

## **Non-point source Pollution Control Policy and Measures for Protection of River Water Quality in Lao PDR**

Presented by

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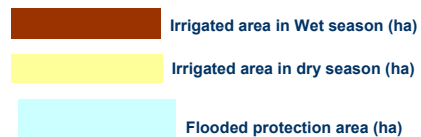
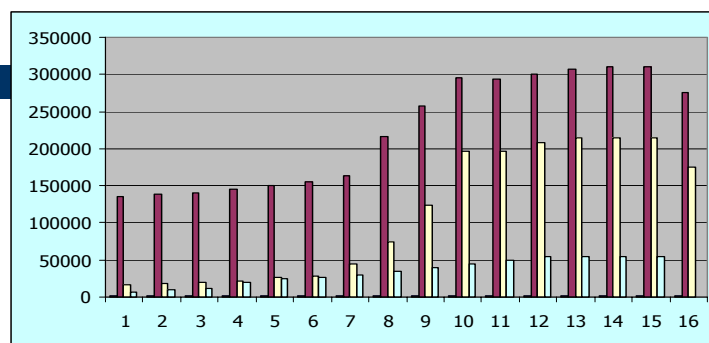
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## IRRIGATION DEVELOPMENT

Yearly irrigation development ( ha) unit

No	Year	Wet season	Dry season	Flooded Protection
1	1991	136,000	16,000	7,000
2	1992	138,000	18,000	10,000
3	1993	140,000	20,000	12,000
4	1994	145,000	22,000	20,000
5	1995	150,000	26,000	25,000
6	1996	156,000	28,000	27,000
7	1997	164,000	45,000	29,000
8	1998	216,892	75,000	35,000
9	1999	258,200	124,231	40,000
10	2000	295,535	197,131	45,000
11	2001	293,852	197,132	50,000
12	2002	300,054	207,360	55,000
13	2003	307,170	214,625	55,000
14	2004	310,170	214,832	55,000
15	2005	310,360	215,000	55,000
16	2006	276,062	174,350	

## IRRIGATION DEVELOPMENT



## Number & Areas of Irrigation Schemes by Types

Items	Dry season (ha)	Wet season (ha)	No. of Projects
Weir	54,261	103,523	917
Reservoirs	10,681	24,474	220
Pump schemes	145,942	167,891	4,400
Dikes& gates	2,469	9,864	83
Gabions	1,786	3,817	133
Temporary weir	28,500	56,398	18,943
<b>Total</b>	<b>243,639</b>	<b>365,967</b>	<b>24,696</b>

## IRRIGATION SCHEMES SIZES DEFINITION

<b>Small Scale</b>	<b>Medium Scale</b>	<b>Large Scale</b>
Less than 100 ha	100 – 500 ha	More than 500 ha



Nam Houm Reservoir Dam



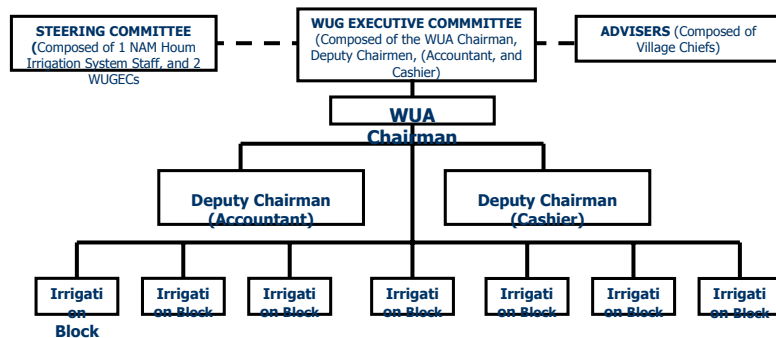
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## Irrigation Management



## The Water Quality Monitoring Network (WQMN)

- The Laboratory of Water Quality Analysis is under Department of Irrigation
  - Establish in 1985.
  - Supported by Mekong River Commission (MRC) through Lao National Mekong Committee (LNMC)
  - WQMN: 19 stations from up streams to down streams which of 11 primary stations and 8 secondary stations.

## TYPE OF STATION

- Primary station:
  - consist of trans-boundary stations which held to assess water quality of water source at the boundary between two countries and basin-wide stations which focus on common water quality issues in the region.
- Secondary:
  - consist of stations which to resolve special problems for country level or local level.

## OBJECTIVE OF WQMN

- **Analysis Water Quality in Mekong River and tributaries (19 stations)**
- **Monthly Report to MRC through LNMC**

## PARAMETERS MEASURED IN WQMN

- Temperature
- pH
- Conductivity
- Total Suspended Solid
- Dissolved Oxygen
- Sodium
- Potassium
- Calcium
- Magnesium
- Sulphate
- Chloride
- Alkalinity
- Chemical Oxygen Demand
- Total Nitrogen
- Total Nitrate and Nitrite
- Ammonium Nitrogen
- Total Phosphorous
- Fecal Coliform
- Chlorophyll-a

- Since 2004 Water Quality Analysis Laboratory has started to apply Quality Assurance and Quality Control system and bring this monitoring closer to requirements in the International Standard ISO 17025, supported by MRC.

### **Chemical Fertilizer for Agriculture Production in Dry Season**

- **Irrigated Areas in Dry Season**
  - Northern Part ~ 20,000 ha
  - Central Part ~ 95,000 ha
  - Southern ~ 16,000 ha
- **Chemical Fertilizer**
  - 250-300 kg/ha

## **Conclusion**

- **Result of Water Quality Analysis:**
  - The Mekong River & its tributaries are generally good water quality.

**Thank you for your attention**