Thailand 2013 IWRM Reports
(Based on 2009 report framework for the six issues)

ISSUE 1 - WATER SUPPLY

Monitoring Indicators	Value
1. Percentage of population having access to piped drinking water	99.45
Description From the total of 8,220,609 households there are 8,175,298 (99.45%) households that have household drinking water with adequate consumption throughout the year. Another 45,311 households (0.55%) do not have adequate household drinking water.	
2. Percentage of water deliver (cu.m) to customer meeting WHO guidelines for drinking water quality	88.5
Description Thailand follows WHO's guidelines for drinking water quality but the remaining 12.5% do not meet the guidelines because of inefficiency in management. The delivery of water in Thailand is done by Metropolitan Waterworks Authority, Provincial Waterworks Authority, and by concession.	
3. Average hour of water supplied per day	24
Description Water is supplied 24 hours per day however we have campaigns for using water wisely.	
4. Per capita domestic water consumption	50 liters per capita per day
Description 5 liters per capita per day for drinking and 45 liters per capita per day for using	
5. Percentage of water supply metered	
Description	
6. Percentage of UFW/NRW	45-50
Description Unaccounted for water (UFW) or non-revenue water (NRW) is due to illegal connections or unregistered meters, leakages, and unbilled consumption such as water used for fire-fighting.	

Source: ASEAN Working Group for Water Resources Management (AWGWRM) – April 2015
[weblink - aseaniwrm.water.gov.my]

ISSUE 2 - IRRIGATION

Monitoring Indicators	Value
1. Percentage of irrigated area versus the total potential irrigable area	**47**
Description Agricultural area in Thailand is about 27 million ha or 41% of country area (reported by Department of Land Development; Year 2008-2009) consists of potential irrigable area about 9.6 million ha and rain-fed cultivated area about 17.44 million ha. Thailand has developed irrigated area about 4.54 million ha at present.	
2. Percentage of irrigated area damaged by flood and drought	Flood = 0.18 Drought = 0.38
Description Reference to the damages records in irrigated area in wet and dry season which was done by Irrigation Water Management Division, Office of Hydrology and Water Management, Royal Irrigation Department, main crop - rice; the large-medium scale irrigated area was damages in the production year 2009-2010 as follows: • Wet season area – 2.44 million ha damaged 4470 ha - 0.18% • Dry season area – 1.53 million ha damaged 5760 ha - 0.38% This information is not included in the agricultural area of upland crop, vegetable, fish pond, shrimp culture.	
3. Percentage of irrigated area with water quantity measuring devices	>95
Description In irrigated areas of large and medium scale irrigation projects, flow measuring devices are necessary and various kinds of devices are deployed to fulfill the functions of delivery of the irrigation system such as staff gauge, weir, tele-metering system, etc. For large-scaled irrigation projects, improvement of the irrigation efficiency has been done on the aging infrastructures, particularly for the distribution system which includes the measuring devices.	

ISSUE 3 – STORMWATER MANAGEMENT

Monitoring Indicators
1. Any policy on managing stormwater **(No)**
Description Under development and inclusion into the national policy
2. Any legislation on managing stormwater **(No)**
Description
3. Any regulatory agencies to control stormwater **(Yes)**
Description Agencies controlling stormwater in Thailand • Royal Irrigation Department (Surface runoff and reservoir operation) • Electricity Generating Authority of Thailand (Reservoir operation) • Local administrator (Urban drainage)
4. Any formal institutional arrangements among related agencies to manage stormwater **(No)**
Description
5. Use of computer modeling tools to model stormwater quality and quantity **(Yes)**
Description
6. Availability of design manual/code of practices for stormwater management **(No)**
Description There is no availability of design manual/code of practices for stormwater management but there are some criteria for construction design or operation of infrastructure.

ISSUE 4 – FLOOD MANAGEMENT

Monitoring Indicators	Value
1. Any steps taken to implement Integrated Flood Management (IFM) approaches in the country (Yes/No)	Yes
Description Thai Government designs the flood management policies into three stages. The stages and tasks in each stage are as follows: • Before flood stage; such as preparation of historical flood map for flood defence planning. • During flood stage; such as evacuation of people and properties to the safe area. • After flood stage; such as clearing of rubbish, removal of mud, restoration of household and public goods.	
2. Percentage of high risk flood-prone areas in the country covered by early flood warning and response systems	66
Description Department of Water Resources (DWR) set up early warning system in high risk area in the upper river basins. Risk Areas consist of 2,370 villages. Now there are 66% of high risk flood-prone areas in Thailand covered by early flood warning and response systems.	
3. Percentage of high risk flood-prone areas in the country covered by a real time flood monitoring information system	28
Description DWR has initiated the study, survey and installation of Telemetry System for 7 of 25 River Basins in Thailand consisting of Khong, Chi, Mun, Chao Phraya, Bang Pakong, Prachin Buri and Tha Le Sap Songkhla Basins.	
4. Percentage of annual national budget allocated to flood management	
Description The Annual Budget of DWR for flood management is almost 1 % and consists of the budget for the Early warning system of about 170 million Baht from 2005-2011 and Telemetering project about 422 million Baht from 2005-2011.	
5. Any legislation on river conservation (Yes/No)	Yes
Description We have legislation on river conservation for example, Royal Irrigation Department has legislation for irrigation areas, Department of Pollution Control set up surface water quality standard for classification of water with the objectives of controlling and maintaining water quality, and also for conservation of natural	

resources and environment. DWR drafted new Water Resources Act to enhance the development, management and conservation of water resources.	
6. Any formal institutional arrangements among related agencies to manage floods (Yes/No)	Yes
Description In Thailand there are 3 main Ministries to manage floods. They are the Department of Water Resources (DWR) under the Ministry of Natural Resources and Environment which monitors the basin areas of the whole country, the Royal Irrigation Department (RID) under the Ministry of Agriculture and Cooperatives which monitors the irrigation areas and the Department of Disaster Prevention and Mitigation under the Ministry of Interior which operates post-flood measures such as the restoration of households or restoration of damaged infrastructures.	

ISSUE 5 – WATER POLLUTION MANAGEMENT

Monitoring Indicators	Value
1. Any policy on water pollution control (Yes/No)	Yes
Description 1. To control wastewater in critical river basins and pollution control areas. 2. To apply Best Practical Control Technology for communal and small enterprises. 3. To solve water pollution in terms of area-based management. 4. To regulate laws, standards and guidelines of wastewater management in the condition of manufacturing permits. (Source: Thailand State of Pollution Report 2009)	
2. Any specific legislation for the management of water quality and wastewater (Yes/No)	Yes
Description 1. Defining standards for wastewater disposed from point sources such as industries, central wastewater treatment plants, swine farms, dockyards, communities, buildings and aquaculture farms. 2. Prescribing aquaculture as pollution sources of which wastewater released to public water resources or the environment must be in control. 2.3 Performing water resource classification on rivers and sub-rivers. (Source: Thailand State of Pollution Report 2008 - 2009)	

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3. Any specific financial support programme for controlling water pollutions (Yes/No)	Yes
Description There is financial support for central wastewater treatment plant construction by Board of Decentralization.	
4. Any formal institutional arrangements among related agencies to manage water pollution (Yes/No)	Yes
Description Wastewater Management Organization was established under the Ministry of Natural Resources and Environment.	
5. Any public/private sector partnership and participation in managing water pollution (Yes/No)	Yes
Description 1. Thai –Lao bilateral cooperation in air quality and wastewater management. 2. Cooperative agreement of solving and protecting water quality in critical river basins. 3. Local administrations in tourist beach campaign. 4. Thachin river basin network. (Source: Thailand State of Pollution Report 2008 - 2009)	
6. Any river water quality monitoring information system/database (Yes/No)	Yes
Description • Surface water quality. • Coastal water quality. • Groundwater state. • Tourist beach environmental quality. • Water quality of flood incidents. (Source: Thailand State of Pollution Report 2008 - 2009)	
7. Any river water quality master plan at national and local levels (Yes/No)	Yes
Description 1. Environmental Quality Management Plan A.D. 2008 – 2011 (B.E. 2551 - 2554).	

Source: ASEAN Working Group for Water Resources Management (AWGWRM) – April 2015
[weblink - aseaniwrm.water.gov.my]

2. The Master Plan of Songkla Lake Basin Development (Cooperated to the Office of Natural Resources and Environmental Policy and Planning: ONEP). 3. Prevention and Reclamation of Wastewater Problems in Lamtaklong River Basin. (Source: Thailand State of Pollution Report 2008)	
8. Any river basin master plan for relocating the highly polluting industries in a river basin (Yes/No)	9. Yes
Description • Preventive Measures and Solving Water Quality Problems in Critical River Basins. • The Master Plan of Solving and Protecting Water Quality in Critical River Basins. (Source: Thailand State of Pollution Report 2008)	

ISSUE 6 – SANITATION MANAGEMENT
(No Report)

Monitoring Indicators	Value
1. Any policy on urban/rural sanitation and sewerage systems (Yes/No)	
Description	
2. Any specific legislation on urban/rural sanitation and sewerage systems (Yes/No)	
Description	
3. Percentage of annual budget for sanitation and sewerage programme/projects	
Description	
4. Any integrated national and provincial institutions to implement sanitation policies (Yes/No)	
Description	

5. Any private sector participation in providing sanitation services for the people (Yes/No)	
Description	
6. Any national sanitation/sewerage information system/database (Yes/No)	
Description	
7. Any comprehensive sewerage/sanitation master plan at national, regional and local levels (Yes/No)	
Description	
8. Any effective regulatory framework to control the quality of wastewater discharges to water courses (Yes/No)	
Description	
9. Any landuse masterplan for relocating the highly polluting industries in a river basin (Yes/No)	
Description	
10. Any awareness/advocacy programme for stakeholders on the importance of proper sanitation and sewerage systems (Yes/No)	
Description	