

Institutional Innovations for Sustainable Farming & Natural Resources' Management in HKH Region

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In simple operational terms, this phrase 'institutional innovation', means any institution which is trying to do things more effectively than it has done business in the past. Inputs for such changes can come from both internal and external sources. We see this as institutional innovation. There are components of our mountain village ecosystem which were fairly well integrated. I think it is fairly well understood now that, for mountain area development, we need to look at mountain farming systems as an integrated system incorporating livestock, forestry, and agriculture. If we look at mountain institutions, we find that, historically, there existed social and community self-governing systems. These arrangements were largely within the closed economies of mountain areas, and there was a very strong interdependence and a collective mechanism for agriculture and natural resources' management.

As government started to play a larger role in natural resource management, this led to the nationalisation of common property resources, mainly forests. These changes had an impact on private land productivity and household planning strategies, because of the interlinkages between food, forest cover, and agricultural productivity. Over the years, it has been seen that these institutions have also been involved in many endeavours of mountain development.

The common factor that has emerged is that they are all fairly large institutions. They have a large spatial spread, are fairly standardised in their approach, are generally centralised, and have common operational mechanisms. Any large institution must operate within certain norms, rules, and regulations. The impact of this in terms of R&D extension has been that it has been fairly poor at reaching the smaller and the weaker farmers. These institutions have also been unable to respond to the ecological, social, and cultural diversities which are all major comparative advantages for mountain areas. Failing to respond to these diversities has led to erosion of community-based systems of natural resource management and also to a crisis of confidence in national institutions.

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There has to be a diversity of institutions so that all can play a constructive role in sustainable agriculture for the future. It is not only the state-inspired institutions that have a role. Intermediary institutions also have a major role. These institutions are related to those that make policy; those that implement it, be they non-government organisations, national institutions or international NGOs; bilateral institutions; and, very important, community-based institutions. There are also institutions that are government-owned but run by farmers who are actually the stakeholders and the clients. There is some integration in natural resource management, but most of the institutions appeared to have been established, designed, and run on narrowly-focussed sectoral disciplines and are fairly conventional in their approaches. There is a need to deal with the problem of inaccessibility of terrain by decentralising institutional mechanisms. Because of this, the role and contribution of local institutions are going to be critical for the future.

People's participation has been recognised to varying degrees from country to country and institution to institution as essential for mountain development. However, for the future, if you are looking at harnessing the strengths that are present amongst people, they will need to play a much bigger and stronger role in sustainable mountain agriculture. This has implications for R&D institutions and also for extension. There is a sense of urgency in that we need to look at how to integrate farmers' perspectives into research and development institutions.

The advocacy for people's involvement has increased in recent times. Many institutions have taken steps to transform themselves so that they can respond better to farmers' perspectives and needs. And there is still a lot that needs to be done, because, if an institution is going to genuinely internalise the implications of working closely with farmers, this has to be looked at, in the context of planning, budgeting, and research priorities. Lastly, adaptation of economic liberalisation policy has started and this has implications for R&D institutions. Questions are being raised about the efficacy of institutions, the gaps that exist between research and its application, and privatisation. Bringing in the private sector raises many inter-generational and equity questions. In essence, we are looking at a future of change. Change is always painful, personally and also institutionally. Change is going to be a common thread, and the ability of institutions to adapt and to meet the challenges of the future is going to be critical for sustainable mountain agriculture.

There has to be a complementarity between organisational goals and strategies and structures should change to respond to those goals and strategies. While cultural values are abstract things, they are fairly important in terms of goals, leadership, and staff motivation, and it is necessary to have some consensus on certain values and approaches.

In the Hindu Kush-Himalayas, and probably even in the plains, the conventional approach is under



Afforestation with pine trees in many areas of the HKH has not been of much benefit to local farming communities
T. Partap

pressure. There is an urge now to look at transformation in a new light and to move to change the paradigm of conventional development. There are issues that R&D institutions might want to consider, and these are to change from management to leadership, from efficiency to effectiveness, and from control to release and empowerment. This would give professional staff space to be more participatory, to express what they would like to do when they would like to do things differently, to look at customer services rather than administrative efficiency, to be more client oriented, and to look at synergy between sectors and disciplines and professionals rather than at narrowly focussed techniques.

I would like to move now to an example from Bhutan. In Bhutan, they were also traditionally structured with separate line departments and research institutions located in each line agency. Over the last three to four years, they have gone through a process of institutional change and this is

applicable all over the country, not in one department only. In Bhutan it is known as the renewable natural resources strategy (RNR). In the past, subsistence agriculture has been the predominant activity, contributing 45 per cent of the GDP and supporting 90 per cent of the population. Some of the gaps identified in planning are lack of understanding about roles, inadequate consensus, and different departments pulling R&D institutions in different directions. There was no synergy and open communication channels were lacking. Through an extensive process of re-examining their institutional capabilities they have come up with the new RNR approach. Bhutan is a small country where human resources are still developing, and development strategies must take this factor into account.

Poor coordination and linkages between different departments and institutions and lack of monitoring and evaluation were common problems among agencies. Planning

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was centralised with overconcentration of decision-making. There were inadequate mechanisms to internalise farmers' perspectives and, of course, the issues of funding and lack of clear definition of responsibilities were common problems. The short-term objectives of the RNR approach involve integrating programmes, projects, and activities into the three sub-sectors; agriculture, forestry, and livestock. By doing so, the Bhutanese Government seeks to enhance the relevance, coherence, and effectiveness of their work within Bhutan and also to consolidate all available resources, thereby strengthening the capabilities of institutions; and, more importantly, they also seek to optimise the use of limited human and other resources. The long-term objective is to achieve sustainable production systems and to improve the income levels and the quality of life of the people.

This is the new organisational structure in Bhutan. There is a secretary of agriculture; the departments have been merged and there is no department of forestry, although they have a forestry services' division which has decentralised its functions extensively. In Bhutan these changes are still in their early days. It is not a blueprint for other countries or other institutions, but some principles might possibly be of interest. The department has been merged into the Ministry of Agriculture. This is always a very difficult issue. Institutions do not want to let go of their territorial boundaries, responsibilities, and the power that comes with them. They have merged the functions of agriculture and animal husbandry into crop and livestock and research. They have decentralised the functions of the forest

division and integrated all the departmental research. Earlier, research was being carried out by different sectors, and they brought those together. And lastly there is an RNR Board at the *Dzongkha*, that is the district level, which again integrates all three sectors. How this will work, only the future can tell. But it is clear that the new institutional responses will be critical for sustainable mountain agriculture.

Institutional Innovations in Tibet

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The purposes of research and education are to meet the long-term needs of the society. These achievements need to be applied to management and integrated into the development process. Education provides manpower training and most of the human resources generated from the educational process go into management. Only a few people are responsible for policy-making. For every kind of development process and activity, there are intermediate groups of people involved in different types of institutional activity. Institutional activities are very important for mountain development. To what extent any one institute can play a role depends upon the institutional situation. We know that policies are changing frequently, especially in China, and, when policies change, the institutional situation also changes.

With regards to Tibet, in the current situation we have three kinds of development needs. First, there are production needs. Development should assist production, especially in terms of meeting the food requirements of the people. The second need is for changing the quality of life. At present, about 13 per cent of the population live below the poverty line. These people are living mostly in very remote areas. Their well-being needs to be improved. The third need is that of the environment within which the development process and the economy grows. More and more of the development is today being undertaken at the cost of the environment. So, environmental issues have become very critical. In Tibet, research has shown that about 50 per cent of the pastureland is already degraded. The umbrella organisation responsible for the development of agriculture, forestry, and animal husbandry in Tibet is called CAFA (Commission on Agriculture, Forestry, and Animal Husbandry). Under this agency, you have many organisations, including those for research and education. On account of the recent policy changes, a need for institutional innovation is felt. Research and educational institutions have their own position and role in regional development. They are not the decision-makers. They cannot allocate budgets. So they have their limitations and also their own advantages. The role of these institutions should be properly understood.

In Tibet's case, research and educational organisations have three major roles. They support State decision-makers by providing needed information; they are engaged in

some research and provide training to the people concerned in these areas; and they are responsible for extension of different research findings. In order to play an effective role in all these aspects, several gaps need addressing. Firstly, the policy in recent years has changed decisively towards a market economy. This is a new problem in China. Institutions are very slow to respond to these policy changes. The government has informed institutions that research support will be related to the market economy, i.e., research for market-oriented production.

Institutions that have been used to the traditional type of research lack qualified staff for diversified activities. The production units are now very decentralised, with farm families playing a major role. In this case, many of the research workers need to deal with individuals rather than groups. But they are not adequately trained for this. The government is organising competitions between different research and educational organisations and this is also increasing the competitive spirit. Once the government has a new programme, different institutions have to prove their advantages. Otherwise they have no work and no money. There is infighting for survival. The development budget of the Government has allocated more funds to other development issues rather than to research and education, and this is also hurting many organisations.

Lastly, because of the open economy, there are more options for employment. People are looking for jobs that provide higher pay. Many

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agencies cannot afford higher pay without incurring budget deficits. In some cases, more than 60 per cent of the research staff have moved out of agriculture to find other jobs. Qualified staff are few. One answer to this is to promote women's development.

In the last three years, ICIMOD has been carrying out an Institutional Strengthening Programme. The programme has worked together with CAFA in human resource development. Under this programme, several activities have been carried out. The most important has been to introduce a dialogue between policy-makers, scientists, and farmers.

Several dialogues were held with policy-makers, planners, researchers, and professionals in different institutions in Tibet. A training course was organised to introduce the mountain perspective and other related topics. Through discussions between the

Government and research institutions, several priorities were identified and programmes developed accordingly. The most important activities were institutional collaboration and group participation in government planning. Prior to this, professors and researchers had never taken part in government planning activities.

There was a willingness on the part of research and educational institutions to undertake activities together with the Government. Following the approval of the agricultural plan, prepared through dialogue as Agenda-21 for Tibet's Agricultural Development, many of the institutions will be heavily involved in its implementation as well as in future planning and monitoring.

Another programme undertaken was to translate information regarding regenerative agricultural technologies into the Tibetan language and provide it to field workers and farmers. This



Senior officers and researchers discussing institutional strengthening for sustainable highland agriculture, Lhasa, Tibet, 1995
T. Partap

had a very big impact. Many of the farmers, after reading the book, have asked for support for specific technologies. Another activity was an extension study tour. In Tibet, because of the new policy changes, extension stations in many counties could not work in the fields. It was decided to organise visits to good experimental stations in other mountain areas of China to study their activities. ICIMOD helped to organise an extension study tour to Ningnan County, which is in the western part of Sichuan Province. This visit was highly successful and has resulted in the establishment of close collaboration between some of these organisations.

ICIMOD also had another programme in the agricultural college to develop a sustainable mountain agriculture curriculum and also develop an appropriate faculty for sustainable mountain agriculture, leading to a training manual and appropriately qualified staff for mountain agriculture. The development of faculty is already in progress. A compulsory course on sustainable mountain agriculture has been developed for the students of that college.

The conclusion from the experience so far is that institutional innovations are not an individual activity but involve closely linked group work with the full participation of different organisations. Institutional development should be pre-planned as a key focus for strengthening an institution. Finally, there is a very important facilitating role for international or regional agencies in national and local institutional innovations.

Institutional Changes at Lumle Agricultural Research Centre (Nepal)

P. Harding, Director of Lumle Agricultural Centre, Nepal

Lumle Agricultural Research Centre (LAC) is a British Government funded multidisciplinary agricultural research centre situated 30 kilometres from Pokhara in Nepal. Its research command area covers 11 hill districts, 18,500 sq. km., which contain about 360,000 farm households. There is a tremendous variation in altitude from 300 to 3,000 metres plus. Rainfall ranges from 1,500 mm a year to 5,000 mm, and the climate within the research command area ranges from subtropical to alpine. There is a fairly wide range of crops and agricultural products. The traditional farming systems are a complex mix of arable farming, livestock production, and forest exploitation. LAC operates within the framework of Nepal's agricultural perspective plan, which has recently been finalised. In that plan, for those areas with good access, good irrigation, and good infrastructure, the emphasis is on promoting high-value products. For those areas with poor access and lacking irrigation infrastructure, the emphasis initially is on improving subsistence production. This will change along with the improvements in access and irrigation infrastructure.

It is very important for all organisations, and particularly research institutions, to have very clear, well-defined, and understood aims and activities. The goal is to improve the hill districts of

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Western Nepal. To do that, four activities have been identified.

These are to increase agricultural productivity and production, generate employment and income opportunities, improve nutrition, and sustain and possibly improve the resource base. There is a secondary project to enhance the capability of the hill agricultural research system in Nepal through the Nepal Agricultural Research Council (NARC). Because of declining funding, it is always necessary to focus one's attention on priority areas. In the past, the attention has been on national and regional priority commodities or various themes, in agreement with NARC. The current research mandate includes some cereal crops and some vegetables and provides research support in areas where advantages for certain cash crops, including livestock, exist.

It is also important, in a research programme, to understand who the target beneficiaries are. In cases, where the principal beneficiaries are the households in the hills (and the word households should be emphasised), households are targetted in accordance with socially required resources and needs, especially those of lower socioeconomic status. The second beneficiary is the National Agricultural Research System which receives better approaches and trained manpower. Lumle is generally recognised, in Nepal, as being a reasonably successful agricultural research centre, and, recently, an independent assessment has also confirmed this view. However, there is still room for improvement and various staff members have had

different ideas for improving different aspects of Lumle.

One cannot really introduce major institutional changes unless the staff are with you. The staff need to understand the change and the staff, by and large, need to support the change. A participatory process to institutional change was adopted. It included a three-day workshop in which staff from the junior technician level up to the directorate level were involved in analysis of strengths, weaknesses, opportunities, and threats before the organisation. Following this, areas in which performance improvement was possible were identified. Following the workshop, voluntary working groups were created to tackle five major areas such as staff assessment, monitoring, evaluation, privatisation, and extension. Working groups spent three months meeting and considering each of these issues in some detail, in their own time, and at the end of three months came up with discussion papers on different issues.

LAC is in the process of implementing some of these. One of the issues identified was institutional sustainability. As LAC has been funded entirely by the British Government, it needs to find other sources of support from the point of view of sustainability. Integrating with NARC over the next five-year period was seen as an option. Trying to broaden the support will improve the efficiency and effectiveness for research and thereby contribute to sustainability.

The bulk of the decision-making responsibility has been passed on to

a Central Research Management Team (CRMT) which meets once a month on average. It is a small working team which makes all the key decisions. It is the team that has the responsibility for strategic planning. Lack of strategic planning was one of the weaknesses identified. Because everyone was always so busy, there was never time to stop and think where LAC was heading before starting a new research activity. One of the strategic planning functions of the CRMT is to make sure that LAC is always tackling national and regional priority areas and that adequate resources are available for planning.

The other function of the CRMT is to monitor activities and achievements. It has also delegated this responsibility to different teams and units. There is also an independent planning, monitoring, and evaluation unit which reports directly to the CRMT. In the past, there were many field visits, but the results of these visits were never used to evaluate the research. Now one of the main functions is to coordinate and monitor all the activities on a regular basis and to draw criteria and procedures to evaluate these activities. While every group will monitor and evaluate their own activities, results will be coordinated by the unit which then reports to the CRMT. Managerially the institute is now divided into three divisions - administration, technical, and outreach divisions. The administration looks after all the personnel and management functions, including staff training.

The technical division contains about 40 scientists. In the past, there were

arranged officers (officers on secondment) and funded officers (funded from the core resources of the centre). It was felt that this was not successful in many ways because of duplication, and a narrow view of problems resulted in wastage of resources. There was a need to change the single disciplinary approaches and units. Scientists were divided according to their fields as it was thought useful for scientists of the same background and training to sit together and share experiences. The outreach division has a whole network of field-based staff. They are located in all the different recommendation domains. There are 25-30 different recommendation domains. Equally important is the feedback to the teams and the scientists of the farmers' needs and perceptions and their responses to the research and related activities. All the field-based staff are now responsible for providing this feedback.

One senior staff member from the outreach division has the responsibility for establishing linkages and coordinating them with extension workers, NGOs, and other projects in the outreach areas. NGOs in the 11 districts are being approached to establish linkages with the centre. These are not just communication but also operational linkages. The interdisciplinary teams and the staff identify priority commodities and themes. It has been emphasised that research should be farming systems' oriented and that it takes place in farmers' fields. Much of the research is undertaken by the farmers themselves. By definition it must be farming systems' oriented, although the individual research programmers may

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Practising
participatory on-
farm research.
Rapti Zone,
Nepal
P. Tulachan



work on a particular priority crop in that farming system.

For example, Team 1 could be a rice team. There will be a team leader, and they will have inputs from as many disciplines and experts as necessary—maybe a plant pathologist, entomologist, socio-economist, etc and they will contribute anything from five or 10 per cent of their time to 70 per cent of their time to that team. The rice team will have all the necessary disciplinary expertise in it and, equally important, they will have at least one, hopefully more, of the division staff in the team. Every team has socio-economic, outreach, and technical inputs. The field staff are implementing all the trials; they feel they are a part of the team because they are active members of that team. There are something like 12 teams, and these teams, in conjunction with their other colleagues, assess the needs of the farmers, in terms of research, and draw up a research programme consisting of project, sub-projects, and activities. It budgets the programme and submits

it eventually to the CRMT for final approval and allocation of resources.

The focus is on two types of research—technology generation and technology verification. At Lumle, the main centre, the focus is on high risk research, for example, the first one or two generations of a plant breeding programme and all research which requires very regular and perhaps somewhat sophisticated data collection such as some plant physiology studies or lab-based studies. On the station, the research focus is on technology generation, and there are exclusively researcher designed and researcher managed experiments. The next focus is on site testing. These are like little mini-research stations—mainly half a hectare or one hectare in size and located in agro-ecological zones that are not represented at Lumle. There are four testing sites, and each carries the same kind of activity as on the station, exclusively researcher-managed technology generation type research. But these two represent less than 30 per cent of the total research

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work. More than 70 per cent of the research work is carried out in farmers' fields at what are called off-station research sites representing each of five to six rural agro-ecological zones.

Activities selected from the recommendation domains are researcher-designed but farmer-managed. Researcher-designed experiments are conducted under farmers' conditions and managed by the farmers. The outreach sites are the focus of our research, because this is where the researcher, the farmer, the extension agent, and the NGOs come together. The research process consists of four phases: planning, implementation, review, and dissemination. The CRMT has an important role in each of these. The effectiveness of each research team is evaluated. LAC is less and less involved in extension. There are various ways in which the findings are disseminated such as publications,

training courses, mass media, and visitors. LAC gets over 4,000 visitors a year.

The research systems at Lumle and Pakhribas (its sister agency in East Nepal) have been working for more than 20 years. Research is based on a participatory approach, and institutional improvements have been made to respond to the needs. It has a clear set of goals and objectives, well-defined targets and an essential research management team, which includes monitoring and evaluation of all the activities. Research teams also include social outreach officers. There is delegation of responsibility and a network of all stations and outreach research sites. The emphasis is on farmer management and, as far as possible, even farm-designed trials. This is working quite well so far but needs to be carefully monitored in future.

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