

Role of Agriculture in Sustainable Development of the HKH Region

Institutional Perspectives on Achieving Food Security – Balancing Public and Prime Interests: Some Examples from Pakistan

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How will farmers internalise the knowledge that is generated? How do we graft indigenous knowledge to existing systems? What is useful knowledge and how is it developed? These are some of the important questions we need to examine in the context of institutional perspectives to achieving food security. If we begin by finding out what needs to be done, then we can proceed to work towards the institutions needed, as well as formulating the policies and providing the enabling environment.

I propose to look at processes rather than structures, substance rather than form, design and creativity rather than search and discovery, and exploration rather than judgment. There is a majority of small and fragmented holdings in the mountain areas. If you have to look at productivity, how would you look at the knowledge situation? What kind of institutions do we need for productivity increases for small-

holders in the mountains? As the public sector moves out and the private sector assumes a bigger role, what is the extent to which the issues of the small-holders will be addressed? Are the inputs' distribution systems, which are mostly based on international market interactions, socially justifiable in terms of the small-holders? How would you look at wealth that has been created? A lot of wealth has been created by agricultural research centres, but they have not looked at how to distribute this wealth. Some people are receiving undue benefits out of the prevalent system. The World Bank says the inefficient input distribution system of the public sector must be changed. If one considers these aspects in the context of developing a receptive organisation, a different kind of approach is needed altogether.

Emphasis on institutional adjustments and changes are commonly advocated at present. Most of the developing countries have been subjected to the structural adjustment programmes of the IMF and the World Bank. But, more importantly, how does one adjust to the increasing commercialisation of all major sectors. How do existing institutions link to the market system? Are we discussing optimisation or maximisation in terms of sustainability? How do you work out the optimal levels of

market and non-market forces? There appears to be a complete absence of intermediary situations. It may be necessary to give up scientific solutions at times for possible solutions. It is important to explore and search. Judgement is very adversarial. It is like a gatekeeper. Today we are less concerned with ethical choices. Practicality has taken over. We are somehow being dominated in our thinking by an absence of other values besides those of the market, and this, to my mind, forces a degree of doubt about the prevailing systems of thinking.

We have to look at design versus analysis. Design will help us take things forward and look at it differently. Today we are obsessed with information. Data are coming in from all sides. There is so much documentation on different aspects of development, as for example- poverty. We have continued to define the poverty line by per capita income, by rupees, by calorie intake, and by other measures. Yet, the poverty aspect continues and is, in fact, increasing.

What have we done with more information? There is a need to get on with it and get on with new designs. Scales of design, of course, are to be learned. It is a thinking process, not something that can be immediately passed on. But, when one has a new design, it is possible to have fresh energy and start redesigning the structures rather than continuing in the traditional mode seen in the universities. One may have to recognise institutional contradictions and even do a bit of leapfrogging to overcome the hurdles in the system. There is a data paranoia. We want more information, even if it is the same information in a new form. Different policy issues have been advocated simply by reusing it. You have to create and discover and be willing to take risks for new discoveries.

We need to recognise that there are paradoxical situations in institutions. Neither should we hesitate to apply political principles. Federalism is a common situation giving rise to paradoxes of power and control. Institutional needs are both big and

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Marginal rangelands and increasing livestock pressure, Balochistan, Pakistan
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small. If an organisation is big, it is less dependent on the outside, and, if it is small, it must remain dynamic in a highly competitive world of scarce resources. The actions needed are complex and multi- sectoral, and these actions cannot always be centre-oriented. Mostly the implementation is on the periphery, and the decisions are across many points. The responsibility may be with one, but power and resources with another. If you want to integrate both of these, you may need to take a bit of both by compromising. Linear linkages are unnatural. If you share power or if autonomy is granted, then we hold it together by trust and certain common goals, that are again based on alliances and trust between groups.

Humans are our chief assets. There is a degree of equality of thinking and living between them. We should provide space for individual contributions. Through transfer of decision-making points to lower functionaries and lower organisations, you widen the scope for contributions. Everybody wants to have authority but not responsibility. In psychology, we call this the 'handicapped theory'. According to this theory, you put all the blame on another person; you don't take the blame yourself. There are two types of error in this, you can get it all wrong or you may not get it as right as you possibly wanted. You are somewhere midway. The key element is pluralism and flexibility-and not being static. This requires appropriate changes in rules of conduct, common ways of communicating, and common units of measurement.

* For his, read also her (ed).

Let me now discuss balancing public interest and private interest by looking at Pakistan's experience. The agricultural sector last year had a 7.5 per cent growth, which has been documented by the World Bank and others. Rice exports were about two million tons. Export of cotton was about 2.5 million bales this year. Trade in cotton has been internationalised, there are no barriers, and the farmer is getting his* due. However, the distribution of wealth that has occurred as a result has started a debate in Pakistan. This will determine the future of the farmer's capacity and the quality of his living in a very fundamental manner.

Creating more socially just systems in the private sector has become a high priority. This has come about because the public sector is bankrupt. Over the last three years the area for some crops has increased by a factor of three, and these changes are very rapid requiring closer monitoring. Changes in the northern mountain areas are not so rapid as these lack the advantage of modern technology. The Northern Area's contribution has been potato seeds. Another major change has been seen in the case of Canola.

Changes in international trade policies have come about. Grants or soft loans are decreasing. One has to start worrying about how to use your output for the international market. It is not a question of what you can produce, but more what the international market wants. All of these have a very significant impact on the domestic sector and, unless we have appropriate agencies to deal with these issues and problems, food security does not carry

much meaning. We have developed a number of agricultural universities. We understand there are degrees of priorities that we have to work on. Many development research institutes will be looking at the existing technologies that have been developed and are available for different areas.

In the National Agricultural Research Council, it was found that 93 different technologies were sitting on the shelf. Similarly, there was a lot of activity going on in the International Agricultural Research Centres. These technologies are sitting on the shelf and need to be adapted and used. Potato seeds have been developed for all types of soils and for drought conditions. These also mature faster. There are a number of ways to improve production and productivity. All these will require new designs, new thoughts, and new analyses for farmer adaptation in mountain and other areas.

The type of institutional dynamics needed can be elaborated upon with a few examples from Pakistan. For instance, between the harvesting of sunflower, oil seeds and the monsoon there was a period of 10 days. The middleman used to exploit that short period to his benefit. There were 16 solvent extraction units, and we asked them to come forward with plans for the direct purchase of sunflower seeds from the farmers. They explained that they did not have a credit line for purchase of seeds, hence they preferred the middleman system. Following discussions in the Cabinet regarding a credit line from the State Bank of Pakistan, it was provided with great difficulty. Credit was controlled, because deficit financing was

controlled under the structural adjustment programme. By working behind the scenes, we were working in areas where normally no agricultural institutions had worked before.

Another case is that of Canola. Although the programme for its promotion had been around for many years, it had not gone forward. We looked into it and found the problem to be one of processing. We managed to get a couple of solid extraction units to modify their extraction processes. Here, we moved into engineering processes. We discussed it with the engineers, assessed the cost and the benefits, and moved ahead to provide the right solution.

The next area was cotton. Anybody who is aware of the textile lobby knows that it rules Pakistan. It rules Pakistan in the sense that cotton fibres constitute 63 per cent of its total exports. Cotton is a powerful lobby, and we had to fight it all the way on all the issues on behalf of the farmers. We asked the farmers when they produced 8.7 million bales not to sell cotton to the textile industry. We used the pulpit of the priest for disseminating information to farmers. We also discussed it in the cabinet.

It is all these non-traditional roles of the Ministry of Agriculture that have managed to get some results and hopefully something beneficial for the farmer. I think there are no model roles for any institution. One must be able to deal effectively with the problems and issues at hand. It is also not as simple as privatisation, as we saw from the examples above. Institutions must be competent enough to understand

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Agriculture and Mountain Development: Farmers' Perspectives from the HKH Region

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Poverty and mountain degradation are very well explained by the six mountain characteristics - inaccessibility, fragility, and marginality as liabilities or constraints. On the other hand, there are the diversity, niche, and adaptation mechanisms as positive aspects. Sometimes diversity can be a problem. Mountains have many diversities, many agro-ecological zones. When a technology is developed for one zone, it may not be applicable to another. This results in much greater costs for technology development. It is also a comparative advantage that different commodities can be produced at very short distances from each other. Here, diversity acts as a positive factor. The niche in the mountains refers to mineral resources, tourism, hydro-power resources, and so on. When we discuss farmers' perspectives, we mean understanding the farmers and the kinds of conditions, constraints, and advantages they have. A farmer would like to see that his* constraints are minimised and his* benefits maximised. Different educational and research organisations, government policies, and government interventions should really be coming up with ways

to help the farmers so that the constraints they face can be reduced.

The whole case of Himachal (India) has been very interesting to look at in terms of how to develop mountain areas. While preparing the 20-year agricultural perspective plan, we reviewed the experiences in Himachal and Nepal. The demands placed on the limited resources are enormous. Unless we identify priorities for investment, we cannot really think of long-term sustainable development. I think Himachal has focussed on infrastructure and tried to overcome the accessibility constraint.

In Nepal, infrastructural development has been very expensive. Construction of roads and other transport networks has been very difficult. Recently, private sector helicopter services have been bringing about some very interesting changes. In areas like Jumla and Helambu that produce a lot of apples and where there are no roads, the helicopter services have started bringing these apples to the market. New developments have been bringing new challenges and opportunities also. One of the research issues that could be looked into is how to remove these constraints and provide cheaper services to the people. Some of the very high-value products can now be brought to the markets. These innovations have changed the perspectives of the farmers. Farmers who were producing only for their own consumption or subsistence are starting to produce commercially for outside markets.

* For his, especially in this case, read also hers (ed).

The mountain farmer has some livestock, crops, and vegetables. One has to look at the farmer in this context. He cannot opt for monocropping because mountain characteristics force him to use a farming systems' approach to agriculture. We have to see how our research and educational institutions can prepare manpower and the technology to meet this kind of need. There is a Chinese proverb which says 'walking on two legs'. This basically means using both indigenous and scientific knowledge. The challenge to both research and educational institutions is how to really bring about this combination of indigenous knowledge and scientific knowledge.

The third element is multidisciplinary research. We are talking about a centre without walls, with linkages to various institutions, as well as various donors — a consortium approach. If different institutions start working in isolation, you cannot solve the problems, particularly in the mountains. The problems are so interrelated and show up very clearly between forestry and agriculture and between uplands and lowlands in the mountains. These conditions are forcing us to look at interdependence among institutions. The same thing also applies to donors. Unless the donors work together as a consortium, the problems cannot be satisfactorily tackled.

We cannot overlook production capacity in terms of the soil, land, and water resources. Balance is important. One should not kill the goose that lays the golden eggs. We have to protect

the goose as well. And I think this balance between production and production capacity forces us to go for resource-centered strategies in the mountains. When you look at the way the farmers have been practising agriculture, it becomes clear that they have given great importance to the quality of resources. In mountain areas, they have kept livestock that do not give much milk but which produce organic matter (cowdung) used for maintaining soil nutrient levels. Mountain farmers look at how to maintain the quality of their resources. Although one has to start with agriculture, gradually, off-farm activities, to create more income for farmers become very important. Introduction of off-farm activities and modern technology become essential in the hills, but this must take place gradually and in a manner that builds up confidence among the farmers. A participatory approach to development is also needed because of the need to integrate farmers' needs and potentials from lowland and upland areas.

In Nepal, several indicators demonstrate that mountain areas are changing from subsistence agriculture to more commercially-oriented production. I have mentioned already the role of improved access and the introduction of helicopter services. The installation of VHF telephone services has also helped farmers who have been producing vegetable seeds and other products to find markets for their products. VHF telephone services are not very expensive. Farmers are organising themselves into groups and raising the resources for installing telephones. Once they deposit the

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The pastoral lifestyle is under pressure in Tibet
T. Partap



funds, they receive the VHF connection. This has broken the isolation of the mountain regions in the context of the lack of information about prices. The third element has been the introduction of sprinkler and drip irrigation using plastic pipes. These have become popular, as surface irrigation is causing a lot of erosion problems. Sprinkler irrigation has been accepted very rapidly by farmers.

While you look at the mountain characteristics, farming systems, and farmers' perspectives, it is important not to forget that some of the farmers' problems in the mountains must also be looked at from outside the mountains. This has been the case in many areas through development of marketing linkages. Apples grown in Himachal are being sold in Bombay and Calcutta. Similar solutions have to be found for other mountain areas also. Different organisations have to work together in the mountains and look at the system as a whole rather than in parts.

Perspective on Developing Food Security in Mountain Areas

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Those who lived in mountain villages 30 or 40 years back will remember that purchasing food or even borrowing food was considered to be an indicator of very low status in the village. There was such a deep concern about household food security. People did borrow once in a while when there were shortages in the family, but they did it very quietly and did not advertise it. The situation, as you all know, has changed over the years – for two reasons. Mountain agriculture has not been able to meet the increasing demands for food and, therefore, mountain areas have to import a lot of food from other areas. The development of infrastructure and communications and the reduction in inaccessibility to mountain areas have

also facilitated the flow of food from other areas. The question today is should mountain agriculture be concerned with food security as traditionally the mountain population has been, or are there other kinds of approaches? Food security will still continue to be a major concern for mountain households because of the relative inaccessibility. Whatever happens, improvements in access are unavoidable.

Food security for every household could mean that adequate food is available throughout the year. This does not mean that for certain parts and times it is available and for the rest of the time it is not available. It should also be available at affordable prices, but it is not necessary that all the food should be produced in the mountains themselves. This is not possible even if one wanted to produce all the food in the mountains. Many mountain areas are not only subsistence focussed. They are also opening up to other areas. Therefore, it would be advisable to approach the food security question separately from the food self-sufficiency question. In the Hindu Kush-Himalayan Region, there are issues relating to big and small countries. There are issues relating to countries that have large areas in the plains and only small areas in the mountains, while there are other countries that are completely covered by mountains.

Individual countries have to approach this problem differently, depending upon trade between regions within the country and also between countries. Many factors govern such approaches. If one considers food security

in the sense of food availability, not production of food in the mountain regions, there are other issues that follow; i.e., questions of transport and, storage facilities and also public policy concerning food distribution systems. The other issue is whether there is adequate purchasing power in the mountains to buy this food. If they are not producing food, they will be producing something else. Sustainability of mountain agriculture is commonly approached from an ecological perspective. But if one is talking of mountain agriculture as a sustainable source of livelihood for mountain people, I think there may be a question mark. And that's when the whole question of diversification arises—going away from food crops to other kinds of crops and subsequently going into non-land based activities such as small-scale manufacturing activities, tourism, handicrafts or micro-hydel. All this suggests that the accessibility of mountain areas will have to be improved, which means that infrastructural development will be a very important consideration in the context of changing mountain agriculture and ensuring food security for mountain households.

Some type of public support system is essential for developing mountain infrastructure, because the mountain people themselves lack the resources to build roads or other kinds of communication systems. Mobilising resources from outside should be seen in the context of meeting the cost or compensating for the cost that mountain people are bearing for the overall development of the area. The subsidy question should be seen in a different perspective. If one is thinking

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of adequate livelihood patterns and progressively increasing the standards of living of the mountain people, public support is very important. Leaving mountain development to the market only will not be a solution if markets do not support the development of mountain infrastructure and the basic needs of the mountain people.

Public support is necessary for minimising risks and diversifying mountain economies to lead them to higher levels of employment and income.

What are the implications of this kind of approach to research and development institutions? Education and research, as well as extension, appear to be moving away from purely field crops to other kinds of activities. Energy, infrastructure, road building, and tourism should also be within the purview of the existing agricultural education system. They are capable of diversifying into these areas in order to contribute more to mountain development. In spite of the rapid diversification, agriculture will still continue to be the major activity in mountain regions for quite some time in the future.

Agriculture and Mountain Development Perspectives from the Andes

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I think I am listening to the same problem that we have in the Andes. We lack money, we don't have staff.

Let me show you how we have approached this problem. I think we have a good wealth of institutions. If we try to do everything by ourselves, it will be an impossible task. We have learned from several years of work that we have to work together. Current budget restrictions have helped us to develop a consortium approach. This has been working very successfully in the Andean Region.

What we have done is to pull together a broad range of institutions-NGOs, universities, the private sector, the public sector, programmes, and projects, in terms of their comparative advantages. What can one do better than the other? This is the way our thinking has developed. In order to address research priorities, we have carried out different exercises that have given us research priorities. It has also identified who will do what.

We use a multidisciplinary research approach and the systems' approach for field activities. The consortium is based on sharing costs. To be able to share benefits, it means we have to invest and each institution will invest in funding their own staff. We did this through the development of the consortium. Another important aspect is that, by having a broad range of institutions, one is linking research and development. Usually these two are separate. The goal is not natural resources' management, but basically income generation. We have to add value to the products that come from the mountains. We have to improve technological interventions. We have several technologies that have to be taken to the farmers' fields, using a



Wool and pack animals of the marginal highlands, The Andes
T. Partap

gender perspective. Technology adoption is very much linked to the family conditions in the farming systems of the Andes.

The use of a consortium approach tries to identify close working teams from

different organisations. This is also what we have done now under the global mountain initiatives by linking the Andes, the African Highlands, and the Hindu Kush-Himalayas through ICIMOD.

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J.L. Rueda