

**Regional exchange on IWRM experiences in
the Mekong River Basin**

15-16 & 17 October 2014 -Lao Plaza Hotel, Vientiane, Lao PDR

**Water Resources Data-Information
Management of Lao PDR**

Phaylin BOUAKEO
Department of Water
Resources
16 Oct 2014

Outline

Introduction

**Work plan on water resources
data-information management**

**Implementation on water
resources data-information**

Outline

Introduction

Mandate

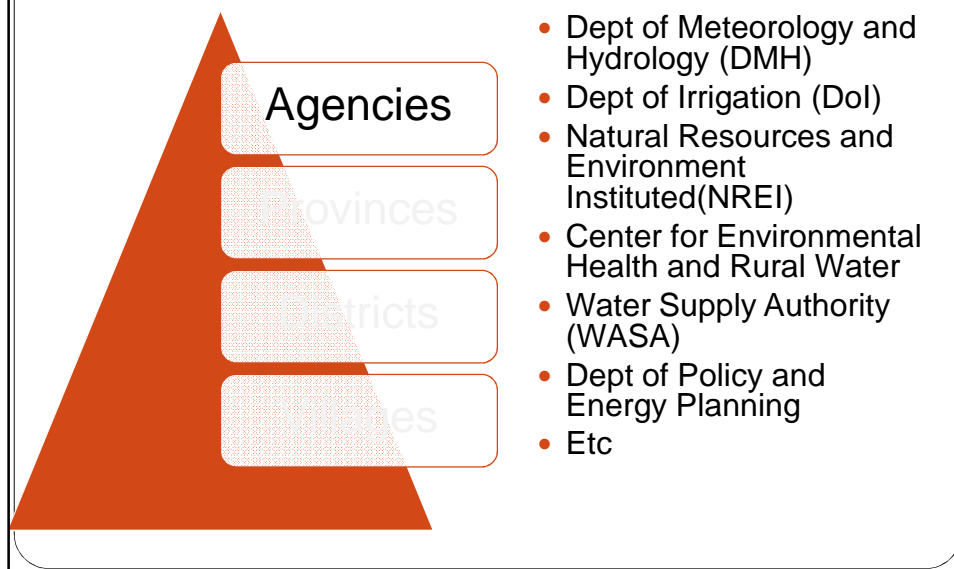
Mandate of DWR

The Department of Water Resources, abbreviated as DWR, is a department under the organizational structure of the Ministry Natural Resources and Environment (MoNRE). The DWR has a mandate as advisory body to the MoNRE for **management, development, conservation, rehabilitation, monitoring and settlement** of the problems on water resources throughout the country.

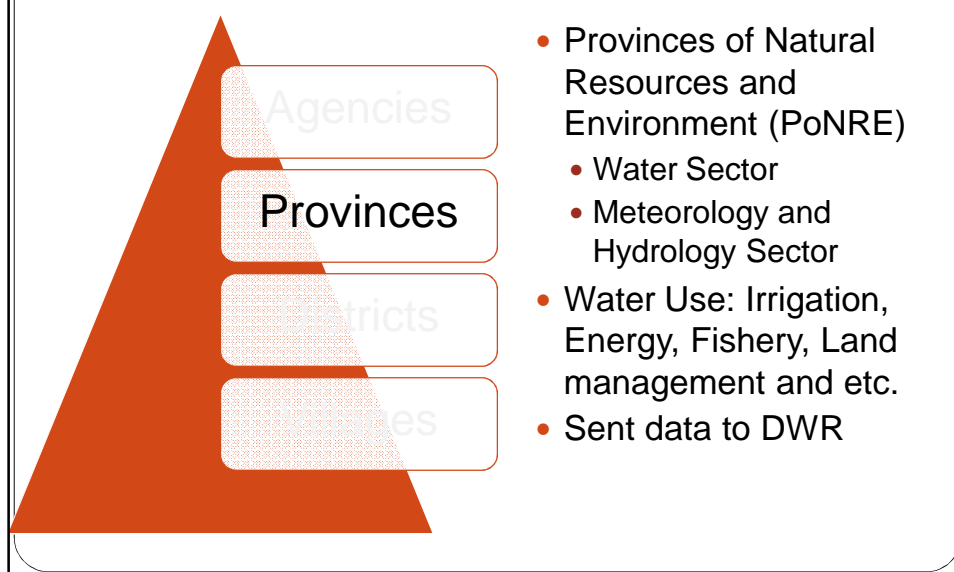
Data-Information Centre

- **Survey and coordinate** the monitoring of water quality, inventory and categorize river basins and rivers and develop National Water Quality Standards and submit to the Government for approval;
- **Compile and manage database** for water resource management;
- Coordinate with other parties on **survey, evaluation and monitor** surface and underground water quality and utilization;

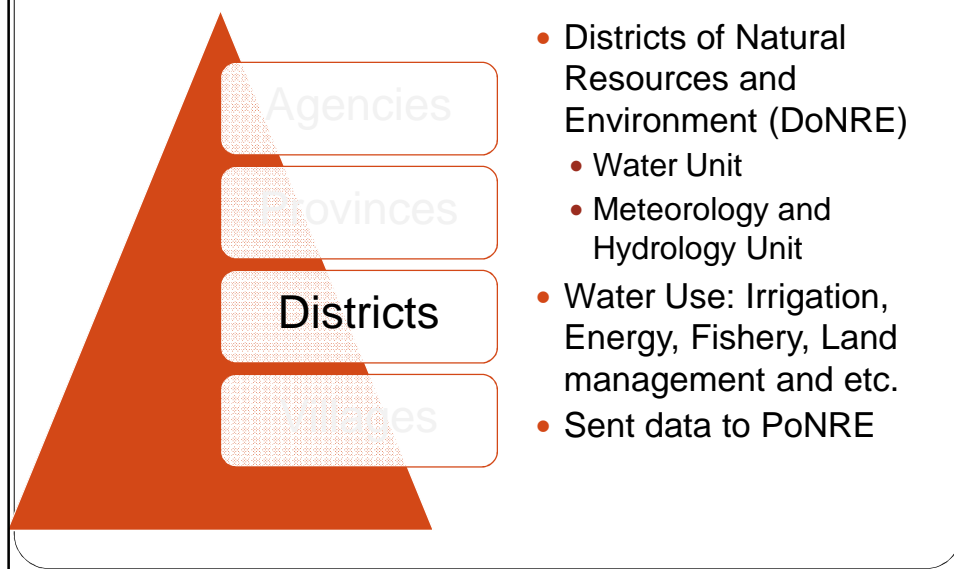
Data Collection



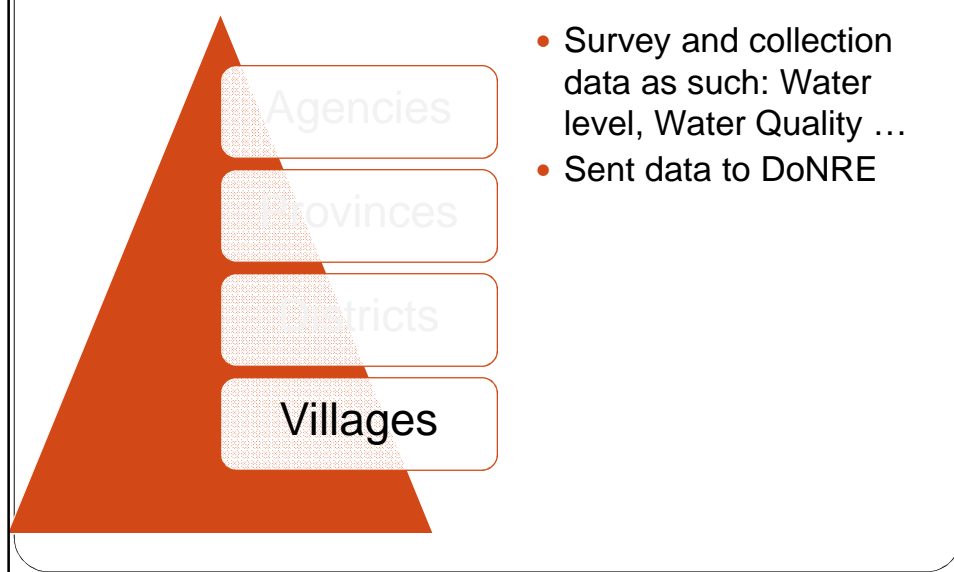
Data Collection



Data Collection



Data Collection



Outline

Work plan on water resources
data-information management

National Water Resource Strategy from now until 2020

Objective : The overall objectives of the National Water Resource Strategy from now until 2020 is the **utilization and integrated development of water resources** for the outmost benefits and sustainability, while ensuring environment protection, effective climate change adaptation and livelihood improvement.

Targets:

- **Develop coordination** mechanism for effective and efficient water resource management and development.
- **Ensure faire water use allocation and arrangement** for all sectors at national, basin and sub-basin levels.
- **Improve water resource management** to meet water needs both in terms of quantity and quality in river basin and increase measures to protect drought, flood, erosion and subside in river basin areas.

Water Resources Data-Information Strategy

Program 5: Collection, analysis and management of water resource data and information

- Action 1: Strengthen water resource data and information **management and system**
- Action 2 Strengthening water resource data and information management **capacity**
- Action 3 The national water resource **assessment, analysis and monitoring**
- Action 4 Establish water resource information **exchanging mechanism**

Activities 2014

Water Resources Inventory Guideline

- Surface water, Ground water, Water Quality and Water Use

Data Base System

- Collection Data
- Data Base of Water Resources

Capacity Building

- GIS for River Basin Management

Water Resources Data-Information Management Agreement

- Draft on Water Resources Data and Information Assessment
- Draft on Water Resources and Information Agreement

Water Resources Inventory Guideline



ຮ່າງຄຸ້ມແນະນຳ ການຂຶ້ນບັນຊີຊັບພະຍາກອນນ້ຳແຫ່ງຊາດ

ຫົວຂໍ້: ຊັບພະຍາກອນນ້ຳໜ້າດິນ

- **Sucre water:** River Body, Wetland and Reservoir
- **Water Quality:** Sucre Water and Ground water (pH, BOD, COD, Temperature)
- **Ground Water:** Ground water access point, aquifer, Ground water use and etc.
- **Water Use:** Hydropower, Irrigation, Water Supply, Fishery, Navigation and etc.

Water Resources Inventory Guideline



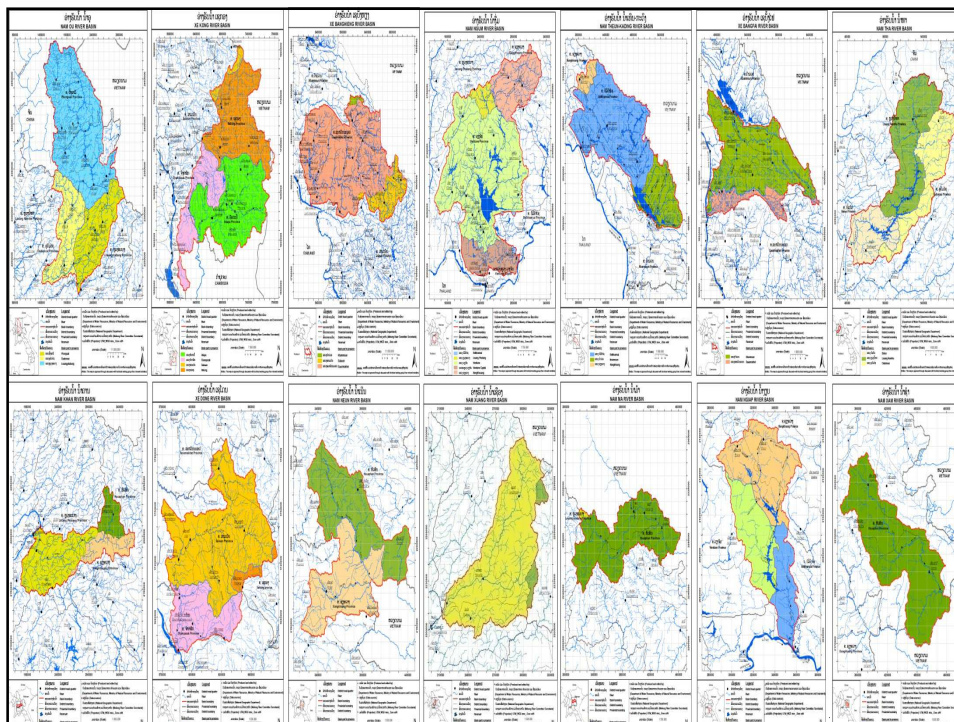
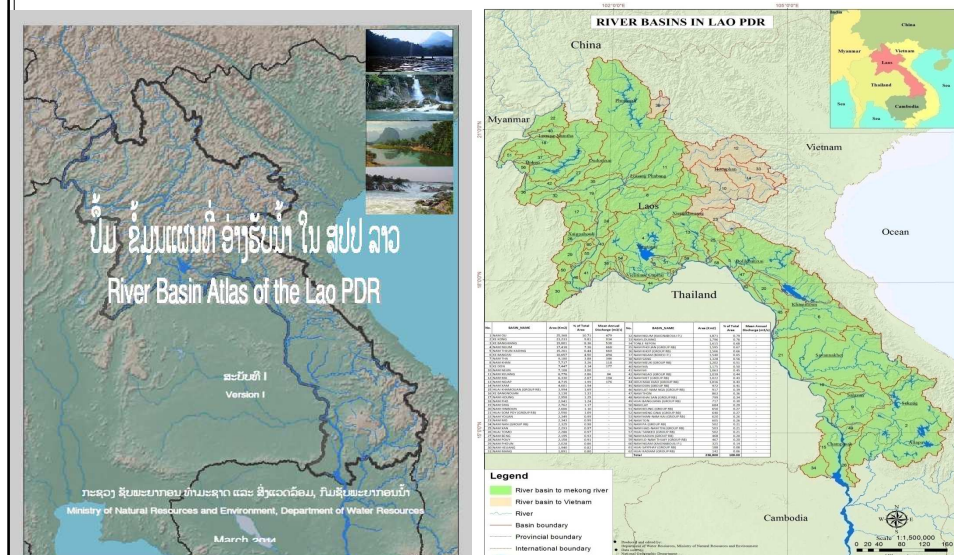
ຮ່າງຄຸ້ມແນະນຳ ການຂຶ້ນບັນຊີຊັບພະຍາກອນນ້ຳແຫ່ງຊາດ


ຫົວຂໍ້: ຊັບພະຍາກອນນ້ຳໜ້າດິນ


Surface Water Inventory Guideline

- River Basin Atlas of the Lao PDR
- Water Quantity of Surface Water

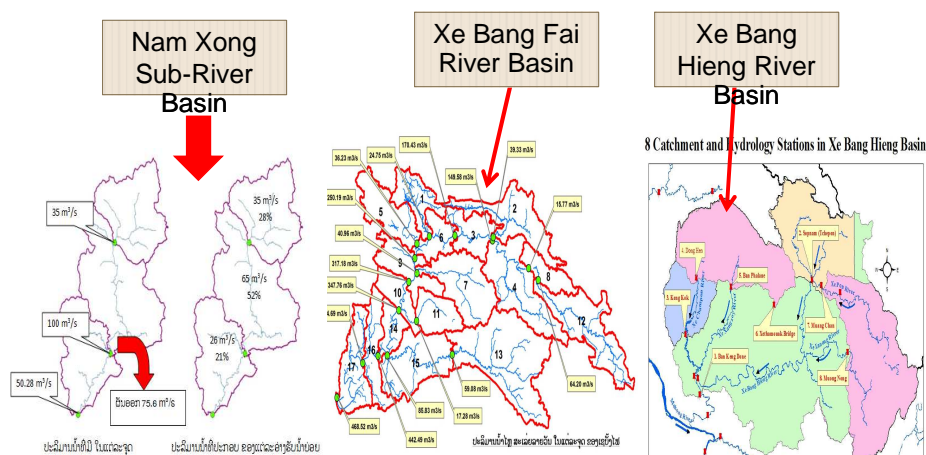
River Basin Atlas of the Lao PDR



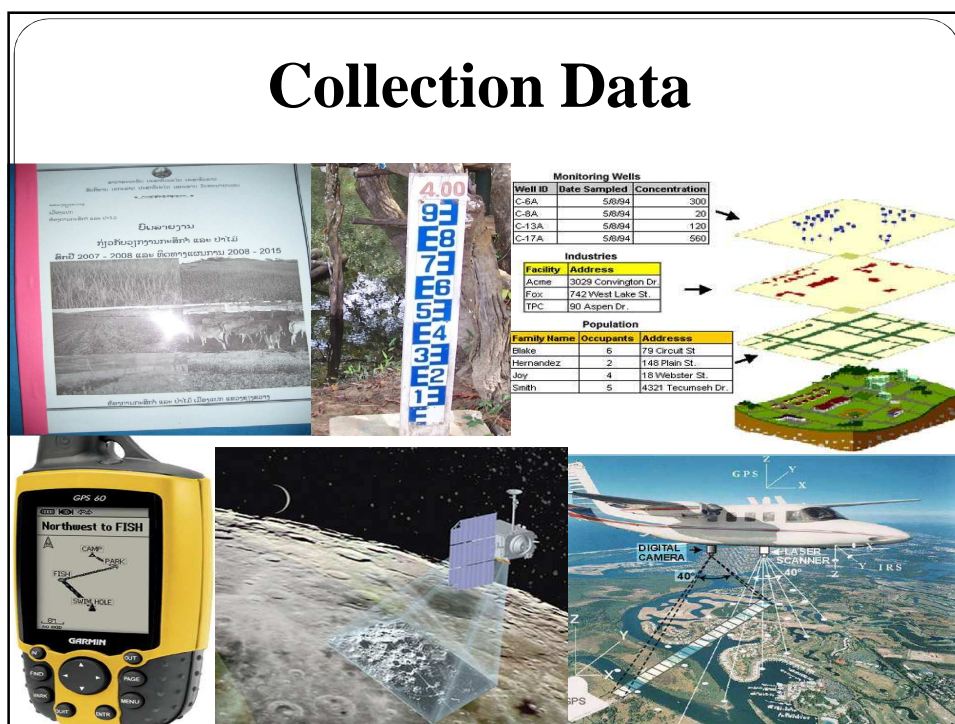
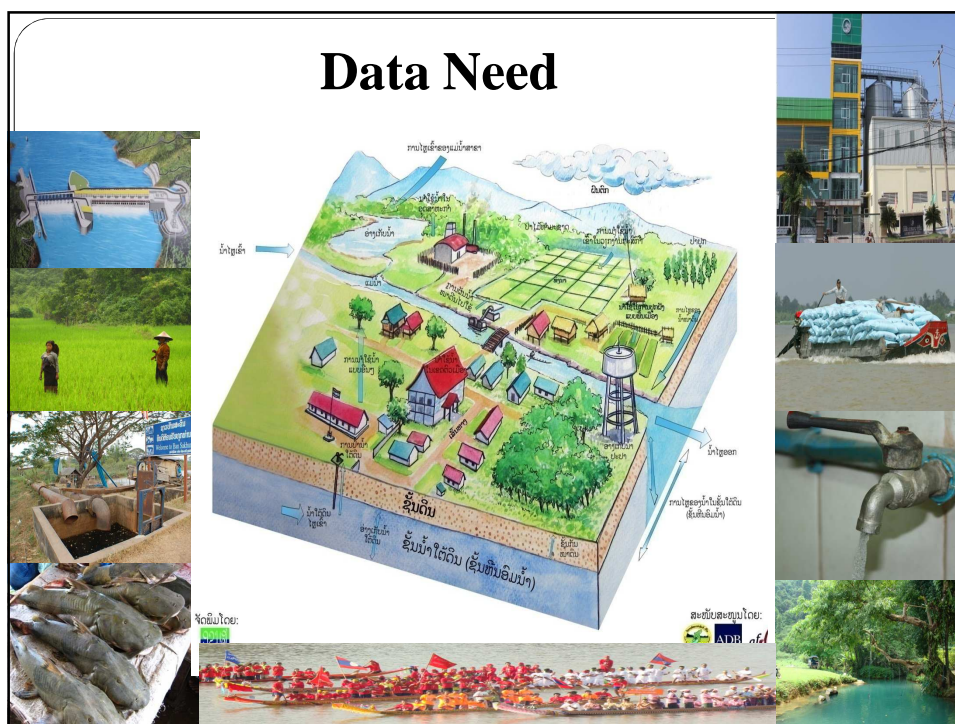
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ລະ ຫັດ ID	ອ່າງຮັບນ້ຳ	Name of River Basin	ປາກເນນ້ຳ	Outlet	ເນື້ອທີ່ Area (Km ²)
011010000	ອ່າງຮັບນ້ຳ ນ້ຳອຸ	NAM OU RIVER BASIN	ເນນ້ຳຂອງ	Mekong	24,623
061020000	ອ່າງຮັບນ້ຳ ເຊກອງ	XE KONG RIVER BASIN	ເນນ້ຳຂອງ	Mekong	22,550
051030000	ອ່າງຮັບນ້ຳ ເຊບັງຫຼົງ	XE BANGHIENG RIVER BASIN	ເນນ້ຳຂອງ	Mekong	19,220
031040000	ອ່າງຮັບນ້ຳ ນ້ຳງຸ່ມ	NAM NGUM RIVER BASIN	ເນນ້ຳຂອງ	Mekong	16,906
041050000	ອ່າງຮັບນ້ຳ ນ້ຳເຫຼົ້າ-ກະ ດົງ	NAM THUEN-KADING RIVER BASIN	ເນນ້ຳຂອງ	Mekong	14,813
051060000	ອ່າງຮັບນ້ຳ ເຊບັງໄຟ	XE BANGFAI RIVER BASIN	ເນນ້ຳຂອງ	Mekong	10,344
011070000	ອ່າງຮັບນ້ຳ ນ້ຳທາ	NAM THA RIVER BASIN	ເນນ້ຳຂອງ	Mekong	8,911
021080000	ອ່າງຮັບນ້ຳ ນ້ຳຄານ	NAM KHAN RIVER BASIN	ເນນ້ຳຂອງ	Mekong	7,490
061090000	ອ່າງຮັບນ້ຳ ເຊດົນ	XE DONE RIVER BASIN	ເນນ້ຳຂອງ	Mekong	7,229
171100000	ອ່າງຮັບນ້ຳ ນ້ຳເນີນ	NAM NUEN RIVER BASIN	ສສ ຫວຽດນາມ	Vietnam	6,900
021110000	ອ່າງຮັບນ້ຳ ນ້ຳເຊືອງ	NAM XUANG RIVER BASIN	ເນນ້ຳຂອງ	Mekong	6,577

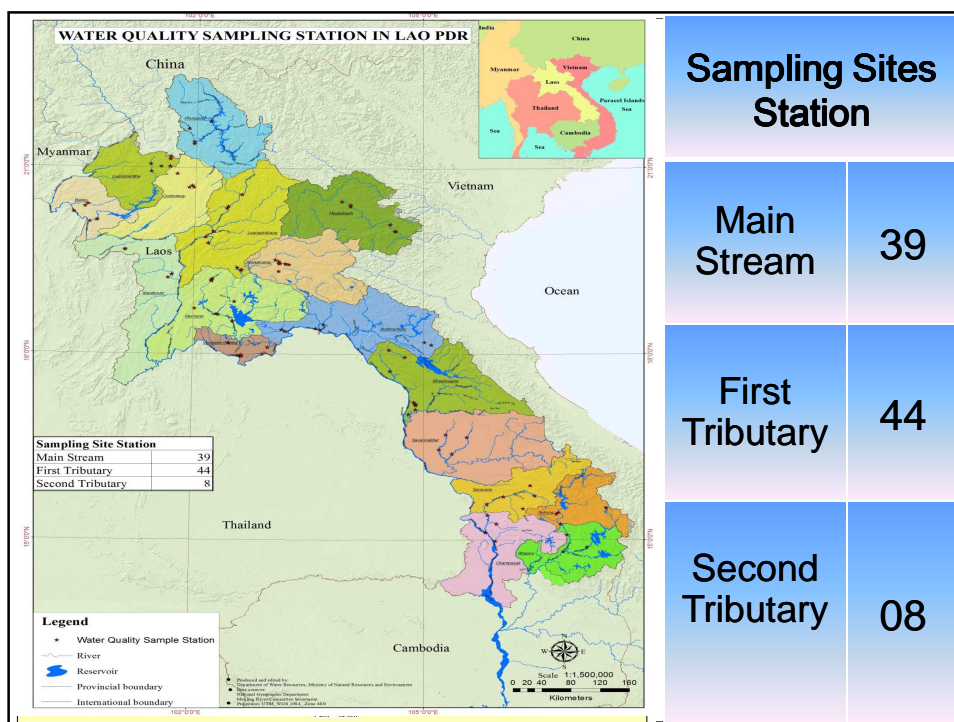
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ລາຍການ	ລາຍລະ ຂຽດ	Items	Description
ລະ ຫັດ ແລະ ຊື່ອ່າງເນນ້ຳ	RB-01: ອ່າງຮັບນ້ຳ ນ້ຳອຸ	ID and name of basin	RB-01: Nam Ou River Basin
ທີ່ຕັ້ງ	19° 59' – 22° 30' ເໜືອ 101° 34' – 103° 05' ຕາເວັນອອກ	Location	19°59' – 22°30'N 101°34' – 103°05' E
ເນື້ອທີ່ອ່າງຮັບນ້ຳ (ກມ ²)	24,600	Basin Area (km ²)	24,600
ລວງຍາວຂອງເນນ້ຳ (ກມ)	390	Length of river (km)	390
ນ້ຳສາຂາຫຼັກ	ຈຳນວນ 7 ສາຂາ: ນ້ຳຂາງ, ນ້ຳຄຸນ, ນ້ຳເຊວັງ, ນ້ຳທາ, ນ້ຳບາ, ນ້ຳນ້ອ, ນ້ຳງາ	Main tributaries	Nam Khang, Nam Houn, Nam Leng, Nam Phak, Nam Bak, Nam Noua, Nam Nga
ຈຸດສູງສຸດ (ມ)	1,865	Highest point (mamsl)	1,865
ຈຸດຕ່ຳສຸດ (ມ)	230	Lowest point (mamsl)	230
ກວມເອົາເຂດ	ຈຳນວນ 3 ເຂດ: ເຮົາສາລີ, ສວມໄຊ, ເຂດພະ ບາງ	Covered provinces	3 provinces: Phongsaly, Oudomxay, Luangphabang
ກວມເອົາເມືອງ	18	Covered districts	18
ກວມເອົາບ້ານ	938 (D 2009)	Covered villages	938 (year 2009)
ປະ ລິມານນ້ຳ ຕະ ລະ ພະ ຈຳປີ (ມ ³)	614 (ປະ ຖານີ ຕະ ພະ ຈຳປີ)	Mean annual discharge (m ³)	614 (at the Meuang Ngoy station)
ຄຸນນະ ພາບນ້ຳ ຕະ ພະ ຈຳປີ	6	Status of water quality	Good
ພື້ນທີ່ນ້ຳຖ້ວມປະ ກະ ຕິ (ເຮັດ)	?	Regular inundated area (ha)	?
ຈຳນວນໝອງບຸງ	?	Number of ponds, swamps	?
ຈຳນວນວັງສະ ຫງວນ	?	Number of conservation ponds	?
ອັດຕາສ່ວນການນຳໃຊ້ນ້ຳຄົນຕື່ອນ ຊົນລະ ປະ ທານ ອຸດສາຫະ ກຳ	Ratio of water use by each sectorDomesticIrrigationIndustry
ອ່າງຮັບນ້ຳສຳລັບລະ ບຸກຄົນ	Number....(year)	Reservoirs for hydropower	Number....(year)
ອ່າງຮັບນ້ຳສຳລັບຊົນລະ ປະ ທານ	Number....(year)	Reservoirs for irrigation purposes	Number....(year)
ຈຳນວນຈັດສັນນ້ຳປະ ປາ	Number....(year)	Pump stations of water supply	Number....(year)
ແຫຼ່ງອາດສູງຂອງອ່າງຮັບນ້ຳ	Number....(year)	Water resources attraction	Number....(year)
ນ້ຳໃຕ້ດິນ		Groundwater	
ຄວາມເລິກສະ ເລັບ (ມ)	n/a	Mean depth (m)	n/a
ຄວາມເລິກສູງສຸດ (ມ)	n/a	Max depth (m)	n/a
ຄວາມເລິກຕ່ຳສຸດ (ມ)	n/a	Min depth (m)	n/a
ລະ ດັບການຊຶມຜູກ (ມມ/ປີ)	n/a	Mean recharge (mm/yr)	n/a
ຈຳນວນຈັດສັນນ້ຳ	6	Number of water level gauging stations	6
ຈຳນວນຈັດສັນນ້ຳ	10	Number of water quality monitoring stations	10
ຈຳນວນຈັດສັນນ້ຳ	n/a	Number of groundwater monitoring stations	n/a

Water Quantity of Surface Water



Data Base System





Survey Ground water



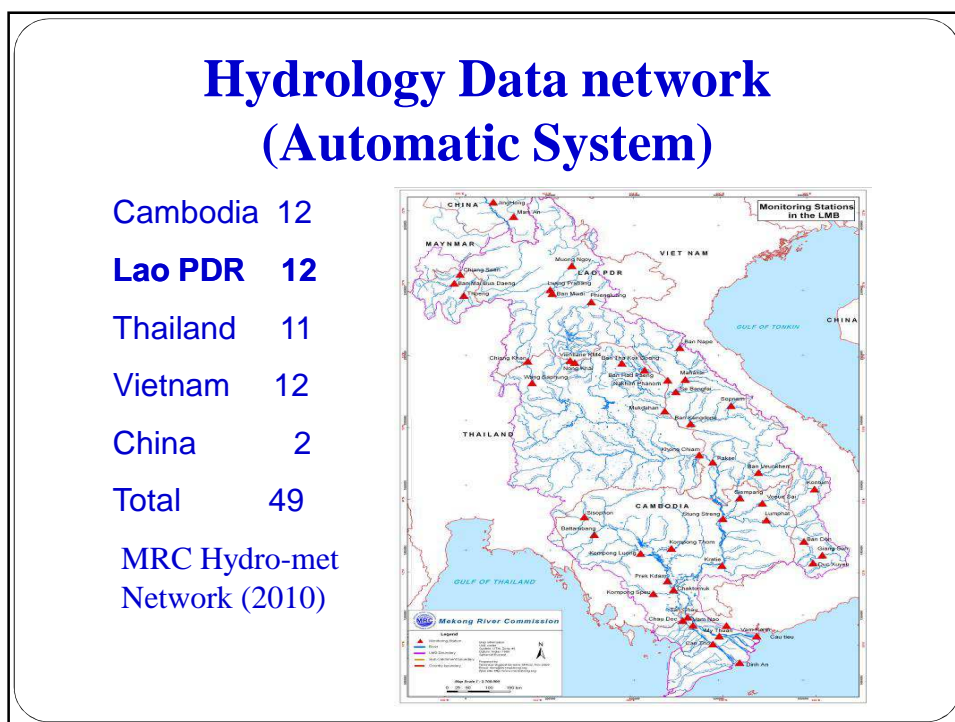
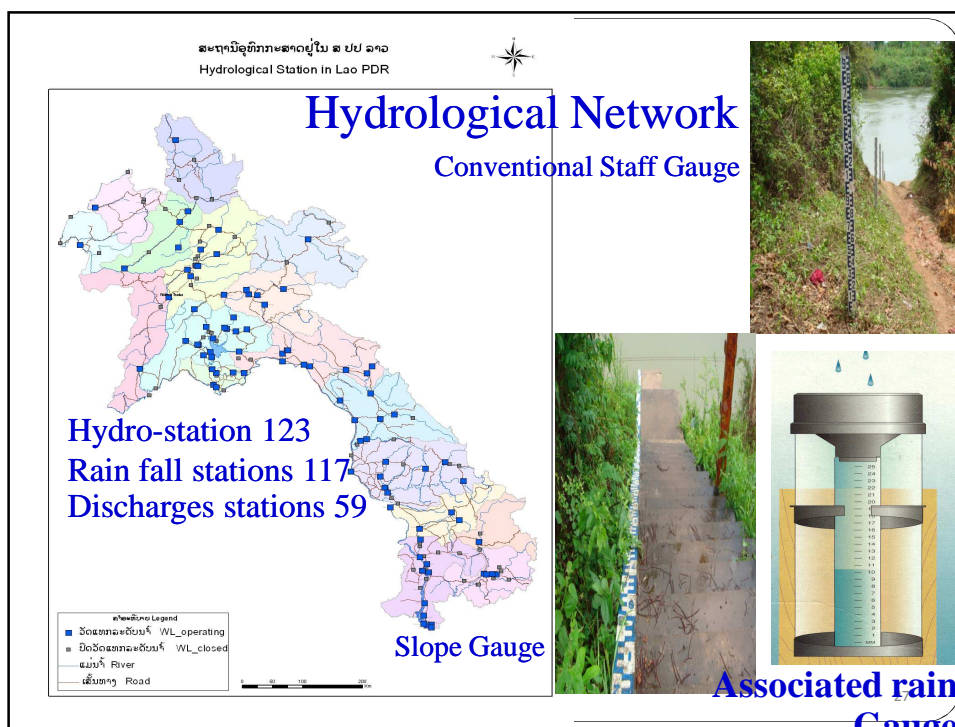
Water Quality Monitoring



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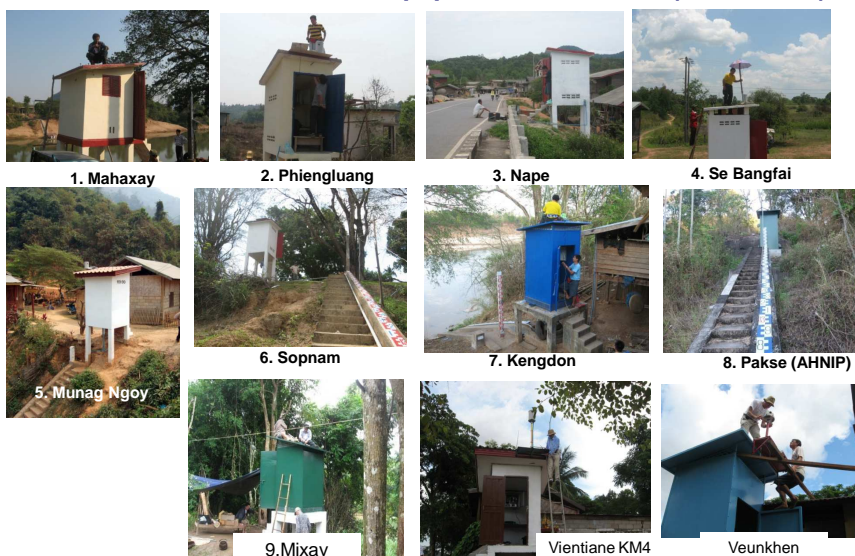
Flood and Damage





Mekong-HYCOS Achievement and Progress

2.10 Installation of Equipment in Lao PDR (12 stations)

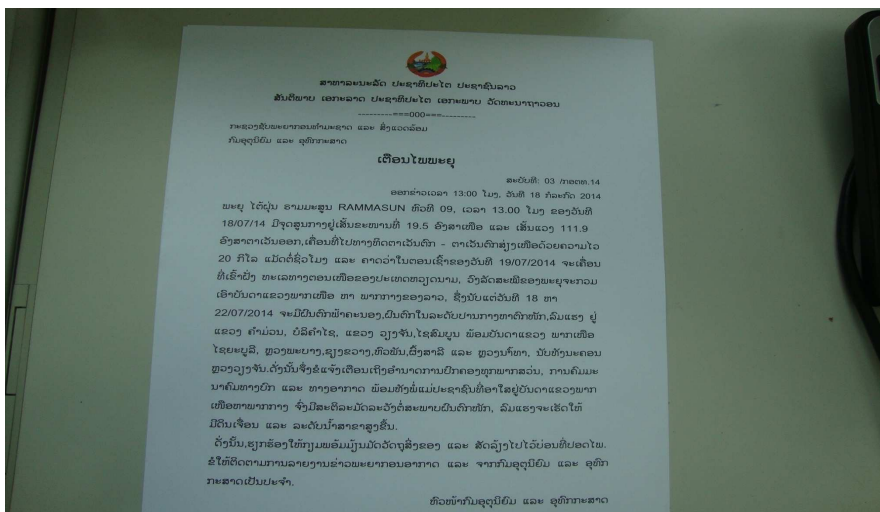


Monitoring and Forecasting

1. Water Level (daily)
2. Focus ting Water Level
3. Water Level at Mean River Basin in Laos

Water Resource and Environment Administration									
Department of Meteorology and Hydrology									
Report on Mekong river's water level and Inflow of Nam Ngum Dam									
Forecast period: 31 Oct - 01Nov 2009									
		Rainfall	Water Level (m)				Varning	Danger	Forecasted V/L
No	Stations/River	(mm)	29-Oct	29-Oct	30-Oct	Diff.			31-Oct 1-Nov
1	Hoagsai(Mekong)	0.0	2.72	2.80	0.08	15.00	16.00		
2	Pakbeng(Mekong)	0.0	8.25	8.11	-0.14	29.00	30.00		
3	Luangprabang(Mekong)	0.0	6.23	6.08	-0.15	17.50	18.00	6.06	6.00
4	Vientiane(Mekong at Km4)	0.0	3.79	3.75	-0.04	11.50	12.50	3.71	3.70
5	Paksane(Mekong)	0.0	5.50	5.55	0.05	13.50	14.50	5.53	5.38
6	Thakhek(Mekong)	3.3	4.85	4.73	-0.12	13.00	14.00	4.76	4.75
7	Savanakethi(Mekong)	0.0	2.50	2.39	-0.11	12.00	13.00	2.33	2.32
8	Pakse(Mekong)	0.0	4.14	0.00	-4.14	11.00	12.00	4.04	4.01
9	Nam Ngum Dam(Up)	0.0	210.18	210.16	-0.02	212.00	212.31	210.15	210.14
10	Nam Ngum Dam(Doww)		166.60	166.60	0.00				
11	Inflow(Q in m³/s) to Reservoir		163.110	150.308	-12.80				
12	Turbine(Q in m³/s)		200.800	225.688	24.89				
13	Spill Vavg (Q in m³/s)								
Remark: 0.0: No Rain									
Vientiane, 30 Oct 2009									
Director General of DMH									

TD RAMMASUN report 18 July 2014



Capacity Building

Application on GIS for
River Basin:

- Nam Xong Sub-River Basin, Houy Nam Sai Sub-River Basin
- Staff of Louang Nam Tha Province of Natural Resources and Environemtn



Water Resources Data Information Management Agreement

- Draft on Water Resources Data and Information Assessment
- Draft on Water Resources and Information Agreement

Process:

- Setup Working Group
- Review any document
- Discussion among water resources sector

Work Plan 2015

Inventory

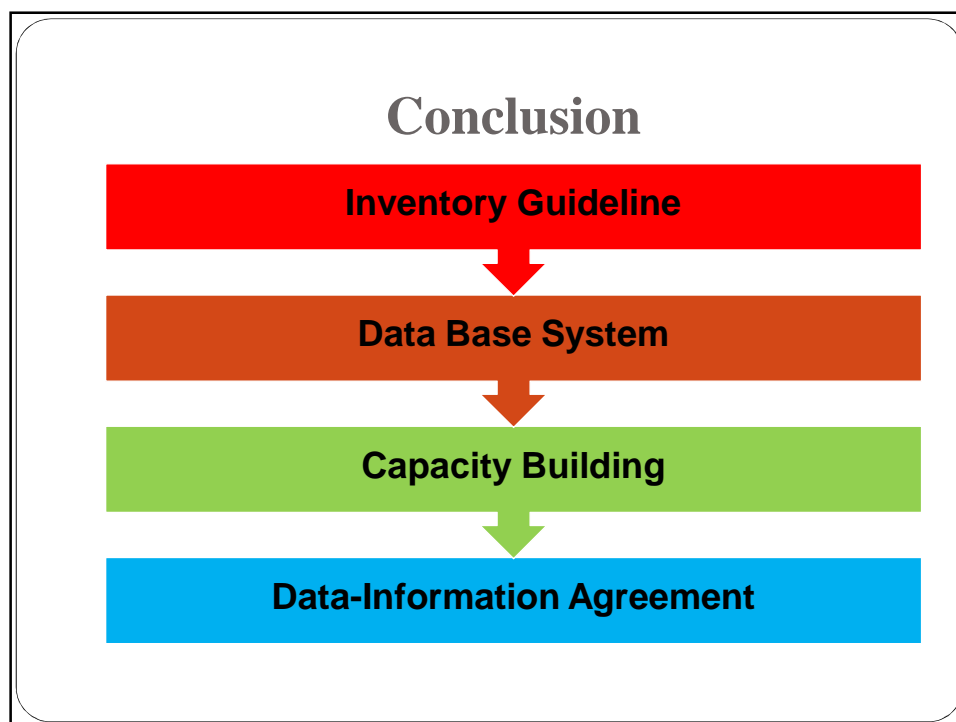
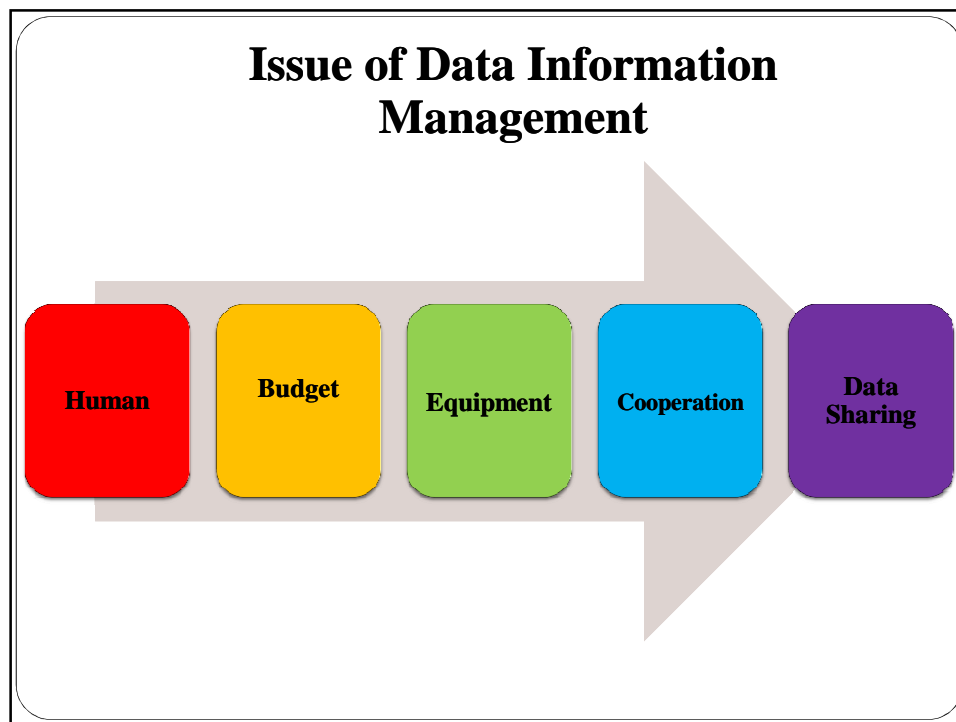
- Surface water and Wetland: Testing and apply
- Water Quality and Ground Water

Data Base

- Develop Data Base
- Metadata and Data Directory

Data- Information Agreement

- Develop water resources data-information assessment
- Develop water resources data-information agreement



Thank you

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