributed to her children's poor health and regular bouts with diarrhea. The discussion demonstrated how *sass-bahu* relations can operate to structure women's workloads and time in ways that can positively or negatively impact childcare.

Third, status was the most difficult intangible resource to assess and measure in the study households. These difficulties notwithstanding, I would argue that the status of women in households carries with it one of the most important sets of implications for shaping the risk environment and risk response in these households. In general terms, higher status was associated with greater control over time and labor; lower status suggested less control over time, labor, and resources. How much control mothers have within the household is an important indicator of the capacity to obtain resources and autonomy over childcare decisions. As such, women's position

within the household vis-à-vis other family members illustrated a key aspect of the dynamics of power within households that enhanced or aggravated mothers livelihood and child care work. As was seen in several cases, the dynamics of power between family members suggested the existence of inequalities and conflict in the use of resources and in the process of decision-making that potentially had the adverse effect of increasing children's vulnerability.

In both groups, the status of women as farmers and subsistence providers conferred important benefits and resources to household livelihoods. Mothers' direct contributions to food production tended to stabilize the whole household unit. The extent to which the household benefits gained from increases in women's workloads in the past 15 years outweigh the individual costs to child health remains unclear. It was evident, though, that in certain cases the priorities and interests held by mothers in high frequency households were compromised by the priorities and interests of the collective whole. Furthermore, the ways in which women's status impacts their control over the allocation of incomes gained directly through their labor either as farmers, teachers, or health workers is only partially evident from the data. When taken together, though, these preliminary findings suggest that the capacity of care giving is influenced by the micro-environments of social relations and socioeconomic conditions of the individual households.

Several of the points raised about the everyday context of livelihood and mothers' access to resources raises an important question: does the partition of the extended family increase or decrease vulnerability? Ultimately, the answer to this question relies in the individual situation of each household. In some ways family

partition was identified as introducing new vulnerabilities associated with the pressure for cash income and time constraints placed on mothers. Mothers of nuclear families who had become the *de facto* heads of households in the absence of male household members were required to rely on themselves to manage livestock, irrigation, planting, and food preparation. For these mothers, securing resources in times of sickness and crisis depended upon their social capital or what Agarwal (1990:343) describes as the "fall-back position" within the household and extended kinship networks. The range of resources available to women was expanded or limited, in part, by the ability of households to diversify their accumulation strategies and in part by own women's strategies to broaden their base of resources to support them in child rearing. Women married to casual laborers or absent husbands were unlikely to find a reliable source of income. However, they found more freedom in their subsistence work and childcare. Likewise, women who were married into wealthier households seemed to find greater financial security, yet also found it difficult to provide adequate childcare due to familial obligations and work requirements.

In conclusion, various tangible and intangible resources have been identified that help to explain the picture of vulnerability in these households. I would argue that it is not necessarily poverty associated with the lack of tangible resources that jeopardizes child health, although it definitely plays an important part. Rather, the social resources rooted in the conditions of livelihood systems and manifested within households and between households are significant components in structuring the capacities of mothers and households to respond to childhood disease risk. The

arrangements of social resources may work positively or negatively in the way in which they enhance or restrict choices that affect the risk environment. The role of social resources in the construction of children's vulnerability indicates the need for a very different conceptualization of child care in the household: one that takes account of social processes that create or break the livelihood and child care linkages and networks between individuals and households. Flexibility of resource strategies for disease risk management was crucial, and was found more often within the rubric of livelihood and family systems of low frequency households rather than high frequency households in this study.

CONCLUSIONS

This chapter has sought to identify the resources of livelihood and childcare that are critical to mothers' ability to mitigate or respond to child health risks. By comparing the circumstances of the two sets of study households, the chapter developed a micro-scale view of the types of resources that influence children's vulnerability. Two types of resources – tangible and intangible – that were found to be relevant for both livelihood and child care. Tangible resources were taken to mean material resources and intangible resources were described as the human and social resources that enhance mothers' ability to exercise options for childcare in the context of wider livelihood concerns.

The results of this investigation showed that the low frequency households had better access to tangible material resources than the high frequency households. Furthermore, it was shown that a combination of maternal capital, relations of

support, and status seemed to explain, in part, the lower diarrheal disease rates in low frequency households. It was found that the demands of livelihood work were also important components structuring childcare in both groups of study households. Mothers' time-space routines were not significantly different between the two groups; nevertheless, they provided a view into the immense restrictions on time available for childcare. Overall, what characterized care giving in low frequency households was the diversity of resources and the combination of resource strategies that were utilized to develop stocks of health assets, knowledge, information, and social support. The outcome of this combination of resources was reduced disease risk at the household scale.

The analytical focus on resources in this chapter was useful for explaining the social construction of vulnerability in these households. Importantly, the findings suggested that the capacity for care giving was influenced by the broader context of gender and generational relations and socioeconomic conditions of the individual households. How much control mothers have within the household was an important indicator of their capacity to obtain resources and their autonomy over childcare decisions. This issue of capacity with regards to how mothers cope with disease hazard is taken up in the next chapter, Chapter VII. Coping entails both perceptions of disease risk and access to tangible and intangible resources. In this chapter four narrative accounts of child death reveal important insights into coping and the relations of response to severe childhood illness.

CHAPTER VII

"ZINDA NAHI HEI"[1]: DEATH AS THE EXTREME OUTCOME OF BEING VULNERABLE

INTRODUCTION

If the child was an adult we would be able to say, but it is difficult to know why children die.

– Rasmin Begum

Mortality is the most extreme outcome of being vulnerable. It is in infant and child mortality that the social, economic, and political circumstances that influence children's vulnerability intersect in profound and disturbing ways. This chapter is devoted to uncovering the hidden factors that underlie infant-child mortality. The sequence of particular loss-of-life events are brought to light through mothers' accounts of their children's untimely deaths. These cases of the "no longer living," which on one level can be defined away as diarrhea-related, are revealed to be the outcomes of much wider problems of gender inequities and relations of coping with childhood illness.

The connections made in this chapter build upon the foundation of the previous two substantive chapters addressing local perceptions of diarrheal disease

risk and the household-level contexts of tangible and intangible resources that influence the risk environment. The themes of risk perception and access to the resources for livelihood and care developed in these two chapters have laid the foundation for analyzing the complex interaction of factors that result in child death. By looking at the negative outcomes of child health crises, i.e., child death, I add another dimension towards understanding children's vulnerability. Infant and child mortality is understood to reflect a combination of social, biological, economic, political, and environmental factors (Mosley and Chen, 1984; Wallace and Giri, 1990; Young, 1995). Previous studies have shown that a range of factors including gender ideology (Das Gupta, 1987; Khan and Sirageldin, 1977), women's autonomy (D'Souza, 1997), conditions of poverty (Lerer, 1998), and problems of health care delivery (Andes, 1989) contribute to infant and child mortality in the developing world. An in-depth assessment of the range of factors contributing to infant-child mortality in Northern Pakistan is beyond the scope of this chapter. Instead, this chapter focuses on the specific ways that gender ideology and relations of coping with childhood diarrhea contribute to disease outcomes.

In Pakistan, infant-child mortality rates are usually reported statistically and concentrate mainly on the macro-effects of underdevelopment and the poor health status of the population. Accurate registration of child deaths is meager in rural areas, and child deaths related to diarrhea often go unregistered in the mountainous northern part of the country. Depictions of the technical side of diarrheal disease and its treatment emphasize a picture of mothers providing oral rehydration therapy (ORS) to combat this major cause of death among under-five children. Yet, the very human

side of how and why children die remains little discussed. The four narratives recounted by mothers in this chapter provide a view into the not-so-visible side of how under-five children in one of the most well-facilitated and accessible villages in the Northern Areas die of diarrhea, even in spite of the medical care sought by their parents. The mothers provide a direct account of how diarrheal disease affected their children and how they negotiated and responded to the terms of healing and care in an attempt to secure their children's survival. Additionally, these case histories reflect the details that remain salient to the mothers themselves in the many months following the deaths of their children (Lerer, 1998; Lerer et al., 1995; Marsh et al., 1993).

The chapter considers two main themes: one, the role of gender ideology in shaping infant and child mortality, and two, the negotiations and relations of coping with severe child health crises. In probing the relationship between gender ideology and infant-child mortality, the chapter seeks to document a partiality for male children in Pakistani society and to trace its consequences by examining the interrelated factors of: parental preferences for boys, and evidence for the differential treatment of girls. The second theme concerns how coping with severe child health crises is shaped by gender and the constraints of poverty. For both men and women who participated in this research, the short and long-term impacts of diarrheal disease on children were perceived to be serious concerns (Chapter V). Ultimately, however, men are not responsible for dealing with the severe diarrhea episodes of their children unless the decision is made to seek treatment outside the home. At the household scale, traditional gender divisions of labor ascribe child survival-related work to

women (Chapter VI), Hence, women confront and interpret the crises in child health quite differently than men. In cases where women have little decision-making power or control over resources, their attempts to negotiate the terms of care may be futile. These situations are made even more complex when families are living under economic duress. As such, health crises, as in the case of severe childhood diarrhea, create a situation in which the gender disparities and circumstances of poverty underlying everyday life are further compounded. As one might expect, and as several of the case histories reveal, these issues surrounding care and coping in the home are often invisible to health care workers, physicians, and development practitioners because they take place within the private *char diwar* (four walls) of the home.

The chapter begins with a description of infant and child mortality rates and factors that have been postulated to underlie these figures. This section highlights two key points that are important for the analysis of the case histories: one, the role of gender ideology in the construction of mortality rates, and two, the understanding that the causal factors of death, particularly in a setting where all children who have diarrhea do not die, are inherently complex and place-specific. The causal factors of mortality provide one picture of deprivation, yet they are limited in the extent to which they can capture the reasons for why and how differentials and extreme health deprivation exist. To broaden this picture, I provide mothers' own accounts of child death in the second section to highlight the factors and conditions shaping the construction of vulnerability at the household level. The household emerges as an

important site where factors such as exposure, illness episode, parental care, decision-making, and loss of life interact.

Two accounts of child death – Afsana's daughter and the death of Zenab – provide a "bottom-up" view of how gender processes and discrimination influence both girls' vulnerability and mothers' coping capacity. These accounts of child death suggest the many ways that gender politics constrain women's range of care and coping, thereby making them dependent on male decision-makers and men's incomes and weakening their position as child health care providers in the household. Two additional experiences – the deaths of four of Munissa's children and the death of Jasmin's son -- are presented in order to show an additional set of circumstances surrounding geographical isolation, economic impoverishment, and shortcomings in conventional health care provision that constrain the range of coping options available to mothers in this area. While I aim to avoid universalizing the experience of children and women in this context, I hope to offer some possible explanations for the observed patterns in the third and fourth sections of the chapter. In many ways these circumstances of child death reflect and reinforce the overall low status of women and girls and children more generally in Pakistan. The chapter concludes with some speculations about the future prospects for addressing infant and child mortality in Northern Pakistan.

UNDER-FIVE MORTALITY IN PAKISTAN

There is a vast body of literature addressing infant and child mortality in the developing world. Infant mortality rate is defined as the number of deaths among

infants under the age of one per 1000 live births. Likewise, child mortality rates are defined as the number of deaths among children between the ages of 1 and 4 per 1000 live children. In general, mortality rates are tabulated for the purpose of counting and measuring child health (Scheper-Hughes, 1992). Child survival programs are then designed to lower the death rates, and relative gains in child health are assessed by measurable outcomes such as how many ORS packets distributed, vaccines injected, number of pounds gained, or infant deaths per 1,000 live births.

These mortality measures are often taken as indicators of other aspects of poverty, vulnerability, and levels of health care of populations or of geographic areas, drawing attention to the level at which basic needs are being realized (or not realized) within a country (Gelser, Bird, and Oljeski, 1997). Further, from a population growth standpoint, a high fertility rate in a country is, in part, attributed to the high infant-child mortality rates. Some scholars have suggested that infant-child mortality rates are social constructions, or as Armstrong (1986) puts it "social inventions," that mask the significant underlying social forces and divisions based on class, age, gender, ethnicity, age and religion that contribute to these rates.

Infant and child mortality has been the topic of inquiry in South Asia since the rule of the British Raj. In British India, for example, studies on infant mortality were undertaken in the early years of this century (Sathar, 1987b). Infant and child mortality makes up a large percentage of the total deaths per year in Pakistan and South Asia (ul Haq and ul Haq, 1997). A common problem in trying to construct a picture of infant and child mortality in South Asia is that cause-of-death figures are not readily compiled or available. A second major problem of mortality statistics in

Pakistan, as well as elsewhere in South Asia and the developing world, is their lack of reliability due to the limitations of the demographic data upon which they are based (Sathar, 1987a). When mortality statistics are compiled, they are usually based on census data or cross-sectional surveys. In the case of Pakistan, many of these surveys were undertaken in the 1960s and 1970s (Sathar, 1987a) and therefore do not depict the present-day conditions and circumstances in health and welfare.

Large-scale surveys have not been conducted in recent years in Pakistan, and some of the available vital statistics for the country are over ten years old (Federal Bureau of Statistics, 1987); however, in 1998 a census was undertaken by the Government of Pakistan that should soon provide data on the present situation. Another issue is that there are few studies that are nationally representative (Sathar, 1987a). Researchers at the Pakistan Fertility Survey have established an overall decline in infant mortality rates from approximately 200/1000 in 1905 to 125-140/1000 in the 1960s (Alam and Cleland, 1984). Location in urban areas, maternal education, and spacing between children were some of the demographic variables found to be associated with the lowering of mortality levels (Cleland and Sathar, 1984).

A large number of factors have been suggested to explain high infant-child mortality rates in South Asia and in other parts of the developing world. For example, Mosley and Chen (1984) constructed an analytical framework for analyzing the complex factors contributing to mortality. Their framework is an attempt to categorize the relevant factors into biological, environmental, social, economic, behavioral and cultural determinants at individual, household, and community levels

and to identify the interactions between these factors and levels. While the specific cause of death may be attributed to diarrhea and dehydration, the actual determinants of infant and child death in a population or geographic area are much more complex and multi-faceted (Gesler, Bird, and Oljeski, 1997). A wide range of factors that have been postulated to have an effect on under-five mortality can be broadly fit into the following categories: maternal education (Barrett and Brown, 1996; Caldwell, 1986; Caldwell and MacDonald, 1982); the status of women including women's autonomy (D'Souza, 1997; MacCormack, 1988); knowledge and beliefs about disease causation (Bentley, 1988; Coreil and Mull, 1990; Eickmeier, 1989; Malik et al., 1992); problems related to medical care delivery and public health resources (Andes, 1989; S.R. Khan, 1997; Paul, 1991; Zaidi, 1985); gender differentials in child care (Das Gupta, 1987; Koenig and D'Souza, 1986; MacCormack, 1988); breastfeeding, birth spacing and birth order (Fauveau, 1994; Muhuri and Menken, 1997); malnutrition (Mitchell, 1997); political economy (Gesler, Bird and Oljeski, 1997); environmental health conditions (Briscoe, 1993; Cairncross, 1990); and hygiene behaviors and practices (Bentley, 1992; Boot and Cairncross, 1994). Four risk factors – gender differentials in child care, the status of women, socioeconomic conditions of families, and interactions with health services – are of particular relevance to this chapter.

Gender mortality differentials in the context of infant and child mortality refers to a heightened rate of female to male deaths. This pronounced pattern in mortality rates based on gender has been documented in South Asia (Das Gupta, 1987; Koenig and D'Souza, 1987; Razavi, 1997). In fact, sex differentials in mortality drew the attention of British demographers as early as 1901 when census data showed

high sex ratios in the Indian subcontinent, particularly in North West India (Sathar, 1987b). The gender differentials reflected in infant and child mortality rates raise questions about the relative treatment of children during early childhood, and hence, the relative vulnerability of girls and boys. As Razavi (1997:51) notes, "gender differentials in infant and child death rates can capture an important dimension of relative female deprivation." This differential has been attributed to a number of factors, particularly practices of selective neglect and deprivation towards female children. Scholars have pointed out that this neglect is rooted in the patriarchal culture of South Asian society that places greater social value on boys because of their economically productive roles and the systems of patrilineal and patrilocal inheritance, marital, and rights systems (Das Gupta, 1987). As a result, parents and families do the upmost to ensure that boys receive adequate attention, food, clothing, education, and health care often to the disadvantage of their sisters.

To what extent do patterns in the child mortality figures for Pakistan suggest deprivation along gender lines? The figures indicate a degree of disadvantage in the survivorship of girls under five years of age. Theoretically, under equal conditions, mortality rates for boys and girls should remain the same after the first year when children begin to take more solid food. The fact that age-specific mortality rates show that more girls than boys die after the first year of life is indicative of this discrimination. Between 1976-1987 in the 1-4 age group, the mortality rates were higher among females than among males (Federal Bureau of Statistics, 1987; Hafeez, 1993). The result of gender differentials in mortality is a sex ratio of more males to females. Sex ratios provide an approximate measure of the relative mortality of boys

and girls.[2] In rural areas in 1987, for instance, the sex ratios among the 1-4 year age group suggests lower life chances of girls relative to boys (male/female ratio of .90). This ratio means that the odds of survival are nine girls for every ten boys. In 1998 the sex ratio for Pakistan as calculated as the number of males per 100 females was 107 (UN Statistics Division, 1998).

Published data on infant and child mortality rates for the Northern Areas is very limited. In the Northern Areas the infant mortality rate (IMR) is estimated at 100/1,000 in areas covered by primary health care (PHC) services and 150/1,000 in uncovered areas (Rasumssen et al., 1996). It is important to keep in mind that infant mortality rates in PHC and non-PHC areas vary widely. For example, in 1997 an IMR of 52/1000 was recorded in one area of the AKHS,P primary health care program (AKHS,P, 1997). Several surveys have been conducted that provide some indication of levels of under-five mortality and morbidity in specific regions of the Northern Areas (Karim and Aqil, 1986; Islam, Khaliq, and Sadruddin, 1988; Jadavji, 1990).

The Punial Valley survey (Karim and Aqil, 1986) suggested that 1 out of 6 infants born in this area die before they reach their first birthday. This study included 2289 households representing a total of 20,555 individuals. Based on their study sample, Karim and Aqil (1986) calculated an infant mortality rate of 158 per 1000 live births. The main causes of death before the age of one they identified were infectious diseases (32%) and diarrhea/malnutrition (26%). For the one to four age group, their evidence suggested that the mortality rate was lower, but diarrhea/malnutrition was listed as the cause of 59.4% of deaths in the 1-4 year age group. They found that 10% of children under-five years of age were malnourished,

and they also concluded that children with the most educated parents experienced lower levels of morbidity with reference to malnutrition rates and low birth weights.

With regard to deaths related to diarrhea, Karim and Aqil (1986) calculated that in 1986, 3,000 under-five children in the Northern Areas die each year as a result of diarrhea and malnutrition. They found that diarrhea episodes were highly correlated with water supplies, household sanitation, and housing conditions, and found that mothers' education was important in improving the probability of child health and survival. Furthermore, they concluded that in Punial Valley even when mothers were educated and knowledgeable about child health, they may not be able to control or influence the environmental factors affecting diarrhea. Since that time, more recent data has found that even though infant mortality rates have decreased in some areas, the proportion of deaths due to diarrhea remain consistent (AKHS,P, 1997). There is no statistical data, however, on the relative life chances of girls and boys. However, health care practitioners working in the region suggest that a similar picture of relative female discrimination continues to persist (Burslam, personal communication, 1998).

A comparison with data from other South Asian countries is useful for putting female disadvantage in Pakistan into a regional perspective. Despite slow declines in mortality levels in the South Asian subcontinent, the Indian and Bangladeshi mortality figures for infants and children are feminized as well and suggest a high level of discrimination in relation to international standards (Fauveau, 1994; Koenig and D'Souza, 1986; Razavi, 1997). Sathar (1987a) describes the persistence of these

sex differentials as a "peculiarity" of the region resulting from the culturally ordained preferences for sons over daughters.

Other factors influencing infant-child mortality in Pakistan that are central to this analysis are women's status as it relates to the gendered relations of care, the conditions of poverty, and interactions with health care providers. When it comes to care and treatment during a diarrhea episode, the health outcome often reflects the very gendered processes guiding the "choice of action" in response to a child's condition. These actions often reflect women's autonomy and control over decision-making, and the gender relations of resource access and allocation. Policies and programs to reduce children's vulnerability—to make child health more secure—are not the same ones addressing the gender aspects of access to resources and poverty. Nor do they address the gender relations and structures of power within households that are central in shaping how families cope with child health crises.

The gender relations of health-seeking also intersect with the conditions of poverty of households to further influence child survival. Poverty is likely to influence mortality directly through its effects on access to food, housing, medical care, potable water, sanitation, and education. Sathar (1987a), in her investigation of root causes of the poor chances of survival of children under five in Pakistan, found that poverty combined with childbearing and child-rearing practices, the sparse distribution of health care, and the lack of individual attention and care given by parents were major determinants. These findings were based on a survey drawn from the Fertility Module of the Population, Labor Force and Migration (PLM) Survey carried out in 1979 with data on 54,000 children. She concludes that while household

income and economic status between urban and rural areas were undeniably associated with enhancements in the chances of survival of young children, she notes that poverty alone is not the entire explanation of high levels of mortality in Pakistan (Sathar, 1987a). Interestingly, Sathar (1987b) also points out that demographic data suggests that there has been a narrowing of the gap between males and females in Pakistan in recent decades.

Another factor that is important for this analysis of infant and child death is parental interactions with medical care and health facilities. Some studies have noted that the availability and use of health services have a direct effect on the morbidity of infant and children (Paul, 1991). While this may be true in many cases, recent reviews of the impact of the availability of medical services suggest that proximity to qualified physicians of Western medicine or the number of medical facilities may not affect the risk of death of infants and children (Scheper-Hughes and Sargent, 1998). As Andes (1989) notes, even when a family has the resources to take advantage of medical services, death may not be avoidable. Structural constraints such as the lack of drinking water, sanitation, economic opportunities, and social indifference form what Andes (1989:387) calls a "network of constraints" that can override the potential benefits that access to medical facilities can have on child survival. Added to the "network of constraints" are social barriers (e.g., class, gender, status, religion, age) that may prevent people from using a health facility (De Zoysa et al., 1984). This is certainly the case in the social context of purdah where women have a difficult time using services because of inadequate transportation or because their mobility outside the household is highly constrained.

Another factor is that health care delivery systems in South Asia are extremely strained by lack of resources, equipment, and personnel. These strains on care in such facilities can result in a sort of indifference to client's health needs. Furthermore, a number of studies have critiqued conventional medical services for inappropriate treatment, over-prescription of medications, excessive use of antibiotics and anti-diarrheals when they are not necessary, and cursory directions that promote the misuse of drugs (Bentley, 1992; Hunte and Sultana, 1992; Mull and Mull, 1988).

Ultimately, the infant and child mortality data for Pakistan and the determinants of the mortality rates offer a limited view of under-five survivorship at the ground-level. To understand how female deprivation, the status of mothers, the conditions of poverty, and interactions with conventional medial care effect mortality, I turn now to mothers' accounts of the death of their children. Reference to these factors and their complex interactions will be explored through the two themes of the gender dimensions of children's vulnerability and the social relations of health care.

DIARRHEA AND DEATH: FOUR CASE HISTORIES

To address the issues raised in the previous section, I present four case histories of childhood diarrhea that resulted in death. These cases capture the complexity of the extremes of children's vulnerability and are indicative of the challenges mothers' face in their attempts to sustain the lives of their young children. These four cases of child death are taken from a set of in-depth interviews with mothers (a total of ten) who had experienced an under-five child death in Oshikhandass during the previous year of my fieldwork.

Child death is a sensitive and painful subject to explore with mothers. It is a subject in which subtle and direct issues of poverty, deep-seated gender differences, women's autonomy, biased parental care, and relations with health services are embedded. Much like the under-estimation of illness among children, child death often goes unreported and "un-discussed" at the local level. The level of patriarchal domination that prevails in rural Northern Pakistan further dissuades mothers from openly discussing aspects of child health crises in spaces other than their homes, gardens or fields. It is in domestic sites of care and coping that mothers find the space and relative freedom to relate their stories of ailing children, their treatment-related actions, and their negotiations with family members and health care providers over healing and care-giving. The following statements reveal important aspects of the terms and relations of response to severe diarrhea episodes at household and community levels.

Case One: Afsana's Daughter

Afsana is a Shina speaker who is originally from a Shi'a village in Bagrote Valley. She has never attended school. While she said that she did not know her age or her age when she was married, I estimated that she was 25 or 26 years old in 1998. I based this estimation on the information she provided me about her size and physical development at the time of her marriage, and the fact that she had been married for nine years. Afsana is married to a teacher at the government-sponsored boys' school. She now lives with her husband's extended family, including her brother-in-law's wife and children and her in-laws. She has given birth to five

daughters, one of whom died and was the subject of the following discussion. The ages of her girls were 9, 5, 3, and 1 ½ years at the time of the interview.

Sarah: Can you tell me about the events surrounding your daughter's death?

Afsana: My daughter died last September, during the *sharo* [post-harvest] season. She was 6 months old. She died of dysentery. I think it was dysentery because she had blood in her stools and her stomach hurt. She was very weak and vomiting. Her condition was serious, and she needed treatment. This daughter was a twin. Last year at the same time both of the twin girls were sick. The other one had pneumonia. I took the one with pneumonia to the hospital in Gilgit and had her admitted there. For 3 days I stayed with the baby while she underwent treatment at the hospital. Her condition was very serious. She got better, and when I came home with the baby from the hospital I found the other twin at home in a very bad state. Her condition was much worse than when I left for the hospital a few days before. My mother-in-law took her to the dispensary, but she still died.

Sarah: Why did you not take her to the hospital at the same time as the other twin if her condition was serious as well?

Afsana: When the twins became sick, I wanted to seek medical care for both. Everyone living in the house knew that the two girls were sick. I first told my husband that they needed treatment. My husband looked at the girls and told me I could take the one with pneumonia and not the one with diarrhea to the hospital. He said the one with dysentery would be fine so he prevented me from taking her to the hospital. When I came home from the hospital with the one twin, I wanted to take the other to the hospital because she was very sick. I pleaded with my husband for permission, but he refused to let me take the girl to the hospital. He told me that I could only take the girl as far as the dispensary. So my mother-in-law took her to the dispensary. At the dispensary the dispenser said the child was not very ill and gave my mother-in-law a packet of ORS and told her to make the girl drink it at home. He said she would be fine. A few hours after she came back from the dispensary she died.

Sarah: Is there a financial reason for why you were not allowed to treat her?

Afsana: There was not a money problem in our house. The decision was made to treat only one and not the other. My daughter died because we did not treat her disease. We did not have her treated. If we had taken her to the hospital in the beginning of the disease then she would have lived.

Sarah: How can you prevent a similar situation from happening in the future?

Afsana: In the future how can we give a good upbringing? All of the time we are stuck in our work and are busy. How can we protect their health? In the morning we only have time to wash their faces and hands. Besides this we do not have time to keep them from sitting in the dirt and to keep them clean. The other children are often sick with colds, diarrhea and pain in their stomachs. My husband scolds me because I have only given birth to daughters, and he wants a son.

At this point during the conversation, Afsana proceeded to tell me more about what happened at the time the twins were born. Afsana had already given birth to three girls before the arrival of the twins. She had barely started nursing the babies when her husband sent her off to her parents' house; he did not permit her to take the infants with her. In her absence, the mother-in-law bottle-fed the twins with cow milk for the first weeks of their lives. After approximately three months her husband traveled to Afsana's parents' home to bring her back to the village. She did not say why he waited that long to bring her back to Oshikhandass. When she arrived she found her babies in a terrible condition and very weak and sick. She engaged in an open conflict with her husband and mother-in-law on this issue. As Afsana put it:

> I asked them how they could let the babies fall into such a bad condition. I was very worried and scared. Now I want to meet with the [lady doctor] in Gilgit to get some special medicine which will make me have a son. My husband does not like his children because he only cares about having a boy. Do you have any medicine which will give me a son?

In Afsana's discussion of her daughter's health, her narrative highlights her participation in a struggle for control and decision-making power during a crisis which was only exacerbated by her impaired ability to provide proper care. In this case, her child loss story begins with diarrhea and dysentery that needed to be medically addressed and moves on to her tense relationship with other powerful household decision-makers, namely her husband and mother-in-law. These

individuals are described as controlling the care-giving situation and in the process acting to deny access to care. The position of Afsana in terms of her gender and status within the family greatly affected the outcome. Towards the end of her account, she did not engage in a politics of blaming; rather, she was more resigned to take action towards gaining greater respect and security within the family system through the birth of a son.

Case Two: The Death of Zenab

Ameena, another Shi'a mother in the village, is in her early forties. She has given birth to thirteen children, ten of whom have survived. Her oldest son is twenty-three and is enlisted in the Pakistani army in the distant port of Karachi. The other children's ages range from 22 to 6 years of age. Ameena, her husband, and children moved to the village from a distant valley. Her husband is employed as a water supply system operator in a village that is a three hour walk away up a neighboring valley. He earns 3,000 rupees per month (at the time of interviewing US$1 = 47 rupees). With this money they support their children, Ameena's mother, a grandchild, and a brother.

Sarah: How long have you lived here in this village?

Ameena: Five years ago my husband bought 10 kanals of land [approximately ½ of a hectare] and we moved into this *katcha* [simple or unrefined] two-room house. We had a lot of land in our old village, but there was no water to irrigate the land. Here the water is available at all times.

Sarah: What were the circumstances surrounding your daughter's death?

Ameena: In 1996 Zenab died at the time the wheat was ready to be harvested. When she first became ill, the Worker had come to my house to take a stool and water sample.[3] The Worker saw Zenab and told me that she was very sick and needed to be

taken to the dispensary. Around this time she had a lot of diarrhea and was vomiting. My husband was not in the home when they came for a visit. They told me to go with them in the car to see the doctor. I decided to go with them to the dispensary. In the car were two men -- the driver and the [microbiologist]. Since I was not the only woman I thought it would be alright for me to ride in the car to the dispensary with my daughter, even though I did not know these men. The dispensary is a long way from my house, and it would have been difficult for me to carry her to the dispensary by myself. After the doctor saw Zenab at the dispensary, they brought me home in the car. My husband later heard that I went in the car to the dispensary. He was very mad that I went in the car with two strange men, and he scolded me severely. He forbade me to go in any car without him. I explained that these were men working for the Project and that the Worker was with me. Our daughter was very sick with diarrhea. But he was very mad.

Later Zenab became very sick again. My husband was away working and was not present to give me his permission to take the child to the hospital in Gilgit. I knew I could not go without asking for his permission. So instead I decided to carry her to the dispensary myself. This second time to the dispensary my oldest son accompanied me. She became very sick with diarrhea and half her body went numb. I was very worried and sent a message to my husband telling him that Zenab's condition was bad, and he needed to come quickly. He came home three days later. He was mad because I had already taken the child to see the doctor at the dispensary. On the day he came home, we went to the hospital in Gilgit and admitted her. She died in the hospital one or two hours later.

Sarah: Why do you think Zenab died?

Ameena: When the child became very sick, we did not quickly seek medical treatment. That is the reason she died. I took great care in keeping her clean and out of the dirt. I gave her ORS. This was my youngest child. I still have her picture and until now my heart has been thinking about what happened to her.

Sarah: Why do you think your husband would not allow you to go the hospital even when the child's condition was critical?

Ameena: This is our *mazhab* [religion]. Women must obey men and ask their permission. Perhaps if my husband was educated, he would not be so hard on me.

During those critical weeks while Zenab was sick, Ameena left half of her land unplanted. She felt she did not have time to cultivate any wheat while the child was sick. She does the bulk of the family's farm work herself, and during this time there was no one else available to take up the work while she was caring for the girl.

In a culture of scarcity, leaving arable land unplanted despite water availability is a social stigma and a veritable sign of family distress. Without their own wheat harvest, the family later faced additional expenses when purchasing wheat from the bazaar. In addition, the trips to the dispensary and the hospital contributed additional and unexpected costs totaling 2,000 rupees, which was equal to two thirds of Ameena's husband's monthly salary at that time. At the time of the girl's sickness, Ameena's family had no money to cover these medical expenses. They eventually had to borrow the money from a brother and an uncle and reimbursed it at a later time.

Case Three: Munissa's Four Deaths

Munissa is a Shi'a woman who lives alone with her four children. Her husband is in the business of buying and trading timber and spends most of his time traveling to Baltistan, Gilgit, and to southern parts of the Northern Areas. In his absence, she is responsible for all of the farm tasks including as she put it, "the work that men do," such as irrigating, plowing, and sowing the wheat. Her family has a small amount of land, but she does not know how much. Her children are between the ages of 12 and 2 and include: a 12 year old son, a 9 year old daughter, a son who is 7 (who was followed by three boys who all died), and a son who is 2 years old. After this last son, a girl was born who died in 1997.

Munissa: Four of my children have died because of diarrhea. I am 28 years old and was married when I was 11. I had my first child at 12. I have had 11 pregnancies. Two were miscarriages, four are living, four have died and one is in my stomach right now. The last girl died when her fifth month had come to an end. I gave her a lot of Nimkol, but this was not the salty Nimkol because she did not like the taste and would not drink it. I gave the *shukar-wallah* [sweet type] Nimkol. It is more expensive in the bazaar, but at least the child drank it. And she drank a lot of it. I

bottle fed her just like the other 3 children who died before her. My body does not have enough milk for the babies so I had to purchase milk from the bazaar.

When one of my boys died, I took him to see Dr. Madad who told me I needed to eat more foods with *taqat* [power] because I was very weak. I thought about where I would get these types of foods since I had no money for eggs, meat, and milk. Dr. Madad sent me three cans of ISO milk powder for the baby, but he drank this very quickly. After the three cans were gone, Dr. Madad did not send any more of this good milk. This milk is expensive. One of these boxes costs 220 rupees and only lasts 3 days. I was mad that Dr. Madad did not send any more milk. The baby was weak. When the Workers came, I would not let them weigh him because I was so angry at Dr. Madad. Where was I going to get the money to buy this milk?...

When the girl was sick, I went to the hospital in Gilgit and to the doctor there. I did not go to the dispensary in Oshikhandass because they just look at the child, write a *purchee* [a prescription] for medicine. I buy the medicine and give it, and it does nothing. We end up throwing the medicine away.

Sarah: What happened to your daughter?

Munissa: The girl was healthy for one month after birth. Then she had diarrhea until the end of her fifth month. I gave her Nimkol.

Sarah: Who decided to take her to the hospital?

Munissa: My husband and I made the decision to take her to the hospital. The last seven days of her life she was in the hospital and died in the hospital. At this time she was only taking Nimkol because she couldn't drink milk.

Sarah: Why do you think she died?

Munissa: In my opinion, since I did not make a *taveez* [amulet] for the child she died. For all of the children we made *taveez*. Sometimes they cost 500 rupees. It is very expensive to have children. There are the expenses for the baby, for food, and for *taveez*....

The *taveez* she is referring to here is an amulet which is worn by the mother during the last month of pregnancy. When the child is born, the *taveez* is put around the child's neck for protection during the early stages of its life. After mentioning this type of *taveez*, Munissa pulled over her 2 year old and lifted up his shirt. Around his neck was the same *taveez* she had worn when she was pregnant with the child. Since

his birth the boy has been wearing this *taveez*. This type of *taveez* is intended to protect the child from *nazar* (evil eye) or a *jinn* (demon) which is believed to come and sit above the mother's head during pregnancy and then above the child's head after its birth. Because of the cost of *taveez*, Munissa said she stopped making them for her children because even one of her children who wore a *taveez* died. At the time of the interview she was pregnant, but said she had not made a *taveez* for the pregnancy.

Together, Munissa and I calculated the approximate costs of the sickness and death of her four children:

First child	–	5,000
Second child	–	9,500
Third child	–	8,500
Fourth child	–	8,000
Total	=	31,000

When I mentioned the final total of 31,000 rupees, Munissa said with surprise, "We could have bought land with this money." The total rupees included the medicines and hospital care. She said this does not include how much they spent on the cost of the funeral and the money required to serve tea to visiting friends and relatives who had come to their house for prayers. She said they had to borrow the necessary money from the owners of the business in which her husband is working.

Case Four: Jasmin's Son

Jasmin is a 35 year old Isma'ili woman. She is uneducated, and her husband has a primary education. Their monthly income is 300 rupees per month. They have 50 kanals of land which she said is a lot of land in Oshikhandass. She is the mother of

6 children. The eldest son is 20. The other children are 16,13, 9, 8 and 5 years old.

The last child she gave birth to died.

Sarah: You were telling me about a child who died in his infancy. Will you please tell me more about him.

Jasmin: He died when he was 8 months old.

Sarah: What was the cause of his death?

Jasmin: He was suffering from cholera and diarrhea. I first went to the khalifa for a *taveez* and *dua* [prayers]. Then I took him to the Gilgit hospital. The doctor admitted him for six days. He improved there, and we brought him back home. But after three days he again fell ill. He could not drink milk because he suffered from colitis. Again we brought medicines. The doctor gave oral drops, but he did not recover. What he took, he vomited, and there was diarrhea. I gave him breast milk, but he always vomited. Then we took him to the hospital again. He was admitted for a few days. The doctors gave him ORS and other medicines, but he did not recover and died on the midnight of August 15, 1997. So we brought his dead body home.

Sarah: How much did you spend on his treatment?

Jasmin: We spent money on medicines such as ORS, glucose drips, syringes, etc.

Sarah: Where did you get the money for the treatment?

Jasmin: My husband borrowed the money from relatives. Later on we returned it from our limited income, as my husband gets a small amount of pension [from his military service].

Sarah: When did you realize that this case was serious?

Jasmin: When I took my child to Gilgit hospital the last time, his condition was worse. So I realized that he could not survive any more. His feet were swollen. He could not live. He could not digest anything. I told all of this to my husband. He thought [his condition] was due to an overdose of ORS.

Sarah: In spite of treatment, why do you think he died?

Jasmin: He did not eat anything. Whenever I gave him milk he vomited, and he became very weak. So due to weakness he died.

Two months later, on April 23, 1998 Jasmin was present during an interview I carried out with her sister. On this day she opened up much more about her son's death even though I did not initiate the conversation. She said the cause of death was *budnazar* (evil eye). She described her son as a beautiful, healthy baby. On the day of Sal Gaira (Hazrat Imam's birthday) many people was gathered in the Jamaat Khaana for a program, so she took the baby with her to the Jamaat Khaana to participate in the event. Everyone was excited to see her baby. She said:

> Everyone was picking him up and carrying him around, holding him and passing him from person to person. He was seven months old at this time. Right after this he became sick with diarrhea and vomiting.

Because he suddenly fell sick, Jasmin believed her son had been struck by an evil eye. She and her husband ended up taking him to the hospital in Gilgit after seeing the khalifa which she mentioned in the excerpt of the interview noted above. At this time the doctor said her son needed ORS and that was all. After 6 days her son was better so they brought him home. Then three days later he became ill again. They went back to the hospital where he was admitted again. She added:

> He was very weak and having trouble breathing because he had lost a lot of strength due to the diarrhea and vomiting. The doctor said he had a chest problem and prescribed ORS and Ventoline. He became very sick in the hospital. I asked the ward if he could be put on an IV. The ward agreed after seeing how dehydrated he was. The ward called the doctor to see the baby. He pinched the boy on the arm and stomach like this [gesture of pinching hard]. He became mad. 'Why have you called me here for this child?' he said. He was really mad and said we were wasting his time. The doctor refused to put him on an IV. He couldn't drink any of my milk. He couldn't drink ORS. They had tubes in his nose to feed him. He died at night. We pulled out the tubes from his nose and threw them away.

The case of this family was a bit different from the others. Jasmin and her husband had the security of their own land, a pension, and extensive family networks to help them provide for the survival needs of their children. These advantages, as well as their early recognition of the signs of distress motivated Jasmin, with the support and encouragement of her husband, to seek professional care. Yet, in spite of this effort to gain outside medical assistance, she was convinced that her son did not receive the appropriate treatment.

Summary

In comparing these four cases, several similarities between the circumstances of child death are evident, and important differences emerge as well. The household contexts, economic position, mother's autonomy, and relations of coping are quite different in all four cases. In the first two cases, gender undoubtedly played a part in the responses to the diarrhea episodes of the young girls. Further, gender was a factor in shaping the relations of care-giving and the mothers' ability to influence the decisions regarding the treatment of their children. In the second two cases a different picture emerges that suggests how the intersections of poverty, geographical location, and social class/position influence relations with health care providers. The circumstances of these child deaths reveal that mothers, and parents more generally, are immobilized by intersecting constraints on their access to tangible and intangible resources that affect their capacity to cope with severe childhood diarrhea.

These case histories are illustrative of the circumstances surrounding infant-child death in Oshikhandass and bring to light some of the similarities and differences

between the chronologies of these events. From these mothers' experiences an understanding of the complexities of outcomes of child health crises and coping can be built. They also serve to highlight the relationship between gender ideology, resources, and relations of coping that are the topics of the next two sections.

GENDER IDEOLOGY AND COPING

How do we make sense of the above cases of child death and the constraints that mothers face in care-giving? These mothers' accounts reflect the conditions under which child death is produced. Their narratives of the circumstances and conditions of care convey highly politicized views about vulnerability and stress the cultural and structural constraints placed on the care provided to young children. In this patriarchal social setting where men are recognized as the primary decision-makers and family providers, the narratives reflect a perceived lack of power regarding the care and treatment of children. These narratives make it clear that the transformative and creative capacities of women to cope with child health crises rests in their reliance on social relations.

Responses from interviews conducted with the key informants in the village highlighted the ways in which mothers are expected to conform to certain norms regarding women's mobility even during severe cases of diarrhea. These responses indicate that, "yes, some mothers are not allowed to even go to the dispensary," and "if they leave the house they are in full purdah," implying restrictions on where and how they can move about within the community. Finally, in a context of scarce material resources such as income, parents may have no choice but to differentially

allocate health-related resources among children, thus providing the context for a system of preferential treatment to emerge. These issues help to explain part of the picture, yet what explains the differential treatment specifically directed towards girls?

One issue noted by Razavi (1997) to helps to explain gender differentials revolves around proximate determinants such as gender biases in access to food and medical care which can result in mortality differentials. There is detailed evidence from South Asia that the social investment in boys means that they receive more attention, food, and education than girls. Studies from Matlab in Bangladesh provide further evidence of the better nutritional status of boys relative to girls (Fauveau, 1994). In the case of the twin daughters noted above, this preference for a son manifested in the severe disappointment felt by the father when two more daughters had been born. The desire on the part of parents and families to have a son, or preferably a minimum of two sons, has resulted in high fertility rates. As a result, a substantial portion of women's lives in Oshikhandass is spent in child-bearing and child-rearing. When mothers of the two sets of study households were asked to give what they think is a desired number of children, the average number was 4.5. However, the average number of births born to these 30 women at the time of the interview was 5.4 and over some of the mothers' "ideal" number of children.. Some of the comments regarding the "ideal" family size included:

> If I had four children, this would be good. But I have six.
>
> We need two more sons.
>
> If three boys had been born in the beginning, this would have been good.

With regard to the proximate determinants in the Northern Areas, a set of health norms and beliefs exists which underlie distinct differences in parental care towards girls and boys. Key informant interviews in the community revealed that young male children are perceived to be biologically weaker than girls, and therefore extreme attention is given to them in early childhood. The girls, on the other hand, are viewed as less disease-prone and needing less pampering and attention. Commenting on the case of the death of the twin girl, one woman elder in the village indicated, "People do not want daughters. That father just wanted one of the girls to die. He already had three daughters, and the twins made a total of five daughters. He needed a son. He perhaps did not mind if the child died." This comment is suggestive of selective discrimination rather than more generalized neglect. As far as the treatment approach offered by the medical facility to the twin girl is concerned, one key informant provided an interesting perspective:

> This is what they do here. If a really sick child is brought to the dispensary and they know the child is about to die, they do not send the parents to the hospital in Gilgit. If the child is serious, but they know it can be treated and saved, then they send the child to Gilgit. Otherwise they do not tell the parents to take the child because they will just face extra expenses and the child will die anyway. This is why they sent that woman home with ORS. They knew the child was about to die and could not be saved.

Another explanation of mortality differentials which emerges from the literature on gender issues in South Asia is the low value placed on girls and women by the society. Many have argued that the under-valuation of girls (and women) abbreviates their overall life chances (Agarwal, 1996; Elahi, 1993; Kabeer, 1994). Factors which give rise to this under-valuation in Northern Pakistan include: the absence of women's inheritance rights, women's dependence on men within marriage

arrangements, the strict views of women's roles within Muslim society, and women's low participation in the workforce. Besides the small minority of wealthy elite urban women who live outside of the constraints of traditional society, the majority of women have low levels of education and participation in income-earning opportunities outside of the home. In statistical and census data, women's work in Pakistan is often reported as "non-productive," non-income earning unrenumerated work (Ibraz, 1993; Shaheed and Mumtaz, 1990).

One factor that has a crucial bearing on girls' value in society is the practice of dowry. Historically, in the Northern Areas the practice of dowry was very limited. However, recently with the influx of values and customs from the down-country, dowries are now given by most religious and ethnic groups in the region. The economic reasoning supporting dowry is that since the majority of the inheritance falls in the hands of sons, then daughters should receive a set of movable assets which they can take with them to their husband's home. Evidence from Oshikhandass suggests that the expectations and demands for dowry are increasing and creating additional pressures on parents to provide a dowry. For poor parents, the pressures for dowry-giving means that daughters are now perceived to be even greater economic liabilities.

Perceptions of the place of boys and girls in Northern Pakistani society further shed light on how these factors shape care and coping. Key informants suggested that one reason for the preferential treatment given to boys is that they are viewed as their mothers' primary support in old-age. For women who have less control over household assets, the son and his future wife become the vital support system as

women grow older. Contrary to Islamic law (Kabeer, 1999), sons are viewed in Northern Pakistan as the sole heirs of family wealth. Sons also tend to stay with their parents after marriage. As one person put it, the birth of sons marks a festive and happy occasion when fathers "invite the whole village for a meal; when girls are born, no one says '*Mubarak ho*' [congratulations]." The birth of a daughter is often marked by intense stress and shame for the mother whose status within the extended family may be compromised. These issues have been widely addressed as components of the social dynamics producing gender differences in infant and child mortality and vulnerability.

The picture of sex discrimination which emerges from these case histories in Northern Pakistan reflect a complex configuration of social, cultural, and economic issues. Girls' vulnerability is easily aggravated by their lack of value in this male-dominated society. This also applies to female care-givers who lack the voice or authority in family or public affairs to bring attention to the health predicament of young children and particularly that of daughters. Mothers' coping is further complicated by the large degree of seclusion and control of mobility experienced by women, unlike fathers who have much greater freedom of movement in and outside the community and a much easier time accessing health facilities and physicians.

In the hands of mothers, girls' health is further marginalized from care, whereas the health of boys receives the attention of fathers who are socially positioned to make demands and allocate resources to the project of sustaining the survival of sons. Furthermore, women themselves are socialized to uphold these very same biases that are entrenched in Pakistani culture. While these are significant

features shaping children's vulnerability in the study setting, the complexity of these phenomena are not captured with reference to any universal stereotypes of vulnerability. Sensitivity must be given to the ways in which the dimensions of vulnerability outlined in Chapter II play out in time and space in the context of entrenched gender ideologies and hierarchies.

Based on this evidence, the centrality of gender as a determining factor in infant and child survival in rural Northern Pakistan seems undeniable. Survival differentials can be seen to result from the intersections of gender ideology, social values, and economic pressures that force parents to selectively distribute already limited resources and care. In this way, some parents prioritize their children's entitlements to care and to survival possibilities.

BLINDNESSES OF HEALTH SERVICES?

The details of these child deaths may also be interpreted in terms of the interactions between mothers, their children, and health-care providers. In the two narratives provided by Munissa and Jasmin, death is depicted as following physician and hospital attention and/or in the course of trying to obtain attention and action outside the home. Their children exhibited the physical signs of diarrhea and distress which the two mothers recognized as potentially fatal symptoms. Respondents and key informants mentioned that occasionally there is a reluctance on the part of mothers to seek medical help for their children, in part because of their restricted mobility, time and work constraints, or because of the wide gaps in social position and communication they perceive between themselves and health officials. In one

discussion about the availability and use of health services, one mother expressed her distrust of health authorities in this way: "Those who work for the government find *esh* [luxury]. They become rich and kill the poor." Munissa and Jasmin, however, did seek medical advise from knowledgeable medical authorities. What, then, explains the seeming blindnesses on the part of health care practitioners to the material and social constraints that these mothers and families face and at times, as in the case of Jasmin's experience at the hospital, the utter indifference to the health situations of young children?

First, the case histories point to very important social distances between mothers, children, and health care providers. Health care providers in the region typically have an urban bias in their approach to dealing with rural patients. In some ways they are insensitive to the underlying forces that constraint coping and health-seeking at the household level. This is partly a result of their training in the public health paradigm (Sutrisna et al., 1993) and their social class and background. The recommendations made to Munissa to eat foods rich in protein and nutrients to improve her own health is a case in point. This prescription failed to recognize the economic barriers to acquiring these types of foods and was limited in that it did not address the socioeconomic determinants of poor child health in her household. The metaphorical distance between Munissa and the doctor is also evident in the doctors' recommendation that she feed her baby canned milk. Her hopes were raised by the receipt of 3 cans of milk sent from the doctor for her baby. The sense of hope she felt when she received the high quality powdered milk soon dissipated when the canned milk was no longer sent to her home.

Another example of the shortcomings in diarrhea treatment recommended by health practitioners is evident in the adoption of oral rehydration therapy (ORT) as a remedy for dehydration associated with diarrhea. The focus of treatment interventions for diarrhea in Oskikhandass has been on ORT and to a lesser extent on appropriate antibiotic treatments. One of the home treatments pursued by Munissa and Jasmin was ORT. ORT has been found to be an effective treatment for dehydration associated with watery and acute diarrhea. Since 1993 UNICEF has reported that ORT is saving one million lives per year (UNICEF, 1993, 1994). Its importance in the management of acute episodes of diarrhea is undeniable; however, its effect on persistent diarrhea, bloody diarrhea, and diarrhea associated with HIV has been found to be limited (Werner et al., 1997).

Recently, the utility of ORT treatment in certain contexts has been brought into serious question, and some argue that ORT merely postpones death that will occur as a result of another "disease of poverty" (Scheper-Hughes, 1987, 1992; Scheper-Hughes and Sargent, 1998; Werner et al., 1997). This treatment is not sensitive to the realities of the lack of potable water and fuelwood to boil water necessary for its preparation. After tracing the history and impact of the "magic bullet" of ORT, Ruxin (1994:387) concludes:

> ORT is not a solution to the global epidemic of diarrhea: it is only a treatment that prevents diarrheal deaths. ORT can buy time for nations and international development organizations to marshal their resources for clean water, sanitation, and other projects that constitute long-term solutions to diarrheal disease.

Given its biomedical-orientation, ORT has a limited effect on the social context in which the treatment is administered (Mull, 1984).

Today in Pakistan child survival manuals and pamphlets continue to shape the culture of coping with diarrheal disease through a discourse that constructs a normalized view of "good" and "modern" mothers providing ORT to their young children (Figure 6.1). According to this view, an *accha ammi* (good mother) is solely responsible for mixing, preparing, and administering the oral rehydration solution in packets that are assumed to be readable by mothers who have never had the opportunity to go to school. Mothers in the health education pamphlets are assumed to be living in nuclear families and to have the primary role of ensuring their children survive bouts of diarrhea. This discourse is reinforced at the local scale, as is evident in one local healer's description of the reasons for childhood diarrhea:

> There are two main reasons why children have diarrhea. One is *talim kee kami* [lack of education]. The mothers do not know how to feed children, how to clean, how to look after their children properly. Because there is no education their brains do not work. The education for children in general is very poor. This is why this area is so far behind the rest of Pakistan and the rest of the world. The second reason is poverty. The women have no time to properly look after children. The husband is laboring outside the home. The mother is working hard in the home. The children become sick.

At the policy level, public health programs have been implemented to counteract what is perceived to be the traditional approaches of uneducated, backward, and "bad" mothers. This discourse is highly gendered, both in terms of shaping the perceptions of women as the sole individuals coping with childhood diarrhea, and in terms of how treatment decisions are assumed to reflect only mothers' decisions. The ways in which mothers, fathers, and other family members negotiate the decisions and responsibilities of coping, especially when these

Figure 6.1 A standard pamphlet on oral rehydration solution preparation

responsibilities and roles are complicated by gender ideologies and resource constraints, are ignored in the international health discourse. Furthermore, the discourse of ORT fails to recognize the constraints placed on women's mobility, on their access to ORT packets, and on their use of ORT as a treatment for dehydration.

Finally, the nature of Jasmin's interaction with the doctor at the district hospital had a striking resemblance to the descriptions of the "indifference"[4] of health-care providers to childhood sickness and hunger in Northeast Brazil (Scheper-Hughes, 1991, 1992) and in John Mampa Square, South Africa (Lerer, 1998). In contexts of disadvantage and deprivation, blaming and impatience often characterize the response of health authorities working in areas of high infant-child mortality (Scheper-Hughes, 1992). Jasmin characterized her experience with the local hospital as insensitive. Once the doctor shouted at her and her husband and went away, they were left in the hospital room to watch their dehydrated son perish.

In the case of Jasmin's son, one can speculate on the role of failed treatments, a premature discharge from the hospital the first time, and the harsh response of the doctor in influencing of the sequence of events leading up to the death of Jasmin's son. While the impatience of the district hospital doctor certainly seems implicated in the death of Jasmin's son, an argument can be made for how the over-tapped and under-funded health care providers in Northern Pakistan become desensitized and indifferent to the seemingly routinized diarrhea episodes and deaths of rural children. Dr. Afzal, a pediatrician in the region, explained the incredible pressures and problems he and other doctors face in their work:

> We see many patients. Sometimes if three doctors are on, then we see 50 patients in 5 hours. If we are only two, then we see more than 70 patients in that time. And once my colleague saw 180 patients in 6 hours. On Sundays I work from 8-12:30 or 1:00 in the clinic, and every weekday from 8-12:30 at the hospital and 3-7:00 in the clinic. Between my clinic and the hospital, I see 70 patients each weekday.

During my visit to his clinic, I recorded the following details in my fieldnotes:

> *Fieldnotes, July 4, 1998*: A half an hour into the interview with Dr. Afzal the power went out. Dr. Afzal sat in the dark with a father and his sick son up on the table. "This is the state of affairs here," he said to me as I left the room. I noticed that there was no running water in his two-room clinic. Two more parents with sick children were waiting outside to see him when I left the clinic.

As the comments of Dr. Afzal suggest, health practitioners become seemingly indifferent in this mountainous region in part because they face their own set of constraints to providing care. These constraints include hurried schedules, patient overload, the lack of basic amenities such as electricity and running water, and the meager investments to improve health facilities. While not within the scope of this project, a hypothesis could be generated about the impacts of limited resources and extensive numbers of patients on the provision and quality of care in medical facilities in the region. The under-funding and under-equipped state of affairs in rural areas is, in part, related to a troubling statistic that the total public expenditures on health as a percentage of GDP in 1990 in Pakistan was 1.8% (UNDP, 1994). Of the small investment the Government of Pakistan makes in health care, the bulk of the spending is concentrated on the building and staffing of hospitals and medical facilities and the training of doctors in urban areas (Zaidi, 1988). As a result, the facilities and primary care in rural (and peri-urban areas more recently) are inadequate and rudimentary in comparison to the levels of quality and sophistication

of health care that is accessible in urban areas. As Sathar (1987a) notes, these discrepancies in levels of health care have contributed to infant-child mortality rates in urban areas (102/1000) that are approximately 25% lower than in rural areas in the country.

The well-intentioned public health policies since the1960s and particularly the 1980s "Health For All" mandate assumed that improving public health facilities and the coinciding processes of development and modernization would lead to overall reductions in mortality levels. Nevertheless, patterns in the causes of childhood death have remained largely consistent over time in rural parts of Pakistan.

CONCLUSION

The focus of this chapter has been on the narratives of infant and child death as provided by mothers. The chapter recast the concept of vulnerability using a focus on the factors that contribute to infant-child mortality. The main objective was to suggest the need to reconceptualize what is meant by children's vulnerability by focusing on: one, the role of gender ideology in shaping infant and child mortality, and two, the negotiations and relations of coping with severe child health crises. Care-giving and the ways in which mothers' capacity to cope with diarrhea episodes was seen to be strongly shaped by the relations of response at household and community scales.

This work has empirical and methodological implications. Empirically, the complexities of child (and particularly female) deprivation are missed if the gendered processes underlying differentials in infant and child mortality are left unexamined.

Focusing on the decisions and choices of coping allows a fuller accounting of the extent of sex bias towards girls, the constraints placed on care, and the decisions (or lack thereof) which guide treatment and response to severe diarrhea. This in turn allows for a better understanding of mothers' responses during critical illness episodes. There have been very few geographic studies that specifically address the care and coping with childhood disease in a developing country context. Much of the geographic literature up to this point has focused on the provision of child care or the socio-spatial issues surrounding the care of children in a developed country context (England, 1996; Holloway, 1998).

The examination of mothers' experiences of child death in Northern Pakistan presented here is one effort towards understanding how mothers negotiate specific aspects of their care and coping activities in the context of resource scarcity, poor systems of health care, and gender inequities. Methodologically, I have included mothers' accounts of child loss, as well as responses from key informants, to impart details about the deeply personal and gendered nature of coping with childhood diarrhea episodes. These narratives suggest an alternative view of how sickness is responded to. In the case of the severe diarrhea episodes of girls, biased patterns of response were initiated that constrained or impaired the mothers' capacities to cope.

In the case of the effect of gender ideology on mortality rates, it seems reasonable to explain the observed sex bias in the treatment of sick children as an effect of the discriminatory ideologies underlying health care practices. In a rapidly changing social and economic context, however, I would argue that it remains to be seen whether some of the anti-female behavioral norms will be altered over time. In

some respects, girls and women are increasingly becoming economic assets to families in the Northern Areas as they become the targets of recent non-governmental organization-sponsored savings programs, agricultural extension, and education initiatives as well as state-sponsored health and development programs. Elsewhere in South Asia, increased gender symmetry in mortality over the last decade has been observed and is linked with opportunities in the realms of family planning and education (Muhuri and Menken, 1997).

In spite of some new opportunities for women and girls in the Northern Areas, tensions between religious and ethnic groups are accentuating gender divisions and disparities, and women's position in society has become one of the signifiers of the changing nature of relations between these various groups. For example, in rural areas the pressures on women to conform to the strictures of Islamic culture are intensifying. Recent graffiti on a wall near the road to Oshikhandass proclaims, "*Bei purdah aurat shetan agent hei*" (A woman not in purdah is the agent of Satan), and attests to the highly politicized and changing nature of gender politics in Pakistan. As some women become even more confined to the *char diwar* (four walls) of the family compound, the existing gender relations will most likely continue to shape children's vulnerability in profound ways. Such strong religious and cultural assertions provoke important questions about how public sector interventions can compensate for the subversion of health and basic needs within the household.

ENDNOTES:

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[1] This phrase translates into "no longer alive."

[2] The sex ratio, as commonly used in demography and population studies, refers to the number of males in a population divided by the number of females in the same population, and multiplied by 100; Sex Ratio = P Male/P Female x 100.

[3] During this period the Aga Khan Health Service, Pakistan Water, Sanitation, Health and Hygiene Studies Project was conducting a correlation study to determine the relationship between water quality and diarrheal diseases. The term "Worker" refers to the community health worker who was assisting with data collection at the time of the study.

[4] My use of the word "indifferent" in this context was inspired by Nancy Scheper-Hughes (1992) work on the social indifference to child death in Northeast Brazil. This concept provides one way of looking at the issues that underlay this section of the chapter.

CHAPTER VIII

CONCLUSION

In this dissertation I have examined the social construction of children's vulnerability to diarrheal disease in a mountain community in Northern Pakistan. I posited that one way to approach the problem of children's vulnerability at the local scale was to focus on three interconnecting dimensions of the problem: perceptions, resources, and coping. The crosscutting theme of gender was also central to this approach, especially the ways in which gender intersects with perceptions, resources, and coping to influence everyday aspects of exposure and susceptibility to diarrheal disease hazard. This chapter summarizes the substantive findings of the dissertation, its theoretical and methodological contributions, and several directions for future research.

SUMMARY OF THE DISSERTATION

This investigation of children's vulnerability began by reviewing the meanings and models of vulnerability put forth in the literature in terms of how they relate to the unique characteristics and dependencies of under-five children. I proposed that exposure and susceptibility to diarrheal disease hazard could be

conceived as the function of the interactions between perceptions, resources, and coping. Drawing upon empirical field research, the study demonstrated aspects of the micro-level circumstances of vulnerability, emphasizing how vulnerability to diarrheal disease hazard is produced within the household spaces of farm and family life. Pursuing this line of thinking, the project also built upon and contributed to the literature on vulnerability by demonstrating how the vulnerability of under-five children is differentially constructed along gender lines.

Before the analytical chapters were presented, Chapter III provided a narrative of the research process, which involved ethnographic research methods designed to capture the complexity and diversity of the local and household contexts of everyday environmental health risks. The methodological approach had the intention of engaging critically and reflexively on the research process as a way of addressing the power dynamics manifested in the relations between the study participants and myself. Chapter IV reviewed past and present livelihood, health, and development trends in the study site of Oshikhandass, and provided important background data on the demographic and socioeconomic characteristics of the 30 study households.

To build a theory of children's vulnerability, the data and analyses presented in Chapter V, VI, and VII were focused on the themes of perceptions, resources, and coping respectively. In each of these chapters, narrative accounts were drawn upon in order to provide local interpretations of diarrheal disease risk, resources, and coping as they relate to exposure and susceptibility to diarrheal disease. Chapter V specifically addressed perceptions, or awareness, of diarrheal disease as both a common and potentially life-threatening child health problem. In general, study

respondents expressed a strong awareness of the health risks of diarrheal disease and of the routes of disease transmission. Maternal health knowledge and religio-cultural interpretations of disease causation were seen as integral to the social construction of diarrheal disease risk. Furthermore, local conceptualizations revealed how diarrheal disease risk was evaluated within the wider context of health and livelihood concerns.

Chapter VI adopted Blaikie et al.'s (1994) notion that access to resources is integrally linked to the production of vulnerability to hazard. Building upon this notion, the chapter developed the idea that access to resources for livelihood and childcare explains, in part, the local geography of childhood diarrhea. An argument was made for the need to understand how material, human, and social resources influence the risk environment. A comparison between two groups of households, categorized into low frequency and high frequency diarrheal disease households, was presented to empirically illustrate how differentials in access to resources for livelihood and child care partly influence diarrheal disease vulnerability. The analysis highlighted the roles of socioeconomic assets, maternal capital (e.g., education, skills and knowledge), time, social status, and social networks in structuring the capacities of mothers and households to respond to childhood disease risk. Flexibility in resource strategies was found to be critical in mitigating and responding to environmental health risks.

Chapter VII explicitly addressed the ways in which gender ideology and relations of coping with childhood diarrhea contribute to outcomes of diarrheal disease. Four case histories of child death provided insights into the material and socio-cultural constraints on parental, especially maternal, responses to child health

crises. In the analysis of two of the cases, discrimination towards daughters and the gender politics of care giving combined to create negative health outcomes. The analysis of the other two cases speculated on the ways in which the conditions of gender, poverty, and health care provision potentially constrain the range of healing and care options available to mothers of under-five children in this region.

CONTRIBUTIONS TO THE UNDERSTANDING OF CHILDREN'S VULNERABILITY

A major objective of the dissertation has been to theorize the vulnerability of under-five children to disease hazard in this particular study site. Chapter II highlighted several models that have been useful for conceptualizing vulnerability. Building upon this literature, I proposed an alternative model of vulnerability to hazard that incorporated the intersecting dimensions of local perceptions, resources, and coping. Throughout this work, I have attempted to show how these dimensions explain various aspects of exposure and susceptibility to disease hazard as well as the capacity of mothers, the primary health and child care providers in the study setting, to respond to diarrheal disease hazard. Several summary points need underscoring.

First, the attention to local perceptions of disease risk and health allowed a view into the ways that risk is socially constructed within this particular setting. Mothers' narratives suggested that while child health has improved in Oshikhandass in the past 5 to 10 years, diarrheal disease remains a critical child health concern. Perceptions of childhood diarrhea were found to be influenced by the social and livelihood context in which the risk is embedded. Further, perceptions of

environmental health risk were linked to a local discourse on health and environmental change. A main conclusion that can be drawn from the empirical data and analysis of perceptions is that incongruencies exist between maternal awareness of the health risk of water-related disease and the responses to the risk. The mothers in Oshikhandass have received an extensive amount of education about diarrheal diseases and prevention. The value of this education for child health should not be dismissed. Yet, health education does not address the social and economic constraints on responses to risk and on coping with health crisis or the constraints placed on mothers' time, energy and mobility.

Second, the focus on the resources of livelihood and childcare provided a perspective on the ways in which the capacity of mothers to respond to diarrheal disease risk is negotiated and differentiated within households. In this model, access to resources was seen as dependent on everyday negotiations and exchanges based on gender and generational divisions of labor, socioeconomic conditions at the household scale, and established networks of mutual support. The attention to human and social resources in particular fostered a context-specific understanding of how children's vulnerability is reduced or aggravated by other household and livelihood priorities.

Third, coping with disease outcomes following exposure was shown to be integrally connected to both local perceptions of diarrheal disease risk and the household contexts of tangible and intangible resources. An analysis of coping with disease hazard was particularly illustrative of how gender ideology and relations of response contribute to significant, and at times negative, health and social

consequences for under-five children. This view of coping asserted the need to disaggregate the category of under-five children to examine how a partiality for boys is related to the differential treatment of girls. Children's vulnerability continues to be influenced by preferences for boys and discriminatory practices towards girls. In many ways the gendered aspects of child rearing and coping with disease hazard reflect and reinforce the overall low status of girls and women in Pakistan. Girls' vulnerability is easily aggravated by their lack of value in this male-dominated society. This also applies to female care-givers who lack the voice or authority in family or public affairs to bring attention to the health predicament of young children and particularly that of their daughters. Furthermore, women themselves are socialized to uphold biases in care especially when families are poor and facing difficult decisions about how to allocate scarce resources among their children.

Additionally, the focus on the outcomes of child health crises, including child death, demanded that infant and child mortality be scrutinized and related back to gender disparities and sets of relations underlying place-specific deprivations that also cut across gender lines. Disease outcomes reflect both patterns of resource access and gender ideology. Some patterns of resource access have to do with the wider political economy of health provision in the Northern Areas. These patterns cut across genders and have implications for the larger rural population. Also, the case histories reflect patterns of poverty and constraints on resources that are drawn along gender lines and that are reinforced by custom and cultural practices. The findings on access to resources teach valuable lessons about the process of decision-making and the local level negotiations that affect vulnerability and child survival.

In sum, the examination of the micro-environment of diarrheal disease risk as it is influenced by perceptions, resources, and coping explains in part how vulnerability is locally constructed. In effect, the concept of children's vulnerability is recast by demonstrating and conceptualizing the interactions between these dimensions and gender, as well as considering the implications of these interactions for the problem of childhood diarrhea in Northern Pakistan.

DIRECTIONS FOR FUTURE RESEARCH

Several directions of future inquiry emerge from this study. First, attention to specific aspects of vulnerability and their theorization could be further pursued. For example, the consideration of Pakistani women's perceptions of environmental risk, as approached in this work, could be tied to factors that explain these perceptions. This type of investigation would be particularly relevant for connecting risk perceptions to specific behaviors to reduce the exposure and susceptibility of children to environmental health risks. Linked to perceptions could also be continued analysis of the geography of worry in this rapidly changing social, economic, and environmental health context.

Another direction of inquiry would be to focus on the concept of "resources" and to test and refine the analytical approach to access to resources, as taken up in the conceptual framework of this dissertation. One way to approach "resources" would be to refine the measurement and methodologies of analyzing household and maternal resources. The role that intangible resources play in enhancing livelihood security and responding to crisis raises questions about the indicators of social networks and how

these indicators could be used in research for rural planning and also in the planning process. The development of social resource indicators would further understanding about how people seek help from inside and outside of their communities when dealing with hazards and emergencies. The inclusion of intangible assets such as social capital and the resources of relations would go a long way in making rural assessments of communities and household situations be more consonant with how people actually live and cope.

Furthermore, the resource contributions of household members who are distant could also be taken into account. For example, an important question to ask would be, what is the actual type and form of resource support provided by distant male members of households in mountain communities in Northern Pakistan? It would be worthwhile to assess the resource profiles of households and mothers longitudinally as well. A longitudinal component would allow these resources to be tracked temporally and spatially. A consideration of access to resources at other scales as well as the interactions between scales of intangible and tangible resources would help to sharpen the potential of this dimension of the conceptual framework.

Third, this study approached the problem of children's vulnerability to disease hazard from the perspectives of mothers and households. The incorporation of other perspectives into the study of children's vulnerability to environmental health hazard, especially the perspectives of older siblings, fathers, fathers-in-law, and policy makers representing state and non-governmental organizations would complement this study. These perspectives would sharpen the analysis of intra- and inter-household differentiation in resources and coping, particularly differentiation based

on age and gender, as well as the formulation of policy responses to the problem of child health and development. An effort needs to continue to address the agency of *de facto* female heads of households, older children, and male family members in overcoming limits and constraints to addressing child survival. Furthermore, mountain health and development policies would need to be scrutinized for their sensitivity to and impact on specific variations in access to resources and gender hierarchies.

Fourth, this study suggests that social networks of cooperation and mutual support operating at different scales are indeed critical for responses to and coping with environmental health hazards. It would be worthwhile to investigate in more depth several sets of social networks including: the networks between children as they tie into the livelihood and childcare work they carry out for their mothers; the neighborhood-level networks formed among women; and community-based organizations. These types of informal and formal social networks take a long time to form and accumulate; explication of the mechanisms through which these networks are formed as well as their multiple and specific functions of support and resource access is needed. Furthermore, an examination of the impacts of non-governmental organizations on collective actions to address environmental health and development concerns as well as on women's status and control over resources would be relevant directions of future inquiry. Uncovering the ways in which the influence and actions of non-governmental organizations are tied to and structured around extant networks based on religion, gender, age, and ethnicity could provide valuable insights into patterns of inclusion and exclusion in the region.

The conceptualization of vulnerability adopted here could be refined through comparative empirical research carried out elsewhere in the Northern Areas, the Himalaya, and highlands of Central Asia. The analysis of the relationships between perceptions, resources, and coping in this study of children's vulnerability to diarrheal disease could be expanded to include households in other mountain communities that are facing different poverty and resource access constraints than those found in Oshikhandass. A comparative approach would help to corroborate the applicability of the argument behind vulnerability developed here and would develop a broader geographic perspective on the ways in which the processes influencing children's vulnerability are similar to or different from other localities in the region. It would be especially interesting to draw out lessons from approaches to addressing child health insecurities elsewhere in the region that might have relevance and applicability to Northern Pakistan.

Finally, the project to understand how gender intersects with risk perceptions, access to resources, and coping, as well as the complex effects of gender ideology and discrimination on disease outcomes, should continue. The dissertation supported a well-developed argument that vulnerability is gender differentiated in South Asia. The project of highlighting the differing cultural and structural positions of girls and boys within their households, and how their positions are regarded in terms of resource allocation and parental health seeking behavior should be extended.

A CLOSING COMMENT

In closing, this study of children's vulnerability to water-related disease hazard has been an attempt to understand the circumstances surrounding why some children stay healthy, why some get sick, and why some die a needless and early death as a result of diarrhea and dehydration. It was an effort to understand the ways in which a small group of women attempt to do what they can to secure the survival of their children given the situations of their households and their own lives. This study also considered whether and how differences emerge between their households as indicated by these women's own words and perspectives on environmental health, resource circumstances, and the raising of children in the mountains of the Karakoram. As a result, this project has tried to give legitimacy to aspects of life and work that may seem insignificant and even negligible but in fact contribute in important ways to who survives and who dies in the context of poverty and relative powerlessness.

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Focus Group Interviews

Community Health Workers Focus Group Interview, November 30, 1997
Focus Group Interview #1, February 8, 1998
Focus Group Interview #2, February 20, 1998
Focus Group Interview #3, March 6, 1998
Focus Group Interview #4, April 17, 1998
Focus Group Interview #5, May 31, 1998
Focus Group Interview #6, June 2, 1998

APPENDIX A: HOUSEHOLD INTERVIEW QUESTIONNAIRE

PART I: General Household Information

Household Number:_____
Interview Number:_____
Mother's Name:_____
Date of Interview:_____

1. List the name, sex, relation, age, education and employment of each family member.

Name	Relation	Sex	Age	Education	Urdu Speaking	Occupation: Full/Part-time Location	Income

2. If one (or more) of the family members works outside of Oshikhandass, when and how often does s/he return to Oshikhandass?

3. Household type: kacha pacca

4. If it is pacca, when was it built (or when was the construction started):

5. Number of rooms; include verandah, store and separate kitchen:

6. Type of drinking water supply:
gulko (water pit) channel nulka (pipe system)

7. What do you like about this source?

8. What do you not like about this source?

9. Do you normally store drinking water?

10. If yes, in what do you store your water?

11. Sanitation type for adults:

pour flush chukan qem open field

12. Sanitation type for children:
pour flush chukan qem open field

13. If flush is used, what is the major advantage of its use? Who uses it?

14. Fuelwood source: wood gas kerosene

15. How much does your family spend on fuel per month?

16. Do you have a: TV/radio/phone/refrigerator/electric oven/washing machine

17. Family place of ancestry:

18. Years living in Oshikhandass:

19. Reasons for migrating to Oshikhandass:

20. Religious affiliation:

21. Languages spoken at home:

Socioeconomic Information:

22. Total amount of land:

23. How did you acquire this land?

24. Compared to other households in Oshikhandass, is your household wealth:
Above average Average Below average

25. Overall, you do think your household economic situation (with contributions from all working adults) is making a better living, about the same or worse than it was five years ago?
Better Same Worse

26. If the household economic situation is better, can you tell me why it is better?

27. If the household economic situation is worse, can you tell me why it is worse?

28. What have you done to save money or to improve the situation?

29. Who is the main decision-maker in your household?

30. In your family, who inherits land and equipment from the parents?

31. What do the other children (especially girls) inherit from the parents?

32. In your household, who does the fieldwork?

33. In your household, who irrigates the fields?

34. When and how often are your fields irrigated?

35. Who works in the vegetable garden?

36. Who works in the fruit orchard?

Involvement in Community Organizations and Groups:

35. Do any family members belong to a community group or organization (e.g., religious, VO/WO, Water and Sanitation Committee)? Yes/No

36. If no, why not?

37. If yes:

Family Member's Name	Organization Name	How Many Years?

38. What prompted participation in the organization?

39. What are the activities of the group?

40. Do the children in the household participate in any community groups?

41. Do children participate in religious training? If yes, where?

42. Does this religious education include daughters? Why or why not?

43. What does the religious training entail? (e.g., hours per week, structure of classes)

44. Why is this type of training and education important for children?

PART II: Health Perceptions and Coping with Childhood Diarrhea

Household Number:_____
Interview Number:_____
Mother's Name:_____
Date of Interview:_____

1. What are the most serious illnesses experienced by children under 5 years of age in this community?

2. Do you think the health situation for your children and your family has stayed the same, improved or become worse in the last 5-10 years?
   Stayed the same Improved Become worse

3. Why has it stayed the same/improved/become worse?

4. If worse, what would you do to improve the health of your household?

5. Are there any places which adults or children should avoid in order to prevent them from becoming ill?

6. Are there any types of behaviors which adults should avoid in order to prevent their children from becoming ill?

7. Are there any types of behaviors which children should avoid in order to prevent them from becoming ill?

8. Where have you learned or heard health messages?

9. Does Islam teach any messages about health and hygiene? Yes/No

10. If yes, what are the health and hygiene messages of Islam? Where did you learn them?

11. What do you teach your children about health and hygiene?

12. When the children of others are sick, how do you help these families?

13. If your children are sick, how do other people help you?

14. What types of medicines (modern or *desi*) do you always have available in your house?

15. If your family needs medicine, where do you buy them?

16. Who buys the medicine?

17. If you want to buy medicine for a child, do you have the money or do you have to ask someone else in your family for it?

18. Can you spend money on treatment for your child without permission from other household members (e.g., husband, mother-in-law)?

19. If your child is sick, whom do you first ask for advice?

20. If you want to take your child to a health center, can you make the decision to do so or do you have to ask someone for permission? Whom do you ask?

21. If you want to take your child to a traditional healer, do you have to ask someone for permission? If yes, whom do you ask?

22. How much does your family spend on child health care (monthly or seasonally)?

Diarrhea and Its Treatment:

1. Is diarrhea dangerous for a child under 5? If no, why not? If yes, why is it dangerous?

2. What types of diarrhea are the most dangerous for young children under 5?

3. What do you think are the causes of diarrhea?

4. Do you think diarrhea can be prevented?

5. If yes, how can it be prevented?

6. If no, why not?

7. Have any of your children ever experienced diarrhea?

8. If yes, what did you do?

9. If someone's child has diarrhea, what treatment (modern or *desi*) would you recommend to them? (If *desi* treatments are recommended, how are they prepared and administered?)

10. Should you give fluids during diarrhea? If no, why not? If yes, what kind?

11. Should you reduce the amount of fluid during diarrhea? Why or why not?

12. Should you give any foods during diarrhea? If yes, what kinds?

13. Under what circumstances would you take a child with diarrhea outside the household for treatment?

14. Have you ever used ORS? If yes, when was the last time?

15. Where did you learn about ORS?

16. For what diseases should ORS be used?

17. How does ORS work?

18. How is ORS prepared?

19. Where do the ingredients come from and how much do they cost?

20. Do you think that ORS is an effective treatment for diarrhea? Why?

21. Do you know about WSS (wheat-salt solution)?

22. Where did you learn about it?

23. Do you ever prepare WSS?

24. How do you make WSS?

25. For what diseases should WSS be used?

26. Do you know about *dudh ka dowdo* (milk porridge)?

27. Do you ever prepare *dudh ka dowdo*?

28. When would you give *dudh ka dowdo* to a child?

29. Does *nazar* cause diarrhea? How do you know if a child has *nazar*-related diarrhea? What are the symptoms?

30. If someone you know has a child with *nazar*, what type of treatment would you suggest?

31. Does *jinn/bhud* cause diarrhea? What are the symptoms?

32. If someone you know has a child with *jinn/bhud* what type of treatment would you suggest?

Additional Health-Related Questions:

1. How often have your children had diarrhea in the last year?
2. How often have you or other adults in your house been sick this past year?
3. What do you think about immunizations?
4. Do your children have immunization cards or a health cards?
5. If your child is ill, what are your responsibilities?
6. If your child is ill, what are the father's (your husband's) responsibilities?
7. Who (mother or father) is most important when a child is sick?
8. How would you define a "healthy" household?
9. How would you define an "unhealthy" household?

PART III: Women's Lives, Work, and Household Resources

Household Number:_____
Interview Number:_____
Mother's Name:_____
Date of Interview:_____

1. Please describe your average day of activities and work in summer and in winter? (Probe for information on childcare, location of activities)

2. Can you also describe other tasks (which you do not perform daily) and how much time they take?

3. What is the most time-consuming activity for you (winter and summer)?

4. Who helps you with this work?

5. Overall, do you think that your workload has stayed the same, increased or decreased in the last 5-10 years?
   Increased Stayed the same Decreased

6. If increased, why do you think your workload has increased?

7. If decreased, why do you think your workload has decreased?

8. In what ways do your sons help you with the farm, housework, and childcare?

9. In what ways do your daughters help you with the farm, housework, and childcare?

10. If you need money, do you ask:
    husband/children/parents/other relatives/close friends/other_____

11. For *tanzeem* (organization) members: how much money have you saved?

12. Are you involved in making decisions about:
    Education of your girls
    Education of your boys
    Marriage of daughters
    Marriage of sons
    Managing family budget
    Use of *tanzeem* savings

13. Are there other major decisions which you make in your household?

14. In a month, how often do you visit:
    Parents:
    Relatives in Oshikhandass:
    Relatives not in Oshikhandass:
    Neighbors who are not relatives:
    Khalifa or sheikh:
    Shaman:
    Lady Health Visitor:
    Community Health Worker:
    Dispensary:
    Gilgit Hospital:
    Jamaat Khaana or Imam Bargah:

15. When was the last time you traveled outside of Oshikhandass? Why? Where did you go and with whom?

16. How is your life different from your mother's life experience?

17. What was the best day in your life thus far?

18. What is the greatest cause of worry in your life these days?

19. If you have a serious problem, with whom do you usually talk?

20. If you could change one thing about your life, what would it be?

21. What do you remember most about your childhood growing up in _____?

22. How old were you when you married? If going to school at the time, did you continue to go to school? Why or why not?

23. How was your marriage arranged? How were you involved?

24. What was your age when your first child was born?

25. From whom did you learn knowledge about how to raise children and manage a household?

26. What are the most important skills to have as mothers?

27. If you were going to give advice to your daughter about how to raise healthy children what would it be?

28. Not all mothers are alike. What different types of mothers have you encountered?

29. What is the ideal family size?

30. Do you think it is more important to have boy children or girl children? Why?

31. What do you worry about most when it comes to your children and their health?

Children's Life Experiences:

32. What are the most important events or experiences in a child's life?

33. What are boys expected to know by the time they are 10-12 years old?

34. What are girls expected to know by the time they are 10-12 years old?

35. In your opinion should girls be educated? Can you tell me some reasons why or why not girls should be educated?

Household Consumption and Savings:

1. Does your family own a: tractor/thresher/shovel/fruit drying racks

2. How many fruit trees does your family own?

3. Do you consume all of the fruit or sell some of it?

4. How much income is earned from fruit sales each month?

5. Who sells the fruit for you?

6. Do you sell any vegetables?

7. How much income is earned from vegetable sales each month?

8. Food Consumption : Number of times consumed per week by family

	Summer	Winter
eggs/meat/chicken		
butter/lassi/rice/dal		

9. Do you feel everyone in your household receives enough food?

10. How much does your household spend monthly or annually on education (include fees, books, uniforms, notebooks and materials, exams)?

11. What is your average household expenditure on health care for children in the summer? In winter?

12. What are the total household expenses each month on:
    Regular food purchases outside the house:
    Purchases of wheat and corn:
    Clothing and Footwear:
    Personal hygiene (soap, towel, toothbrush):
    House repair and maintenance:
    Religious activities:
    Other:

13. What is the largest purchase your household has made recently?

14. Does your family have any debt?

15. How much has your family spent on the construction of:
    chukan/*gulko*/pour flush toilet/water tanki

16. Previously there was no *nulka* (drinking water supply) system in Oshikhandass. What is your opinion about paying for *nulka* water?

APPENDIX B: INTERVIEW TEMPLATE FOR "TRADITIONAL" AND "MODERN" HEALERS

Respondent's Position:
Location of Interview:
Date and Time:
Language of Interview:

1. What does your work as a _____ entail? (Probe - What are your responsibilities?)
2. How did you become a _____? What kind of training did you receive?
3. From whom did you learn this type of work/healing?
4. When did you begin treating illnesses in Oshikhandass?
5. When do people come to seek your service or advice?
6. Who comes to see you (e.g., men, women, boys, girls, from particular *mohallahs*, from other villages or towns, relatives, Shi'a/Sunni/Isma'ili)?
7. With whom do they come?
8. How much do people pay for your service?
9. What are the specific childhood diseases you treat?
10. What do you think are the causes of these diseases?
11. How do you treat these diseases affecting children?
12. What do you do when a mother brings a child to you with diarrhea?
13. What advice do you give people about how to prevent childhood illnesses like diarrhea? How can parents reduce the risk of diarrhea?
14. How would you characterize a healthy household in Oshikhandass?
15. How would you characterize an unhealthy household in Oshikhandass?
16. What kinds of changes in health over the past 10 years have you witnessed?
17. For traditional healers: What do you think about "modern" health interventions (e.g., Nimkol®, immunizations, *doctori dewai*, hospitals, water system)?
18. For "modern" healers: What do you think about traditional health interventions (e.g., *taveez*, local herbal remedies)
19. What kinds of changes would you like to see in child health in Oshikhandass in the future?

APPENDIX C: CHILD LOSS QUESTIONNAIRE

Location of the interview:
Data and Time:
Language of interview:

Household Information:

1. Name of the mother: Age of the mother:
2. Religion:
3. Type of family arrangement (nuclear or extended):
4. Years of schooling of mother:
   Years of schooling of father:
5. Approximate monthly household income:
6. Employment information:
7. Landholding:
8. Appliances at home (phone, refrigerator, oven, TV, radio):
9. Number of family members:
10. Total number of children and their ages:
11. Number of elders living in the household:
12. Family place of origin:
13. When did the family move to Oshikhandass? Why did they move here?

Case History:

13. Age of the child when it died: Date of child death:
14. Sex of the child:
15. What do you think was the cause of the child's death?
16. Why do you think this? (probe -- What were the child's symptoms?)
17. Who first noticed that the child was ill?
18. Who did she/he first inform about the child's illness?
19. What were the events leading up to the child's death?
20. From whom did you first seek advice or treatment?
21. Who first decided to take the child outside the house for treatment?
22. How long did you wait between the identification of the child's illness and seeking treatment from health services or a local healer?
23. What type of treatment(s) did you give the child? How much did it cost (including transport)?
24. What did you think the outcome of this treatment would be?
25. When did you realize that the case was serious?
26. Did you think the child was going to die in spite of your efforts? Or the efforts of the local healer/doctor?
27. Who in this household is most responsible for making decisions about the treatment of the ill child?
28. What advice would you give other mothers in the future if their child suffers from this kind of sickness?

APPENDIX D: FOCUS GROUP INTERVIEW QUESTIONNAIRE

Description of Group:
Number of Participants:
Characteristics and Age of Participants:
Location of Interview:
Time and Date:
Language of the Interview:

1. Do you think children's health is the same, better or worse today than it was 10 years ago? Why?

2. Do you think the health of families in Oshikhandass is the same, better, or worse today than it was 10 years ago? Why?

3. How do you define a "healthy" household? (What does it look like?)

4. How would you define an "unhealthy" household? (What does it look like?)

5. How do women in this community learn information about illnesses and diseases affecting children?

6. How do you think children should be educated about good health behavior?

7. What does Islam teach about health and hygiene?

8. What types of mothers are there in this community?

9. What types of fathers are there in this community?

10. Who is the most important decision-maker in households?

11. What is the role of the mother in making decisions about the treatment of ill children within the household?

12. What is the role of the father?

13. What is the role of the mother-in-law?

14. Do you think women's lives in Oshikhandass have stayed the same, improved or become worse over the last 5-10 years? Why?

15. If worse, what would you suggest to improve women's lives?

16. Do you think it would be possible for any of these changes to be made in the next 5-10 years?

APPENDIX E: OBSERVATION GUIDE AND CHECKLIST

Household Number:
Interview Number:
Date and Time:

General Household and Child Care Environment:

1. Space: layout of the physical setting (rooms, kitchen, outdoor spaces, location of water)

2. Current health status of the household members (and treatments if any)

3. Actors & Activities:
   Who is present in the household?
   What is their relation to the household?
   Where are they located in the household?
   What are they doing?

4. Space & Activity of Study Respondent:
   What is she doing in relation to household economy, resources, and childcare during the time of the visit?
   What are the activity spaces?
   How much time is devoted to childcare giving during these activities?
   What type of child care?

5. Space & Activity of Under-Five Child/Children:
   Where is/are the child/children under 5 years of age?
   What are the sites of child activity during this time?
   Are these different between girl children and boy children?
   What are the activities of the child?
   Are these activities carried out with anyone else? (e.g., any supervision)
   Who feeds the child/children, what is the source of food that they are eating, how is the child fed?

6. Resources:
   What material or human/social resources are women using?
   What material or human/social resources are men using?
   What material or human/social resources are children using?
   Are there observable constraints on the use or access of these resources?

7. Observable social and exchange networks related to material or human/social resources:

8. Water and Sanitation-Related Activities and Behaviors:
What are the patterns of domestic water management? (e.g., handling, location, and storage of water)
Where is domestic water located in relation to the household?
Disposal of child's feces and mother's hand washing habits. How does and when does washing and cleaning take place?
What is considered "clean"? What is "dirty"?
Disposal of sewerage water and solid kitchen waste.
Food handling, food preparation (from where do the ingredients come), how is the cooked food dispensed and stored.

9. Time: Sequence of events during visit

10. Feelings & Emotions

Checklist Related to Household Resource Access Profiles:

Specific forms of information:

Money/material exchanges:

Activities involving productive assets (water, land, labor, garden, seeds, tools, animals):

Health/hygiene-related materials (water, soap, shovel, towel, medicines, herbs, foods) and activities:

Skills and knowledge:

Social networks/institutions:

Checklist Related to Responses to Risk and Coping:

Preventive actions:

Perceptions of disease risk:

Decision-making:

Social support networks:

Use of specialized knowledge:

Mechanisms for handling stress:

Table G.5 Low Frequency Study Households, Oshikhandass: Husband Employment and Migration Data

HH No.	Husband's employment	Employment Regularity	Location of Employment	Frequency Husband's Return
1	Carpenter	No	Oshikhandass	-
5	Business	Yes	Gilgit	Daily
10	Army (retired), Police	Yes	Gilgit	Weekly
11	Mason	No	Oshikhandass	-
14	Laborer	No	Oshikhandass	-
18	Unemployed	No	Oshikhandass	-
20	Army (retired), Shop owner	Yes	Gilgit	Daily
21	Unemployed	No	Oshikhandass	-
22	Shop owner	Yes	Gilgit	Daily
23	Army	Yes	Kashmir	Once/year
24	Student	n/a	Islamabad	Twice/year
25	Laborer	No	Danyor	Once/week
26	Driver	Yes	Gilgit	Daily
29	Laborer	No	Oshikhandass	-
30	Airport Officer	Yes	Gilgit	Daily

Data Source: Based on household interviews, 1998

Table G.6 High Frequency Study Households, Oshikhandass: Husband Employment and Migration Data

HH No.	Husband's employment	Employment Regularity	Migration of Husband	Frequency Husband's Return
2	Shop owner	Yes	Gilgit	Daily
3	Unemployed	No	Oshikhandass	-
4	Police	Yes	Gilgit	Once/month
6	Mill operator	Yes	Oshikhandass	-
7	Army	Yes	Skardu	Once/year
8	Herding	Yes	Bagrote	Seasonal
9	Business	Yes	Gilgit	Daily
12	Laborer	No	Oshikhandass	-
13	Police	Yes	Gilgit	Once/week
15	Driver	Yes	Islamabad	Once/week
16	Driver	Yes	Gilgit	Daily
17	Engineer	Yes	Gilgit	Daily
19	Tourism	No	Northern Areas/Isl	Seasonal
27	Unemployed	No	Oshikhandass	-
28	Unemployed	No	Oshikhandass	-

Data Source: Based on household interviews, 1998