

Cambodia • Lao PDR • Thailand • Viet Nam
For sustainable development



Council Study

Summary Content of the Interim report



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Contents

1. Background
2. Current Status of the Irrigation Thematic Area
3. Development Trends
4. Direct Impacts
5. Issues



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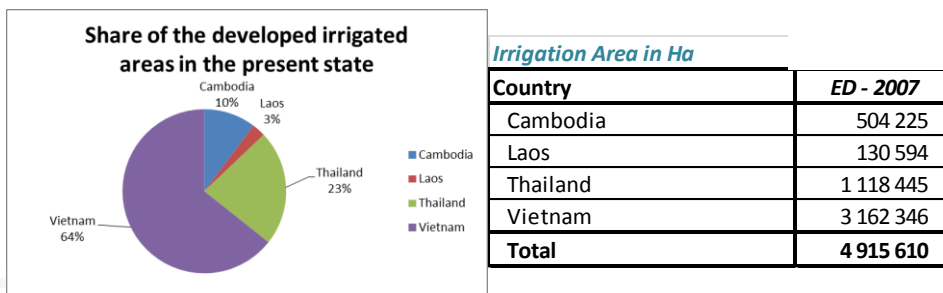
1. BACKGROUND

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Overview of the Sector



- The total developed irrigated area within the LMB is up to 5,0 million hectares in the present state



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2. CURRENT STATUS OF THE IRRIGATION THEMATIC AREA

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Irrigation in Cambodia



- Irrigation is a key for the national development
- Wet season rice crop is 84% of the total cultivated areas whereas the Dry season rice occupy about 11%.
- There are existing 500,000 irrigated hectares of paddy rice for the current situation



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Irrigation in Laos



- The Laos irrigation sector was for a long time characterized by **small scale irrigation systems**.
- The development of the large scale irrigation schemes is in progress in connection with the HP program
- Irrigated agriculture during the dry season 2007-2008 reached 138,901 ha with 89,201 ha of irrigated rice and 41,393 ha of irrigated non rice crops



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Irrigation in Thailand



- In North east Thailand, the irrigation sector is characterized by large scale gravity canal systems.
- Irrigation schemes with highly sophisticated engineering works



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Irrigation in Viet Nam



- Vietnam is characterized by two typical systems according to the area.
- In the **Mekong Delta**, intensive irrigation of rice crops is conducted.
- ✓ In the current situation, **1.9 million ha are fully developed**. The total annual water needs are up to 16.8 BCM. Three seasons of rice production are occurring in the delta area.
- Irrigation systems in the **Central Highlands** (Upper Se San and Srepok Basins) of Viet Nam are typical reservoir-gravity canal systems.
- ✓ The irrigation designed capacity is 165,086 ha but the actual irrigated area totals 124,191 ha or equal to 75.2% of the design capacity



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3. DEVELOPMENT TRENDS

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Development trends in Cambodia



- The national rice production have **improved** in the last years
- The National Strategy lays particular emphasis on **increasing the area of irrigated land** while targeting higher productivity and improved livelihoods
- Priority is given to the **rehabilitation** of the thousand of existing schemes instead of the creation of new schemes
- The government mobilized irrigation funds to invest in **irrigation development** and for the irrigation services centers to provide capacity and management support to the FWUC

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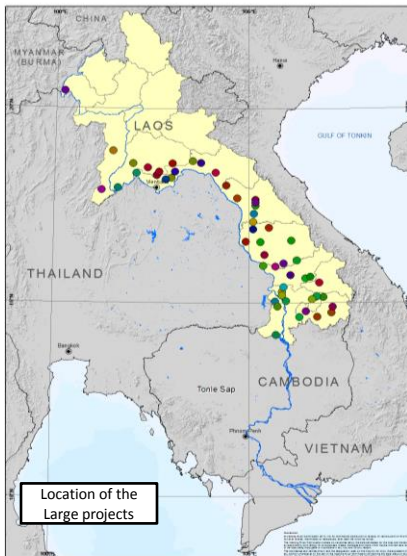
Development trends in Laos



- The objective of the National Irrigation Development **strategy is to create a more conducive environment for irrigated agriculture development.**
- The strategy foresees a re-modeling and re-orienting of the Irrigation Agriculture Subsector.
- The implementation of those plans could see the new development of 446,125 Ha for the large projects.
- The **target is to use the potential water resource by developing gravity** irrigation systems in order to reduce the cost of irrigation service and production that will enhance the price competitiveness of agriculture products

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Development trends in Laos



- **53 Large irrigation projects have been identified for development up to 2020 and 2040**
- According to an estimation based on designed and feasibility study, the command area the 53 projects will be able to supply irrigation water to 446,125 ha
- **The first 27 projects plan to be implemented over 101,700 Ha during 2010-2020**
- **The remaining 26 projects will be implemented over 329,425 Ha during 2020-2040**

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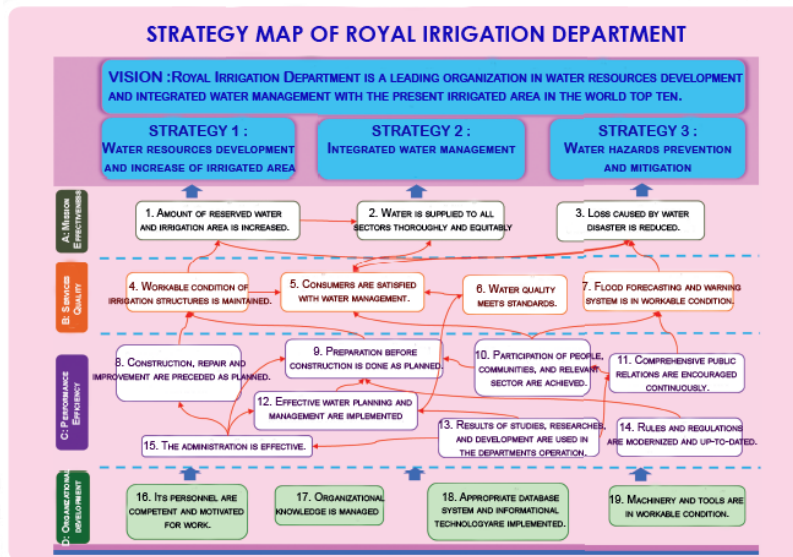
Development trends in Thailand



- The National development plan can be substantially performed by applying structural measures and non-structural measures.
- The **structural measures** mainly emphasize the use of water inside the sub-basins especially in the areas suffering from both flood and drought.
- The **non-structural measures** are the applications of technologies, coordination with other sectors and participations in managements of storages and irrigation projects in the basins and among the basins

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Development trends in Thailand



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Development trends in Viet Nam



- The overall objective of the Agriculture sector is to **develop a comprehensive and sustainable system** and to optimally utilize the potential.
- Generate a greater production characterized by a **high productivity, quality, efficiency and competitiveness**.
- Irrigation development is foreseen in the Mekong Delta and Central highland areas to address the questions of the **sustainable water management** for land conservation

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Development trends in Viet Nam

Mekong Delta Area



- Area subject to climate change effects and urbanization growth
- **The future plans only foresee a slight decrease of the irrigation development that would decrease to 2.384 million Ha in 2020 (DFS scenario) and would decrease to 2.323 million Ha in 2040 (PDS scenario)**
- **Farmers will switch to aquaculture (shrimp)** to overcome the climate change effects and seek for higher income
- Several major infrastructural projects are scheduled to meet the objectives of the water resources planning. It consists of canal works, dikes improvement, drainage water management, regulation structures and pumping stations development.

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Development trends in Viet Nam

Central Highlands Area



- The main objective for the development of the area is to minimize the transfer of agricultural land into unsustainable land cultivation systems.
- **The development of irrigation is targeted to improve rice cultivation areas and address the transfer of water service.** Irrigation development will be prioritized to the precarious areas and turn them to cropland and other crops with a high economic efficiency.

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DEVELOPMENT TRENDS IN PRACTICE OR SCIENCE

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Fertilizer and Pesticide use



Activities were developed to document the direct impacts and to provide the information required to assess the impacts on Fertilizer and Pesticide use (F&P)

The activities conducted so far were the following:

- Collect and review relevant literature about the use of fertilizer and pesticides at the national level
- Collect and synthesize national; local and other plans for the use and control of (F&P)
- Collect and organize statistics on the use of (F&P)

Different achievements were met among countries.

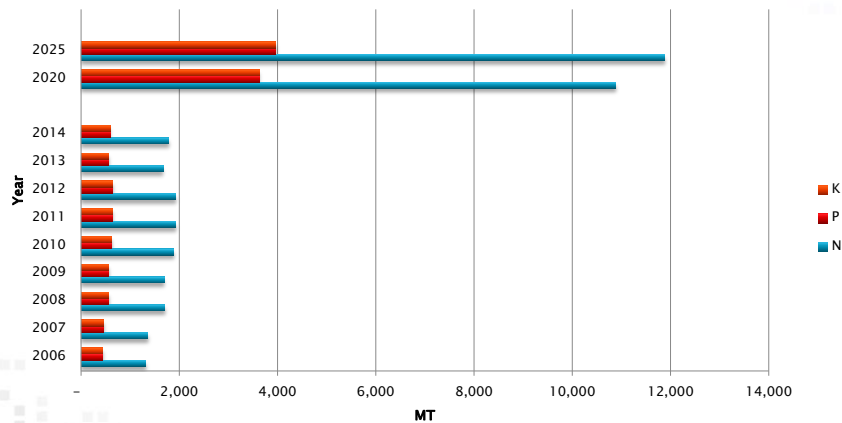
The activities are in progress and some updates are given in the next slides

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Example of Results



Current and forecasted use of Fertilizer in Laos _ Rice in the Dry Season



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Example of Results



Fertilizer and Pesticide use - Vietnam

Type of fertilizers	Supply and demand in th. tons	2011	2015	2020	2025
Nitrogen fertilizer	Need	1.500	1.650	1.806	1.806
	Production	482	1.660	1.806	1.806
	Import	1.018	-	-	-
	Export	-	-	-	-
Phosphorus fertilizer	Need	732	805	885	885
	Production	417	677	967	967
	Import	315	127	-	-
	Export	-	-	82	82
Potassium fertilizer	Need	522	585	673	673
	Production	-	300	720	720
	Import	522	285	-	-
	Export	-	-	-	-
Total nutrient use		2.754	3.040	3.364	3.364
In kg / ha		200	220	230	230

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Analysis of the Soil Moisture and Soil Erosion



Activities were developed to document the direct impacts and to provide the information required to assess the irrigation impact on soil moisture and erosion.

The activities undertaken are the following

- Collect and review relevant literature about the erosion process in coordination with the Agriculture and Land Use program
- Compilation of national case studies on the impacts of some land use change (irrigation, mining, forestry projects etc) on the soil moisture and the erosion process.
- Prepare a list of indicators for assessing impact on soil moisture and erosion.

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Analysis of the Soil Moisture and Soil Erosion



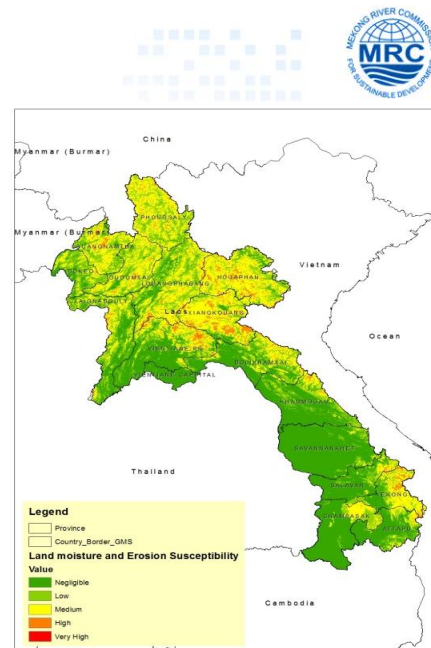
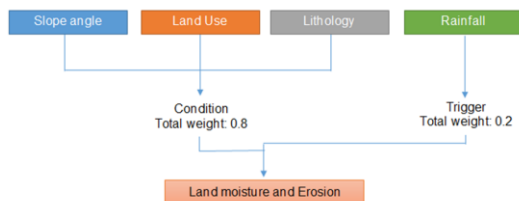
- General methodologies were presented focusing on the national level to document the erosion process
- Some researches have already been conducted at the national level and case studies are presented (Cambodia – Laos)
- Discussions were undertaken with the modelling team to analyze the possibility to model the phenomena with the existing modelling suite
- This could be achieved by a revision of the hydrological model to be linked with the land use change

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Example of Results

Land Moisture and Erosion map susceptibility of Laos

- The methodology for land moisture and erosion assessment for Lao PDR adopted the land moisture and erosion index method:



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4. DIRECT IMPACTS

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Analysis of the Irrigation Impact Assessment



Activities were developed to assess the direct impacts and provide information required to assess the impacts of the irrigation development.

The activities undertaken were:

- Collection and review of relevant literature about the impacts of different types of irrigation development at the national level.
- Collection and extract for some selected representative irrigation projects of indicators describing the social, economical and environmental impacts of project development.
- Discussions with the Hydraulic and socio economic modelling teams to discuss the approach of the impact assessment

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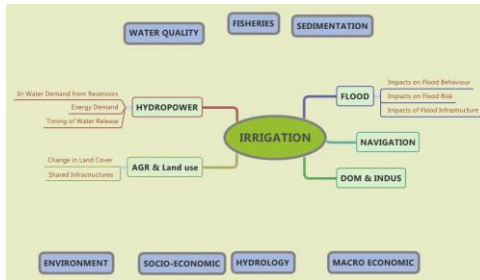
Analysis of the Irrigation Impact Assessment



- Very few achievements were realised so far
- The activities were concentrated on the data collection and scenario formulation
- The existing dataset do not allow to conduct a significant direct impact analysis
- The analysis of the impacts basin wide is scheduled for Phase 2 with the modelling teams
- **The activity will be ongoing in phase 2**

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Coordination with the modelling teams



Discussions were held with the modeling teams on the following topics:

- Models capabilities and models used according to the target zones
- Data exchange framework for the water quality and water flow assessment
- General discussions on the data needed for the socio economic assessment

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5. ISSUES

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Issues



- The activities conducted in Phase 1 did not allow to obtain a clear and consistent information on the current and future prospects for the development of the Thematic Area
- Generic and out to date information is only available currently
- Based on the available data, the direct impacts could not be assessed

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The RTWG is requested to:



- Take note
- Provide guidance

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Thank You



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