

STATUS OF WATER ENVIRONMENT QUALITY AND CURRENT MAJOR ISSUES IN LAO PDR

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STATUS

- Lao PDR classified as the most abundant on water resources per capita in ASEAN.
- 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 total annual flow of water from the Mekong tributaries within the Lao territory is at 270,000 million m³, equivalent to 35% of the average annual flow of the whole Mekong Basin.
- Only 1 – 5% of total water availability have been annually extracted in for mostly agricultural purposes in the last 10 years.

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STATUS

- Water quality throughout the country as well as the Mekong River generally varies between “very good” and “good” quality (MRCS, 2004)
 - No degradation of the water quality was observed between upstream and downstream stations except for Vientiane where low concentrations of dissolved oxygen (DO) have been observed.
 - High total suspended solid (TSS) concentrations observed are mainly due to erosion problems upstream from Vientiane.
 - TSS concentration seems to be decreasing over time with a significant drop in 1992 corresponding to the construction of a new dam in the upper part of the basin.
- There is a high variation of seasonal water distributions. The monthly distribution of the flow of the rivers closely follows the pattern of rainfall: about 80% during the rainy season and 20% in the dry season.
- Flood and draught, and water pollution occurred at some spots.

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STATUS

- During the past half century the covered forest area was decreased from 70% to 43% during 1940 to 2004 respectively.
- Natural aquatic environment was not stated in nationwide throughout the country. however, there are many case studies focusing on the aquatic environment.
- Rivers and perennial streams are key features in the lowlands and important sources of fish and other aquatic produce.
- Perennial ponds, marshes and oxbows are fairly common in the lowland-floodplains. These water bodies are usually shallow and vary greatly in size over the course of the year, expanding during the rainy season and receding during the dry season.
- Currently they were estimated at 1,200 species and about 500 indigenous fish species are reported to live in the Mekong River and its tributaries in the Lao PDR. Of these, 9 species are threatened , and 25 species are suitable for aquaculture.

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STATUS

- Wetlands are understood as naturally slow moving, shallow aquatic systems, usually on poorly drained soils (MAF and STEA, 2004).
- Wetlands displayed without extensive ground level verification, in a corridor within 50 km of the Mekong river has provided a primarily quantitative estimate of the extend and types of wetlands along this corridor.
- The present of nearly 60,000 ha of seasonal flooded shrub land, 27,000 ha of permanently flooded swamp forest, and just 120 ha of seasonally flood for forest.

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STATUS

- Most domestic water supply in Lao PDR is adequately supplied from streams and rivers.
- The majority of people in rural areas obtain their water supplies from streams, rain water, and water from public standpipes or wells for drinking and cooking purpose.
- Bathing and laundry washing usually take place right in the stream or at a public standpipe.

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ISSUES

- In upland areas, slash and burn agriculture is the predominant farming system covering almost 70% of the land. Greater sediment loads and floods in the rainy season are impacts of special concern.
- Deforestation leads to lower water discharge in the dry season. Greater sediment loads and floods in the rainy season are of special concern to agriculture in the country.
- Although the status of aquatic environment has not been well studied nationwide, it can be seen that
 - the rich biodiversity is heavily utilized.
 - During the last decades, aquatic resources have been exploited without much sustainable management.
 - Currently, several research programs are underway to improve the management of the aquatic environment and developing appropriate strategies.
- Some parts of country experience water shortages during the dry season, particularly in the headwaters of some rivers and areas far from perennial rivers.

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ISSUES

- The effects of lack of access to clean water are mainly felt at the local level and particularly affect poor people in remote areas.
- More than 60 percent of the households in the rural areas have no latrine.
- No urban centers have comprehensive piped sewerage systems or waste water collection, treatment and disposal systems, including Vientiane Capital.
- Most of people in urban areas use piped drain from their latrine tank to the river and road side drain. In addition, households, shops and restaurants located along the river normally drain waste water flow to the stream or river, particularly the Mekong River. (SCPC, 2005).
- Quality of surface and ground water is sometimes poor, creating many types of diseases in both urban and rural areas and in both the rainy and dry season.
- When water is polluted by human and animal waste, agricultural or other pollutants or high sediment loads, diseases such as diarrhoea increase. The youngest and most vulnerable persons suffer the most and there may be large financial expenses that represent a serious burden to the affected families.

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ISSUES

- Inevitably, the intensification of agriculture and the use of chemicals will have an impact on the living aquatic biodiversity and the livelihoods of the rural people and these impacts must be managed.
- The replacement of these resources through the culture of fish is not guaranteed, since access to suitable land for pond construction is limited, and the open-access features of the rice field is not a feature of privately owned fish ponds.
- The impact of loss of aquatic biodiversity will differentially impact the poor who are most reliant on such resources (MAF, Program Operational Manual).

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ISSUES

- Existing and Possible Future Sources of Pollution
 - *Natural sources of risks*
 - The natural sources of risks are water born diseases which occur during and after flooding take place.
 - Due to traditional use of water (take a bath and wash directly in the river, rare of sanitary facility in the rural areas and un-treated drink water), people in down stream might be in risk to those water born diseases.
 - *Manmade sources of risks*
 - As it well-known that Lao PDR is least developed country, it has not much heavy industrial activities. On the other hand, at the moment, mass of farmers in rural areas still experiences on using animal waste for agricultural activities. Chemical fertilizer and pesticides are not yet widely used throughout the country.

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ISSUES

- In spite of ongoing attention towards health, hygiene, and improved rural water supply and sanitation services, health and its relationship to safe drinking water and sanitation remains a pressing social issue for Lao PDR.
- Good water resource management can also contribute to poverty reduction through improved access to water supply and sanitation, improve water quality, and reduced flood and drought risk.
- It is considered yet a major problem on water environment now, but could escalate in the future, if without appropriate management.

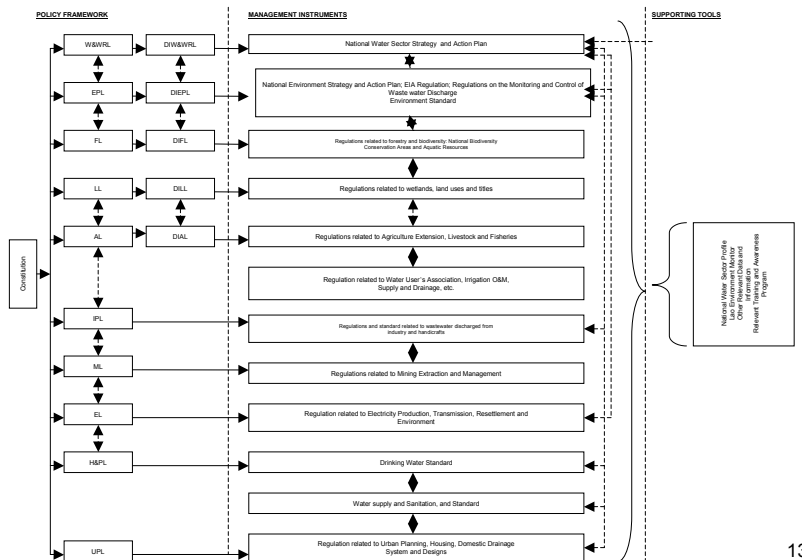
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RESPONSES

- Lao PDR has taken significant steps to ensure that the country's environment and natural resources, particularly the forests and land use are sustainably managed.
- Since 1993, the institutional framework was established and followed up by a set of legal framework for instances: Environmental Law, Land Law, Forestry Law, Water and Water Resources Law, and others.
- Announcement on reorganization in the water and environment in Mid 2007 will significantly contribute for improving the role of the water sector in the national socio-economic development.

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RESPONSES



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RESPONSES

- Constitution: (Promulgated in 1991; Amended in May 6, 2003): Article 17, 1991 Constitution and Article 19 of amended Constitution 2003 provide that "all entities and people shall protect the environment, conserve natural resources such as land, forest, wild-life, watershed and air".
- Law on Water and Water Resources: (October 11, 1996) determines necessary Principles, rules, and measures regard to the management, exploitation, development and use of water and water resources.
- Decree to Implement the Law on Water and Water Resources (October 9, 2001) establishes the responsibilities of different ministries, agencies and local authorities with regard to the management, exploitation, development and use of water and water resources.
- Other relative primary, secondary and sectoral legislations and regulations.

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RESPONSES

- Lao has water quality standards based on WHO standards:
 - The Department of Irrigation (MAF) is responsible for monitoring ambient water quality,
 - STEA deals with urban wastewater quality,
 - WASA for urban water supply quality and
 - MPH for drinking water quality.
- There are two Ministries directly responsible for the water supply and sanitation sector. The Ministry of Public Works and Transport (MPWT) is responsible for urban water supply, while rural water supply is under the jurisdiction of Ministry of Public Health (MPH).
- The provincial authorities are responsible for facilitation and coordination of development activities within the province on behalf of the government.

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RESPONSES

- National Programs in next decade:
 - i) increasing access to clean water of the total population in the country to 65-70 percent, especially people in the remote areas which are mainly ethnic groups and
 - ii) increasing the use of hygienic latrines both in urban and rural population to 45-50 percent and providing hygienic latrines for primary school at least 20 percent.
- The Urban Water Sector Investment Plan (UWSIP, updated 1999) will provide information on the status of existing urban water supply systems, the previous and on-going investments and will mainly serve as guide for sector investment from 2005 to 2020.
- Reclamation of forest cover by 70% in 2020.
- Ongoing research carried out by the LARReC in cooperation with MRC on fish habitat and spawning ground aims to fill important gaps in knowledge with results expected to be published soon.
- The introduction of other species to captive breeding is also a topic of ongoing research.

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THANK YOU

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