

WATER RESOURCES MANAGEMENT IN LAO PDR

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I. Country Background

Lao People's Democratic Republic (Lao PDR) is land-locked country with an area of 236,800 square kilometres; most of which is mountainous and about 47 percent is forested. The country has 16 provinces, one municipality and a special zone. The estimated year 2000 population is 5,218,000, giving a current average population density of 21 people per square kilometre. The range in population density is from the highest in Vientiane Municipality, where it is 149 people per square kilometre, to the lowest in Xaysomboun Special Zone, where the density is 8 people per square kilometre. Lao PDR has the third lowest population of the ASEAN countries. In some of the mountainous areas the population is very scattered.

Around 80% of the country's area lies within the Mekong River Basin. The remaining 20% drains through Viet Nam directly to the South China Sea. The major tributaries of the Mekong all have significant watersheds. Besides the major tributaries of the Mekong, there are hundreds of small streams which mostly have a torrential regime during the rainy season and have a very low or no flow during the dry season.

The total annual flow of water flow in Lao PDR is estimated at 270,000 million cubic meters, equivalent to 35% of the average annual flow of the whole Mekong Basin. The monthly distribution of the flow of the rivers in Lao PDR closely follows the pattern of rainfall: about 80% during the rainy season (May-October) and 20% in the dry season, from November to April. For some rivers in the central and southern parts of the country the flow in the dry season is less: around 10 to 15% of the annual flow.

The abundant water sources in Lao PDR have the potential to support socio-economic development, especially hydropower and irrigation sub-sectors. The hydropower potential of Lao PDR is great compared to other countries in the lower Mekong River Basin providing an opportunity to earn foreign income. The hydropower sector also has the ability to develop rapidly. The government has given high priority to investment in the irrigation sub-sector since agriculture is the foundation of national economic development, necessary for food stabilization and about 85% of the population lives in rural areas. However, the water source development is still at a low level: irrigated area is only 20% of the national paddy area and hydropower production is still at 2% of its potential. Development in other sectors is still at a low level compared to hydropower and irrigation.

Although some advances have been achieved in the water sector, problems still remain. These include: unusual rainfall patterns in some years, high evaporation, flood and drought in some of the main agricultural areas of the country; the impact of shifting cultivation on water resources although this activity has been significantly reduced; and conflict of interests for management within the sector since most water sub-sectors are still responsible for multiple roles of regulator, manager and service provider.

Optimal use of water resources is a critical factor in realizing the Government's dual strategic objectives of poverty reduction and sustainable economic growth plans. In the past few years the Government has introduced various legislative and institutional measures to manage water resources more efficiently and effectively. To foster the adoption of an integrated water resources management (IWRM) approach at an operational level, the Government has focused its attention on key areas in agriculture and hydropower to optimize the water resources. However, the most significant institutional problem in the water sector is the inadequate coordination among key central agencies and provincial departments. There are 12 central agencies that are directly involved in water sector management while another 10 have a direct interest in it. In particular, a system needs to be developed at the community, district and provincial levels to make water resources management more efficient and equitable in line with the Government's policy of decentralized planning.

Water quality is not yet a problem but with more intensive agriculture upstream, it needs to be monitored closely. The basin's upper watersheds are critical for sustainable development and human welfare. They contain important biodiversity and are home to a variety of ethnic minority groups who are among the poorest in the country. Many of these watersheds are already under pressure from agriculture that is based on shifting cultivation and exploitation of forest products. At current use levels, these activities are unsustainable. To ensure long-term sustainability of the basin watersheds and livelihood opportunities they offer, an integrated development approach ought to be fostered among the farming communities, line agencies and departments alike. By implementing a variety of integrated activities, the Project would provide an impetus to that end.

The NNRB has been selected as the first river basin to initiate these activities due to the existing and planned water sector investments as well as its proximity to the capital, Vientiane. This Project is the culmination of the Government's, ADB's and AFD's continuing efforts, over the last several years, to establish and strengthen water sector institutions for their closer and more effective coordination. The design of this Project will afford a first real opportunity to both central and provincial departments to implement the IWRM approach through hands-on activities that are closely interlinked.

Optimal use of water resources in the country is the long-term goal of the project. Two immediate objectives of the Project are to: (i) foster and institutionalize the IWRM approach in the mainstream management process of the Government both at the central as well as at the provincial and district levels, (ii) support investment interventions in relatively degraded parts of NNRB to ensure sustainable watershed management and to provide livelihood opportunities for the poor and communities of ethnic groups.

II. Integrated Water Resources Management in the Context of the Lao PDR

The philosophy of IWRM is based on the Dublin Principles: (i) water as a finite and vulnerable resource, (ii) the importance of a participatory approach involving users, planners and policymakers, (iii) recognition of the special role of women as water

users, and (iv) water as an economic good with economic value in competing uses and as having key social and environmental roles. The overriding criteria are economic efficiency in water use, equity and access for all, and sustainability of vital ecosystems.

IWRM looks at the entire hydrological cycle and the interaction of water with other natural and socio-economic systems. However, the planning and operation of water systems is usually fragmented, causing a lack of co-ordination, waste and conflict. Moreover, water is frequently neglected when decisions are made about crop patterns, trade and energy policies, urban design and planning, all of which are critical determinants of water demand. The sustainable use of the resource calls for the creation of institutions and systems that can transcend these traditional boundaries and involve a variety of users and other stakeholders. Keynotes are integration, participation, consultation, gender awareness and consensus.

Integrated and coordinated water resource management imply a concern with upstream-downstream relations, including land use, a unified management of surface- and groundwater, a shift to management at a catchment or river basin level, and harmonising water management with other sectoral policies with a collateral impact (trade, housing, energy, agriculture, etc). Water quantity and quality issues need to be reviewed in conjunction.

These considerations are of particular importance in Lao PDR, where the Government has adopted a policy of decentralized planning based on provincial and local authority boundaries. River basin planning and management must be introduced into this system to avoid undue negative impacts on downstream jurisdictions.

Integrated water resources management also involves a new and more balanced treatment of sectoral water perspectives. Traditionally the more powerful sectors in terms of water development and management have been irrigation and drainage, hydropower generation and, in some cases, flood control. IWRM means treating the interests of sectors such as water supply, fisheries, tourism, transportation and public health more seriously, in line with their importance in national goals and objectives.

III. Legal, Institution and Policy Frameworks

Since the Government's development strategy emphasizes poverty reduction and economic growth through improved management of water resources, application of the IWRM approach is necessary to reinforce links and synergies between water and land use, the environment, and sustainable development. The Government has approved the *Water and Water Resources Law* (the Water Law). Article 22 of the Law, for example, expresses a number of principles which are in accordance with the IWRM approach. The Government has also documented issues relevant to river basin planning and management through consultations with the concerned stakeholders and developed a strategy by preparing a *1998 National Water Sector Profile* (NWSP) and *1998 Water Sector Strategy and Action Plan* (SAP). The SAP, addresses cross-sectoral issues by emphasizing appropriate policy, community education and data management. As a first step to build capacity to implement these policies and plans, the Government established Water Resources Coordination Committee (WRCC) in February 1998.

The 1999 *Mandate of the Water Resources Coordinating Committee* defines the rights and duties of the WRCC. That list of rights and duties, although broad, is mainly directed to actions such as "study, monitor, coordinate and advise." It also clearly indicates an important role for the WRCC in all of the IWRM functions mentioned below.

The 2001 *Decree to Implement the Law on Water and Water Resources*, issued by the Prime Minister, defines the structure of water resources planning and management at the national and river basin levels. The Decree states that the WRCC is:

"responsible for coordinating line agencies in drafting of strategies and action plans, programs and regulations necessary for the planning, management, use and protection of water and water resources. It is also responsible for monitoring, control, promotion and reporting on the implementation of activities related to water and water resources."

However, the WRCC is not yet a well established and capable body, able to carry out its coordinating role through a clear and up-to-date strategic action plan. Other water management agencies also need support to fully understand and internalize IWRM concepts and functions into their regular operations. Senior decision makers, water users and other stakeholders also need to be assisted to gain a fuller awareness of the vital nature of water resources and new approaches for their sustainable management.

IWRM will be a unifying theme in the water resources management, with an emphasis on continuing and extending the implementation of IWRM and the SAP. As indicated above, one of the immediate objectives of the Project is to foster and institutionalize the IWRM approach in the mainstream planning process of the Government both at the central as well as at the provincial level. This will require support to agencies to clearly define their roles in IWRM and to build up a body of well-trained staff with the necessary financial and technical resources.

Lao PDR has made good progress in recent years in developing water resources policy, legislation, regulations and guidelines. However, some of the policy remains at a general level, without sufficient detail and corresponding legal documents to allow full implementation. The *Draft Policy on Water and Water Resources* is in the final approval stage and may serve as a “framework policy” under which more detailed policy topics on priority water resource management issues can be developed. Both the 2001 *Decree* and the 1999 *WRCC Mandate* give the WRCC a role in developing policy and regulations and it appears from comments by other ministries and agencies that they see this as an important role for the Coordinating Committee.

Development of sound policy, legislation, regulations and guidelines is one of the primary means by which the WRCC can play its coordinating role within the water resources sector. The process used must be open and consultative, involving stakeholders at the central, provincial and local levels. The WRCC/S already has experience in this respect but further capacity building for policy analysis and development is needed.

Policy and legislation need to be accompanied with detailed implementation plans which indicate agency responsibilities and, where necessary, further capacity building to allow implementation to be successfully carried out.

IV. Proposed NARBO Action Plans :

- Assessment of the current status of IWRM activities;
- Conduct capacity building needs analyses;
- Develop strategy and action plan;
- Develop, promote and disseminate training curricula appropriate to the region;
- Establish an information system and database for IWRM;
- Facilitate the training of trainers at all levels;
- Facilitate the exchange of experts/trainers in the region;
- Support mechanisms for trans-boundary cooperation in shared water resources;
- Publish IWRM training & educational materials;
- Identify, assess & prioritise collaborative research needs ;
- Establish funding mechanisms for collaborative research programmes;
- Establish pilot projects for IWRM;
- Establish small grant funds/seed money to encourage cooperation between countries members.
- Organise regional symposia, conferences and meetings to meet the objectives of NARBO;
- Set up a database of best practices and case studies in IWRM;
- Organize study tours to best practice sites;
- Facilitate the translation of information and training materials to local languages; and