

## **L. WATER RESOURCES MANAGEMENT STRATEGIES AND ACTION PLANS OF THAILAND**

By the Water Resources Association\*

### **Introduction**

Water professionals in Thailand, including government officials, academia, non-governmental organizations and the private sector, through the support of the Global Water Partnership (GWP) conducted a series of participatory workshops to draft the national Water Vision and Policy. The Vision and Policy were subsequently endorsed in 2000 by the Government.

The Water Resources Association was contracted by ESCAP to review the national policy and translate the policy into strategies and an Action Plan. The objective was to formulate an action programme to be tabled for the Cabinet approval and used by the line agencies in carrying out their tasks.

### **I. Approach**

The integrated water resources management principle has been incorporated into the water resources management process of Thailand. The participatory approach is an important process for conducting river basin management and for building confidence. For the study, the building of consensus and acceptance by stakeholders is important not only for obtaining approval of the Cabinet but also for the smooth implementation of strategies and action plans. Therefore, multi-stakeholder participation was employed for this study.

### **II. Process**

Two workshops and one meeting were held to translating the national water policy into national water strategies (annex I). The first workshop was held on 15 September 2003 with participants from government agencies, academia, the private sector and non-governmental organizations. Draft strategies were prepared by the organizer and presented to the participants, who were asked to discuss and revise the strategies further. The organizer then summarised the results of the workshop.

The second workshop was held on 24 September 2003, with participants from government agencies and academia, to further consider and revise the draft strategies of the first workshop.

A final meeting was held on 23 December 2003 with participants from key agencies, i.e., the Department of Water Resources, the Royal Irrigation Department, the Bureau of the Budget and the Office of the National Economic and Social Development Board to finalize the draft national water strategies.

### **III. Output**

A final version of the long-term water resources management strategy as well as a short-term (three-year) strategy and Action Plan (annex II) were completed and submitted for Government consideration. The short-term strategy was needed in order to respond to the Government targets for water resources development. The Cabinet was expected to consider the submitted strategies with a view to making them the national water resources strategies.

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## Annex I. Long-term national water strategy – national water Action Plan

**Policy 1.** Accelerate the promulgation of the draft Water Act to become the framework for national water management by reviewing the draft and implementing all necessary steps to make the Act effective, including reviews of existing laws and regulations

Objective	Strategy	Action Plan	Time frame
To introduce a Water Act as well as revise existing laws and regulations to serve as principal legislation for efficient management of national water resources.	Have a Water Law passed as soon as possible.	1. Draft water law.	2004
		2. Review and improve existing water-related laws.	2004
		3. Submit to the Cabinet and Parliament	2005
		4. Effectively enforce the law.	2006

**Policy 2.** Create water management organizations at the national and river basin levels together with supportive laws. The national organization will be responsible for formulating national policies, monitoring and coordinating activities to fulfill the set policies. The river basin organizations will be responsible for preparing water management plans through a participatory approach.

Objective	Strategy	Action Plan	Time frame
To establish a national level organization responsible for policy formulation; oversee implementation of the policy by concerned agencies; and establish basin-level and local-level organizations with supporting laws.	Promote the establishment of a Ministry of Water Resources to be responsible for policy formulation, the implementation of the policy, and the establishment of basin-level and local-level organizations to be responsible for the preparation of a basin plan and management of basin water resources.	1. To establish the Ministry of Water Resources	2004
		2. To set-up basin level and local level organizations	2004
		3. To prepare basin plans	2004 onwards
		4. To prepare manual and budgetary procedure to promote public participation and capacity-building of the concerned organizations	2004 onwards

**Policy 3.** Emphasize suitable and equitable water allocation for all water use sectors, and fulfill basic water requirements of agriculture and domestic uses. This will be accomplished by establishing efficient and sustainable individual river basin water-use priorities under clear water allocation criteria, incorporating beneficiary cost sharing based on ability to pay and level of services.

Objective	Strategy	Action Plan	Time frame
1. Appropriate water allocation for all user sectors at the national and basin levels.	1. Define rights and responsibility of the various user sectors.	1. To study guidelines for defining water rights and responsibility of the various user sectors.	2004 onwards
		2. To carry out a pilot project.	2004 onwards

Objective	Strategy	Action Plan	Time frame
	2. Prioritize water use for the various sectors, i.e., agriculture, domestic, industry, conservation of ecosystem etc.	1. To study and collect information on water requirements of the various sectors, and forecast future trends. 2. To study water resource potential and the management plan in order to set criteria for water allocation to the various sectors.	2004-2005 2004-2005
	3. Promote conjunctive use of surface and groundwater.	1. To study existing water potential. 2. To allocate water for the various sectors under the framework of basin management.	2004 onwards 2004
	4. Set water-use criteria/proportions for the various sectors from national to basin level.	1. To collect and establish an information network for forecasting and warning. 2. To set criteria and measures for allocation and management under crisis conditions.	2004 onwards 2004 onwards
	5. Prepare emergency plans (drought, flood and wastewater).		

**Policy 4.** Emphasize suitable and equitable water allocation for all water-use sectors, and fulfill basic water requirements of agriculture and domestic use. This will be accomplished by establishing efficient and sustainable individual river basin water-use priorities under clear water allocation criteria, incorporating beneficiary cost sharing based on ability to pay and level of services.

Objective	Strategy	Action Plan	Time frame
2. Improvement of water-use efficiency.	1. Apply economic and financial tools for water allocation, fee collection, the creation of a water market, compensation, taxes and allow users to be responsible for paying for service, wastewater treatment etc. 2. Campaign to create awareness of users about the necessity to share costs and use water efficiently. 3. Set up a water resources management fund.	1. To study and set appropriate water fees for the various sectors. 2. To study the feasibility and set conditions for community organizations to participate as service providers. 1. To launch a public campaign to encourage users to pay and use water efficiently. 1. To carry out pilot projects for the creation of a water resources management fund.	2004 onwards 2004 onwards 2004 onwards 2004 onwards

Objective	Strategy	Action Plan	Time frame
	4. Introduce water reuse/recycling.	1. To study and design water reuse/recycling schemes.	2004 onwards
	5. Introduce water saving technologies.	1. To accelerate the introduction of water-saving technology	2004 onwards

**Policy 5.** Emphasize suitable and equitable water allocation for all water-use sectors, and fulfill basic water requirements in agriculture and domestic uses. This will be accomplished by establishing efficient and sustainable individual river basin water-use priorities under clear water allocation criteria, incorporating beneficiary cost sharing based on ability to pay and level of services.

Objective	Strategy	Action Plan	Time frame
3. To increase water management efficiency.	1. Rehabilitate existing infrastructures.	1. To repair and improve distribution systems and control structures in order to reduce losses.	2004 onwards
		2. To improve water control methods for more accurate water delivery.	2004 onwards
	2. Develop a water network/grid both within and among basins, and a distribution system to serve as many users as possible.	1. To study the water network (both delivery and distribution system), at the basin and area levels to achieve a water balance between potential and utilization.	2004 onwards
		3. Improve the organizational structure and management system.	1. To develop organization and human resources for water management.

**Policy 6.** Formulate clear directions for raw water provision and development compatible with basin potential and demands, and ensure suitable quality while conserving natural resources and maintaining the environment.

Objective	Strategy	Action Plan	Time frame
1. To develop water resources in accordance with potential and needs of various activities, both in terms of quantity and quality with due consideration of the environment. To ensure sufficient and equitable water for the various basic needs.	1. Set clear direction for water resources development both within and outside the country by emphasizing development of water resources within the country to their full potential.	1. To prepare water resources, management and development master plan	2004 onwards

Objective	Strategy	Action Plan	Time frame
<p>1. To maintain natural and man-made water sources in good conditions suitable for various uses.</p> <p>2. To introduce a basin plan as a master plan for line agencies; to include in Department and Ministerial plans.</p>	<p>1. Promote community organizations in looking after water resources, to prevent encroachment and the improvement of scenery.</p> <p>2. Monitor and analyse quality of water sources for domestic use.</p> <p>3. Survey and rehabilitate water sources and waterways, including development and conservation measures.</p>	<p>2. To prepare knowledge base consists of data base, monitoring and evaluation system and supporting system for decision-making in water resource management</p>	2004 onwards
		<p>3. To develop and construct reservoir and irrigation systems</p>	2004 onwards
		<p>4. To encourage local organizations and stakeholders to participate in development and rehabilitation of water resources</p>	2004 onwards
		<p>5. To coordinate with neighbouring countries and international organizations for joint utilization of shared rivers</p>	2004 onwards
		<p>1. Train volunteers to watch and prevent encroachment of water sources and public streams.</p>	2004 onwards
	<p>1. Complete the basin plan for all 25 basins.</p>	<p>2. To improve scenery at water sources.</p>	2004 onwards
		<p>1. To monitor water quality. 2. To prepare a protection plan for water-related pollution.</p>	2004 onwards 2004 onwards
		<p>1. To promote maintenance/dredging of inland waterways.</p>	2004 onwards
		<p>2. To survey polluted groundwater for rehabilitation.</p>	2004 onwards
		<p>1. To prepare an integrated basin plan with stakeholders' participation. 2. To get agencies and basin organizations to prepare an Action Plan based on the basin plan.</p>	2004 onwards

**Policy 7.** Provide and develop raw water sources for farmers extensively and equitably in response to water demand for sustainable agriculture and domestic uses, similar to deliveries of other government basic infrastructure services.

Objective	Strategy	Action Plan	Time frame	
1. To provide water sources to meet the basic requirement for agricultural and domestic needs of farmers extensively and equitably.	1. Develop water resources to meet basic requirements.	1. To prepare a water resources development plan with the initiative and participation of local organizations, TAO and stakeholders. 2. To construct village-level water storage facilities, dredging of canal and ponds. 3. To develop groundwater in potential areas and construct irrigation systems. 4. To prepare procedures for the handover of maintenance responsibility of village-level water storage facilities to TAO and users' groups.	2004 onwards 2004 onwards 2004 onwards 2004 onwards	
	2. Prepare a water utilization plan for equitable agricultural and domestic needs.	1. To set water quantity to meet the basic needs for agriculture in the wet and dry seasons and for domestic use. 2. To study and project future agricultural water requirement trends.	2004 onwards 2004 onwards	
	3. Adjust cropping patterns to suit water potential and seasons of the various areas in order to justify the investment.	1. To set agricultural zones with respect to available water potential, soil conditions and return on investment. 2. To develop occupational options.	2004 onwards	
	4. To develop an agricultural water distribution system for efficiency and effectiveness.	1. To develop a water distribute system suitable for the topography and justify the investment. 2. To get the beneficiaries pay for the services.	2004 onward 2004 onwards	
	2. To extend water supply services to cover all communities and villages of the country.	1. Accelerate the provision of community and village water supply system by using groundwater.	1. Short term: To provide a water supply for 80 per cent of communities and villages 2. Long term: To provide a water supply for 95 per cent of communities and villages.	2003-2004 2003-2006
		2. Promote private sector participation in the form of concessions.	1. To set guidelines and a model for private participation and for granting concessions.	2004 onwards

**Policy 8.** Include water-related topics at all levels of the educational curriculum in order to create awareness of water value, an understanding of the importance of efficient water utilization, and the necessity and responsibility for maintaining natural and manmade water sources.

Objectives	Strategy	Action Plan	Time frame
1. To create awareness of the importance of water resources and efficient utilization.	1. Include water related topic at all levels of educational curriculum.	1. To prepare course materials for both formal and informal education.	2004
		2. To prepare a water resources-related curriculum.	2004
		3. To incorporate water-related topics into the curriculum of high-level administrator study programmes such as the National Defence College, the Prapokkao Institute and the Local Administration Institute.	2004
	2. Promote public awareness and understanding of the importance and maintenance of water sources and efficient utilization.	1. To launch a public campaign and organize community forums at the national and local levels for a clear understanding of water resources potential and problems. Restructure the programme for preparation of future agricultural water plans.	2004 onwards
2. To foster good understanding among various interest groups.	1. Disseminate information and ensure correctness of water-related knowledge.	1. To produce information and media for mutual understanding, in order to avoid conflicts.	2004 onwards
		2. To organize meetings and seminars for exchanges of knowledge and opinions.	2004 onwards

**Policy 9.** Promote and support participation, including clear identification of procedures, clear guidelines on the rights and responsibility of the public, non-government and government organizations in efficient water management. Water management includes water utilization, water source conservation, and monitoring and preservation of water quality.

Objective	Strategy	Action Plan	Time frame
Participation of public and private organizations in the management of water resources as well as acknowledgement of their rights and responsibilities for the use, maintenance and conservation of water resources and the environment.	1. Campaign for public and private organizations to become aware of their rights and responsibilities for maintaining and conserving water resources and the environment.	1. To study and define public water rights and responsibility to pay for water services. 2. To prepare and disseminate information to the public to ensure understanding of their rights and responsibility in water resources management.	2005

Objective	Strategy	Action Plan	Time frame
	2. Promote participation of public and private organizations in the water resources management process.	1. To study and set a framework for public and private organizations participation. 2. To appoint users and local organizations as members of water related committees in appropriate proportion.	2005 2004 onwards
	3. Strengthen the capacity of local organizations and stakeholders to take care of activities transferred to them.	1. To train leaders of local organizations and user groups to be able to manage and maintain the transferred projects effectively. 2. To study a mechanism for establishing a stakeholders' network that includes the Government, private organizations and the public.	2004 onwards 2004 onwards

**Policy 10.** Accelerate the preparation of plans for flood and drought protection, including warning, damage control and rehabilitation, efficiently and equitably with proper utilization of land and other natural resources.

Objective	Strategy	Action Plan	Time frame
1. To have a clear flood, drought and water quality protection plan.	1. Formulate flood and draught protection and rehabilitation master plans, employing both structural and non-structural measures.	1. To prepare flood and drought risk maps of each river basin. 2. To study and prepare a master plan for the protection and rehabilitation of water-related natural disasters in each river basin.	2004-2005 2004-2005
	2. Promote and support local organizations to be capable of reduce and solve flood and drought problem.	1. To provide training for protection and rehabilitation.	2004-2005
	3. Develop a preparatory process for protection and rehabilitation operations prior, during and after disasters.	1. To identify the risk area clearly, using the town planning law.	2004-2006
2. To introduce an efficient flood and drought protection system	1. Set up a forecasting and warning system.	1. To set up a water quantity and quality measuring network.	2004-2005
	2. Set guidelines and procedure for water related disaster warning.	2. To develop and establish water-related information and risk analysis centres.	2004-2005



**Policy 11.** Provide sufficient and sustainable financial support for action programmes in line with national policy, including water-related research, public relations, information collection and technology transfer to the public.

Objective	Strategy	Action Plan	Time frame
1. To ensure efficient budget allocation for water resource.	1. Set an integrated budgetary system for the water sector.	1. To set up a working group to prepare a framework for the preparation of water resources plans. 2. To monitor and evaluate implementation.	2004 onwards 2004 onwards
2. To develop know-how and qualified personnel for water resources management.	1. Promote research, training and technology transfer for all concerned personnel.	1. To prepare a master plan for water-related research. 2. To conduct research, training and technology transfer.	2004 onwards 2004 onwards
3. To inform and gain support from stakeholders.	1. Publicize information, knowledge, the Action Plan and projects of agencies among the public and stakeholders.	1. To set up guidelines for public relations as well as the development of information materials for concerned agencies. 2. To conduct joint public and government public relations activities. 3. To assign and develop public relations personnel within and outside agencies.	2004 onwards 2004 onwards

**Annex II. Short-term water strategy – Strategies and Action Plans in water resources management for 2004-2006**

No.	Strategy	Action Plan	Time Frame
1.	Establish a knowledge/information base, monitoring system and decision-supporting system.	<ol style="list-style-type: none"> <li>1. To set-up water resources information network and to link with CEO type of provincial management</li> <li>2. To develop a more comprehensive information system</li> <li>3. To establish a Water Resource Management Institute</li> </ol>	<p>2004</p> <p>2006</p> <p>2004-2006</p>
2.	Study, plan preparation and implementation of provision of safe drinking water.	<ol style="list-style-type: none"> <li>1. To prepare plan and implement the domestic water provision plans.</li> <li>2. To have 100 per cent coverage within five years.</li> </ol>	<p>2004</p> <p>2004-2009</p>
3.	Have clear water resources development plan.	<ol style="list-style-type: none"> <li>1. To prepare additional water resources development plan.</li> <li>2. To study the feasibility of sharing water utilization with neighbouring countries.</li> </ol>	<p>2003</p> <p>2003-2004</p>
4.	Conserve, rehabilitate and improve effectiveness of natural water resources.	<ol style="list-style-type: none"> <li>1. To prepare plans for rehabilitation, improvement and conservation of water sources and waterways including carrying out pilot projects in Bung Borapet, Kwan Phayao and Nong Han.</li> <li>2. To rehabilitate and improve efficiency and manage existing irrigation systems for maximum return.</li> <li>3. To encourage the users to utilize water efficiently.</li> <li>4. To study water demand and production of crops for cultivation of high-value crops and reduce water demand.</li> </ol>	<p>2004-2005</p> <p>2004-2005</p> <p>2004-2006</p> <p>2004-2006</p>
5.	Set priorities for the various water uses, which include agricultural, domestic, industrial, hydropower, ecosystems etc.	<ol style="list-style-type: none"> <li>1. To study, collect information and set guideline for water allocation with stakeholders' participation.</li> <li>2. To prepare master plan for conjunctive use of surface and groundwater.</li> <li>3. To implement pilot projects of conjunctive use of surface and ground water.</li> <li>4. To study, conduct zoning and set water allocation for the various uses both at the national and basin levels.</li> <li>5. To prepare industrial water plan.</li> </ol>	<p>by 2005</p> <p>by 2006</p> <p>2004-2006</p> <p>by 2005</p> <p>by 2004</p>

No.	Strategy	Action Plan	Time Frame
6.	Prepare flood and drought master plan.	<ol style="list-style-type: none"> <li>1. To prepare emergency plans at provincial level.</li> <li>2. To prepare long-term plan.</li> <li>3. To develop warning system for critical areas.</li> <li>4. To prepare operational manual for reducing the impact of water crisis.</li> </ol>	<p>by 2004</p> <p>by 2005</p> <p>by 2006</p> <p>by 2006</p>
7.	Protection of water quality.	<ol style="list-style-type: none"> <li>1. To conduct pilot projects in four critical basins (Tachin, Songkhla Lake, Chao Phya and Ping Rivers) by letting the RBCs prepare warning system, monitoring, measuring and protection of pollution including water utilization from existing projects.</li> </ol>	by 2004
8.	Prepare a comprehensive water sector budgetary plan.	<ol style="list-style-type: none"> <li>1. To prepare budgetary plan for the operation of water related agencies.</li> <li>2. To allocate budget for supporting activities of RBCs.</li> </ol>	<p>2004 onwards</p> <p>2004 onwards</p>
9.	Include water-related knowledge for the curriculum at all educational levels.	<ol style="list-style-type: none"> <li>1. To prepare and include water-related knowledge in educational curricula.</li> </ol>	by 2004
10.	Promote public participation.	<ol style="list-style-type: none"> <li>1. To study and design the model, right and responsibility, conflict reduction, for the participatory process and define the petition process.</li> </ol>	2004
11.	Promote the participation of the private sector in water provision.	<ol style="list-style-type: none"> <li>1. To promote and support the private sector in the provision of water, i.e., industrial water and domestic water.</li> </ol>	2004
12.	Draft Water Law.	<ol style="list-style-type: none"> <li>1. To draft a Water Law.</li> <li>2. To review and revise existing related laws.</li> </ol>	<p>2004</p> <p>2006</p>
13.	Set up water resources management organizations at the national and basin levels.	<ol style="list-style-type: none"> <li>1. To set up a Water Resources Ministry.</li> <li>2. To allocate a budget for the operations of RBCs.</li> <li>3. To expand the RBC network down to the subdistrict level.</li> </ol>	<p>2004</p> <p>2004 onwards</p> <p>by 2004</p>