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BHUTAN

Technology Transfer issues in the context of Bhutan

Introduction

Bhutan is unique compared to most developing countries, in that much of its natural resource base remains intact. The relative intactness of Bhutan's nature resources is largely a result of Bhutan's recent entry into the economic development process, the cause of environmental degradation in many developing countries. The economy largely consisted of traditional subsistence living until the 1960's. The Royal Government of Bhutan has also maintained a cautious approach towards development, and a high level of awareness of possible negative environmental impact of development.

In addition, Buddhist faith, which plays an important role in all aspects of Bhutanese life, stresses respect for all forms of life. Traditional subsistence farmers have developed environmentally sustainable practices over centuries, which only recently have come under pressure from economic growth, and population increases.

Learning from the experiences of other developing countries, Bhutan's vision of economic development is based on the concept of treating

economic, social and environmental aspects of development as equally important. Today Bhutan has over 72.5% of the country, under forest cover with 26% under protected areas.

Technological need and needs assessment

Bhutan signed the convention on Biological Diversity and Climate Change during the UNCED at Rio de Janeiro in June 1992. The 73rd session (1995) of the National Assembly of Bhutan ratified these conventions.

Bhutan is fully committed to the objectives of these conventions on Biological Diversity and Climate Change.

While Bhutan participated in the relevant international fora and signed international conventions, each of them has many legal obligations. Bhutan therefore faces great difficulties in meeting all the legal and financial obligations involved, implementing the activities and enforcing the provisions of the conventions. Despite these constraints, Bhutan recognizes that it must play its part in ensuring that the global environment is protected.

Bhutan realizes that as a small country, its effort in the global environment seem limited. However, Bhutan's commitment is to the maintenance and preservation of one of the world's last remaining areas of pristine forests and rich biological diversity for the benefit of all future generations.

Under Article 4 of the UNFCCC, developed country parties shall “take practicable steps to promote, facilitate and finance the transfer of environmentally sound technologies and know-how to other parties” , in the hope that technology will provide solutions to meet the challenge of GHG reduction.

Although Bhutan has not addressed this issue specifically, it has integrated this important issue of adapting environment friendly technology and know-how as one of the important tools of sustainable development.

Bhutan is in the process of bringing out its first GHG inventory report which will be submitted to the UNFCCC sometime this year.

At the moment, no technology need assessment could be carried out due to lack of expertise and technical capability in this emerging field.

Capacity Building Needs

This is one of the objectives of the Green House Gas project in Bhutan.

Bhutan has set up a National Environment Commission , which is the agency for environmental and climate issues. There is an on-going capacity building project. Bhutan has a handful of climate change experts, which are the working members of the National Environment Commission. These experts have taken the lead role to create awareness of climate change issues by way of conducting workshops/ seminars a the national and regional level within the country.

Opportunities for investment and private sector participation

The Royal Government Of Bhutan has emphasized the development of the private sector. To facilitate this growth, many manufacturing companies and service industries have been privatized. In a complementary move, the government has established technical assistance programmes for the private sector. The Bhutan Chamber of Commerce and Industry (BCCI) , a non-profit organization, aims to facilitate as an intermediary between the private sector and the government, by extending and facilitating services in

various areas of business and acts as a forum for discussion for private sector development.

Despite a number of constraints, the private sector has continued to register modest growth and play its role in the economic development of the country. The factors that have restrained the potential growth of the sector have been identified as;

- the relatively small size of the local market
- lack of entrepreneurial expertise
- lack of technical capability
- limited access to credit facilities
- shortage of domestic skilled and unskilled labor.

Ongoing and planned technology transfer activities

There are a number of programmes which have been implemented as per the National Five Year Plan, which is also in line with the objectives of the Climate Convention framework. Bhutan has large potential for hydro energy which is one of the best energy source that does not emit GHGs. Only about 2% of the total potential renewable energy has been trapped so

far. Bhutan has the potential to produce over 20000 MWs of hydropower . Only a small part of this will be used for Domestic consumption, the rest of it will be exported to neighbouring countries . the energy sector will be the biggest revenue earner.

Some of the on-going programmes in the energy sector are

- Hydro power generation programme
- Transmission programme
- Urban electrification and sub-transmission and distribution programme
- Rural electrification programme

Some of the future programmes are:

- Power generation (construction) programme
- Energy efficiency programme
- Institutional development
- R&D development programme
- Improvement and upgrading of transmission lines and sub-stations

Barriers for technology transfer

Like many of the developing countries, Bhutan has its barriers for adapting to new climate technology and its know-how. The main barriers are :

- Lack of finance
- Lack of climate technology literacy in the country
- Lack of climate change awareness
- Lack of environmental legislation
- Lack of participation of the private sector
- Lack of information and technology

Possible actions to overcome barriers

- Ensure that environmental legislation is formulated and enforced
- Ensure all public and private-sector enterprises will undergo an environmental impact assessment screening process and the necessary mitigation measures will be taken
- Integrate environmental concerns into the formal economic development process

- Collect baseline data for basic environmental standards such as clean air, clean water, forest cover and emissions, and compile them in a proper environment database
- Build up adequate scientific and legal capability in the environmental field
- Work with local communities and schools on environmental issues
- Establish a trust fund for environment-related projects

Key elements of successful transfer of technology activities

One approach for promoting technology transfer is to utilize a range of positive financial incentives by the government for minimizing environmental damage and using cleaner technologies. The financial incentives could be in the form of tax reductions, duty exemptions or subsidized loans, for example, can reward environmentally progressive projects.

Key elements of a framework for the implementation of technology transfer

At the national level, the national policy is geared towards the sustainable development. The climate change convention issues are strongly integrated into the National Planning and policy of the country's annual plan.

General policies towards the environment are|:

1. Improving existing, and introducing new, legislation and policies to ensure sustainable utilization of natural resources.
2. Preparation of Master Plans for different sectors of the economy. E.g. Forestry, Power and Roads. These plans will ensure development is carefully planned, minimize environmental impact, and ensure utilization of natural resources on a sustainable basis.
3. Use of economic incentives to encourage sustainable utilization, for example, a progressive cattle tax to act as disincentives for holding large unproductive herds.
4. Increasing involvement of community and NGO's in planning and implementation of environment activities.
5. Developing an integrated land use planning capability to provide information for sustainable development planning in all sectors. It is also the policy of the government to keep a minimum of 60% of the land area under forest cover at all times with a good network of protective areas.
6. Building on existing resource management practices, rather than adopting new control mechanisms.

Conclusion

The country is at a cross-roads. The development process has recently accelerated, and the Kingdom is faced with many difficult issues related to the environment, development, and population growth, and associated demographic changes. It is now clear that Bhutan's future depends on the range of decisions and strategies to be implemented in the coming years. Such a process is necessary and inevitable. National development can lead to greater prosperity, greater diversification of the economy and greater security against natural and man-made threats. It can improve the welfare of all Bhutanese.

Bhutan's challenge is to build on the foundation of cross-sectoral analysis, collaborative problem identification and integrated strategic planning. For this to take place, the government has come out with the national environment strategy, which is only the first step. It will further develop an integrated policy and legislative framework for guiding development projects and programmes toward a path of sustainability. This

ongoing process will provide Bhutan with a realistic combination of regulatory mechanisms and physical incentives to encourage the public and private sectors to develop without unnecessarily compromising the natural resource base. To successfully meet the challenges of the future, the Bhutanese people will be well served by our long standing characteristic sense of balance. We must balance our commitment to maintaining our ancient culture and deep-rooted respect for the sanctity of nature with a willingness to develop economically and adopt as technological and social changes. We must meet the challenge of preparing for population growth and its associated demographic changes and stresses on limited and fragile lands through the integration of family planning policies and practices within a far-sighted development framework that emphasizes environmental management.

We must develop our capacity to anticipate and plan for a wide spectrum of changes in resource use, the social fabric of nation and international relations. Sustaining the health and potential of our natural resources and environment will be at the centre of this challenge.

We can build on all that is good in our history and culture while adapting to a changing world and meeting the imperatives of modernization. By proceeding along this balanced path, our Kingdom can meet the challenges of the 21st century without sacrificing that which is most vital to our national well-being: our unique cultural heritage and the integrity of our environment and natural resources.

