

Draft - for discussion



ADB

THE ENVIRONMENTS OF POVERTY

**A Geographical Approach to Poverty
Reduction in Asia and the Pacific**

Summary of a joint study of the
Poverty Reduction Unit and the
Environment and Social Safeguard Division of the
Regional and Sustainable Development Department in the
Asian Development Bank

June 2008

This paper is a summary of a book on “The Environments of Poverty” using a geographical approach to poverty reduction in Asia and the Pacific. The book to be published soon was researched by Dr. Armin Bauer, Senior Economist in ADB’s Regional and Sustainable Development Department. Various colleagues have contributed to the study, and particular thanks goes to David McCauley, Takashi Ohmura, and Shiladitya Chatterjee of ADB, as well as Rebecca Roberts (consultant) and Paul Bullen (editor). For comments and further discussions please contact the author at abauer@adb.org.

I. INTRODUCTION

1. **The world sees a new emphasis on the environment:** Starting with the Rio Earth Summit of 1992, the environment has been a major theme in international development. This trend was reinforced by the Johannesburg World Summit on Sustainable Development of 2001. However, only in recent years there has been serious discussion and action within the international community related to the connections between poverty and the environment. The Millennium Development Goals (MDGs) have environmental sustainability as one of the seven targets to fight poverty. Recent climate change has given a new emphasis to the environmental debate. However, as many institutions are moving their operational support away from natural resources development to the energy and transportation sectors, there is rising concern that climate change discussion will weaken the world consensus on the primacy of poverty reduction and the creation of more inclusive economies and societies.

2. **But the poverty focus seems to fade away:** Sustained and broad-based, pro-poor economic growth in many countries of Asia and Pacific has caused a substantial net decline in poverty, whether measured in terms of income or social benefits. However, poverty is decreasing in the region and the environment is becoming the primary factor in the poverty that persists. Climate change and globalization aggravate this. The poor¹ suffer more losses, illnesses, injuries, and deaths as a result of resource degradation, natural disasters, and pollution than the rest of the population because they are the ones most likely to be dependent on natural systems for their livelihood and health. In the country, soil erosion, coastal and marine-system degradation, deforestation, and biodiversity—compounded by economic effects of globalization on food and fuel prices—are causing a decline of agricultural productivity that threatens the livelihood of the rural poor. In cities there has been increased exposure by the poor to congestion and polluted air and water. The poor are also the most affected by climate change. However the climate change agenda somewhat pulls away the focus of development practitioners from the poverty agenda. Hence there is a new need to closer align environment and poverty reduction.

3. **A book on the environments of poverty:** To discuss better synergies between the poverty and environmental linkages, the Poverty Reduction Unit and the Environment and Social Safeguard Division in the Regional and Sustainable Development Department of the Asian Development Bank (ADB) prepared a study on the “environments of poverty” seen from the (poor) people’s perspective. The book reviews the latest consensus on poverty–environment connections and summarizes emerging problems in the environments of the poor in the Asia and Pacific region. Through initiating a discussion of environmental poverty, the study adds a new dimension to international debate and practice by emphasizing the needs for poverty reduction—in a geographical context, rather than in an eco-system context alone.

4. **The book follows a spatial approach to poverty,** identifying where the poor live today and probably will live in the future and associating this to the natural and human environments. It first distinguishes between areas where the environment is the primary cause of poverty and other areas, which have potential for pro-poor and inclusive growth. The

¹ The book acknowledges the multidimensional dimensions of poverty. However for analytical purposes it discusses poverty as people with expenditures of less than \$2 at newest purchasing power parity. The extreme poor are those below \$1 while the moderate poor are those between \$1 and \$2. Projections for 2020 and approaches to poverty measurements and the spatial distribution of poverty based on the environments of the poor are discussed in Appendix 1.

environmental poverty perspective divides the poor according to the environmental conditions that affect their well-being:

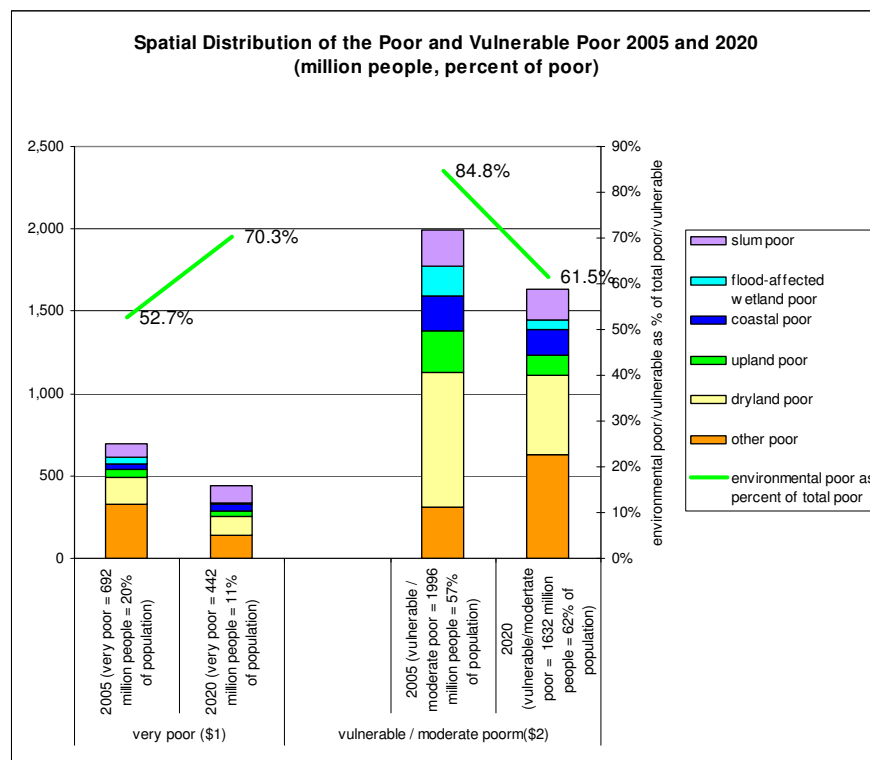
- the *dry-land poor* are those living on arid and desert land areas;
- the *flood-affected wetland poor* are those in wetland areas who are frequently affected by flooding;
- the *upland poor* are those living in upland or mountainous areas that are remote;
- the *coastal poor* are those living adjacent to coasts and dependent upon coastal and/or marine resources; and
- the *slum poor* are those living in substandard settlements with high exposure to urban pollutants.
- Many of the *disaster poor*, i.e. poor people affected by natural disasters are incorporated in the above mentioned categories.

5. **The environment will become the main factor of poverty by 2020:** The book uses the most recent findings on urban and rural poverty and calculates spatial distribution of poverty through 2020. It argues that while the region will continue to reduce poverty in its income and social dimensions, environmental causes of poverty will become primacy over the coming decades. The book estimates that by 2020 about 70% of the 414 million (20% of population) extreme and 62% of the 1,632 million (40% of population) moderate poor (based on the \$1 and \$2 international poverty lines) will live in areas where the environment is the primary cause of poverty (Figure 1). For the very poor, the environment will increasingly be the main factor in their poverty, while environmental causes of poverty are declining for the moderately poor. This is mainly because of migration to rural areas less affected by the environment and to cities where the moderately poor find better living conditions than in slums. Dryland poverty and slum poverty will worsen the most. With rural–urban migration and pro-poor growth in the region, it is expected that the absolute number of the rural extremely poor (\$1) and the rural environmentally poor will decrease. However, in those environmentally degraded regions poverty will deepen and some of the poor will become even poorer. At the same time, environmentally caused urban poverty will substantially increase, having driven many of the rural moderately poor to migrate to the slums. With a growing awareness of the problems of air and water quality in cities, the health of some urban poor may gradually improve. But a large segment of growing numbers of urban migrants will suffer from squalid shelter and poor labor safety, and perhaps increasingly also from faltering income opportunities. The book also argues that climate change will worsen the situation of especially the rural poor, but it is not a major cause of poverty by itself.

6. **Following an environmental poverty approach has implications for policy setting and development planning:** Degraded environments will be a major determinant of poverty. This burden on the poor will be added to their exclusion from social services and isolation from the benefits of pro-poor economic growth. A spatial analysis of environmental factors in poverty results in new insights for policy making on poverty reduction. The book argues that an area-based approach that attends to the needs of the poor first (rather than to the environment) would be more effective in dealing with environmental poverty. The book also argues for a need to shift the current climate change debate away from energy to issues of rural rural soil and water development and to urban slums. Hence, while pro-poor growth policies should continue to reduce poverty, it is crucial that these and related social and economic policies take account of the problem of environmental poverty. New income opportunities should be found for the dryland and coastal poor and less congestion, better shelter and cleaner transportation should be brought to the urban slum poor.

7. **Environmental sustainability in Asia and the Pacific has been a major goal of the Asian Development Bank (ADB)** since the 1990s and achieving it is currently a strategic priority. When it adopted poverty reduction as its overarching goal in 1999, ADB refined its environmental strategy so that its development contribution to this thematic area—through finance, knowledge, and partnerships—reduces poverty more directly. Encouraged by ADB's endeavor to deal with climate change, much of ADB's work concerns environmental sustainability. Together with regional cooperation and inclusive growth and social development, environmental sustainability has become one of the three pillars of ADB's new approach to promoting its overarching goal of poverty reduction. However, in operational terms, little shift has been promoted to improve the health of the slum poor or enhance the income opportunities of the rural poor in the drylands, coastal areas, uplands, and flood affected wetlands. Similarly, current support for climate change adaptation in energy and transportation also shifts environmental attention away from environmental poverty to economic development.

Figure 1: Environmental Poverty in Asia and Pacific



Note: This table combines data for the 2005 \$1 (very) poor with projected data on the 2020 vulnerable (\$2, very and moderate) poor. This reflects assumed progress in dealing with severe poverty in the region over the next decade. The book provides further information on the data calculation.

8. **Stimulating discussions:** This paper provides a summary of the environmental poverty study. It is presented at the 13th meeting of the Poverty and Environment Partnership (PEP) network meeting on 11-13 June 2008 at ADB Manila. The PEP meeting brings together a network of distinguished environmental scholars and development practitioners. However, only few poverty experts are active participants of the PEP network, and the discussions on poverty and the environment are dominated by an environmental view. This paper emphasizes the linkages between poverty and the environment from the people's and specifically from the poor people's perspective. We hope that it contributes to stimulating discussions on poverty and the natural and human environments.

II. POVERTY

9. **Poverty reduction.** The Asian Development Bank has for some time been committed to poverty reduction and environmental sustainability as constraints on development. The first of these made the wealth of individuals in poorer countries the criterion of success rather than just the wealth of the poorer countries in the aggregate. The second added the poverty of future people to ADB's purview. Present day wealth must not be achieved at their expense.²

10. **The concept of poverty.** A person is poor if he is deprived of the things necessary for well-being. But poverty can be spoken of in broader and narrower ways. A narrower conception of poverty, one that is closer to the ordinary-language meaning, is the deprivation of the material components of well-being (or wealth), such as food, clothes, shelter, and health (or access to medical care). The possession of these goods is sometimes called welfare. A broader conception is possible because human well-being involves more than material things. Freedom from poverty may also require such things as freedom, citizenship, good character, friends, obedient children, faithful spouse, liberal education, and a purpose in life. The narrower conception is contained within the broader conception, as welfare is contained in well-being. Although ADB's commitment to poverty reduction is not necessarily limited to the narrower conception of poverty, we limit ourselves to the less controversial and more easily quantified deprivations of poor people. So when we use the word *poverty*, we mean material poverty, an inability to acquire the material things necessary to live well.

11. **The index of poverty.** But we operationalize poverty according to how much money a person is in a position to spend each day. Income level is widely associated with poverty and in ordinary language poverty is taken to mean a shortage of money. Poverty cannot ultimately mean a shortage of money since money generally does not have intrinsic value. Since a shortage of money per se is not the problem (a person with food, clothes, shelter, and medical care but no money would not be considered poor), money is better seen as an index or proxy of poverty rather than as its essence. Even as an index, income has serious problems; but given the limited purpose of this presentation it was not appropriate to do a systematic analysis of this philosophical and economic question. So our operationalized definition of poverty does use money. Although there is no real poverty line, it helps for the purposes of comparison to impose one. So the wealth–poverty continuum is made binary. In our case, we call those who are able to spend no more than two dollars per day poor. Sometimes we will distinguish between the extremely poor (those able to spend no more than one dollar per day) and the moderately (or vulnerable) poor (those who are able to spend more than one dollar but no more than two). Continuing in this binary vein, we will measure poverty reduction not by degrees but by numbers of people: a reduction in the number of people who are unable to live on more than two dollars per day. Despite the problems with income as a criterion, few would deny that the people covered by our standard are poor. The starting point of the book this paper as a summary of,

² In the 1990s sustainability became a goal of the Asian Development Bank. Some collateral environmental damage can be sustained during early growth and paid for later when a country is richer. But some is irreversible or excessively costly for later people to reverse. A commitment to sustainability expanded the beneficiaries of development to include future people. It puts constraints on what could be done in the interests of the present generation. In 1999 ADB adopted poverty reduction as its all-embracing goal and in so doing made the interests of the poor within poorer countries paramount. From that point on ADB was committed to aggregate development only to the extent that it reduces poverty, with poverty being a property of individuals, not nations alone. However ADB's approach to poverty reduction remained systemic, meaning that the goal can be achieved through indirect as well as direct mechanisms, either through targeting poor people, poor areas, and social and environmental dimensions, as specified in the Millennium Development Goals (MDGs), or through making the growth and social development path of an economy more inclusive and sustainable. This is also reflected in ADB's project classification system. See <http://www.adb.org/poverty/tools-innovations.asp>

then, is the end of the reducing the number of present and future people who unable to spend more than two dollars per day. Everything else is a means to that end.

Figure 2 (Table): Poverty Estimates for Asia and the Pacific

Poverty in Asia and Pacific						
million people	2005			2020		
	number	percent	percent	number	percent	percent
population	3,470.0	100%	100%	4,053.3	100%	100%
rural	2,218.7	64%	100%	2,238.9	55%	100%
urban	1,251.3	36%	100%	1,814.4	45%	100%
extreme poor (\$1)	692.6	100%	20%	428.4	100%	11%
rural	515.0	74%	23%	275.0	64%	12%
urban	177.6	26%	14%	153.4	36%	8%
vulnerable poor (\$2)	1,987.8	100%	57%	1,632.8	100%	40%
rural	1,626.9	82%	73%	1,211.1	74%	54%
urban	360.9	18%	29%	421.7	26%	23%
Sources: Population data are from the 2007 World Demographics Data of the UN Population Division. Poverty data are from the ADB statistical database system, the World Bank PovCalNet, Ravallion/Chen 2007, World Bank Poverty Reduction Strategy Program (PRSP) Reports, the ADB Key Indicators, and ADB calculations.						

12. **Poverty in Asia and the Pacific.** The Asian Development Banks' primary bailiwick is the poorer and emerging countries of Asia and the Pacific. Over the past twenty years, the number of poor people in Asia has declined,³ and the number is expected to keep declining. But the decline has been uneven,⁴ and much of the region's population remains desperately poor. In fact, Asia has more than its share of the world's poor. Fifty-eight percent of the world's population lives in Asia and the Pacific, but close to 70% of the world's poor do.⁵ In 2005 Asia and the Pacific were home to 71% of people without access to minimally sanitary excretion facilities,⁶ 58% of those without access to safe water, and 56% of the undernourished. For certain aspects of poverty, parts of Asia and the Pacific are more deprived than Sub-Saharan Africa.⁷ Figure 2 provides some more information on extreme poverty (\$1 poverty line) and

³ In 2008 there are still about 1.5 billion such people under the \$2 poverty line. Social capital has increased also, especially in the form of free education and accessing other quality social services at affordable prices.

⁴ Much of the aggregate decline is attributable to China and India, the world's two most populous countries. Between 1990 and 2006, the incidence of extreme poverty (\$1 PPP 1993) declined in PRC from 33% to 12% and in India from 42% percent to 28%.

⁵ The number of extremely poor people in developing Asia and the Pacific was 692.6 million in 2004/2005. The number of moderately poor people in Asia and the Pacific was 1,251.3 million children, women and men in 2004/2005. Total number of poor people under the \$2 poverty line was 1,987.8 million.

⁶ This oddly titled notion of "improved sanitation" is defined by the World Health Organization as follows: "Improved sanitation facilities are defined in terms of the types of technology and levels of services that are more likely to be sanitary than unimproved technologies. Improved sanitation includes connection to a public sewers, connection to septic systems, pour-flush latrines, simple pit latrines and ventilated improved pit latrines. Not considered as improved sanitation are service or bucket latrines (where excreta is manually removed), public latrines and open latrines." WHO: <http://www.who.int/whosis/indicators/2007ImprovedAccessWaterSanitation/en/>. See also: http://www.wssinfo.org/en/122_definitions.html

⁷ This is particularly related to mother and child health indicators. For example, the prevalence of underweight children in Asia and the Pacific is with 30% higher than the prevalence in sub-Saharan Africa (28%, proportionate to populations ratios). Similarly, South Asia had more people suffering from malnourishment and living in slums than Sub-Saharan Africa. East Asia and the Pacific have more people without access to safe water than Sub-Saharan Africa. Problems remain in various sub-regions of Asia and Pacific achieving health as well as nutrition

moderate poverty (\$2 poverty line) in Asia and Pacific until the year 2020. For predictions of the future, we have taken ADB projections of poverty based on moderate growth and continued unequal income distribution. The methodology and research results are further explained in the book.⁸

III. ENVIRONMENTS

13. **Environmental poverty.** Poverty in Asia and the Pacific is increasingly concentrated in places with harsh living conditions, ones that include marginal land, depleted resources, pollution, congestion, and proneness to natural and human-generated disasters. This paper is about those poor people whose poverty is primarily caused by such environments. They are not all the poor, but they constitute a major segment and one whose importance will increase with time. Although we include nature in our notion of the environment, we also include human artifacts. So our notion of environment is that of the tangible surroundings that affect a person's well-being. The environment consists of public goods and public evils and therefore need for public action to make changes in the shared space of the poor. Private action—such as building nicer dwellings—is not sufficient when an area is congested or its air polluted. Even though it violates English usage, *faute de mieux* we call the poverty in the areas where the primary cause is the tangible surroundings *environmental poverty* and the poor who live in those areas *the environmentally poor*.

14. **Rural environmental poverty.** Although economic development has caused the urban population to grow faster than the rural, most people in Asia and the Pacific still do not live in big cities. And most of the poor do not live in them either.⁹ Rural Asia can be divided into areas with a growth potential that is friendly to the poor and areas with little or no potential for poor people to escape poverty. In the latter it is usually the depletion of natural resources that is holding people back. These inhospitable areas can be divided into four ecological zones:

- *dryland areas*: dry, including desertified areas in northern Asia, especially China, Pakistan, Central Asia, and northern India; degraded, salinated, and dry land (some caused by desertification);
- some *upland areas*, such as remote upland forested areas inhabited by small-scale farmers and mountain people; deforestation, etc.;
- some *coastal areas*, with degraded fish stocks (typically within five kilometers of the sea) and areas flooded due climate change (such as Bangladesh, and the Pacific Islands); areas frequently subject to floods and natural disasters; and
- *wetland areas* that experience frequent flooding (such as in the Mekong and Ganges delta, or around the Yellow river); land and housing affected by major flooding.

and hidden hunger-related MDGs. Information on the social dimensions of poverty are summarized in ADB-UNDP-UNESCAP (2007): The Millennium Development Goals: Progress in Asia and the Pacific 2007 and UN Millennium Project.

⁸ World Bank's most recently announced elevation of the poverty line from USD 1.08 to USD 1.24 for extreme poverty and from USD 2 to USD 3 for vulnerability has not yet been incorporated as the new purchasing power parity data are not yet officially available. When the newest data are applied, poverty incidences will even be higher than estimated in this paper. This would, however, basically not affect the discussion on the geographical location of the poor in their respective environments.

⁹ There were estimated 692 million extremely poor people and 1974 million moderately poor in the region, of which 515 million (74% of the extremely poor) and 1,228 million (62% of the moderately poor) lived in the country. Out of the 3.4 billion people in Asia and the Pacific in 2005, 64% lived in rural areas. Projections through 2020 estimate 55% of the 4,053 million people in Asia and Pacific still living in the country.

15. **Urban environmental poverty.** Marginal land and depleted resources undermine the livelihood of the country poor. Polluted air and water and squalid shelter harm the health of the big city poor. This is bad in itself, but it also reduces income (through inability to work) and increases expenses (medical bills). But while in the country it is mainly the natural environment that harms the poor, in the big cities it is mainly the human environment: stress from congestion of cars, people, and housing; garbage; and weakened social fabric, anonymity, and violence.¹⁰ Of urban poverty, the sort we identify as environmental is that found in the slums of the big cities, which for our purposes are those cities with 100,000 or more inhabitants. In the big cities, most—but not all—of the poor live in slums (and not all who live in slums are poor). Towns below that number have much less serious problems with traffic, pollution, congestion, anonymity, crime, etc. Therefore, we treat such towns as not having slums, at least not ones where we want to point the finger of blame primarily at the environment. Poor people living in the smaller cities are—for the purposes of this book—viewed as living either in environmental poverty of the rural type or in urban poverty of the non-environmental type. What will be said of the slums of big cities can be said a fortiori of the mega-cities, those with 10 million or more inhabitants. By contrast with the poor living in slums, the poverty of people living in smaller cities is for the most part not related to the environment. There is poverty that we consider “urban” in any town that has 10,000 inhabitants or more. But cities between 10,000 and 100,000 have both urban and rural aspects. As cities get larger, the emphasis shifts from the rural to the urban. At it is only at the 100,000 inhabitant level that we deem the urban poverty to be mainly environmentally induced.

16. **Climate change.** Droughts, floods, and resource-related conflicts threaten to throw those who are just barely making ends meet (the moderately poor) into the ranks of the extremely poor. Natural disasters have grown more severe as a result of climate change and the unrestrained exploitation of natural resources. The livelihood and health of the poor who already suffer from weak or depleted natural resources are susceptible to the shocks of drought and flooding. We view these natural causes of poverty as working through the rural and urban areas we have already mentioned. In that sense, they are seen as aggravators of the causes of environmental poverty and not causes of environmental poverty per se. The combination of global climate change and the negative byproducts of urban growth (pollution, land prices, etc) has a major effect on the big-city poor of Asia. It has done so mainly via housing and urban planning. Climate change results in rising sea level and river flooding. Many large cities are situated in coastal areas and are affected by sea level rise and flooding. The urban poor live often near creeks and polluted rivers. Rising seas and floods destroy their housing. This involves urban planning, including lack of land rights for the poor in areas that are better situated. If the poor would live farther from such rivers and harbors and if their houses were better built, they would be less affected. But they cannot afford it.

¹⁰ The line between narrow and broad definitions of poverty is not fixed. And even apparently non-controversial elements of a narrower conception require close scrutiny. For example, if we examine the notion of shelter, it is quite reasonable to have it mean more than a roof over one's head. Imagine a room in which speakers were constantly blaring the sounds of cars, sirens, and people shouting—or even music. That room could in one sense be called shelter, but in another sense it could not. Similarly, if the water in your home is undrinkable and the air makes you cough—and both make you sick—you are deprived of the material components of well-being. Someone who could afford it would use his money for a place to live that includes peace and quiet and clean air and water. So depending on who you analyze it, the big cities' human environment either causes poverty or adds to its misery. If someone did not want to include peace and quiet in the definition of shelter he could say this: Although the natural environmental fact of pollution can cause poverty to the extent that it causes sickness and sickness lessens the ability to work and increases expenses, the main effect of the human environment is not to cause poverty as much as to add to its misery—as also does being sick. So, for the most part the environment of the big cities does not increase poverty, but rather affects the way it is experienced.

17. **State, Society, Economy, Culture.** While a fair amount of attention has been paid to the ways nature affects the poor, environmental projects often fall short of their objectives because they have not considered how the environmental dimension of poverty is intertwined with other dimensions. In some geographical areas the environment is the main thing keeping a person poor. In other geographical areas other things are more important. And even where the environment is most important, these other things play a role too. In addition to the environmental dimension of poverty, there are others:

- **Political dimension:** poor political leadership (including corruption), misguided social and economic policies (even when intended to reduce poverty and foster social and economic inclusion), and weak institutions.
- **Social dimension:** lack of access to social services and the economic infrastructure. Social services include health, education, housing, and entitlements to social protection, such as pension, health insurance, subsidies, labor market protection, and consumer protection. Both the political and social dimensions involve governmental provision.
- **Economic dimension** (domestic and international): A poor person may find himself in an economy with high inflation. When international grain prices are high, farmers in exporting countries benefit but poor people in grain-importing countries can afford less bread. The individual poor person has no control over prices—or inflation.
- **Cultural dimension:** capacities of the poor and their cultural ability to overcome material and other poverty. Social norms, traditions, superstitions, outmoded ways of doing things. For example, the poor of a certain ecological zone may tend to have little business spirit. A certain ethnic group may tend to have more business spirit than another. People traditionally involved in a certain sort of occupation may be disinclined to engage in daily manual work and or be less energetic than another group.

At the same time as dealing with the environmental causes of poverty, the other causes must be taken into account too. The other dimensions interact with the environmental dimension. We advocate a comprehensive and multi-dimensional view based on the location of poverty, one that goes beyond simple generalizations of the relationship between environment and poverty.

IV. ENVIRONMENTAL POVERTY

A. How Big is the Problem?

18. **Geographical method.** Because poverty is part of a complex system and has a number of dimensions, it is difficult to distinguish the environmental causes of poverty from the non-environmental ones. Although the environment can have any number of degrees of influence in a person's poverty, in quantifying we try to separate those people for whom it is the primary factor from the rest. As the former, we count all those poor people who live in places where the environment is main factor in the poverty of their area generally. The latter are those poor people who do not live in such marginal areas. We assume that in certain rural locations the primary reason for an inability to escape poverty has to do with the natural environment. For example, assessments of the poor living in dryland areas may conclude that the main reasons for their persistent poverty are marginal land and a lack of access to water. This does not mean we are unaware that poverty has multiple causes, often including political and institutional. But the natural resource endowment may keep people poor even when institutions and policies are favorable to the poor. Because of this we engage in some simplifying when calculating the number of environmentally poor people.

19. **Estimating numbers.** We first identify non-growth potential areas and attribute ecological zones to them. We assume that poor people living in those zones are the rural environmentally poor. They are only part of the total rural poor, which includes the rural poor living in areas with growth potential. In the cities of 100,000 or more, we estimate the number of poor people living in slums as a subset of all urban poor (i.e., those who do not live in slums of larger cities, and those living in smaller towns). We conclude that in 2005 about 53% of the extremely poor (\$1) and 85% of the moderately poor (\$2) were living in areas where the environment was the major cause of their poverty.¹¹ The book will comprise an interactive map of the Asia-Pacific region that shows where the environmentally poor live. The map is linked to a country-based databank with information on current poverty and that predicted for the year 2020.

20. **Looking ahead to 2020.** With climate change continuing to affect dryland and coastal areas, with the population increasing in some countries, and with poor people migrating to the cities, we are able to project the distribution of poverty through 2020. In order to estimate how many people there will be by then who have the environment as the primary factor in their poverty, we made assumptions about mobility, demographic changes, and other aspects of life in each of the areas. For example, in some countries migration to the cities is mainly from the coastal areas. In others, people in remote uplands are often indigenous groups who are less likely to move to the cities.¹² Relating this information about mobility changes with projections about the rural and urban populations and the changes in poverty incidence,¹³ we estimated the composition of environmental and non-environmental poverty for the year 2020.¹⁴ We find that the absolute number poor people will decline, as will their percentage of the population. The numbers of extremely poor will drop from 692 million to 414 million, which is from 20% to 11% of the population. The moderately poor will drop from 1,996 million to 1,633 million, which is from 57% to 40% of the population. As for the environmentally poor, those who are extremely poor will increase in number—from 54% of all extremely poor people to 70%—while those who are moderately poor will fall—from 85% of the all moderately poor people to 62% (see Figure 3). So by 2020 more than two thirds of all poor people (and three fourths of the extremely poor) will live in areas where the environment is the main factor in their poverty—up from about half today.

21. **The dryland and slum poor will grow.** The net result of these changes is that the environment will soon be the primary cause of the poverty for most poor people, with most of

¹¹ The numbers provided in this report are rough estimates based on expert opinion. They can be substantiated through more detailed country studies about the geographical location of poverty. Such studies are increasingly being done these days using poverty mapping and global information systems, which should be able to help make more exact analyses in the future. The categories given so far may be broken down for easier measurement and deeper analysis. For example, the upland poor used here could be divided into the upland agricultural poor, the upland forest poor, the upland wetland poor, the upland riverine poor, and so on. This kind of categorization can serve to understand the various sources of environmental income derived by these people, types of natural assets available to them, and the various institutional, legal, and political dimensions in the use and access to these assets. To conduct a more systematic examination of the environments of the poor, we also did a five-country case study, again relying on the expert opinions of a team and cross-checking with relevant literature rather than using baseline data. These estimates proved to be consistent with previous poverty mapping done in these countries.

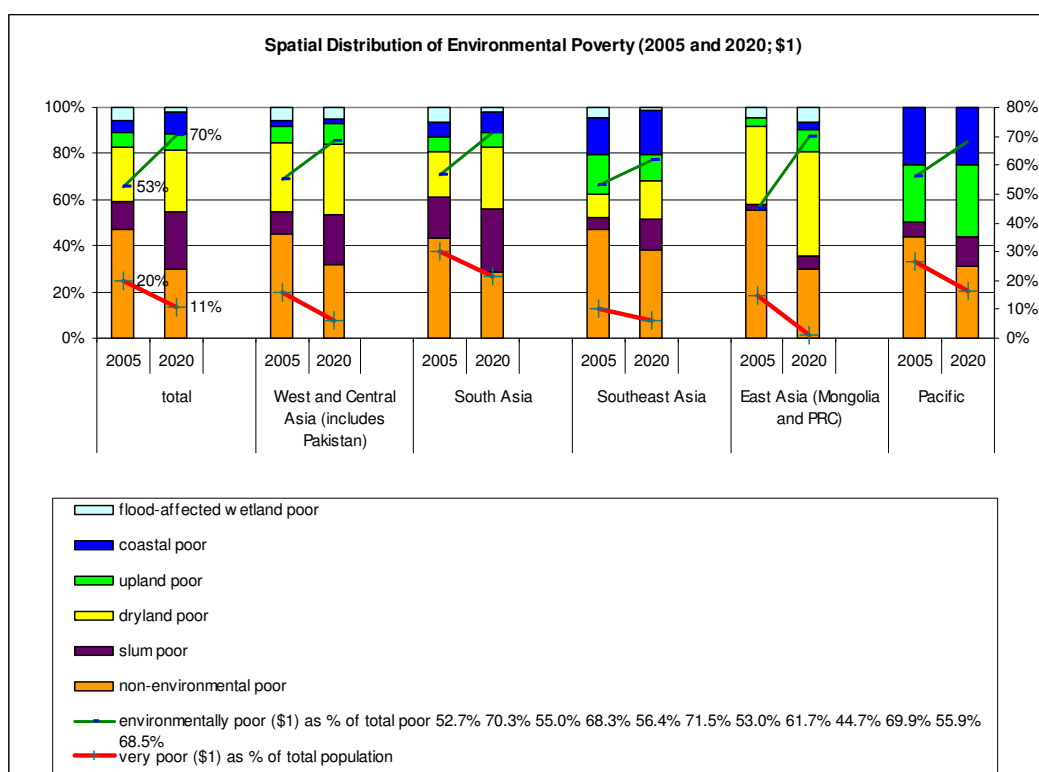
¹² These assumptions too are based on expert opinion and need to be substantiated through further studies or household data.

¹³ ADB—in preparing its long-term strategic framework for 2008–2020—has made poverty projections for 2020 for selected countries. The projections for calculating the poverty incidence (at the \$1 and \$2 poverty lines) and the extreme poor) are based on three scenarios of income distribution (pro-poor, neutral, and rich) and two growth scenarios (high growth as currently observed in the region [5–10%], and lower growth [3–5%]. See Appendix 1.

¹⁴ Appendix 1 explains the methodology further.

the increase being in the drylands and the slums. Living situations and income opportunities will worsen for those in environmentally afflicted areas, especially the drylands, because of continuing harm to the environment and more frequent and intense natural disasters, such as droughts and floods, resulting from climate change. Climate change will increase the size of the areas with inhospitable environments, especially drylands. And as it will tend to be the young men and better off who move out, the people who remain in the remote rural areas and ecological zones without growth potential will be predominantly very poor, very old, very young, and female. The better off who leave will go either to cities or to rural areas with economic potential. Those who move to cities will tend to move to smaller ones or will be able to afford to live outside the slums in the big ones. Extremely poor people who do manage to leave will move to the big city slums, adding to the number of the environmentally poor there. As a result, slum poverty will increase—both in number of slum dwellers and the degree of misery. Tied to this will be a worsening of income opportunities for slum dwellers as the advantages that bring immigrants gradually decline and achieve an equilibrium with the country. At some point, there will be nothing to be gained by moving to the cities.

Figure 3: Spatial Distribution of Environmental Poverty in Asia and Pacific¹⁵



¹⁵ Poverty data for 2005 are based on the \$1 extreme poverty line, while data for 2020 are for the \$2 (vulnerability) line. This is because poverty in the Asia and Pacific region is increasingly seen as a phenomenon of the moderately poor and many countries are moving to base their policy interventions on a higher (\$2) poverty line.

B. Policy Implications

22. **People first and before nature.** Because the environment is becoming the number one cause of poverty in Asia and the Pacific, it will become increasingly important for any strategy of poverty reduction, inclusive growth, or social development strategy to pay special attention to the areas where the environment is the primary cause of poverty. Increased attention to the environmental dimension of poverty will bring poverty people into association with environmentalists, so care must be taken to maintain the poverty reduction priority and move beyond environmental management¹⁶ to an integrated, geographical approach to development in the parts of Asia and the Pacific where the majority of the poor remain. Our approach to development is also different from traditional infrastructure-oriented development, which aimed at an aggregate growth in which benefits to the poor were taken for granted; and our approach to the environment is different from that of traditional tree-planting environmentalism, whose management of natural resources was only incidentally beneficial to the poor. Because poverty reduction is our starting point, programs to change the environment must be looked at how it immediately benefits poor people rather than from the perspective of the environment, society, or economic growth in general. By contrast with those for whom nature is paramount, we are committed to people first, poor people.

23. **Area level.** By contrast with others who, like us, do put the poor first but work on an individual or retail level, we work on an area or wholesale level—through the environments of the poor. Even though poverty is a property of individuals, that doesn't mean the solution has to take place on the individual level. We orient poverty reduction measures to the geography of poverty because the way the environment contributes to poverty varies with geographical circumstances and ecological location. Poverty targeting of the \$2 poor thus becomes another means as commonly used. This also contrasts with restricting one's targets to natural resources since when working on an area level one can consider non-environmental solutions to environmental problems.

24. **Indirect methods.** In the areas where the environment plays the primary role in poverty, it is necessary to connect environmental sustainability with alternative income opportunities for the poor and with improvements on the poor's health. Sometimes, for the rural areas for example, that could mean building access infrastructure to allow poor people's products to reach markets outside the environmentally affected area. At other times it could mean developing alternative income opportunities in tourism, but protect or develop natural environment since it is likely to be important for tourists. Hence, assistance programs need not only tackle problems with the natural environment. ADB is committed to putting the needs of the poor first in ecosystems. But although all its interventions must be for the sake of the poor, they need not be aimed directly at them. And there is no reason they cannot benefit them indirectly. It may make more sense to develop infrastructure or resource extraction in regions where households whose living conditions and income opportunities are marginalized or constrained by where natural and environmental resources are located. Changing market structures (e.g., by including the middlemen) might help the poor more than making traders out of them. Generating employment for the poor through investing in small companies not owned by the poor might generate jobs for the poor that are more helpful than direct handouts intended to foster self-employment, but which in the end may not fundamentally change their poverty situation. Because this approach is geographic, policies need not affect poor people only, but can promote social and economic development more broadly.

¹⁶ "Environmental management" means making sure development is sustainable as far as its effects on the environment go.

25. **Policy interactions.** As the way the environment influences the poor varies with the particular area, so does the way it relates to the other influences. The various dimensions of poverty interact in ways that make policies do more than simply add up. For example, improving health increases income-earning potential; increasing education leads to better health; providing safety nets allow the poor to take advantage of high-return, high-risk opportunities; and so on. Poverty-reducing strategies must recognize the interactions among policies and seek to take advantage of complementarities. The effect of appropriately designed combinations will be greater than the sum of the parts. Optimal is whatever balance is most conducive to reducing poverty overall and in the long term.

26. **Climate change dangers.** As with the encounter with traditional environmentalism, poverty people must be careful about the directions taken in connection with climate change. With its focus on global warming and energy, the climate change debate has had a tendency to eclipse the poverty focus of the development community of the early 2000s, as the main implications of climate change on water scarcity and dryland areas and the people—especially the poor living there—are not sufficiently supported any more by the wide development community. A geographical-environmental approach to poverty adds to the energy-focused climate-change debate a regional and global poverty analysis that takes into consideration rising food prices, geographical stability, and alternative energy needs of the poor. Current discussions of climate change and global warming focus on the role of countries and sectors. Large and emerging middle-income countries with high CO₂ emissions and the energy sector are the center of interest. However, where the environment is the primary cause of poverty, other approaches to poverty reduction are sometimes better. Such approaches would focus on programs in dryland, upland, coastal, and flood-affected wetland areas that make growth and social development more inclusive, and they would focus more on urban traffic management and shelter, dealing with the health and congestion concerns of the slum poor.