

2005 Annual Report



Department of Water Resources
Ministry of Natural Resources and Environment



สมบัติห้องสมุดรัฐสภา

สิ่งพิมพ์รัฐบาล

Department of Water Resources
Ministry of Natural Resources and Environment

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Message from

The Director General of the Department of Water Resources

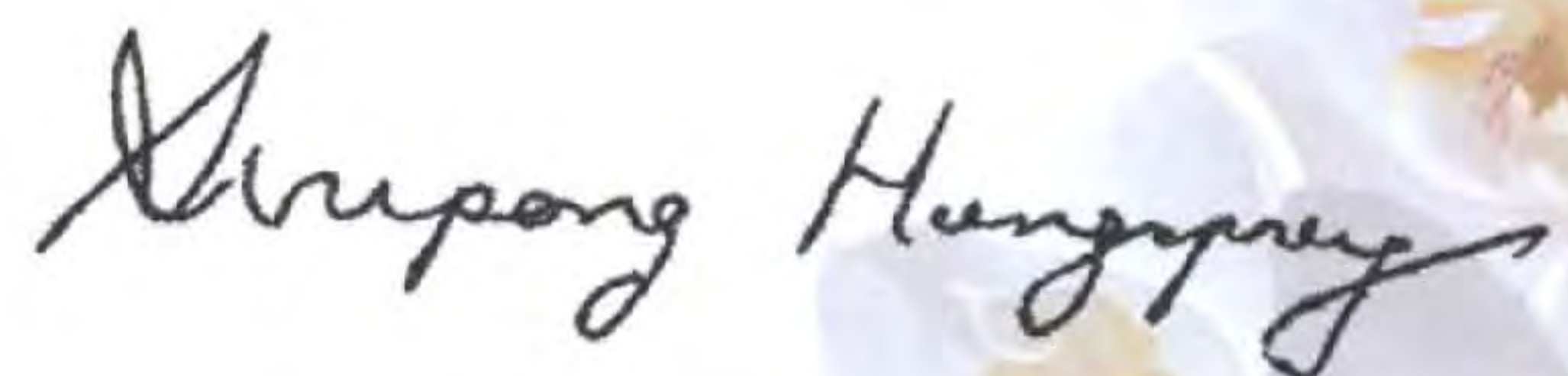


“The principle is that there must be water for home consumption and for agriculture because life depends on it. With water, man will survive, without water we will not. Without electricity, man will survive. With electricity but without water, man will not.” This is His Majesty Speech given at Chitrada Palace on March 17, 1986 which represented the significant implication of “Water is life”, that all should recognized of His Majesty’s deep concern with water.

The Department of Water Resources under the Ministry of Natural Resources and Environment as the care organization dealing with water resources in Thailand has responded to His Royal Speech mentioned above. Therefore, the Department has adopted H.M. ideal to incorporate in the guideline direction for the department mandate with taking into account the compliance with the ministerial strategies. The mandate specified these activities namely water resource management, water resources development, water resources conservation and rehabilitation, water supply, disaster prevention and mitigation. The implementation of these activities is carried out based on integrated manner, and participatory approach from all sectors and good governance principle.

Through 3 years of conservation, development and management of water resources, the Department has pushed full effort to respond to His Royal Initiative and His Royal Foundation. All projects implemented by the government have been mainly aimed to serve people needs, to prevent, solve and relieve people troublesome. These activities included water resources management, water grid, water diversion, integrated water distribution system, deteriorated water resources improvement. All of the implementation are targeted to achieve the utmost benefit and sustainability. They are also given the chance for people to participate in their own water resources management.

This 2005 annual report is the summary of the accomplishment of the Department which should be acknowledged by people and other agencies concerned. It is expected that the content in this report might be benefit to all concerned.



Mr. Siripong Hongsreug

Director-General

Department of Water Resources

Part 1 Profile of Department of Water Resources

1.1 Directory of Executives of Department of Water Resources

Executives in Department of Water Resources



Mr. Siripong Hungsreug
Director-General of Department
of Water Resources



Mr. Wichit Phattanakosai
Deputy Director-General



Mr. Nitat Poovatanakul
Deputy Director-General



Mr. San Kemprasit
Chief Engineer



Mr. Thanade Dawasuwan
Chief Engineer



Mr. Narawut Deesuwan
Chief Inspector



Mr. Sujarit Attasartasri
Inspector

Central Administration



Mr. Itthipong Thanajitmetee
Director of Bureau of General
Administration



Mr. Surapol Pattanee
Director of Bureau of Water Policy
and Plan



Mr. Niwatchai Khampee
Director of Bureau of
Water Resources Development



Mrs. Sawanee Sukhotu
Director of Bureau of Mass
Promotion and Coordination



Mr. Worasat Apaipong
Direct of Bureau of Water Resources
Conservation and Rehabilitation



Mr. Wichien Jungrungruang
Director of Bureau of
Water Management



Mr. Boontham Sirichai
Director of Bureau of Research,
Development and Hydrology



Mr. Anussorn Bunyaratapan
Director of Bureau of International
Cooperation



Mr. Suphot Tovichakchaikul
Director of Water Crisis Center



Mr. Nirut khunphon
Direct of Water Resources
Information Technology Center

Central Administration-Regional Operations



Mr. Wittaya Thadthong
Director of Water Resources
Regional Office 1



Mr. Samat Chaisamut
Director of Water Resources
Regional Office 2



Mr. Panya Lakmueang
Director of Water Resources
Regional Office 3



Mr. Burin Tanphaibunkun
Director of Water Resources
Regional Office 4



Mr. Sirichai Khunanoppharat
Director of Water Resources
Regional Office 5



Mr. Somsak Suddee
Director of Water Resources
Regional Office 6



Mr. Pracha Tangthanathanich
Director of Water Resources
Regional Office 7



Mr. Prasit Hemsichat
Director of Water Resources
Regional Office 8



Mr. Wirat Sifa
Director of Water Resources
Regional Office 9



Mr. Wiwat Sojoeiya
Director of Water Resources
Regional Office 10

1.2 Vision/Mandate/Strategy

The Department of Water Resources was established on October 3, 2002 by the Bureaucratic Administration Act as the main government organization with responsibilities for the administration of water resources in the country. It is under the Ministry of Mineral Resources and Environment.

Vision

To implement the integrated water resources management with efficiency, and sustainability based on the good governance principle.

Mandate

The Department of water Resources proposes develop policies, and measures for management development, conservation, rehabilitation supervision, direction, coordination, monitoring, evaluation, and solving problems related to water resources. It is also responsible for the technical development, setting of standards and technology transfer pertaining to water resources of the national and river basins levels.

Duties (tasks) and responsibilities Mandate.

The Department of Water Resources proposes policies, plans and measures for management, development, conservation, rehabilitation, direction, supervision, coordination, monitoring, evaluation and solving problems in related to water resources in the country. It also handles the technical development, setting of standards and technology transfer pertaining to water resources of the national and basin levels. The duties are as follows :

1. To be the core agency in proposing policy, master plan, and measures for water resources management, development, rehabilitation, utilization and problem solving as well as directing and coordinating the implementation;

2. To set guidelines on preparation of action plans for water resources management, development, conservation and rehabilitation, with emphasis on public participation;

3. To study, research, survey, develop, conserve and rehabilitate water resources;

4. To monitor and evaluate water resources management in accordance with the policy, master plans, action plans and measures specified for national and basin levels,

5. To develop database and information network systems pertaining to water resources;

6. To specify or recommend amendments or additions to laws, rules and regulations, relating to the management of the country's water resources;

7. To promote, disseminate, publicize, and transfer water-related technology including campaigns to build awareness and understanding among various organizations and stakeholders to fully realize the importance to water resources;

8. To coordinate with other countries and international organizations in relation to water resources;

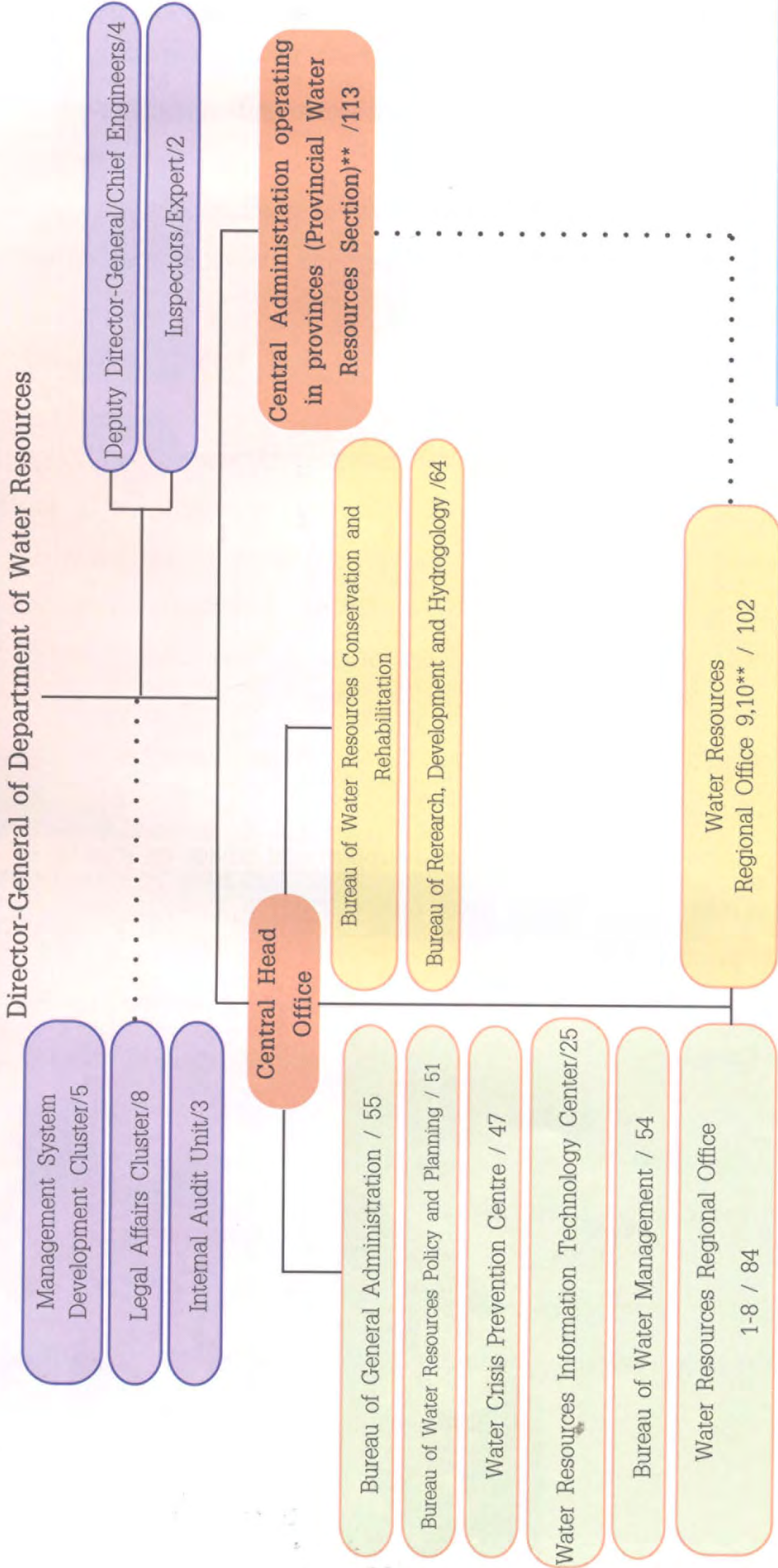
9. To promote and provide technical support and advice on standards and legislation in relation to water resources management to government agencies and local authorities; and

10. To carry out other duties as stipulated by law or assigned by the Ministry or the Cabinet.



1.3 Organizational Structure / Manpower

Department of Water Resources/1,580

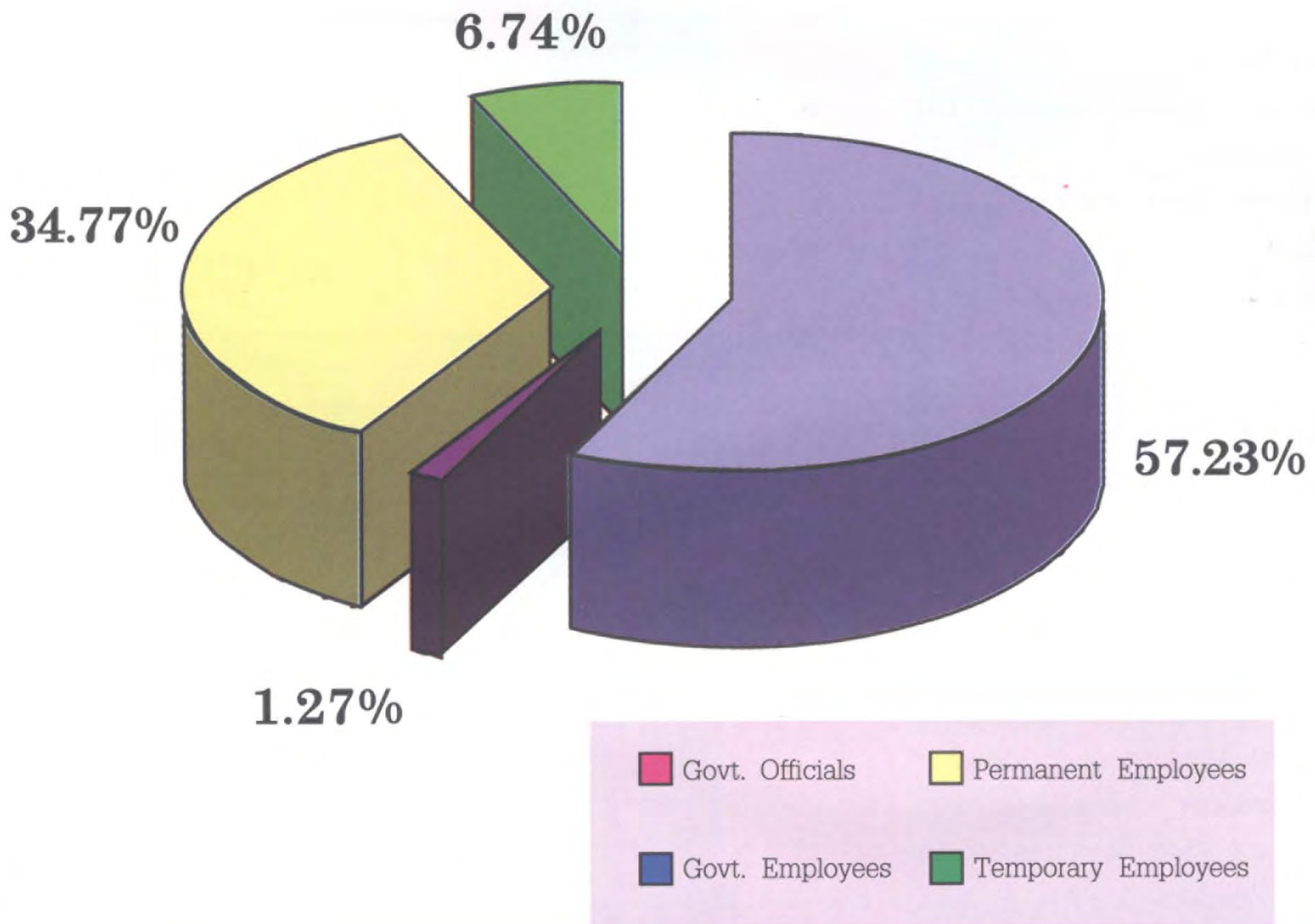


Government Officials	=	1,580	คน
Government Employees	=	35	คน
Permanent employees	=	960	คน
Temporary employees	=	186	คน
Total	=	2,761	คน

Manpower classified by personnel category

Govt. Agency	Govt. Official	Govt. Employees	Employees		Total
			Permanent Employees	Temporary Employees	
Department of Water Resources	1,580	35	960	186	2,761
(Percentage)	(57.23)	(1.27)	(34.77)	(6.74)	(100.00)

Diagram of manpower classified by personnel category



Manpower categorized by working units

Bureau/Centers/Offices	Govt. Officials	Permanent Employees	Government Employees	Others (Employees Under contracts)	Total
A. Central Official Administration					
1. Executives	7	-	-	-	7
2. Bureau of General Administration	55	22	3	26	106
3. Water Crisis Prevention Centre	47	2	-	-	49
4. Water Resources Information Technology center	25	1	-	-	26
5. Bureau of Water Resources Policy and Planning	51	3	3	2	59
6. Bureau of Water Management	54	18	4	3	79
7. Bureau of International Cooperation	45	1	-	1	47
8. Bureau of Water Resources Development	57	4	-	1	62
9. Bureau of Research, Development and Hydrology	64	40	-	14	118
10. Bureau of Mass Promotion and Coordination	45	3	-	5	53
11. Bureau of Water Resources Conservation and Rehabilitation	58	5	-	2	65
12. Water Resources Regional Office 1	111	115	-	19	245
13. Water Resources Regional Office 2	103	78	-	10	191
14. Water Resources Regional Office 3	124	95	-	15	234
15. Water Resources Regional Office 4	120	101	5	8	234
16. Water Resources Regional Office 5	118	85	7	6	216
17. Water Resources Regional Office 6	83	30	2	15	130
18. Water Resources Regional Office 7	89	39	3	13	144
19. Water Resources Regional Office 8	93	69	3	24	189
20. Water Resources Regional Office 9	57	17	-	5	79
21. Water Resources Regional Office 10	45	21	-	8	74
B. Central Administration Operating in Provinces					0
22. Provincial Water Resources Section in 75 Provinces	113	212	3	-	328
C. Supporting Administration					0
23. Develop an Administrative System Cluster	5	-	1	2	8
24. Legal Affairs. Cluster	8	-	1	6	15
25. Internal Audit Unit	3	-	-	1	4
Total A-C	1,580	960	35	186	2,761

Diagram of manpower classified by working units

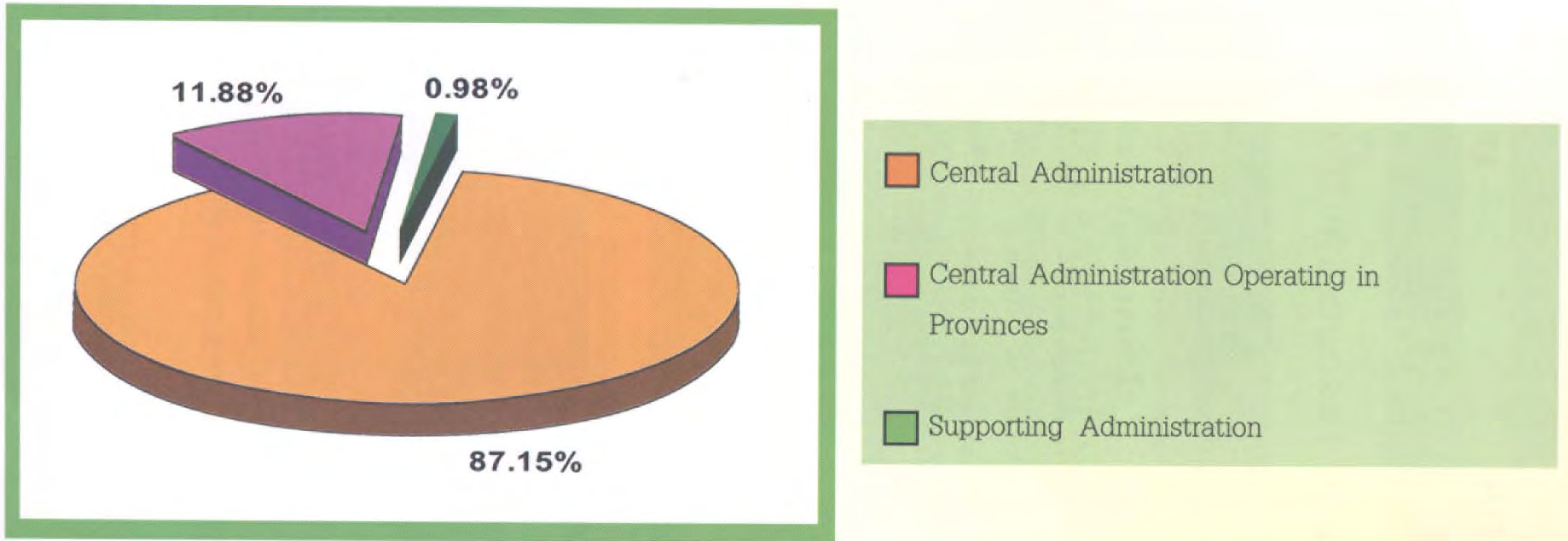


Chart of Govt. Officials classified by ranks

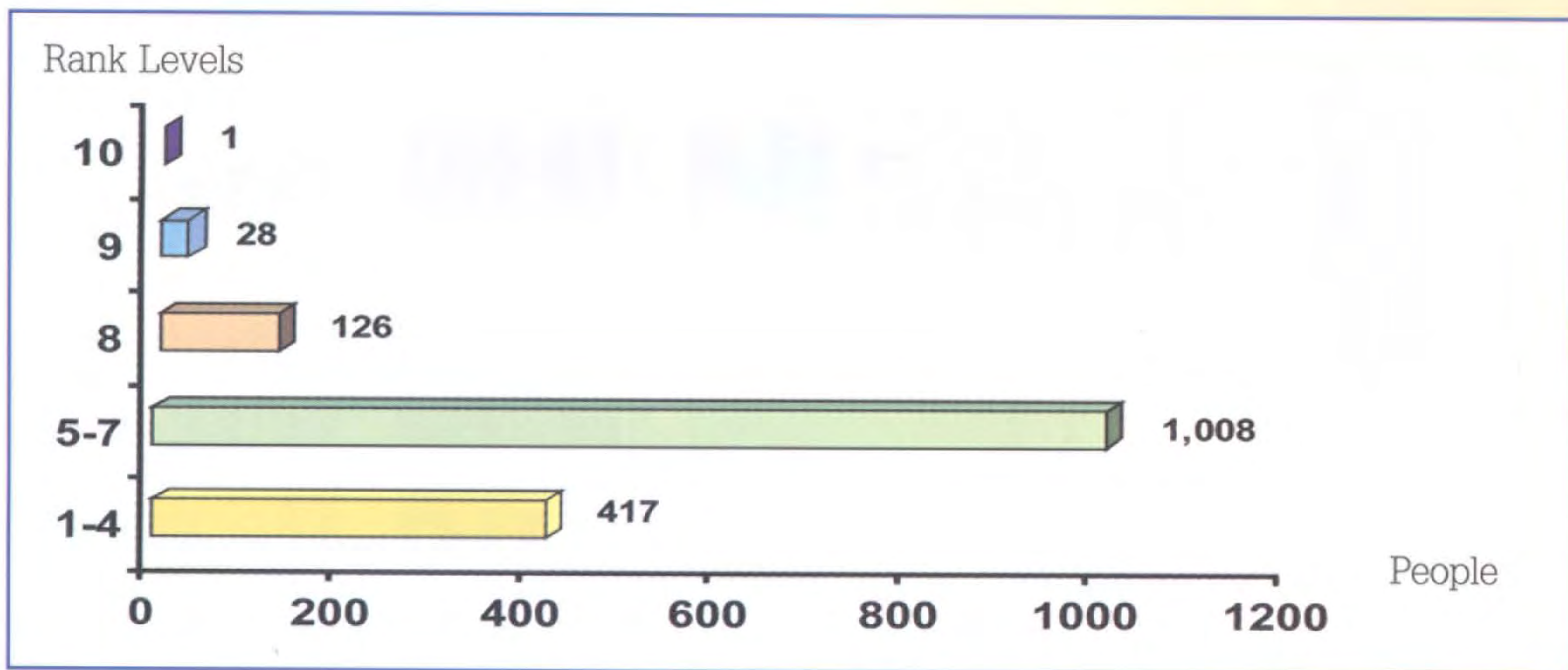
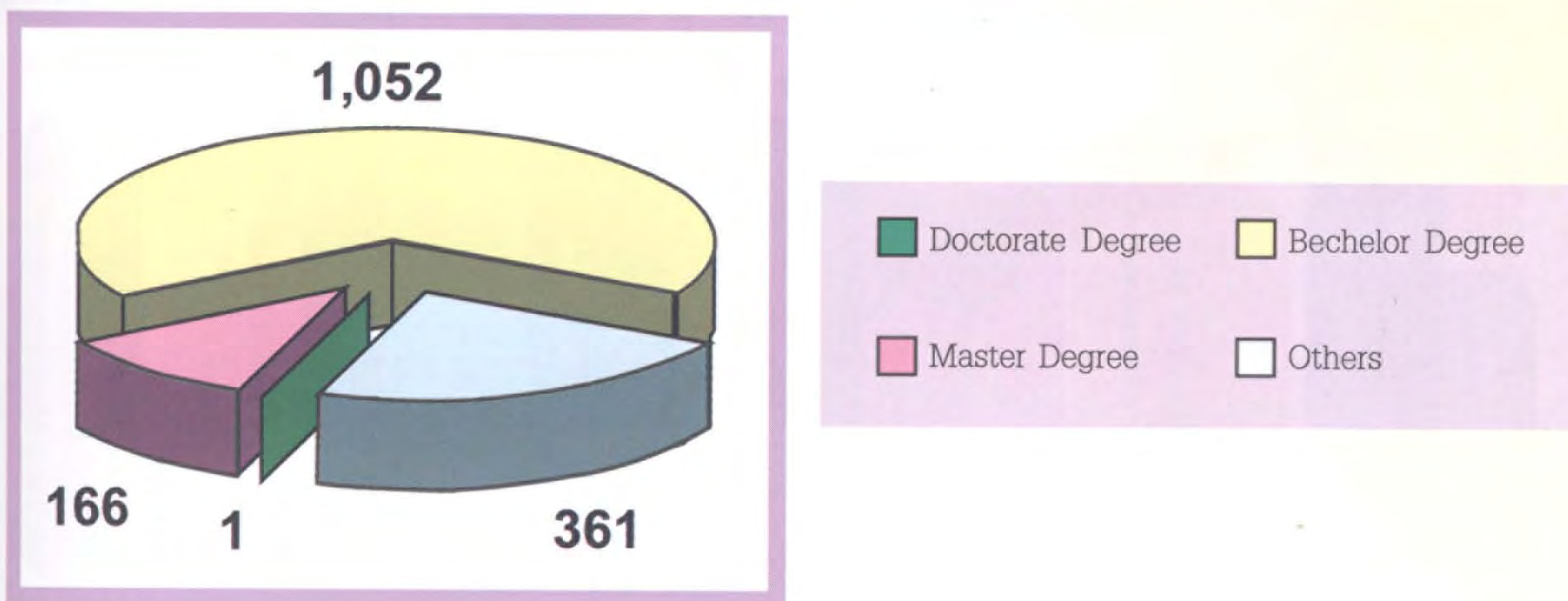


Diagram of Govt. Official Classified by education levels



1.4 Linkage Chart of Strategies

Chart showing Linkage between Public Administration Plan (2005-2008) and 4 years Ministerial Administration Plan leading to Target, Strategies and Outcome of Department of Water Resources in 2005

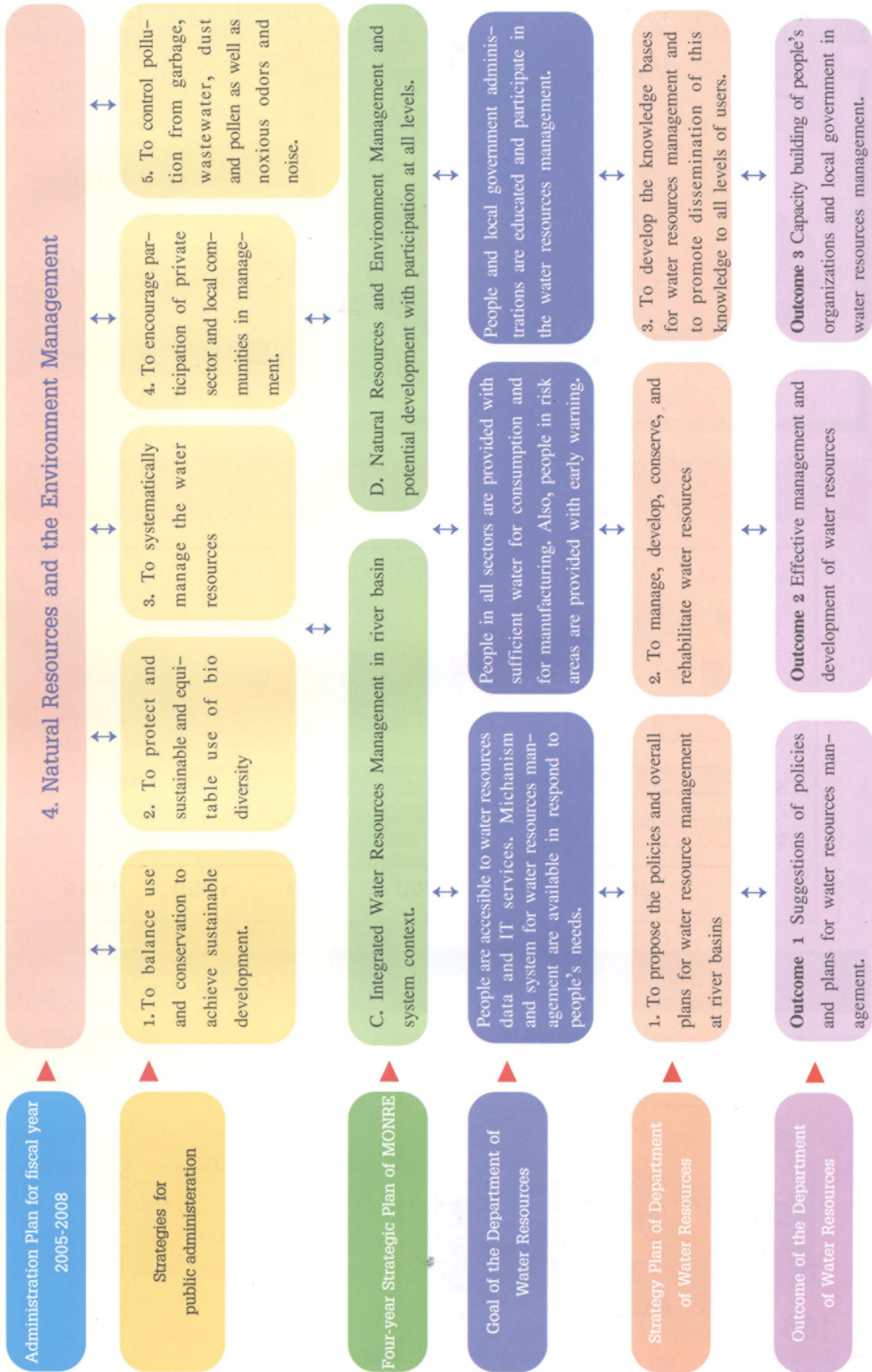
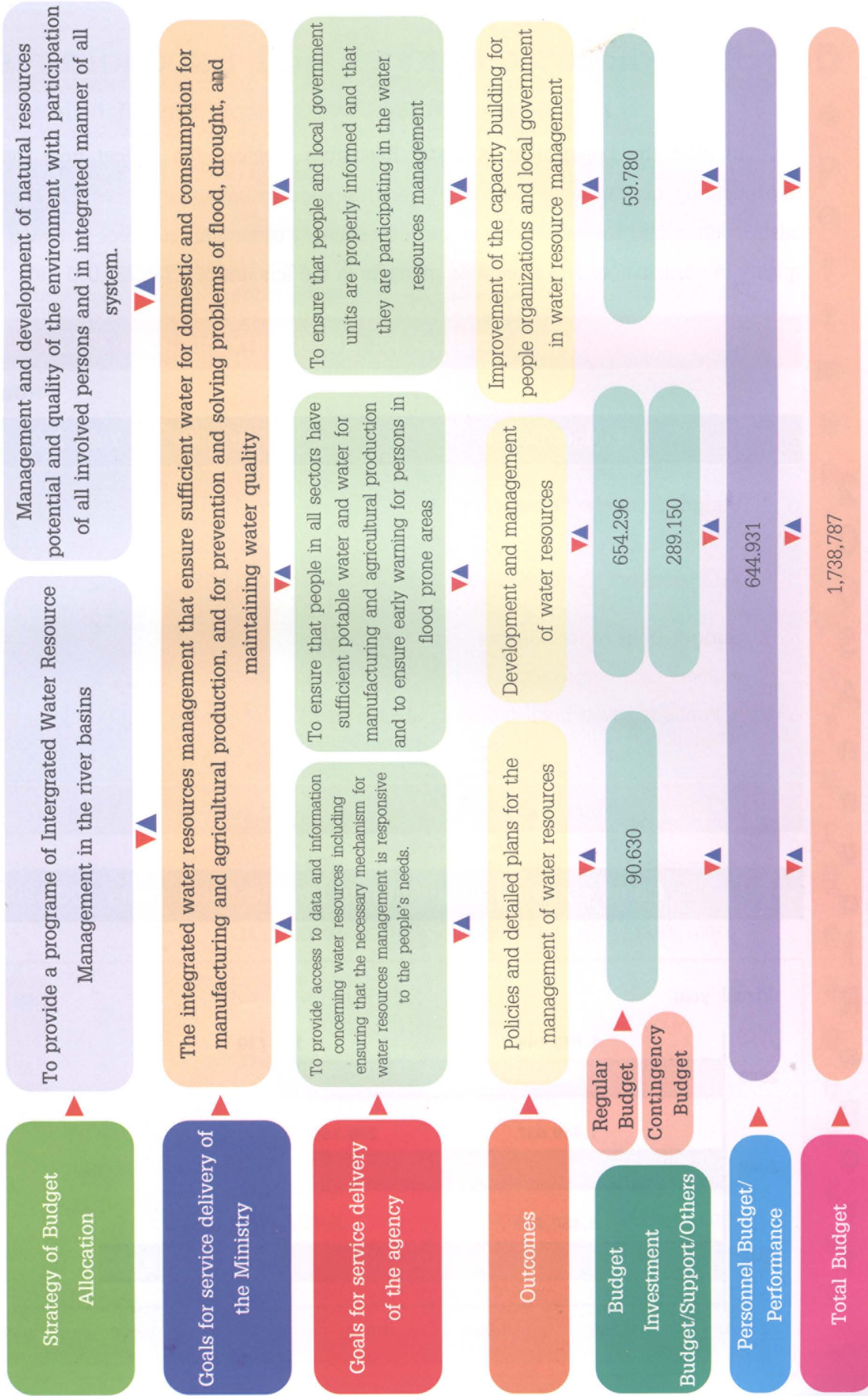


Chart outlining linkage of Strategy/Goals of the Ministry of Natural Resources and Environment

Resources and Environment

Goals/Outcomes/budget of the Department of Water Resources, Fiscal year 2005

Unit : Million Baht



1.5 Allocated Budget and Expenditures

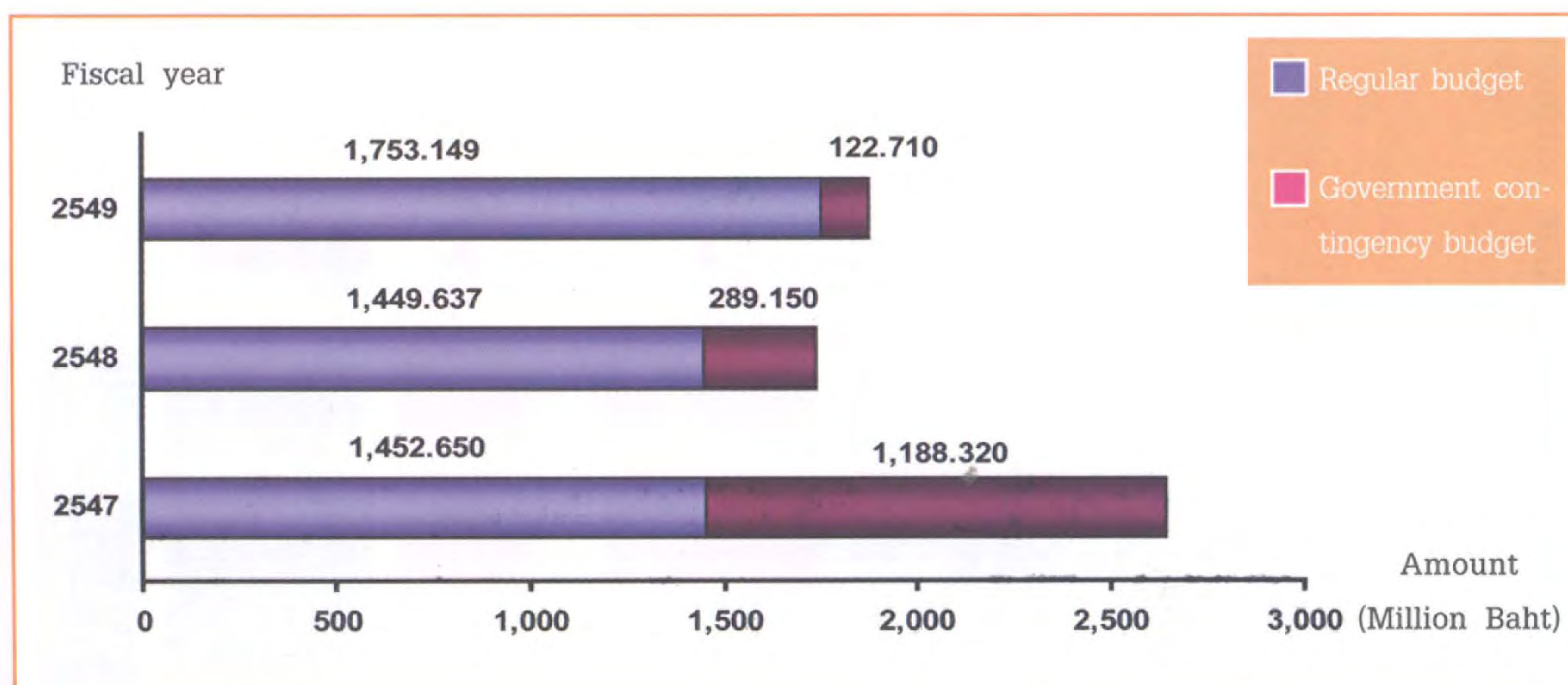
In 2005 the Department of Water Resources received the budget from the government for implementing the strategies of budget administration for water resources management in the river basin context and the management and development of natural resources potential and environment quality in participatory and integrated manners in the amount of 1,738,787,000 Baht

Annual budget for the fiscal years 2004-2006

Unit : Million Baht

Budget Details	Year 2004	Year 2005	Year 2006
1. Budget from the Government			
• Regular Budget	1,452.650	1,449.637	1,753.149
• Government Contingency Budget	1,188.320	289.150	122.710
2. Budget from other sources			
• Revenue from projects			
• Funds received from international sources			
Total Budget	2,640.970	1,738.787	1,875.859

Chart showing expenditures for the fiscal years 2004-2006



Expenses for the years 2004-2006

Detailed Budget Expenses By Budget Category

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Budget Details	Fiscal Budget of 2004 (Baht) End as of September 30, 2004	Fiscal Budget of 2005 (Baht) End as of September 30, 2005	Fiscal Budget of 2006 (Baht) End as of September 30, 2006
1. Personnel Budget			
• Salary for government officials	330,387,600.00	332,858,300.00	382,958,000.00
• Special budget for specific positions	9,101,400.00	9,101,400.00	
• Wages of permanent employees	122,508,000.00	122,734,300.00	138,711,200.00
• Wages for government Offices	-	-	-
• Wagers for Temporary employees	15,049,400.00	19,848,000.00	19,548,000.00
• Others	-	-	-
• Pensions	-	-	-
2. Operating Budget			
• Running costs for Administration	58,929,000.00	70,362,700.00	87,731,000.00
• Public Utility Cost			
- Electricity	10,856,300.00	11,381,000.00	1,962,000.00
- Water-Supply	5,160,000.00	1,460,000.00	1,387,000.00
- Other public utilities	9,541,200.00	6,055,000.00	14,702,000.00
• Training Expenses	-	-	-
• Traveling Expenses			
- Perdiem/Hotel Accomodation Vehicles	52,000,000.00	41,600,000.00	32,457,000.00
- Petrol	14,195,000.00	19,555,300.00	13,500,000.00
3. Investment Budget			
- Logistics, Land and Buildings			
- Logistics	17,481,300.00	9,975,000.00	10,000,000.00
- Land and Buildings	626,200,000.00	497,780,000.00	850,831,300.00
- Depreciation and Dispesal expenses	-	-	-
4. Support Budget	11,166,000.00	11,166,000.00	12,121,000.00
5. Other Expenses	170,075,200.00	295,760,000.00	187,240,500.00
Regular Budget	1,452,650,400.00	1,449,637,000.00	1,753,149,000.00
Contingency Budget	1,188,320,000.00	289,150,000.00	122.71
Total	2,640,970,400.00	1,738,787,000.00	1,753,149,122.71

Actual and Projected Quarterly Budget Expenses for Fiscal year 2005

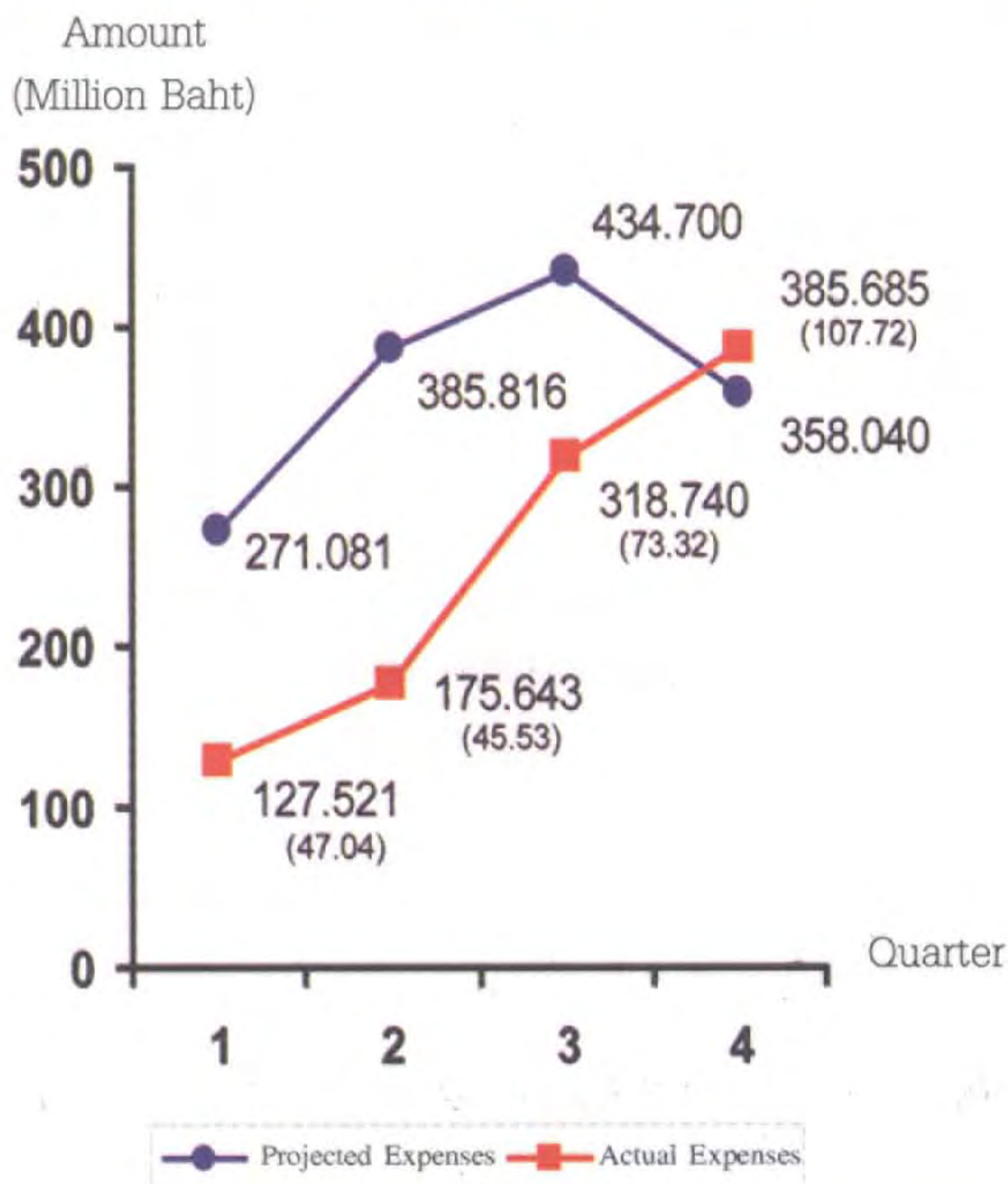
Unit : Million Baht

Categories of Expenditure Quarterly Expenditures	Projected Expense			Total of Projected Expenses	Actual expenditures disbursed for each quarter		Cumulative disbursed expenditures at the end of each quarter	
	Operation Budget	Investment Budget	Other expenditure Budget		Amount	Percentage	Amount	Percentage
First Quarter 1	37.603	99.915	133.563	271.081	127.521	47.04	127.521	8.80
First Quarter 2	37.604	140.629	207.583	385.816	175.643	45.53	303.164	20.91
First Quarter 3	37.604	171.935	225.161	434.700	318.740	73.32	621.904	42.90
First Quarter 4	37.603	95.276	225.161	358.040	385.685	107.72	1,007.589	69.51
Total	150.414	507.755	791.468	1,449.637	1,007.589	69.51	1,007.589	69.51

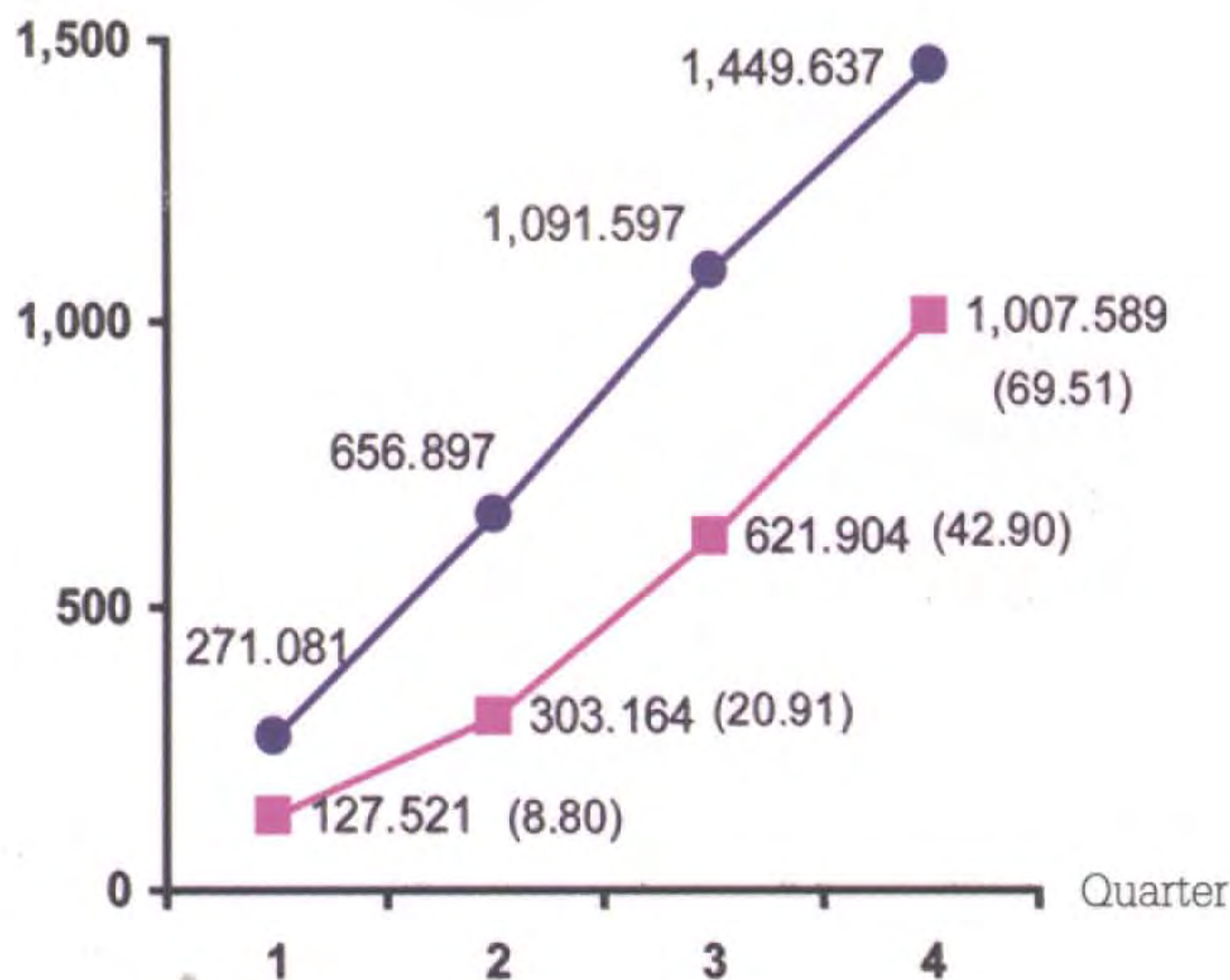
Remarks 379,664 Million baht was carried forward from Fiscal Year 2005 to cover ongoing expenses in Fiscal Year 2006

Charts showing projected and actual expenditures for Fiscal year 2005 by quarter

Projected and actual disbursed expenditures for each quarter - 2005



Cumulative projected and actual disbursed expenditures at the end of each quarter - 2005

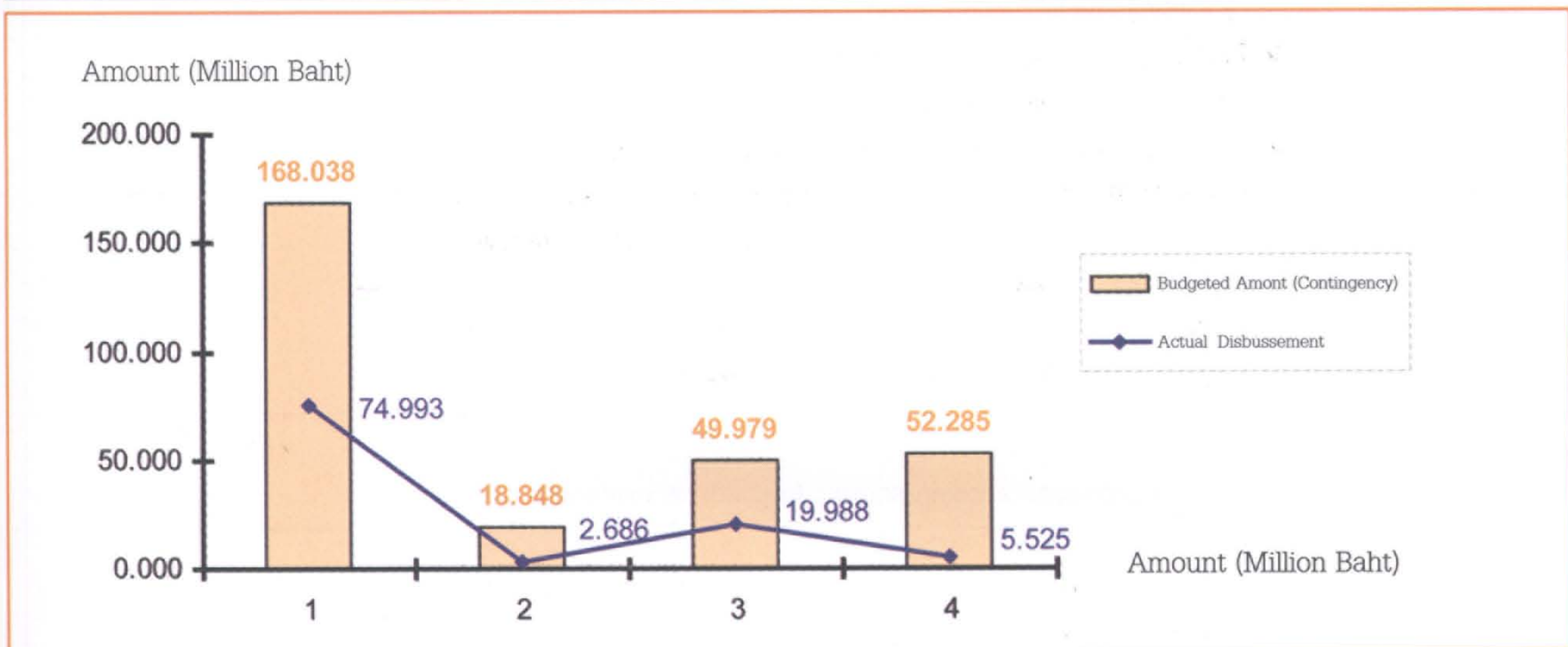


Work Plan/Projects and Budgets (Contingency) Categoriged by projects for Fiscal year 2005

Unit : Million Baht

List Projects	Budgeted Expenses			Total of Projected Expenses	Actual Disbursement	Percentage of Disbursement
	Implementation Budget	Investment Budget	Other Expenses			
Project 1	-	-	168.038	168.038	74.993	44.63
Project 2	-	-	18.848	18.848	2.686	14.25
Project 3	-	-	49.979	49.979	19.988	39.99
Project 4	-	52.285	-	52.285	5.525	10.27
รวม	-	52.285	236.865	289.150	103.192	35.69

**Chart showing budget (Contingency) and actual disbursement
for each project for budget year 2005**



Remarks

- First Project** : Project of core measures to rehabilitate and develop natural resources, the environment and communities which suffered from the Tsunami disaster.
- Second Project** : Project to develop an Antecedent Precipitation Index for use in an early warning system for flash floods - landslides
- Third Project** : Project for establishing Early Warning System in risk areas for floods - landslides in slope and upland areas.
- Fourth Project** : Project to develop an integrated plan for dealing with flood disasters in Chaing Rai Province

Department of Water Resources

Part 2 Committed Accomplishment



Accomplishment of the administration commitment with the Department of Water Resources

The Department of Water Resources has committed to perform the tasks under the Water Resources Cluster of the Ministry of Natural Resources and Environment for 2005. The Department received an average performance score at 4.7 points.

Dimension/Index		Weight (Percentage)	Scores
First (Dimension)	Effectiveness towards the Strategies	60	4.74
	Ministerial Strategic Plan	10	
	First Index Level of successful accomplishment justified by weighed percentage to achieve the Ministry's Strategic Plan		
	● Percentage of department achievement in applying electronic document processing into operations	2	5
	● Average percentage of successful projects using mechanism or system for integrated management or making use of participatory processes	2	5
	● Percentage of members of targeted water sources that have been conserved, rehabilitated and developed to reach targeted potential.	2	5
	● Percentage of members of villages under new reforestation scheme that passed community dialogues to set up the regulations / criteria of the local natural resources management to be in systematic and sustainable manner.	2	5
● Percentage of members of the cases claimed that have been responded to relieve pollution problems within 5 working days.			
	Strategic Plan of the Clusters	15	
	Second Index Level of successful accomplishment justified by weighed percentage to achieve Cluster strategic plan		
	● Numbers of IT on water resources delivered through network systems increasing.	2	5
	● Percentage of requests for technical information are responded comparing with total available technical information.	3	5
	● Level of success in providing mechanism or system for water resources management with people participation as targeted.	4	4.89
	● Percentage of Local government personnel or target water user groups being provided with technology transfer for water resources management either passing test or passing criteria via actual operations.	4	5
	● Percentage of target villages in high risk flood areas having early warning systems installed compared with the projected target.	2	4.33
Accomplishment of Departmental Strategic Plans	20		
Third Index Level of successful accomplishment justified by weighed percentage to achieve the Department strategic plan			
● Level of progress in formulation of the national integrated plan for water resources management	4	4	

Dimension/Index		Weight (Percentage)	Scores
	<ul style="list-style-type: none"> ● Average level of getting person's involvement in developing a master plan for river basin management and integrated budget plan ● Percentage of river basin organizations at district and sub district levels being trained and developed in water resources management knowledge base comparing to the target. ● Percentage of flood risk areas having capability for accurate forecasting of flood ● Percentage of target areas having applied measures or established a center for reporting water crisis prevention. ● Percentage of success of villages having constructed village water supply systems for consumption comparing with the targets. 	4 4 4 2 2 15	5 5 4.4 5 3.08
	<p>Effectiveness</p> <p>Fourth Index Percentage of accomplishment of outcomes (specified by budget expenditures sheet)</p> <ul style="list-style-type: none"> ● Amount of suggestions for development of policies and planning ● Amount of projects on water resources development, improvement, and rehabilitation. ● Number of persons and representatives of local government being trained in water resource management <p>fifth Index Level of administrative accomplishment to support provincial and local government performance</p>	2 1 2 10	5 5 5 4
Second Dimension	<p>Service qualities</p> <p>Sixth Index Percentage of contentment of those having been served</p> <p>Seventh Index Level of accomplishment in preventing and suppressing corruption and irregularities.</p>	10 5 5	4.65 4.3 5
Third Dimension	<p>Efficiency of official performance</p> <p>Eighth Index Percentage of budget saved</p> <p>Accomplishment level for providing energy saving measures and their implementation.</p> <p>Ninth Index Accomplishment level of weighed percentage in reducing time and steps in official administration.</p>	10 4 1 5	4.91 5 5 4.74
Fourth Dimension	<p>Organizational / Development</p> <p>Tenth Index Percentage of success in performing the tasks as planned in the implementation plan for development of internal organization knowledge in fiscal year 2005.</p> <p>Eleventh Index Level of Quality for information technology management within the organization</p> <ul style="list-style-type: none"> - Quality of information technology system - Usage of information technology system <p>Twelfth Index Accomplishment level and quality of provision proposals for changes of the government agency.</p> <ul style="list-style-type: none"> - Success in provision of proposals for change - Quality of proposals for change <p>Thirteenth Index Accomplishment level for law development plan formulation.</p> <p>Fourteenth Index Accomplishment level of weighed percentage to the performances as set up in law development plan.</p>	40 5 2 3 5 5 7 13	5.00 5 5 5 5 5 5 5
Total		120	563.85
Full Scores 5			4.70

Chart showing the scores on the 14 indices used for Assessing the Effectiveness of the Department of Water Resources

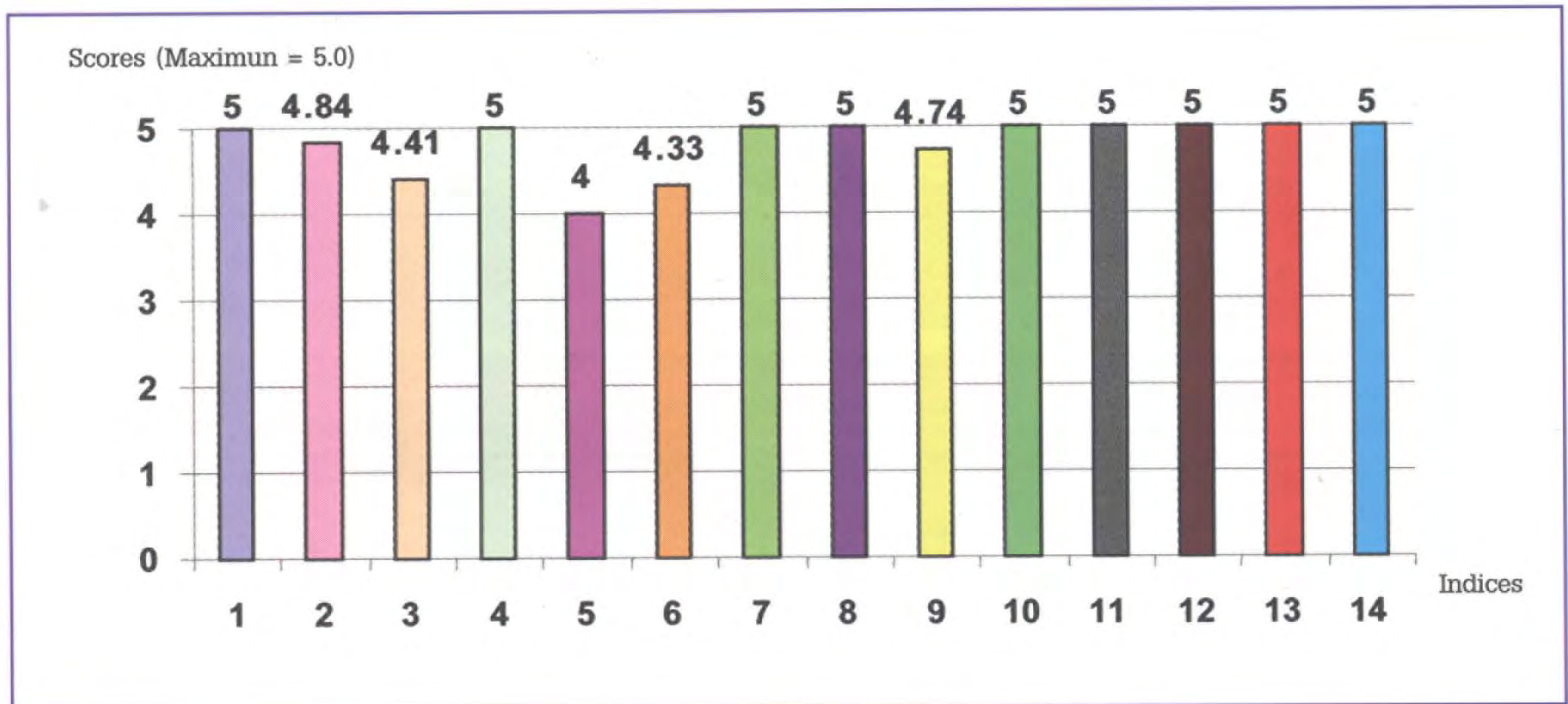
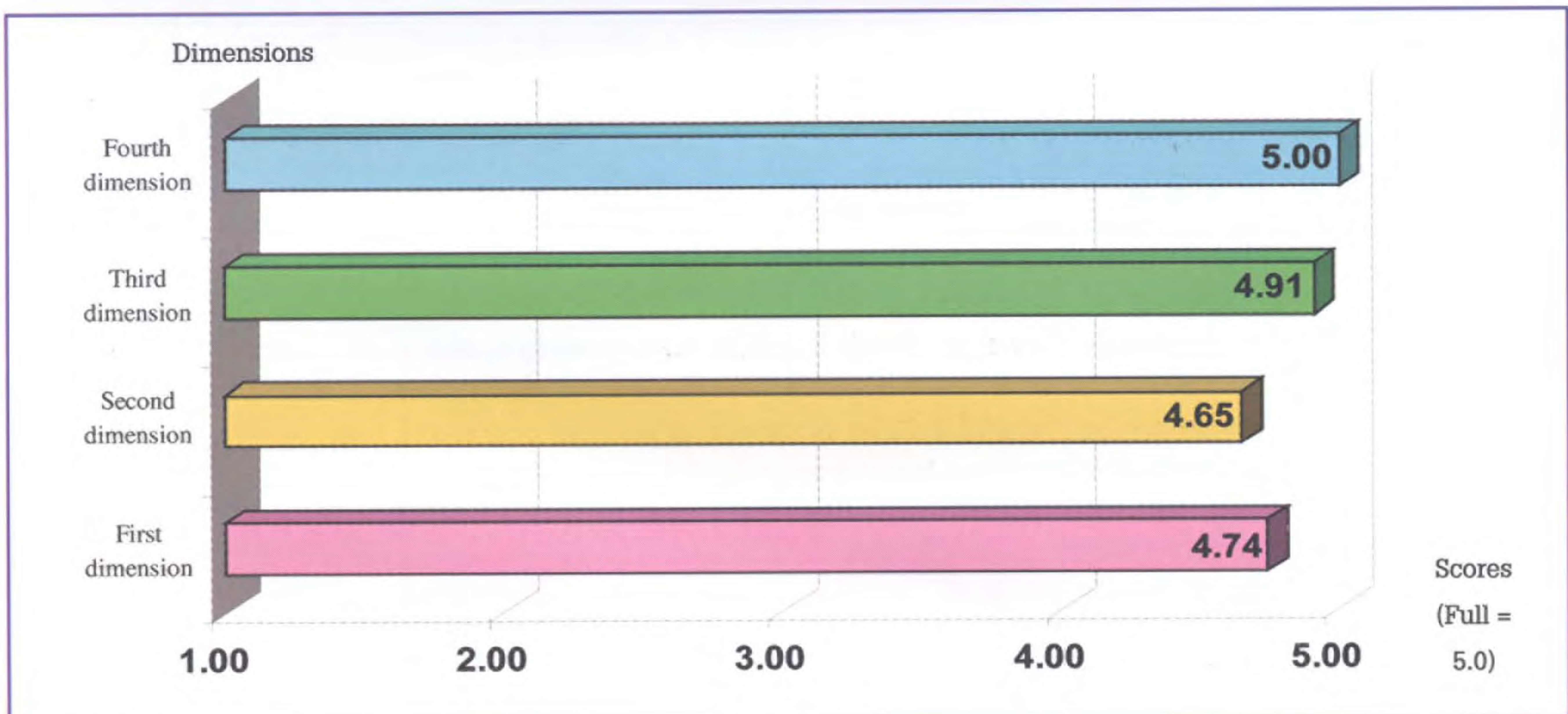


Chart showing the average scores on each of the four Dimensions



Remarks

- First Dimension : Effectiveness towards strategies
- Second Dimension : Quality of services provided
- Third Dimension : Efficiency of Implementation
- Fourth Dimension : Organization Development

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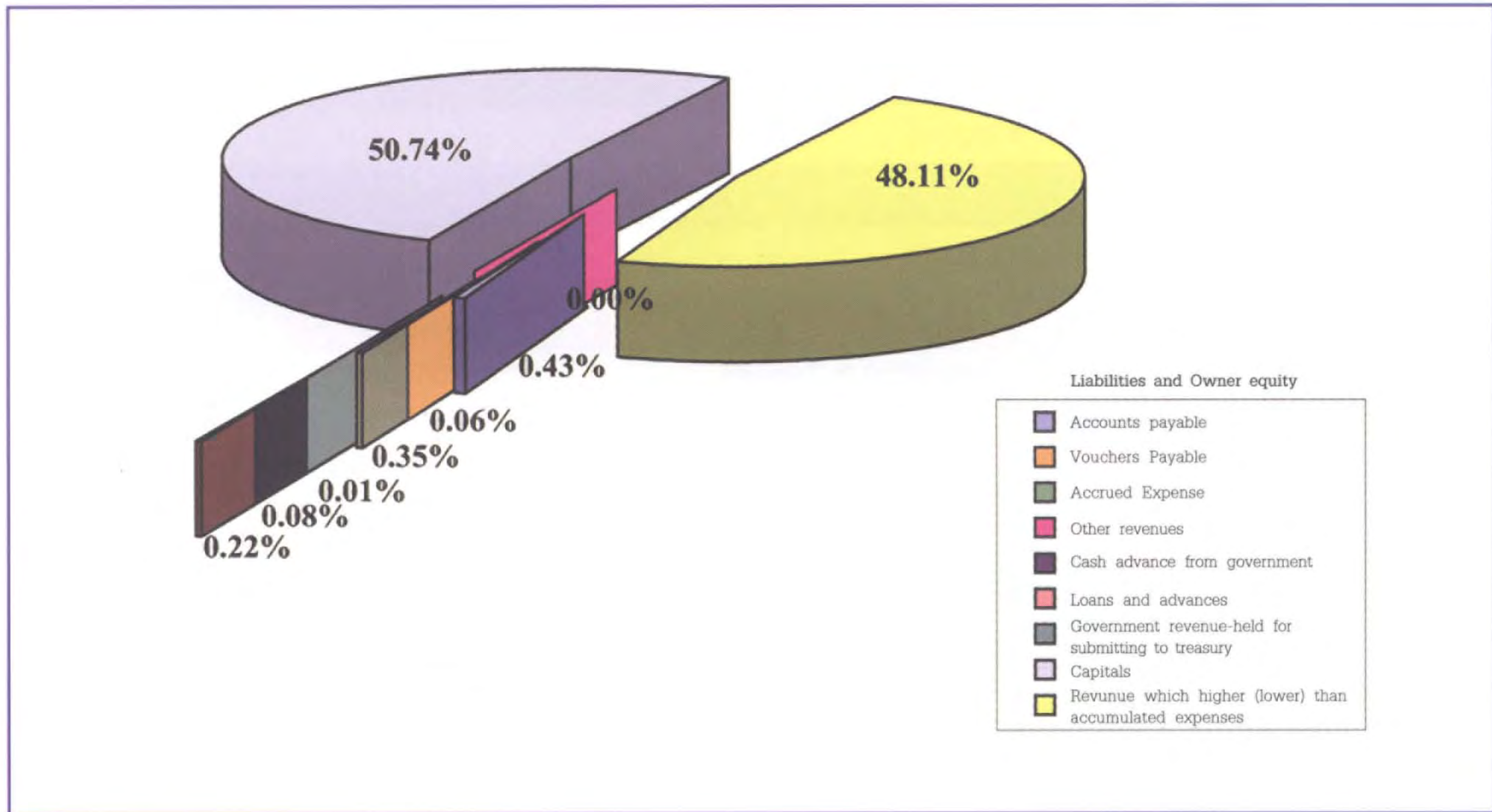
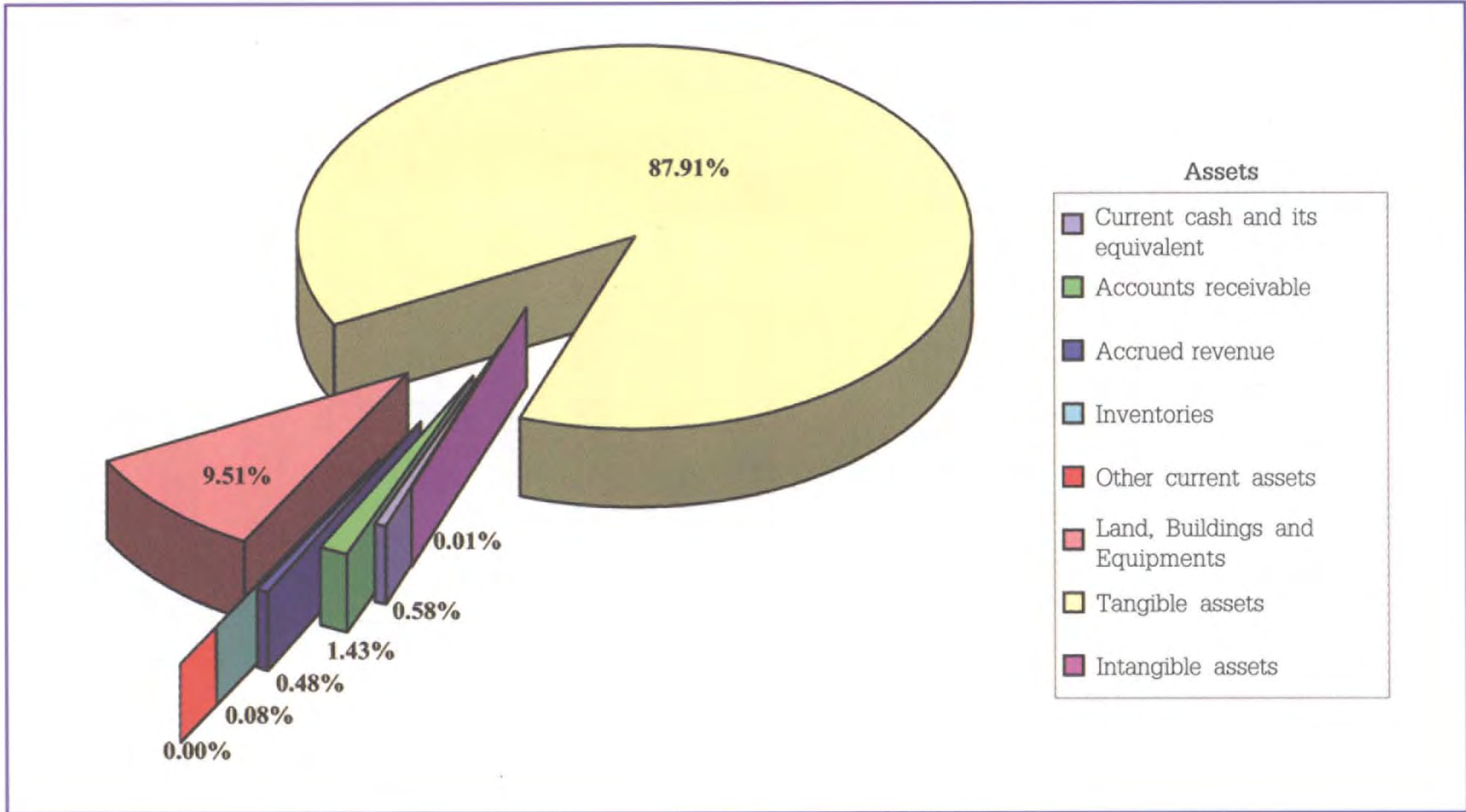


Department of Water Resources

Financial Status as of September 30, 2005

	(Thousand Baht) 2005	Rate of condensing under vertical line
Assets		
Current assets		
Cash and its equivalent	20,988.062	0.58%
Accounts receivable	51,729.611	1.43%
Accrued revenue	17,526.413	0.48%
Inventories	2,886.347	0.08%
Other current assets	63.801	0.00%
Total current assets	93,194.234	2.57%
Fixed Assets		
Land, Building and Equipment	344,826.300	9.51%
Tangible assets	3,188,139.266	87.91%
Intangible assets	311.575	0.01%
Total Fixed assets	3,533,277.140	97.43%
Total assets	3,626,471.374	100%
Liabilities and Owner's equity		
current liabilities		
Accounts payable	15,425.503	0.43%
Vouchers payable	2,147.150	0.06%
Accrued expenses	12,739.853	0.35%
Government revenue held for submitting to Treasury	491.745	0.01%
Unearned Budget Revenue	10.000	0.00%
Unearned grants	15.840	0.00%
Total current liabilities	30,830.092	0.85%
Fixed Liabilities		
Cash advance from government	2,800.000	0.08%
Loans and advances	7,977.945	0.22%
Total Fixed liabilities	10,777.945	0.30%
Total Liabilities	41,608.037	1.15%
Net Assests	3,584,863.338	98.85%
Net Assets capital		
Capital	1,840,032.773	50.74%
Revenue which higher (lower) than accumulated expenses	1,744,830.564	48.11%
Total Net Assets/Capital	3,584,863.338	98.85%
Total Liabilities and net Assets	3,626,471.374	100.00%

Chart showing financial status



2005 Annual Report

Department of Water Resources

Annual Revenue and expense balance sheet, as of September 30, 2005

	(Thousand Baht) 2005	Rate of condensing under vertical line
Operating Revenue		
Revenue from Government		
Revenue from fiscal budget	2,886,638.397	99.74%
Total revenue from Government	2,886,638.397	99.74%
Revenue from other sources		
Revenue from aiding	539.773	0.02%
Revenue from donations	535.774	0.02%
Revenue from non -fiscal budget	5,706.990	0.20%
Other revenue	664.700	0.02%
Total revenue from other sources	7,447.238	0.26%
Total revenue from operating	2,894,085.635	100.00%
Operating Expenses		
Personnel expenses	476,149.849	16.45%
Operating expenses	225,293.955	7.78%
Supporting expenses	11,376.706	0.39%
Depreciation and disposal expenses	136,949.992	4.73%
Other expenses	294,036.263	10.16%
Non-Fiscal budget expenses	5,448.305	0.19%
Total operating expenses	1,149,255.070	39.71%
Revenue which higher (lower) than operating expenses	1,744,830.564	60.29%



Investment for Outcomes and Activities of Department of Water Resources for the year 2005

Investment to produce Outcomes

Activities	(Thouson Baht) Activities cost	Outcomes	(Million Baht) Total cost	(Baht) Product cost
1.1 To recommend the policy for master plan and measures for water resources management in overall country and area based.	49,525.800	1. Water Resources policy and plan recommendations plan.	95.241	3,809,676.92
1.2 To manage water resources in integrated manner	41,906.446			
1.3 To co-ordinate for co-operations among concerning agencies to solve problems on policy-base	2,857.258			
1.4 To follow up, supervise, and evaluate the Department's implementation.	952.419			
2.1 To improve and rehabilitate water resources in an integrated manner.	14,154.184	2. Water Resources Management and Development	706.504	7,596,823.51
2.2 To develop data base, research, knowledge-base in order to transfer technology of water resources management	164,169.238			
2.3 To develop systems and tools for water resources management	137,244.592			
2.4 To develop, conserve, and rehabilitate water resources.	141,352.709			
2.5 To provide and develop water resources to integrate water resources.	122,796.325			
2.6 To manage water resources in river basin areas and to prevent water crisis	110,270.273			
2.7 To co-ordinate for international co-operations	16,517.266			
3.1 To develop-potential and capacity of people organizations, local government, and network	84,093.172	3. Promotion of capacity building for people organizations, and local government to administrate local water resources	237.927	19,827.22
3.2 To develop potential and capacity of river basin organizations	79,765.224			
3.3 To promote and support participation in integrated water resources management	74,068.205			

Part 4 Accomplishment of Main Duties (Task)



4.1 Policy and plans

4.1.1 Formulation of Integrated Plan of water resource in river basins

The policy is set up to develop an integrated plan for water resources management in all of the river basin areas throughout the country. The management of other related resources is included in the integrated plan and set as the framework assigned to different operating units and local administrative units to implement in the same direction. The formulation of the integrated plan requires the participation of the people in the area to be involved in the process as well as presenting their ideas and suggestions for projects. The process is started from problem analysis, considering the guidelines to solve problems related to various aspects such as water resource development, water resource management, solution of flood and drought problems, water conservation and water quality which have been incorporated in the operation plan since 2001-2006

Accomplishment

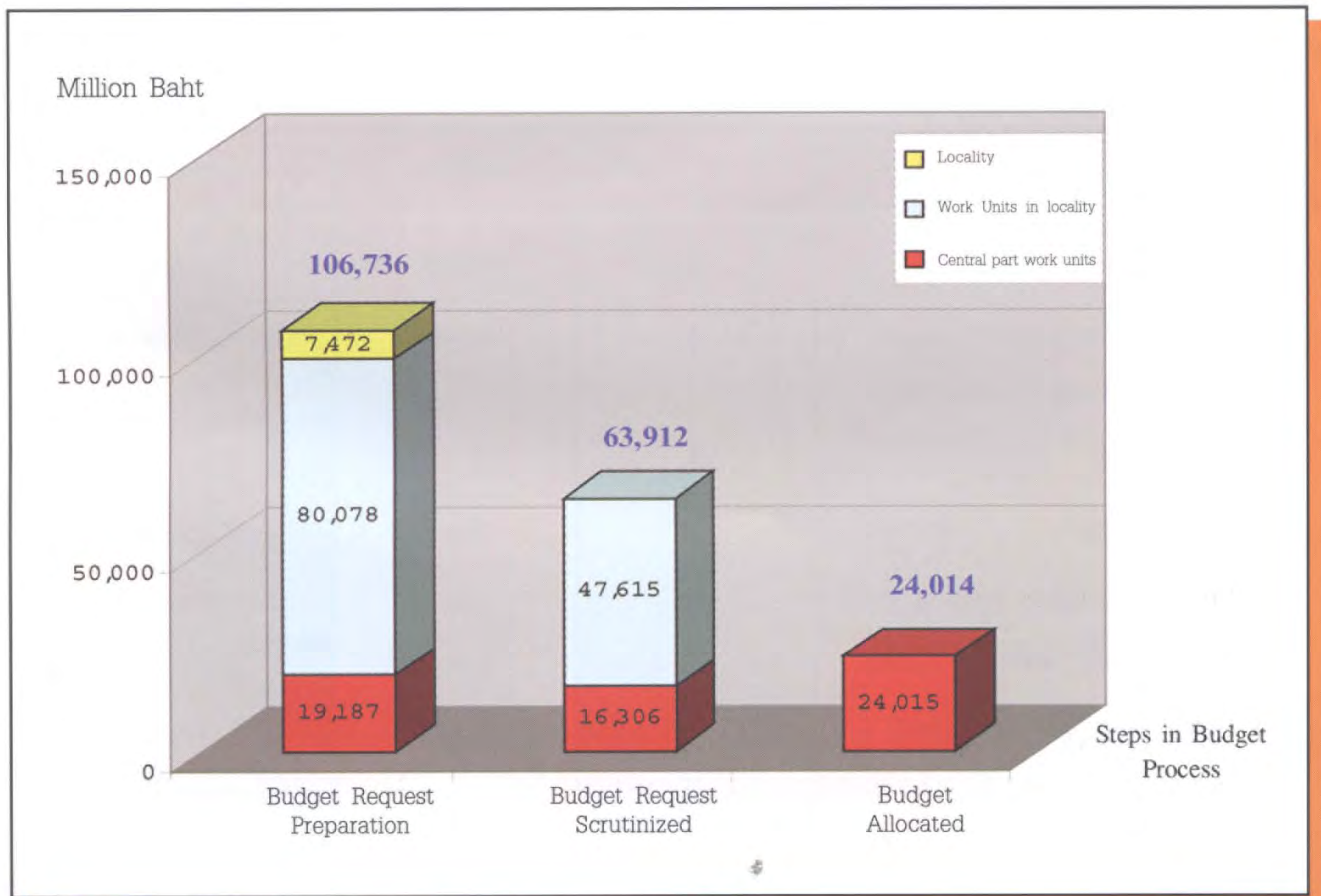
Series	River Basins	Number of River Basins	Fiscal year	Accomplishment
1	Ping, Pa sak	2	2544	Completed
2	Bang Pakong-Prachin Buri, Eastern Coast, Ton Le Sap	4	2545	Completed
3	Yom, Nan	2	2546	Completed
4	Mun, Wahg	2	2547	Completed
5	Kong, Chi, Chao Phraya, Sakae Klong and Tha Chin	5	2547	under implementation
6	Kok-Kong (Northern part), Mae Klong, Song Khla Lake, Phetchaburi-Western Coast, Ta Pi, Western South Coast, Pattani, Eastern South Coast, Salawin	10	2548	under implementation

4.1.2 Development of a budget plan for the systematic management of water resources

The Government has set up the policy for Water Resource Management in a systematic manner to prevent and solve problems of water shortages, flood and water quality, as well as to control pollution from garbage and wastewater to ensure the good quality of people's life. The implementation under the policy should be performed with the participation of private sector and local communities in order to drive the tasks of the natural resources and environment to attain the sustainability. This is performed by integrating the work of 3 ministries and 11 government agencies at the policy making body, government agency, and spatial levels. The work plans and projects will be considered and screened by working groups at various levels and approved by the river basin subcommittee bodies of the 25 river basins in 75 provinces. This is budget allocation system that integrated issue in the agenda dimension to be in compliance with those in function and area dimensions, which enable to respond to the targeted groups as specified by the government policy and strategies and generate the budget in a thorough and fair manner.

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Accomplishment



4.1.3 National Water Resources Committee

The National Water Resources Committee (Kor Thor Chor or NWRC) is a national level organization established under the Office of the Prime Minister regulations on the National Water Resources Management, B.E.2532. The committee is chaired by the Prime Minister and comprised of members who are appointed by the Prime Minister. It comprises one Deputy Prime Minister assigned by the Prime Minister, to be the chairman. There are also ministers, permanent secretaries, directors general and heads of state enterprises, technical experts, qualified persons representing of non-government organizations, etc. It also included are the Director General of the Department of Water Resources. The Director-General of the Department of Water Resources is the member and the committee secretary, Deputy Director-General of the Department of water Resources as assigned and the Director of the Bureau of Water Resources Policy and Planning act as the assistant secretaries. NWRC functions to manage the country's water resources to be in unity, set policies, develop systematic plans and ensure coordinated actions among various involved organizations to achieve the utmost effectiveness in water resources conservation and development.

Accomplishment

1. Set up policies, implementation plan framework and budget plan for the national water resources management.
2. Consider and give suggestions concerning the water resources management.
3. Coordinate and monitor the performance of executing agencies to be in compliance with the policy and the implementation plan.

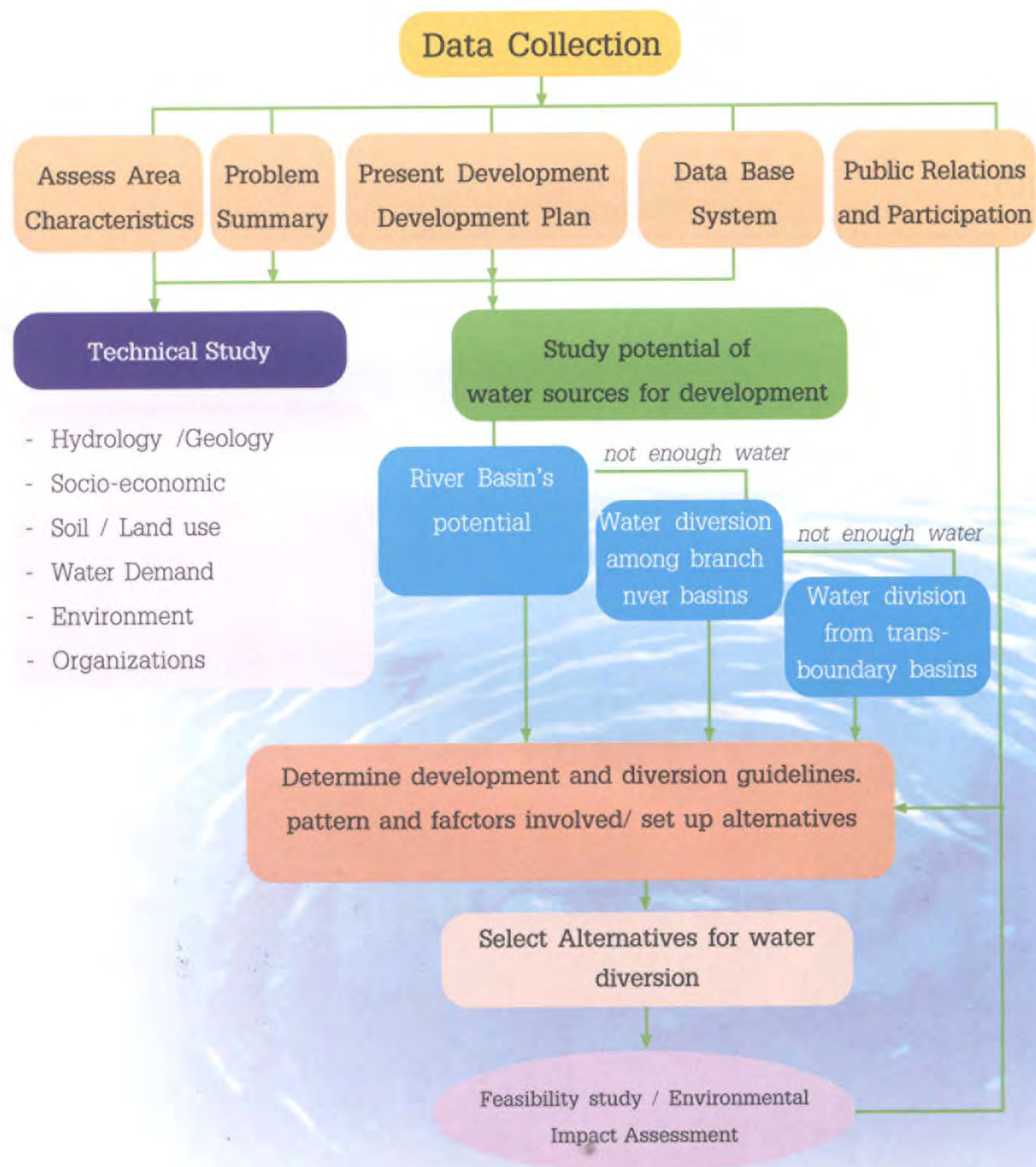


4.1.4 Cooperation on Water Resources Management with neighboring countries

The Thai Government has signed a cooperation agreement with the government of the Union of Myanmar, the Democratic People's Republic of Laos, and Kampuchea on technical and human resources development. The Department of Water Resources as the core agency for water resources management, has developed joint strategic plans for water resource development and water resource management to promote joint regional economic growth. Three projects that are currently in place are:

1. Thai-Myanmar Cooperation on Water Resources Management.
2. Master plan for water Diversion from Satrueng Num Dam
3. Master plan for Water Diversion from Nam Nguem Dam

Steps for Project Implementation

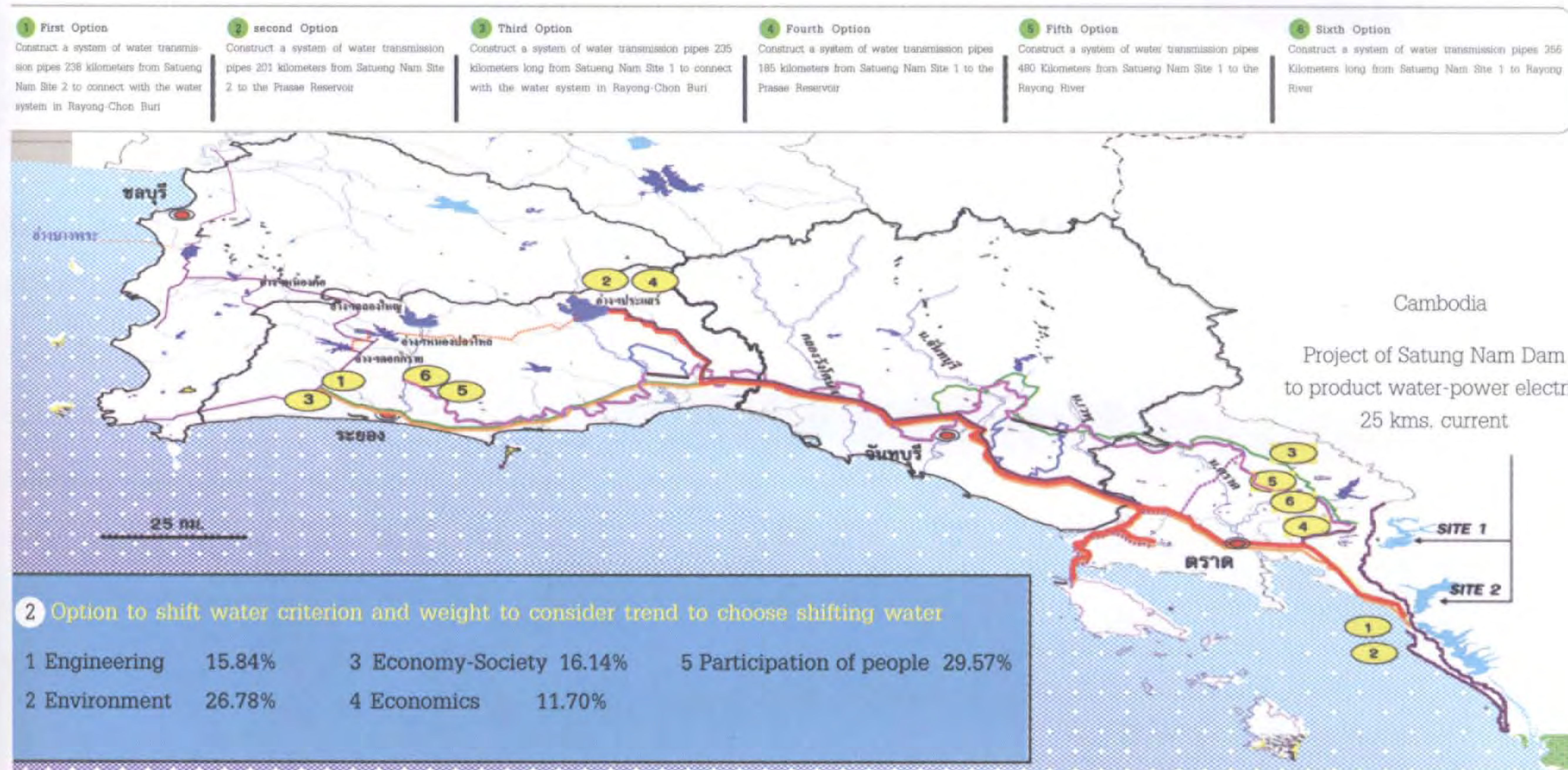


Objectives

1. To increase potential and review studies conducted to examine the potential for development and providing water resource, to improve water resources, to increase the quantity of water resource assets in relation to existing sources, and to develop systems of transmitting and distributing water to better respond to the needs for water usage in the basin areas.

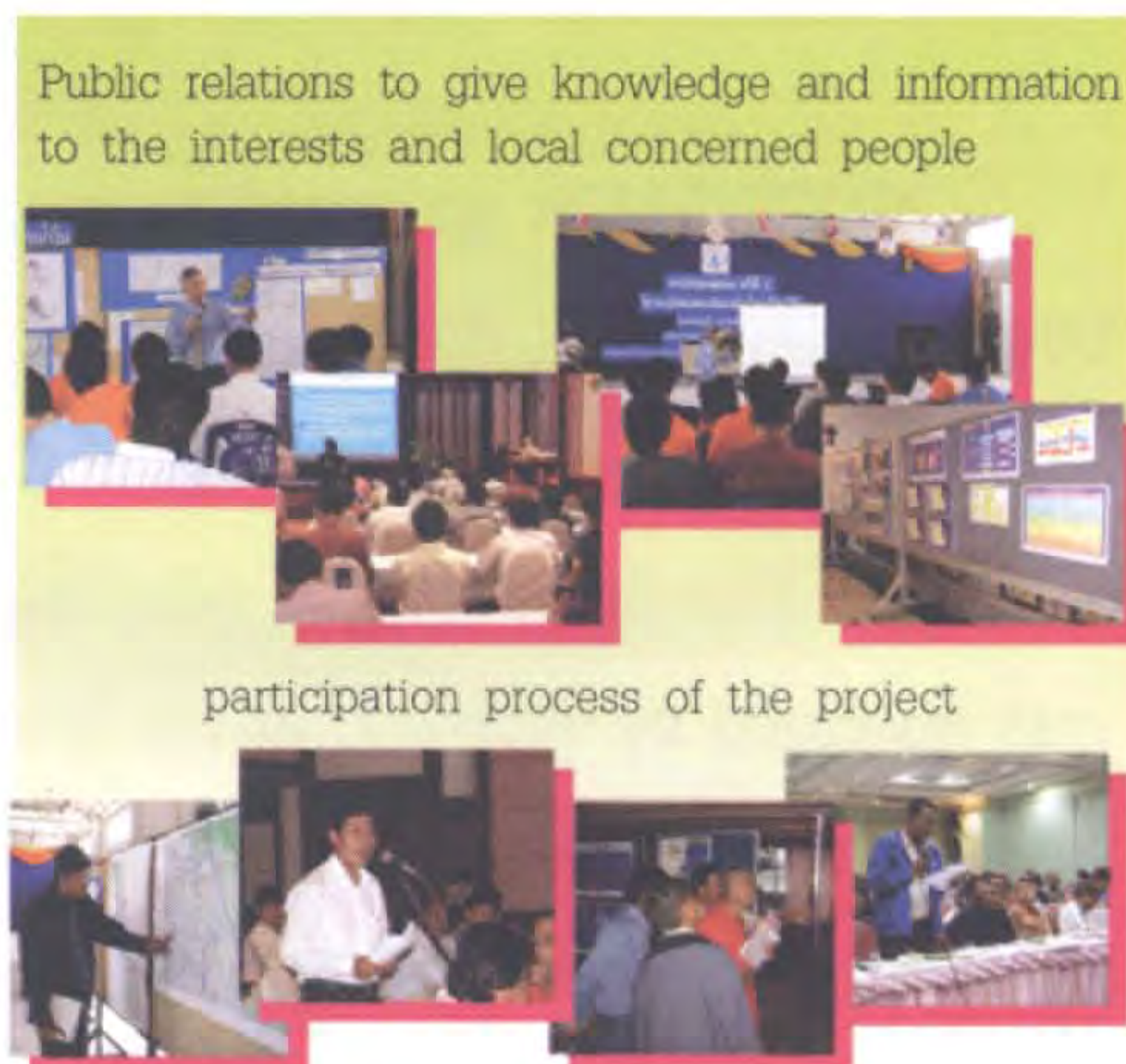
2. To develop a master plan to diverse water to increase the quantity of available water, water storage capabilities, and to distribute water to target areas by balancing methods, costs and also minimizing environmental impact.

3. To develop a strategy for moving available water resource assets from many sources to areas that would make effective use of or benefit from additional water resources.



Expected Benefits

1. To relieve potential flood disasters and solve problems of water shortages in the studied areas
2. To store rain water in the diverted canals to be supplied for domestic consumption and agriculture in the dry season
3. To provide diverting water to localities that the channel passes through to solve water shortage problems
4. To provide a travelling channel for breeding of aqua livings
5. To promote knowledge and understanding of water resources management and to implant participation approach in the Government projects for people in the study areas.



4.1.5 Coordination for international cooperation

Coordination for international cooperation is one of the core tasks of the Department of Water Resources. This is to foster interchanging of information on water resources management, to bring the experience and knowledge of Thailand in this area to the international arena, to set guidelines for integrated water resource management and to propose potential bilateral and multilateral cooperation on water resources management in Asian region as the following ongoing cooperation projects:-

ASEAN Working Group on Water Resources Management - AWGWRM



AWGWRM is an organization under ASEAN Senior Officials on the Environment - ASOEN. The Director General of the Department of Water Resources of Thailand chaired AWGWRM with 3 years term. Since the establishment of this working group, there have been 6 meetings among member countries. The first meeting was on January 28-29, 2003 at Siam City Hotel in Bangkok. The meeting was attended by representatives from all ASEAN member countries with the exception of Brunei. The latest meeting was held on May 29, 2006 in Manila, Philippines. The meeting considered projects concept in the ASEAN Strategic Plan of Action on Water Resources Management. The meeting agreed to have lead country /countries coordinate the further development and implementation of the individual project concepts. Thailand has accepted to be the lead country with Singapore for the Demand Management Learning Forums and with Indonesia for the Risks and Impacts from Extreme Events in ASEAN Countries.

Bang Pakong Dialogue

The Department of Water Resources received financial assistance from the Asian Development Bank to perform this project. The project was to develop a public understanding about the management of the river basin through public participation. The development of capacity building of river basin sub-committee for management of the river basin was studied in order to suggest approach and guideline for a fair water allocation in the basin and to prevent or minimize conflict concerning water usage among different sectors.



It was encouraged to have the negotiation among the stakeholders. The capacity building of the River Basin Sub-committee and the participation in the small-scale water resources projects of all stakeholders were promoted. This was done by jointly implementing between officials of the Department and the River Basin Sub-committee to establish the water resources management network, to organize the trainings and field visits for the secretariat team of the River Basin Sub-committee and to hold meetings to discuss on water resources management. Suggestions, guidelines, approaches and rules for water allocation were proposed. The pilot areas in the basins were used to demonstrate the data gathering approach and the application of the model for water allocation that could be developed to work in the river basin.

Cooperation with international organizations on water resources management

Cooperation with ASEM. This is to exchange information on water resources management among countries in Asia and Europe. The project was undertaken to promote good water resources management among member countries through the use of various mechanisms. The project started in May, 2006 and will run for 4 years.

Cooperation with NARBO. The Department has joined the Project since 2004, which led to the members in NARBO of the Bang Pakong river basin sub-committee. They will be able to learn from other river basin organizations in Asia. In addition, they are trained on water resources management, which gave them chance to experience other countries lessons in form of comparison study on river basin organization of various countries. This help them to be more efficient in water resource management such as water allocation and water right, integrated water resources management etc.

Training Course on Water Supply and Environmental Sanitation

The Department of Water Resources has conducted a course on Water Supply and Environmental Sanitation for 19 trainees from 9 countries namely Bangladesh, Bhutan, Cambodia, China, Indonesia, Pakistan, Sri Lanka, Thailand and Vietnam.

Cooperation between Thailand and Myanmar on Water Resources Management

In the second Thai-Myanmar Joint Steering Committee Meeting held during March 3-5, 2006, the Deputy Permanent Secretary of the Ministry of Natural Resources and Environment (Mr. Chalomsak Wanitsombat) was the team leader of the Thai side and Mu. U Khin Zau, Deputy Director General of the Department of Irrigation was Chief of the Myanmar side. In the meeting, Thailand presented the results of the master plan study for water resources development in the area of the Kok River Basin and the Sai River.



Cooperation for the Sustainable Development of the Mekong River Basin.

The Thai government is a member in the Mekong River Commission (MRC) which comprises 4 member countries : The Lao People's Democratic Republic, the Kingdom of Cambodia, the Kingdom of Thailand, and the Socialist Republic of Viet Nam. The four member countries have paid an annual contribution to support the Commission. The MRC is a permanent organization, not under the United Nations organization. The MRC Secretariat is located in Vientiane, Lao PDR. Each member country has established a National Mekong Committee. For Thailand, the Department of Water Resources (DWR) by the Bureau of International Cooperation acts as the Secretariat of the Thai National Mekong Committee (TNMC). This office cooperates and coordinates on the Mekong development with the Secretariats of the other MRC member countries, and line agencies of the TNMC. The achievements made in the past year are as follows :



1. Procedures for the Maintenance of Flows on the Mainstream
2. Criteria and assessment systems for transboundary environmental impact assessment for use by the MRC member governments as tools to support their decision on the Mekong development projects in order to prevent and solve the environmental impact problems that might occur.
3. A Social Impact Monitoring System for the Mekong River Basin
4. A Water Quality Monitoring Network.
5. Risks Assessment on the Vulnerability and Dependence on the Aquatic Ecosystems.
6. Data management system for the Mekong River Basin.
7. Promotion of potential river basin organizations. A Working Group on River Basin Management has been established as a mechanism for river basin planning. The final result of the planning process that has been jointly prepared by the four member countries is the mutual concept on sustainable development of the Mekong River Basin which will be applied to 3 river basins in Thailand and 7 river basins in the other member countries.
8. Wetland valuation of the Mekong River Basin.
9. Development of River Health Report Cards for all rivers in the Mekong River Basin.
10. Evaluation of Environmental Flow Management as a technique to maintain a healthy balance in the Mekong River.
11. Training and revision of models in the Decision Support Framework.

12. Three pilot areas for river basin management have been identified by the National River Basin Sub-Committee and Sub-area Working Groups, namely, Huai Sam Mo Sub-basin in Chiyaphum province, Phung River Sub-basin in Sakon Nakhon province and Mae Rong Chang Sub-basin in Phayao province.

13. Preparation of a Project Implementation Plan on Flood Management and Mitigation to prevent and solve flood problems that occurred in the Northern and Northeastern regions of Thailand.



Operations under the framework of cooperation for the sustainable development of the Mekong River Basin.

The MRC member countries will work together to develop, use, conserve, and manage natural resources of the Mekong River Basin in a creative way like good neighbours. In the past, problems and obstacles occurred during joint operations because of misunderstanding, differences in ideas and policies among countries as well as potentiality and capability of people. This has made it difficult to identify targets and outcomes of the cooperation. Hence, it requires more flexibility in the operation in order to avoid conflicts in the future. In addition, timing, availability and skills of personnel of each country to work together are important. Personnel of the member countries need promotion and support to enable them to have continual training and the insights and skills acquired have to be passed on to personnel in the next generation.

4.16 Law (Water Resources Act)

The purpose was to develop an integrated and unified legal framework for the management of water resources in Thailand.

The Department of Water Resources drafted a Water Resources Act B.E.. The drafting process stressed the importance of having people participate and propose their ideas and needs at every step in the development of the legal framework. The implementation process included :

1. The existing laws on water resources were revised prior to drafting of the Act in the fiscal year 2003. Nine public hearings were held in order to hear the ideas of persons in all parts of the country. The purpose of the forums was to collect comments, recommendations, and concerning problems. These data were considered to improve the laws concerned with water resources. These formed the main content for the draft Water Resources Act.

2. Next step was to organize the public hearings to aware of the peoples comments on the draft Water Resources Act B.E.... in the fiscal year 2004. This was accomplished through a series of 14 forums held to gather the comments and reactions in different parts of the country. People in all regions were strongly urged to participate in this process to obtain their acceptance of the draft Water Act and to prevent possible contradictions and difficulties that might arise later. After this series of hearings, a final version of the Water Resources Act was completed.

Progress of Water Resources Act Enforcement



1. On March 22, 2005, the Cabinet approved of and contained the Laws Development Plan of the Ministry of Natural Resources and Environment into the National Law Development Plan 2005.

2. The draft of the Water Resources Act was examined by the Committee for Law Development of the Department of Water Resources, the sub-committee to oversee and speed up the development and drafting of laws, and the Committee for Law Development of the Ministry of

Natural Resources and Environment respectively. The Minister of the Ministry of Natural Resources and Environment reviewed and approved the draft. He signed off on the document to send the draft of the Water Resources Act B.E.... to the Office of the Secretariat of the Cabinet. At the time being it was submitted to the Cabinet for further final approval.

4.2 Implementation

4.2.1 Water resources conservation and rehabilitation

Construction of Check Dams

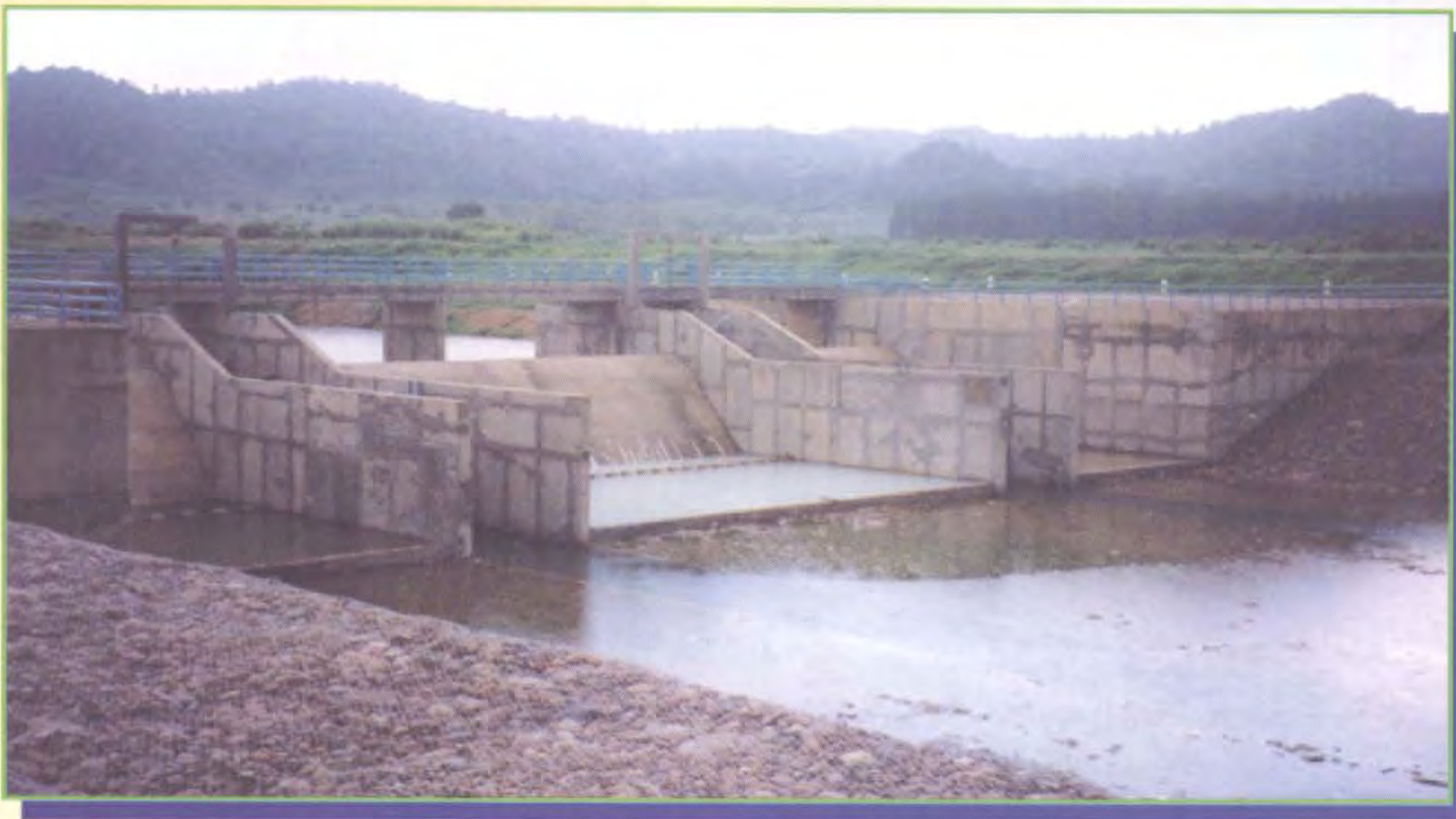
H.M. the King had an initiative to develop and rehabilitate forests and related resources in a harmonious manner to obtain the utmost benefit by building dykes across the streams. This slows down the water flow which allows more moisture to the soil. The Bureau of Water Resources Conservation and Rehabilitation and the Regional Offices of Water Resources, 1-10 has responded to the King's initiative. They have surveyed and designed the check dams to sustain moisture and trap sediment, which reduce problems of erosion and strong flow. The check dams also increase soil moisture and reduce sedimentation in the stream which is the cause of shallowness. The construction of check dam was started in the fiscal year 2006.

Model pictures of half permanent check dams



4.2.2 Water resources development

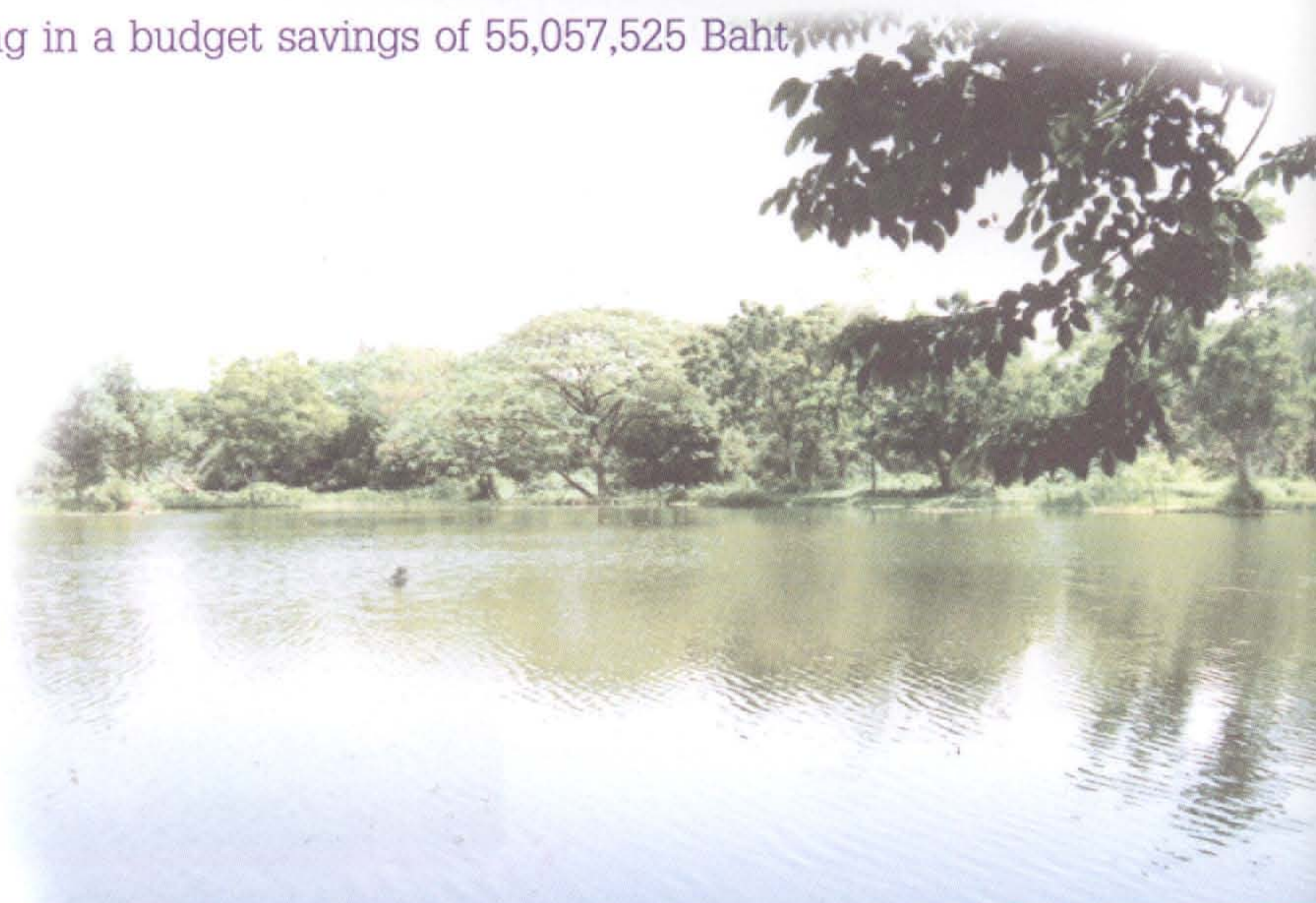
The Bureau of Water Resources Development of the Department of Water Resources and the Regional Water Resources Office 1-10, have been working on building a series of overflow dams and water transmission systems to facilitate the conservation of water for consumption and cultivation in drought or dry seasons and to expand the availability of water resources in the areas where these overflow dams and water transmission systems have been built.



In conclusion, funds were allocated in the 2005 budget for 93 projects to improve, rehabilitate, or develop water resources in the amount of 497,780,000 Baht. During this time work was done on 106 projects to improve, rehabilitate, or develop water resources. The cost of this work was 442,722,475 Baht producing a net savings of 11.06 per cent or 55,057,525 Baht.

Performance Area (Office of Water Resources)	Amount (Place)	Budget (Baht)
Region 1	20	52,052,631
Region 2	9	37,666,464
Region 3	11	43,495,902
Region 4	18	55,855,037
Region 5	16	55,470,460
Region 6	10	37,023,500
Region 7	9	61,303,600
Region 8	13	99,854,881
Total	106	442,722,475

- 497,780,000 Baht was allocated in the Budget Act to work on 93 projects
- The actual work on 106 projects was done for less than the initially Projected costs resulting in a budget savings of 55,057,525 Baht.



4.2.3 Installation of Early Warning System

On December 14, 2004 the Cabinet gave their approval for the Department of Water Resources to proceed to develop and put into place an Early Warning System for areas at high risk areas for flood, landslides in the sloping areas and upland areas. The area covered in this order covered about 2,300 villages. The priority was set according to level of risk.

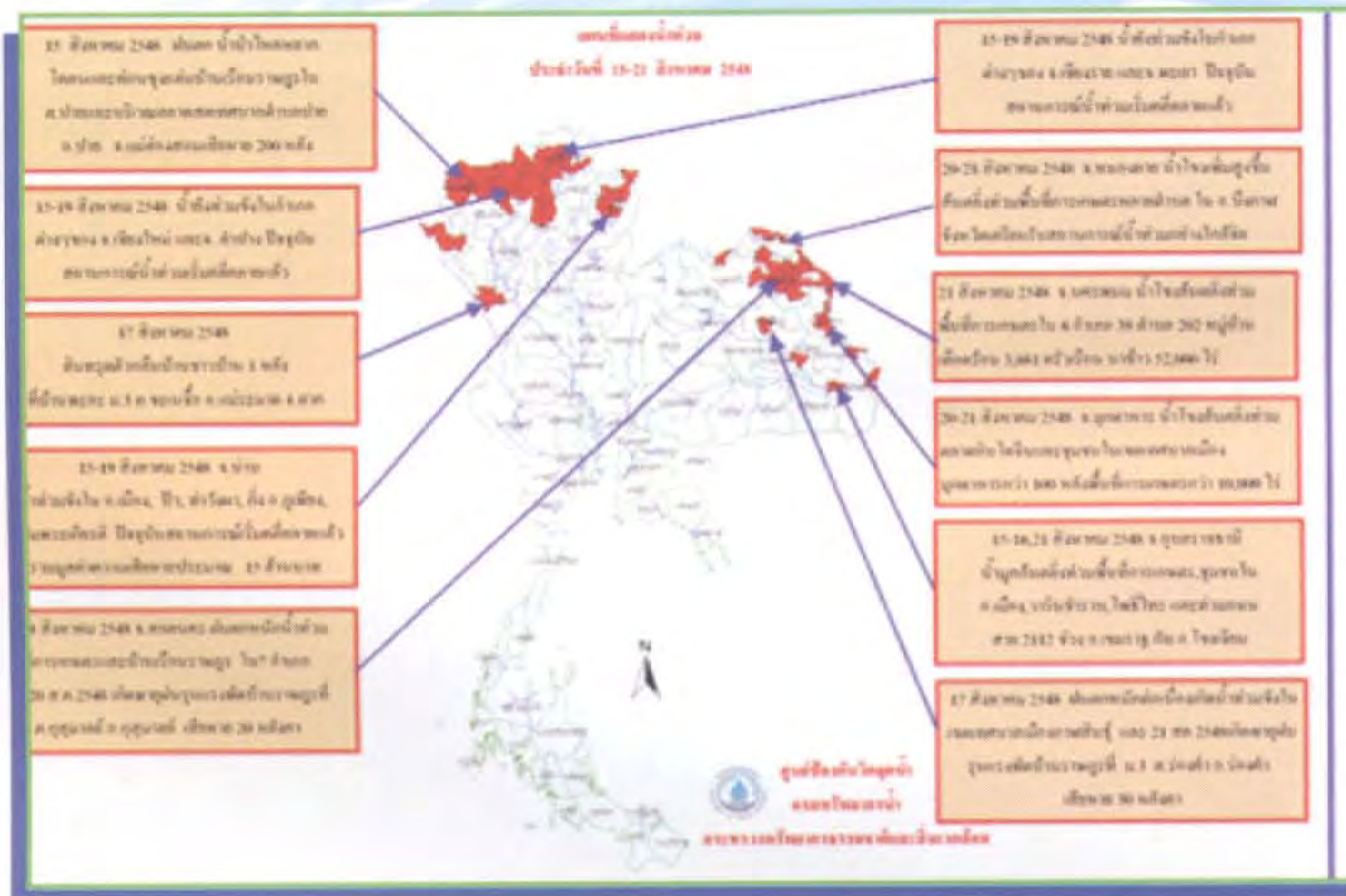
The early warning system consists of rainfall measurement stations which automatically record and transmit information on the quantity of rain. When the recorded levels of rainfall in a given time reaches a critical level (has been determined to present a danger) the Early Warning System will transmit signals to the responsible people in potentially affected localities automatically. In each of the localities there is a person who has been trained to act in these circumstances to spread the news quickly to other villagers and inform them of the steps that they should take for their safety.



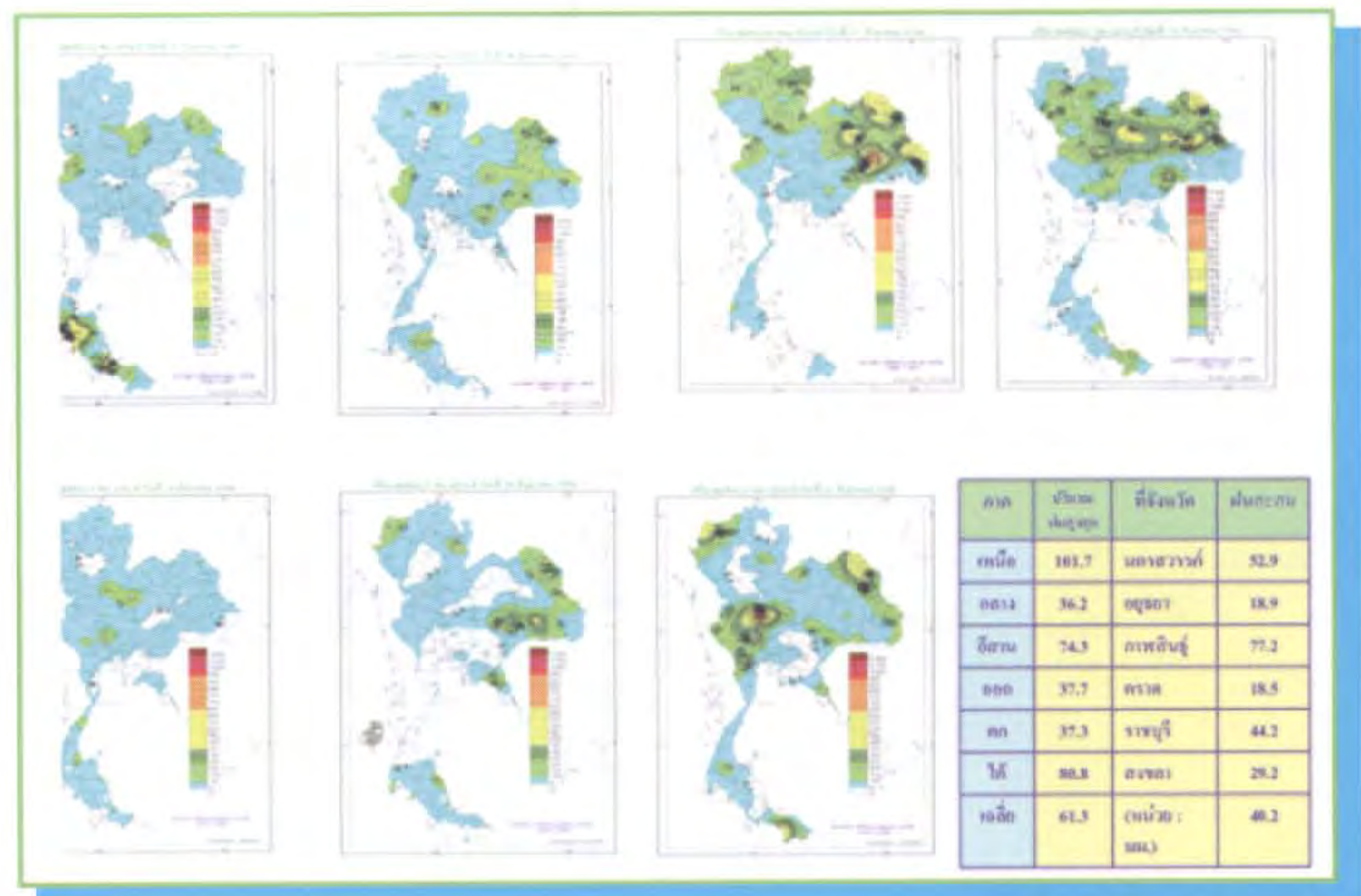
4.3 Water Resources Management

4.3.1 Establishment of a War Room to prevent and relieve Water Crisis

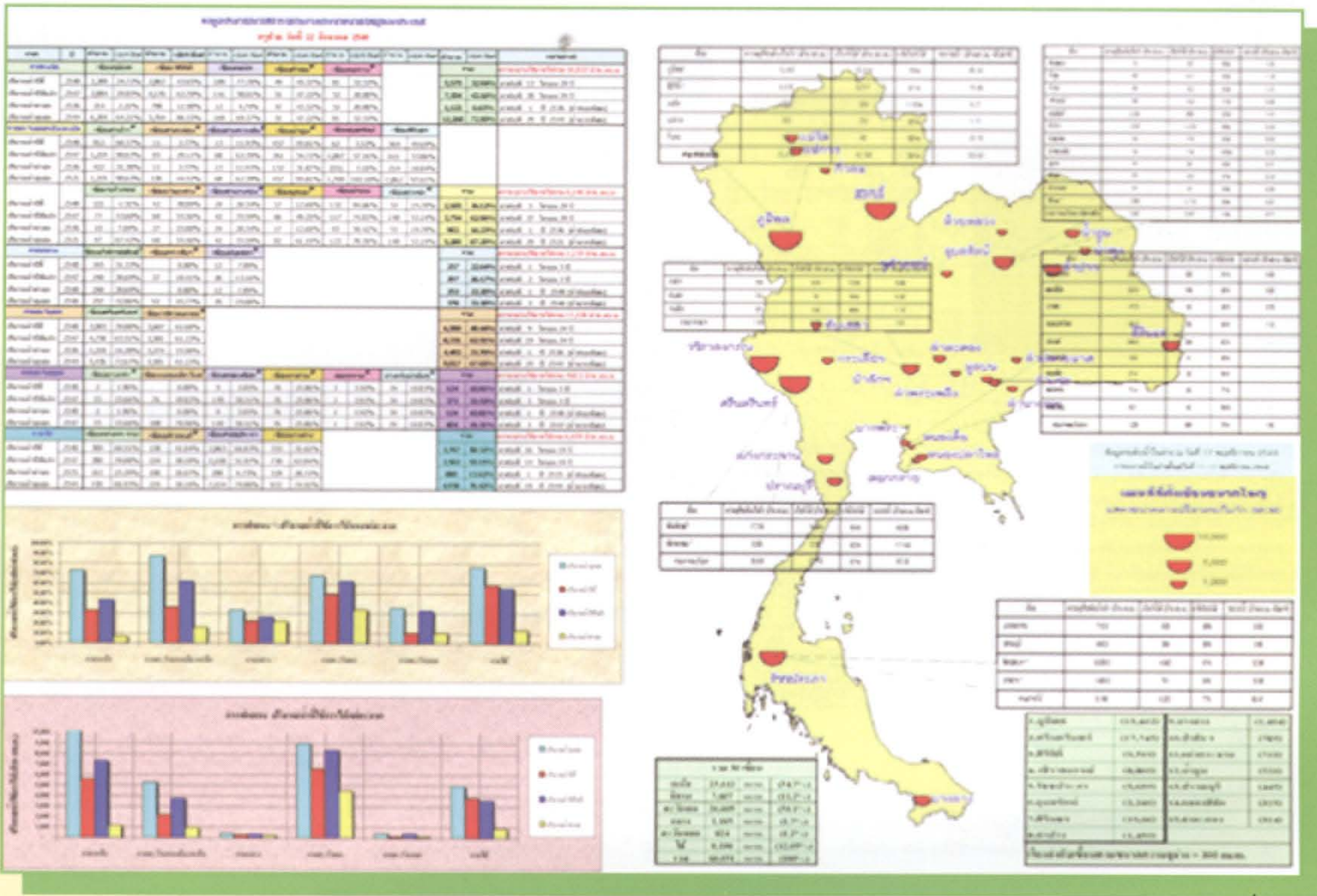
The War Room was established under the Water Crisis Prevention Center to prevent and relieve water crises. It consists of a primary data collection and management system for every main river basin in Thailand. The purpose of this center is to collect and compile all available data from the previous three years to aid in decision making related to preventing and solving water problems. These data were used to develop a Geographical Information System (GIS) data base for all of the main river basins throughout the country. It also created a Management Information System (MIS) to assist in following up on water crisis situations. The center also created a Decision Support System (DSS) to assist in making decisions and dealing with flood or drought crisis in emergency situations.



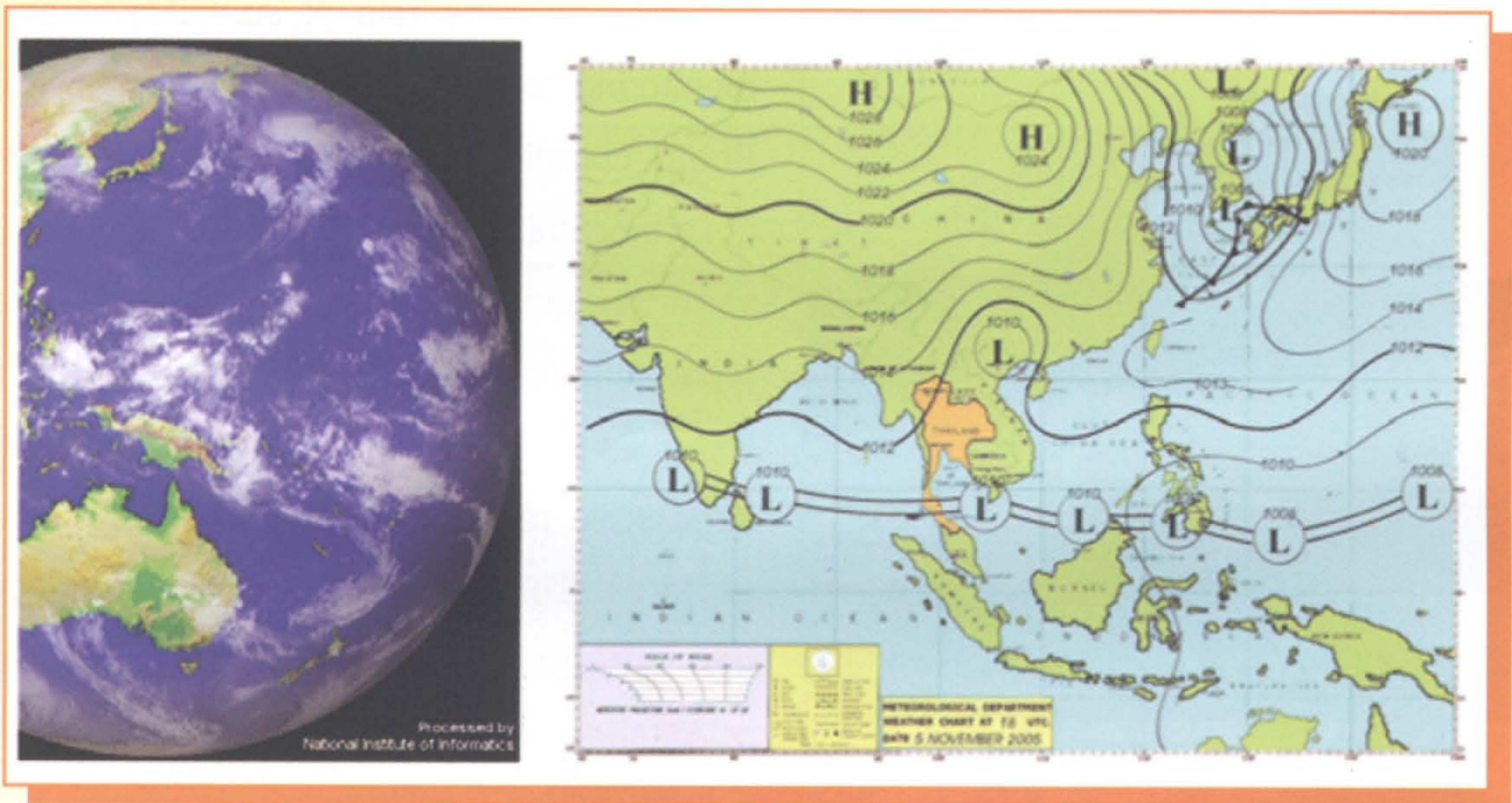
Reports on flood situations and overflow water situations throughout the country



Survey and normalization of rainfall patterns throughout the country



Current water levels in reservoirs throughout the country



Follow up analysis of weather satellite images throughout Thailand and the Southeast Asia Region

ข่าวร้ายสัปดาห์ ฉบับที่ 133



สัปดาห์นี้ข่าวพายุฝนใจดี
สภาพอากาศ :

ในขณะนี้ ไทยมีพายุฝนชุกชุม... สัปดาห์หน้าคาดว่าจะมีพายุฝนชุกชุม...
เหตุการณ์ :
โครงการกั้นและแก้ไข :

ข่าวน้ำ

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ภาคใต้ฝั่งตะวันตก	ภาคใต้ฝั่งตะวันออก
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With the role of surveillance and data monitoring to provide an early warning, the War Room coordinates with central and provincial governmental offices in the flood areas to provide warnings and help the victims. The data base on reported flood and overflow situations, data on the water level situations in all of the medium and large scale reservoirs throughout the country are gathered. The rainfall conditions throughout the country are checked and analyzed. Weather satellite images and climate condition in this region

are considered. All data, then, are analyzed and summarized. The weekly water reports are prepared including transmission of current data on the water situation to concerned persons via the internet.

4.3.2 Solving problems of water shortages in the Eastern Part of Thailand

Due to problem of water shortage in the industrial zone in the eastern region, the Water Crisis Prevention Center was assigned by the National Water Resources Committee to act as the Sub-committee to coordinate with regional and local governments, state enterprises, private sector, work units and other concerned units on information for dealing with problems arising from water shortages in the industrial region of eastern Thailand. It was given the role of sorting out problems, providing data, and proposing ideas to solve problems in the area. The center provides daily reports on water situation and submits them to the Ministry of Natural Resources and Environment during the drought crisis period.



4.3.3 The development of the Antecedent Precipitation Index (API)

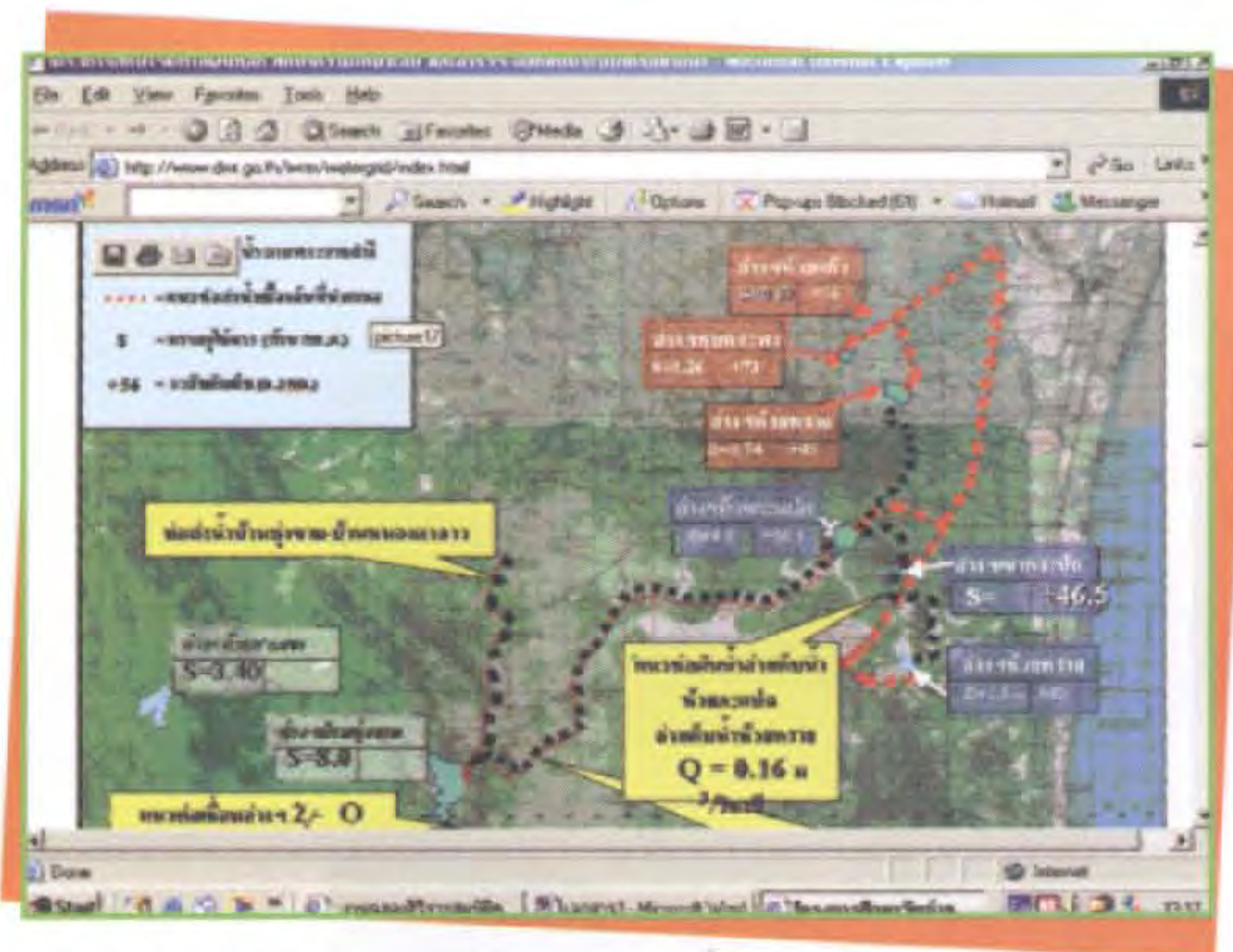
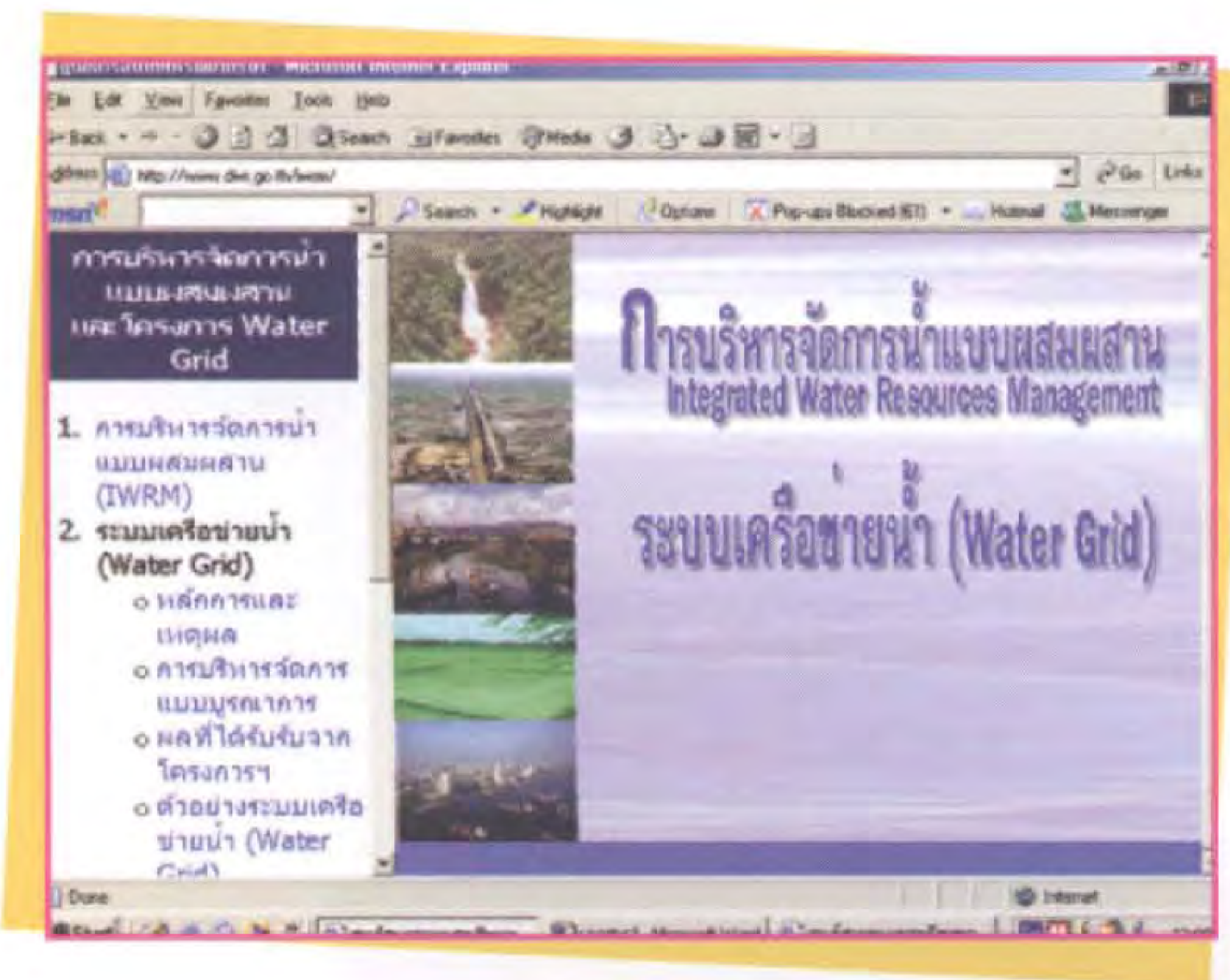
The Department set out to develop an accurate and reliable method to indicate the capacity and potentiality of water retention in soil. The idea was that if the API crisis level of each area and changes in API from the previous days were known, it would be possible to make a more effective warning forecast. The study used the API lowest means in each area prior to flooding and/or landslides as the base line for declaring an emergency. Data were examined for the previous 700 days which were divided into two periods - the first period of 360 days was used to study and analyze data from the 25 main river basins in the country to determine the relationship between the API and the risk level. The second period of 340 days was used to check the validity of the API for predicting flooding and landslides in that time frame. The API was found to be an accurate predictor for flooding and landslides. These data were also used to create a General Information System (GIS) and a Mangement Information System (MIS) to evaluate performance at the end of the project.

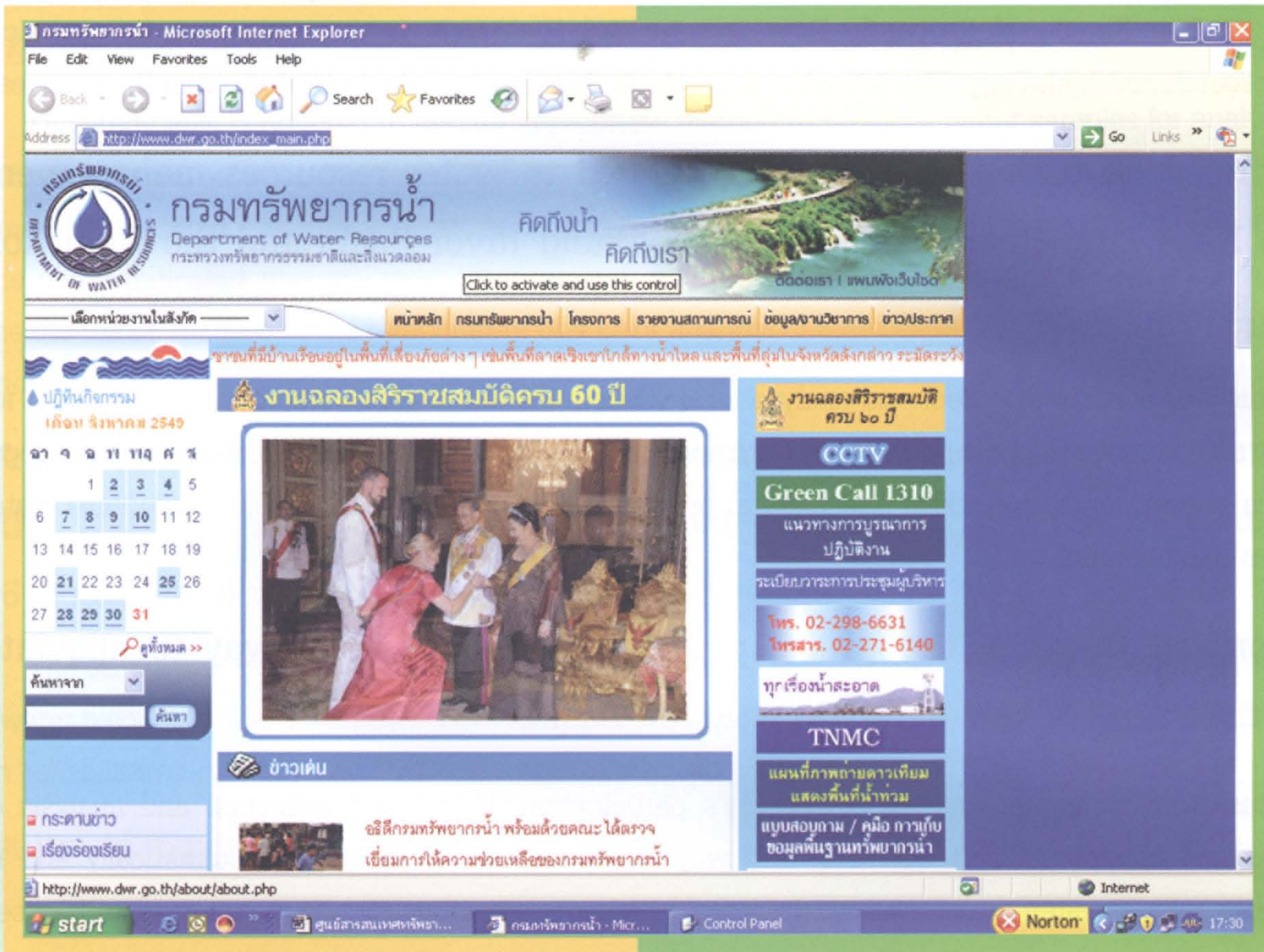
4.3.4 The development of a data system and information technology system for water resources management

The Center of Information Technology has developed a data collection system combined with a data base and information technology for use in administering water resources efficiently, systematically and effectively throughout the country in real time to deal with potential emergency and crisis situations. It also provides a source of data on water resources that can be used for a variety of research and information purposes.

- A data system based on water resources in 25 major river basins
- Maps of water resource levels in Thailand in digital form on a scale of 1 : 50000
- A video conference system to assist in water resources management and potential crisis situations
- A website of www.dwr.go.th has been developed under the Department of Water Resources to publicize data, provide current news and general knowledge about the present state of water resources in the country.

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4.3.5 Research and Hydrology

The Bureau of Research, Development and Hydrology is the main unit for technical study, research and hydrology. The following are projects that they have been carried out in the past year:

1. A project to gather local wisdom related to water resources management in the Nam Ping River Basin, the Nam Wang River Basin and the Nam Kok River Basin.

This was a study to collect and analyze local wisdom related to water resources management for publicity ; to promote, support and uphold the importance of local wisdom that incorporates technology, ecological system and local social and cultural practices; and to apply it to benefit sustainable water resources management.

2. A project to study the use of public participation as a way to alleviate flood disasters in the Petchaburi River Basin.

This study examined the role of people's participation. It included collection and analysis of problems and causes of flood disasters; and ways to reduce these problems systematically and in accordance with requirements of the local people. The results of this study were expected to be used by the responsible units in the development of more effective plans and strategies to alleviate flood disaster problems.

3. A project to study the quantity of food substances for plants in water sources : A case study in the Lower Mekong Basin

This study was under the Environment Programme of Mekong River Commission which has been conducted in the member countries to assess the quality of water in the Mekong River and its tributary river basins for the purpose of obtaining necessary data for joint environmental management of the region.

Data were collected on the quantity of food substances for plants in water resources during each period of the study at each of station on the Mekong mainstream and its tributary basins in Thailand, totalling 11 stations.

The results of the study indicated that water samples taken from areas near communities were contaminated with higher levels of food substances than did water samples from other areas of the Mekong mainstream. This was principally due to the use of food substances for agriculture including fertilizers and animal waste. Nonetheless, the presence of these elements did not have significant impact on water quality of the Mekong mainstream. Overall, the quality of water as regards plant food substances still remains in rather good condition.

4. A project to study the influence of the acidity-alkalinity on the analysis of levels of ammonia in water by the Indophenol method.

The study was conducted to find an appropriate method to preserve water samples for analysis of ammonia in water between the method of freezing water samples at the temperature of below 4°C and the method of adding acid into the water samples until they have a PH value of lower than 2. The results of the study indicated that the most effective and reliable method of keeping water samples was to freeze the water samples at the temperature of 4°C for analysis of ammonium in water by the Ideophenol method.

5. A project to study the trend of rehabilitation and monitoring of changes in the water quality of water sources that have been affected by tsunami in 6 southern provinces.

The study was conducted to learn about the tendency of changes or recovery of water quality in the water resources that have been affected by tsunami in order to see how much the water quality has been rehabilitated or worsened by other impacts.

Results of Operation

1. From the studies in the area of Khuk Khak Subdistrict, Takua Pa District, Phang Nga province, it was found that the water quality of water sources in the area of tsunami-affected including shallow wells, artesian wells, and surface water sources, during the first year after the tsunami disaster was not upto the water quality standards. It had high salty values. Hence, water could not be supplied for either human consumption or agriculture. After rehabilitation by means of well dredging and restoration, the wells could be re-used. Later, it was noted that the water quality in most wells has improved. The improvement in water quality depended on water usages by people and seasonal changes.

2. The study areas has been expanded to cover other areas including Phuket, Rayong, Krabi, Trang, and Satun provinces. Those areas have been surveyed and preliminary data have been collected for further analysis.



6. A project to study the contamination of cadmium in the Mae Tao River Basin, Mae Sot District, Tak Province.

From the results of the study on the contamination of cadmium in soil and agricultural produce in the areas of Mae Tao Creek, Mae Sot District, Tak Province by the Institute of International Water Management (IWMI) in conjunction with the Department of Agriculture, it was found that the level of cadmium contaminants in soil was higher than the permissible EU standards, and that in grains was higher than the permissible standards of Japan and the Food and Agriculture Organization (FAO) of the United Nations.

The Ministry of Natural Resources and Environment has set up a task force to monitor and address the problems of cadmium contamination with the Department of Water Resources being responsible for survey of cadmium contamination and its expansion in surface water resources.

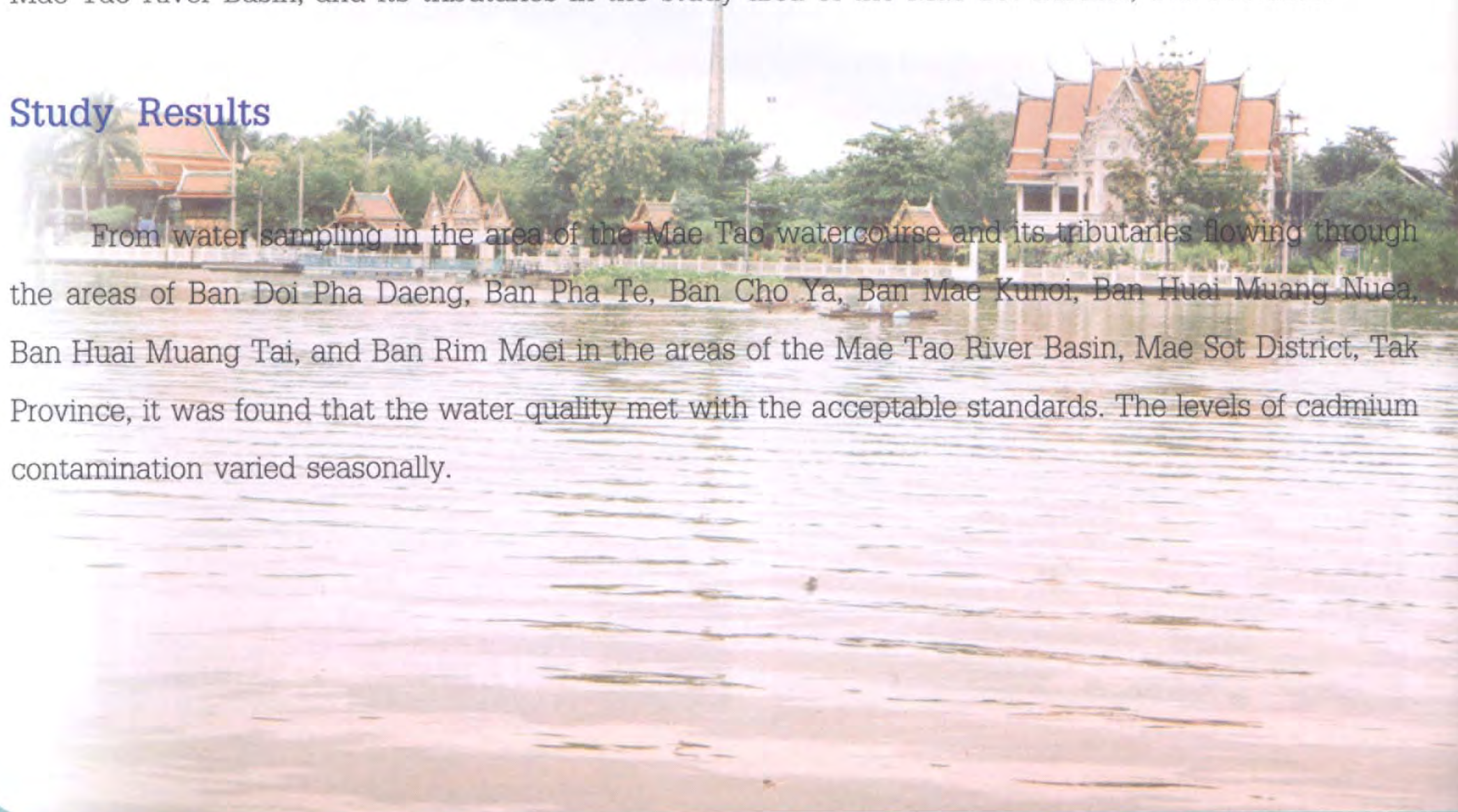
Objectives

1. To study cadmium contamination in the Mae Tao watercourse and its tributaries flowing through areas of Ban Doi Pha Daeng, Ban Pha Te, Ban Cho Ya, Ban Mae Kanoi, Ban Huai Muang Nuea, Ban Huai Muang Tai, and Ban Rim Moei in order to obtain data for use in solving problems of cadmium contamination in the Mae Tao River Basin, Mae Sot District, Tak Province.

2. To compare the relationship between the levels of cadmium contamination and zinc in the Mae Tao River Basin, and its tributaries in the study area of the Mae Sot District, Tak Province.

Study Results

From water sampling in the area of the Mae Tao watercourse and its tributaries flowing through the areas of Ban Doi Pha Daeng, Ban Pha Te, Ban Cho Ya, Ban Mae Kanoi, Ban Huai Muang Nuea, Ban Huai Muang Tai, and Ban Rim Moei in the areas of the Mae Tao River Basin, Mae Sot District, Tak Province, it was found that the water quality met with the acceptable standards. The levels of cadmium contamination varied seasonally.



4.3.6 Performance of the Waterworks Concession Business

The Bureau of Water Administration, a work unit under the Department of Water Resources, is responsible for investigation, control and monitoring of waterworks businesses that have been granted concessions to ensure that they are producing sufficient water supply to the acceptable standards at a fair price and the businesses can be continually operated in a sustainable manner following the conditions of the contract for waterworks concession businesses. Moreover, the Bureau of Water Administration also provides consultation, technical assistance and recommendations, standard criteria for waterworks concession businesses including other technical services for public safety. Legal measures are applied in the operation.

Performance Results for 2005

Performance of main activities related to the waterworks concessions

1. Eight applications for concessions to operate waterworks businesses
2. One request for expansion of waterworks concession areas.
3. Twelve requests for renewal of waterworks business concessions.
4. Six cancellations of waterworks business concessions.
5. Two requests for permission to operate water supply.
6. Investigation and resolution to four complaints.
7. Inspection and monitoring, of forty-three waterworks concession businesses



Efficiency enhancement in the work process of main activities concerning waterworks concession business

1. Study and research on the cost of water supply production.
2. Study on adjustment of fees for operation of waterworks concession business.
3. Study on problems concerning concessions for waterworks businesses for the purpose of law development.

4. Improve and develop a database system for waterworks concessions and prepare status reports on the operation of main waterworks concession activities.
5. Prepared two manuals for guidance in the operation of waterworks concession businesses.
6. Dissemination of anecdotal knowledge and information by website : www.prapathai.com

4.4 Organization and public participation

Management of 25 main river basins and support for capacity building of personnel in water resources management



The Bureau of Mass Promotion and Coordination, Department of Water Resources was allotted 38,980,000 baht (Thirty eight million nine hundred and eighty thousand baht) in the fiscal year 2005 to support the work of the river basin organizations, namely, the River Basin Sub-committees, the Technical Working Groups ; the Working Group on Tributaries ; Working Groups at levels of provinces, districts, and sub-districts so as to enable them to perform their roles and duties as prescribed in the Procedures of the Office of the Prime Minister on the National Water Resources Administration, issued in 1999 and later revised in 2002, in collaboration with various public organizations and networks efficiently. The budget was allocated for various activities as follows :

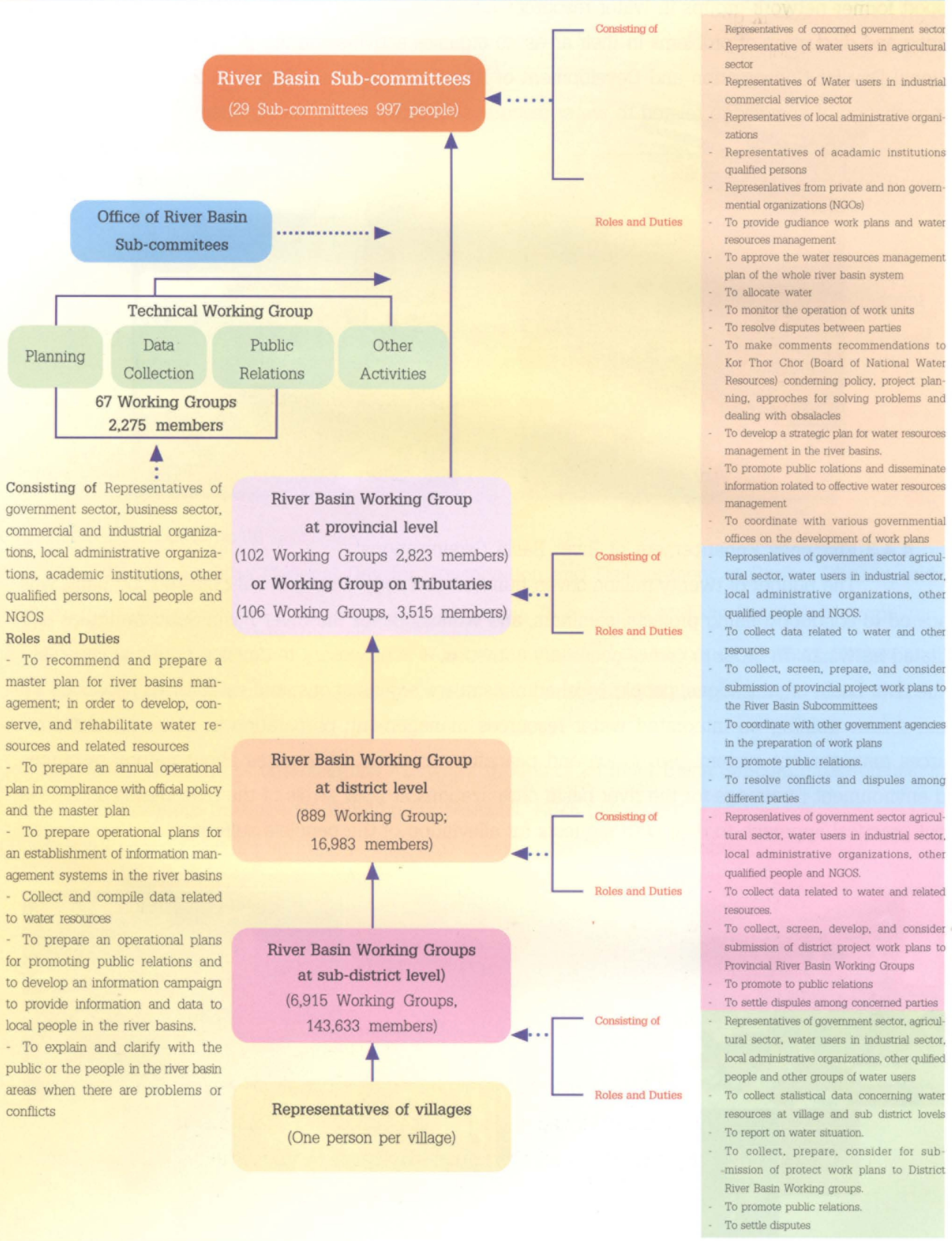
4.4.1 Administration of river basin organizations

Ten million baht (10,000,000 Baht) was allocated to administration of water resources in the river basin systems. This amount was used to support meetings of the River Basin Committees; Working Groups on 25 Main River Basins; 29 River Basin Sub-committees; and administration of river basin offices including coordination among officials. The purpose of this was to administer the river basins in an integrated manner by setting up a work plan, solving local problems, making decision and considering a budget plan for the river

basins. This created a process of local participation in the preparation of work plans, data collection, knowledge dissemination and problem solving. These groups jointly conducted studies proposed ways and means for problem solving concerning administration, development, conservation and rehabilitation of water resources.

Summary of River Basin Organization at All Levels

in 25 Main River Basins



Consisting of Representatives of government sector, business sector, commercial and industrial organizations, local administrative organizations, academic institutions, other qualified persons, local people and NGOs

- Roles and Duties**
- To recommend and prepare a master plan for river basins management; in order to develop, conserve, and rehabilitate water resources and related resources
 - To prepare an annual operational plan in compliance with official policy and the master plan
 - To prepare operational plans for an establishment of information management systems in the river basins
 - Collect and compile data related to water resources
 - To prepare an operational plans for promoting public relations and to develop an information campaign to provide information and data to local people in the river basins.
 - To explain and clarify with the public or the people in the river basin areas when there are problems or conflicts

Consisting of

- Representatives of concerned government sector
 - Representative of water users in agricultural sector
 - Representatives of Water users in industrial commercial service sector
 - Representatives of local administrative organizations
 - Representatives of academic institutions qualified persons
 - Representatives from private and non governmental organizations (NGOs)
- Roles and Duties**
- To provide guidance work plans and water resources management
 - To approve the water resources management plan of the whole river basin system
 - To allocate water
 - To monitor the operation of work units
 - To resolve disputes between parties
 - To make comments recommendations to Kor Thor Chor (Board of National Water Resources) concerning policy, project planning, approaches for solving problems and dealing with obstacles
 - To develop a strategic plan for water resources management in the river basins.
 - To promote public relations and disseminate information related to effective water resources management
 - To coordinate with various governmental offices on the development of work plans

Consisting of

- Representatives of government sector agricultural sector, water users in industrial sector, local administrative organizations, other qualified people and NGOs.
- Roles and Duties**
- To collect data related to water and other resources
 - To collect, screen, prepare, and consider submission of provincial project work plans to the River Basin Subcommittees
 - To coordinate with other government agencies in the preparation of work plans
 - To promote public relations.
 - To resolve conflicts and disputes among different parties

Consisting of

- Representatives of government sector agricultural sector, water users in industrial sector, local administrative organizations, other qualified people and NGOs.
- Roles and Duties**
- To collect data related to water and related resources.
 - To collect, screen, develop, and consider submission of district project work plans to Provincial River Basin Working Groups
 - To promote to public relations
 - To settle disputes among concerned parties

Consisting of

- Representatives of government sector, agricultural sector, water users in industrial sector, local administrative organizations, other qualified people and other groups of water users
- Roles and Duties**
- To collect statistical data concerning water resources at village and sub district levels
 - To report on water situation.
 - To collect, prepare, consider for submission of project work plans to District River Basin Working groups.
 - To promote public relations.
 - To settle disputes

Department of Water Resources

4.4.2 Publicity and Public Participation

The budget of four million two hundred and sixty thousand baht (4,260,000 Baht) was spent on water resources management of the river basins to build up network groups of local people, and to support former network groups in water resources administration; to provide villagers with a forum for hearing and discussion of problems in their areas; to organise activities on the World Water Day, and the National Day for Conservation and Development of Rivers, Ditches, and Canals in 2005; dissemination and exchange of knowledge related to water resources and river basin management.



4.4.3 Efficiency Enhancement of River Basin Organizations

The budget of twenty million seven hundred and sixty thousand baht (20,760,000 Baht) was allocated to conduct training projects, seminars, and workshops for the River Basin Subcommittees and affiliated networks. In order to create necessary activities, it is necessary to develop potential capability of the river basin organizations, people, local administrative organizations, and established networks. To name a few: training on integrated water resources management; preparation of plans on water resources management system; prevention and peaceful settlement of disputes about natural resources and environment ; trainings for the river basin organizations at both levels of the river basins and areas about practical approach to deal with requests for alleviation of the people's sufferings.



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The budget of three million nine hundred and sixty thousand baht (3,960,000 Baht) was spent by the Bureau of Mass Coordination and Promotion and the offices of the River Basin Sub-committees of the Department of Water Resources to promote public awareness and to coordinate activities related to water resources management in 25 main river basins.

Performance Results

1. Water resources management in the river basin systems by 29 offices of the River Basin Subcommittee

- 1.1 Management of River Basin Subcommittee offices
- 1.2 Fifty-four Meetings of the River Basin Subcommittees were arranged with 1,598 participant
- 1.3 One hundred and thirty-three meetings of working groups were arranged with 2,170 participants

2. Publicity and Public Participation

- 2.1 Forums on Public hearings (70 forums' 2,610 participants)
- 2.2 Trainings on capacity building in water resources management (creating network),

83 sessions, 3,675 participants

2.3 To organize the National Day for Conservation and Development of Rivers, Ditches, and Canals to increase public awareness in the 25 river basins, 75 provinces and the Bangkok Metropolitan area and enable their cooperation in the cooperation, protection and maintenance of rivers, ditches and canals. General public, youths, teachers, and students also participated in the event.

3. Capacity Building of organizations / network groups of 29 River Basin Subcommittee offices

- 3.1 Workshops on Capacity Building (72 sessions, 1,928 participants)
- 3.2 Capacity building at an area level (257 sessions; 10,723 participants)
- 3.3 Capacity building of network groups (114 sessions; 3,335 participants)
- 3.4 Trainings / seminars for River Basin Subcommittees, Working Groups, and Network

Organizations (6 seminars, 693 participants).

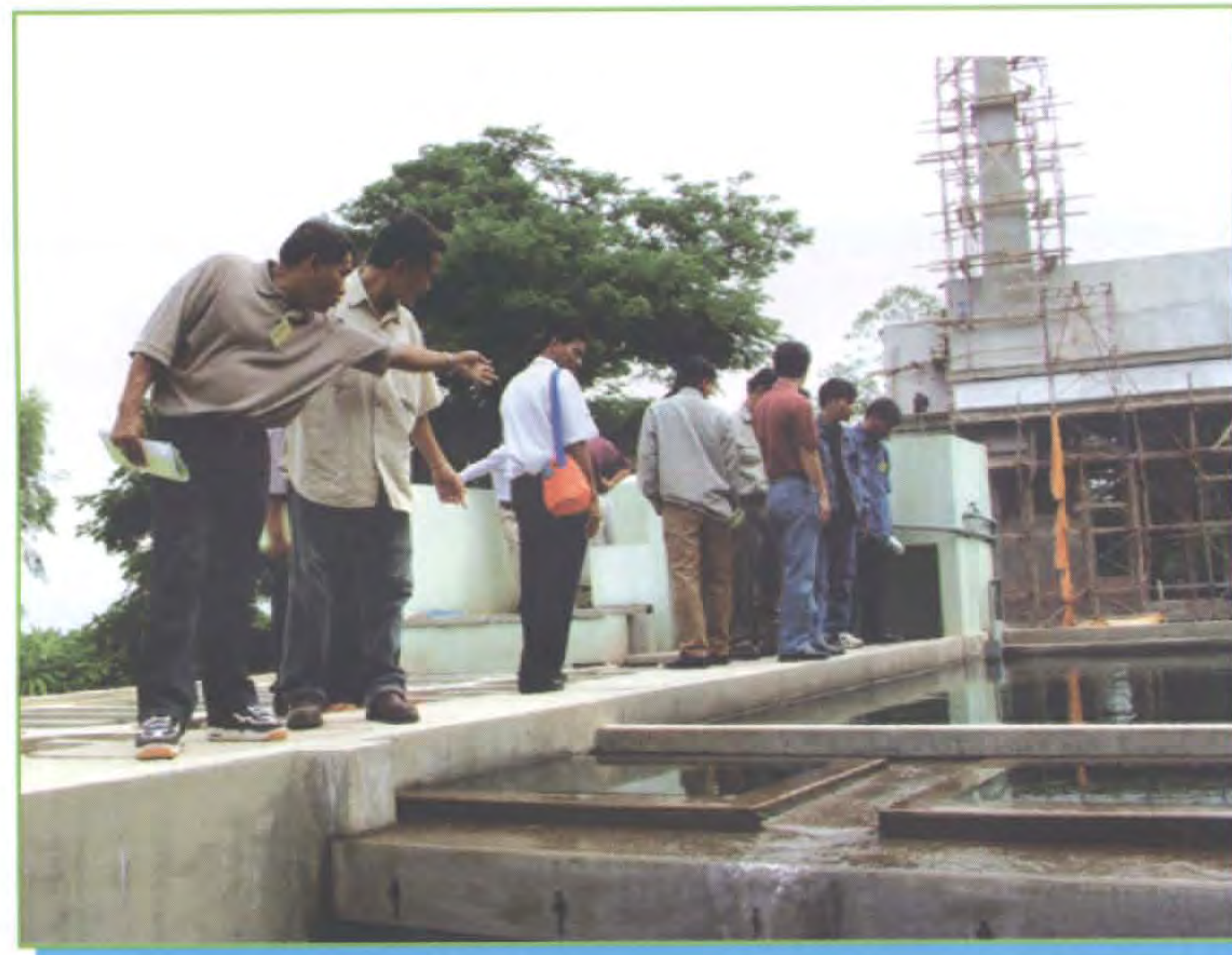


4.4.4 Training to enhance efficiency in water supply system management

The Department of Water Resources by the Bureau of Water Administration conducted training courses for those who were responsible for monitoring and maintenance of water supply, and management of the waterworks system of franchising businesses. The aims of these courses were to increase efficiency and strengthen capability of local personnel in monitoring and



maintenance of the waterworks system and administration of the water supply system business to insure the continual production and availability of clean potable water.



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Performance results for the fiscal year 2005

1. Courses on production monitoring and maintenance of water supply systems: 2,000 expected trainees and 2,263 actual trainees
2. Courses on appropriate and effective management of waterworks systems business: 2,000 expected trainees and 1,945 actual trainees

*For these two courses, the target was to train 4,000 people and there were altogether 4,208 actual trainees in total.

4.5 Main Assignments

4.5.1 Project to solve problems of potable water shortage for human consumption

The Department of Water Resources by the Bureau of Water Resources Administration received a budget from the mid-year budget of the fiscal year 2004 in the category of Expenses for Promotion of Potential Competition and Sustainable Development of Thailand, for the implementation of the project to solve problems of potable water shortage by village water supply systems for 520 locations. The project has been divided into 2 phases as follows :

Project, phase I : 169 locations, Baht 454,669,000 (Four hundred fifty four million six hundred and sixty nine thousand baht)

Project, phase II : 351 locations, Baht 1,123,218,000 (One trillion one hundred twenty three million two hundred and eighteen thousand baht)

Performance results for fiscal year 2005

1. Completed construction projects in 516 locations
2. Ongoing construction project in 103 locations
3. Or Bor Tor requested cancellation of construction in 1 location





4.5.2 Projects to provide clean water for consumption and usage throughout Thailand

The Cabinet resolution of September 6, 2005 approved the Ministry of Natural Resources and Environment to conduct a series of projects to solve the problems of potable water shortage throughout Thailand. The target was to complete construction improvement of the water supply to 100 percent of the villages in the country.

The project work was divided into 3 phases. The Project, phase I, from 1 October 2005 to 31 May 2006, was implemented in 14 potential and appropriate provinces for improvement and construction of water supply systems. They are: Phichit, Sukhothai, Singh Buri, Ang Thong, Samut Sakhon, Samut Songkham, Trat, Khon Kaen, Nakorn Phanom, Mukdahan, Nong Bua Lam Phu, Ranong, Phuket and Phatthalung. These provinces suffered from severe water shortage but work could be carried out rapidly. In addition two largest provinces that also faced problems of water shortages were Chiang Mai and Nakhon Ratchasima.

The Project, phase II will involve construction, repair and improvement of water supply systems in the remainder part of the country by the year 2008.

The Project, phase III will develop new water sources for the stability of all the established village water supply systems.

The Project, phase I aimed to construct / improve, in total, 5,436 village water supply systems in a budget of 9,437.31 million baht by using the budget of the Ministry of Natural Resources and Environment for the fiscal Year 2003. The project on design and construction of a system for collecting and treating waste water in the pollution control area of Samut Prakan province cost 2,873.65 million baht. Moreover the project to improve the quality of the artesian water of the water supply system cost 290.34 million baht to improve the quality of the underground water supply system (artesian water) for a total of 3,163.9 million baht. The required amount of 6,273.32 million baht to complete these projects has to be requested from the central budget for the fiscal year 2006.

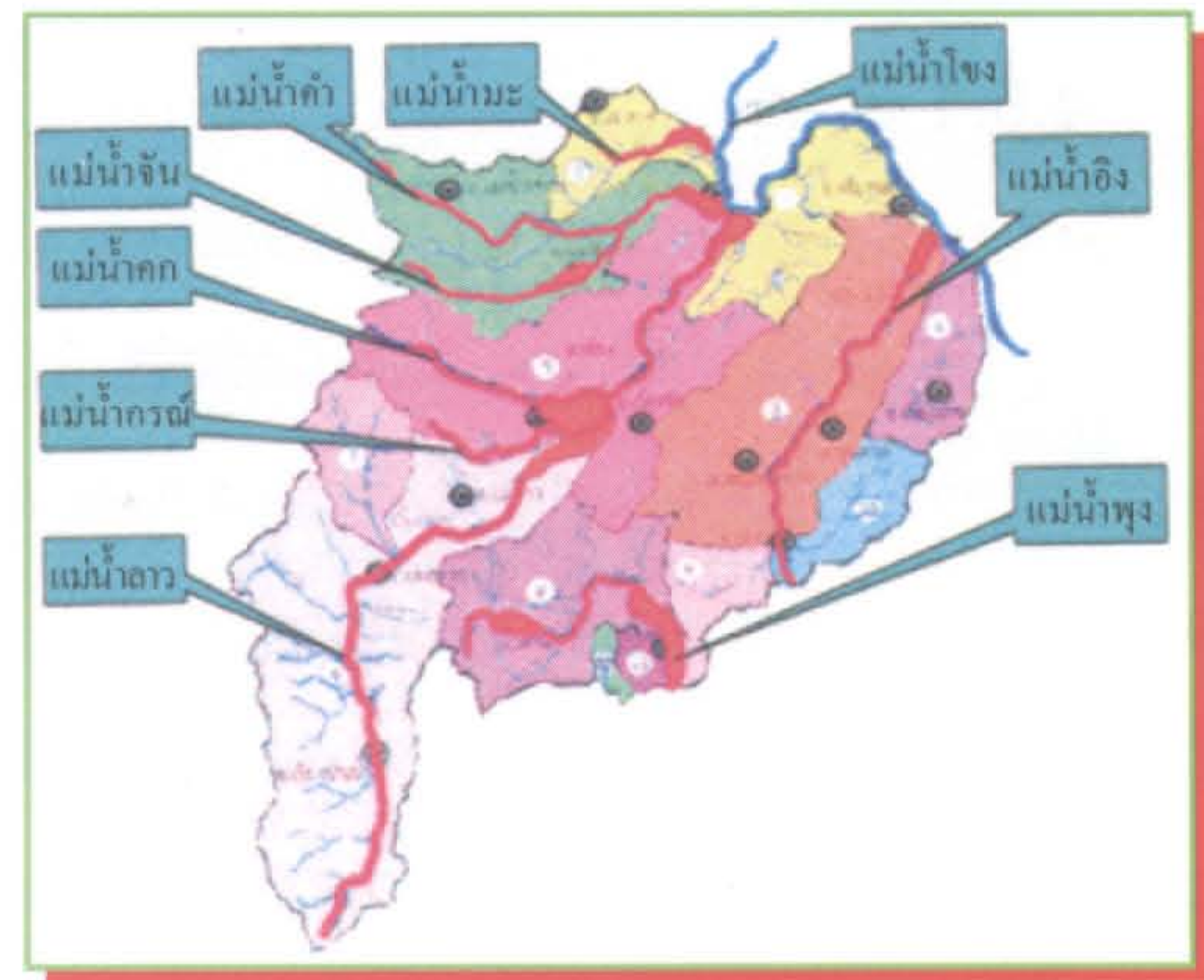
Results of performance

Some parts of the project areas have already been surveyed. After the budget has been allocated it will be transferred to Or Bor Tor. / Sub-district municipality. It is expected that the Project, phase I will be completed by the year 2006.

4.5.3 Integrated solutions to flood problems in Chaing Rai province

The Cabinet resolution of October 19, 2004 approved the Department of Water Resources by the Bureau of Water Resources Development and the Office of Water Resources, Region 1 to implement the integrated measures to solve flood problems in Chaing Rai province. The task included planning on survey design and construction of facilities to retain water in the origin areas of water sources, to slow down the flow of water; to reduce surface soil erosion, and to provide solutions to flooding in low lying plain areas in the Muang District of Chaing Rai province. A series of 46 reservoirs would have been constructed to retain flood water during the period 2005-2007. The project included :

1. A study on the appropriateness of the project and a survey for the design of 27 reservoirs by the Department of Water Resources
2. The employment of consultants to survey for the design of 19 reservoirs and develop plans for construction of 9 reservoirs in 2005, 15 reservoirs in 2006, and 22 reservoirs in 2007.

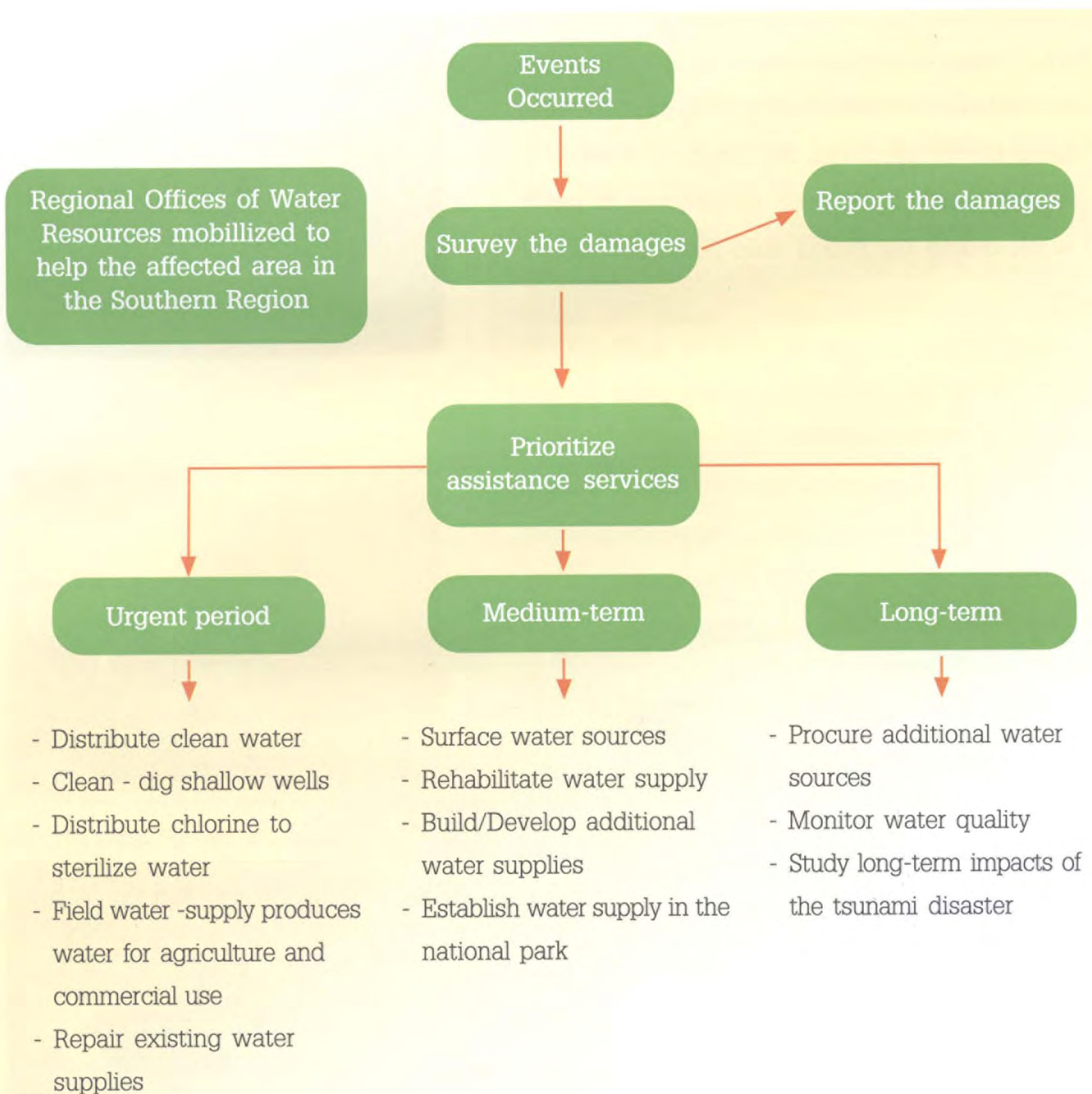


Benefits of the Project:

The project could prevent and solve flood problems in high risk areas; retain water of about 27 million cubic meters for use in agricultural sector in the dry season; and promote cultivation of an additional 23,000 rais of land.

4.5.4 Rehabilitation and Development of Natural Resource, Environment and local communities affected by Tsunami tsunami disaster

After the tsunami disaster, surface water sources near the sea-shore (especially at sea level) were severely damaged. Water sources and levels of soil were contaminated by sea water. The water quality was significantly changed and it was not as good for use as before. These brought problems to those who survived from the disaster and tourism business as well. The Department of Water Resources rushed to relieve and solve problems of water shortage for consumption; surveyed damages; and made up medium-term and long-term plans for water sources rehabilitation and development.



- Summary of assistance to tsunami-affected areas during urgency period

Summary of assistance to tsunami victims								
Items	Activities	Tsunami-Affected Areas					Total	
		Ranong	Phang Nga	Phuket	Krabi	Trang		Satun
1	Primary aids (to solve problems of water shortage / water sources, water-supply systems and damaged shallow wells)							
	1.1 Installation of field water supply (location)	-	2	-	1	-	-	3
	1.2 Water production and services (litre)	-	359,000	-	680,000	-	-	1,039,000
	1.3 Water distribution (litre)	-	3,228,000	-	-	-	-	3,228,000
	1.4 Chlorine distribution (litre)	20	199	-	60	193		472
	1.5 Cleaning of shallow wells (quantity)	79	216	98	57	90	24	567
	1.6 Boring of new shallow wells (quantity)	7	20	5	3	3	5	43
	1.7 Initial repair of water supply systems (places)	4	5	-	-	1	-	10

- Results of accomplishment : 100%

- Summary of medium-term assistance to tsunami-affected areas

Summary of tsunami victims								
Items	Activities	Tsunami-Affected Areas					Total	
		Ranong	Phang Nga	Phuket	Krabi	Trang		Satun
1	Medium-term assistance (Rehabilitation of damaged water resources)							
	1.1 Rehabilitation of water sources (place)	-	10	2	4	-	-	16
	1.2 Reparation of water supply systems (place)	3	5	1	3	-	-	12
	1.3 Construction of new water supply systems (place)	4	4	-	4	-	3	15
	1.4 Construction of water supply system in the national park (place)	1	3	-	2	-	-	6

- Summary of long-term assistance to tsunami-affected areas

- 1) Procurement of new water sources
- 2) Monitoring of water quality
- 3) Study on the impacts of tsunami on water resources

- Installation of field water-supply equipment for water production and distribution



4.5.5 The Royal Initiated Project

Project of a Station to Develop Agriculture in the Highlands of Doi Om Phai

On March 26, 2003 Her Majesty Queen Sirikit and His Royal Highness the Crown Prince visited the area of Doi Om Phai, Pang Hin Fon Sub-district, Mae Chaem District, Chiang Mai province. It was found that more than 1000 rais of the forest areas of Doi Om Phai had been clear cut for agriculture. Moreover, there was a tendency that more forest areas would be devastated due to lack of arable land for farming. This was specially true for Doi Om Pai which is located at an average altitude of 1,200 meters with an average temperature in the range of 10-25 °C and it is particularly suitable for growing plants from cool weather countries. Besides, Doi Om Phai is the origin of the Mae Ping Noi watercourse, where many small creeks of which flow into the Mae Chaem watercourse which is a tributary of the Mae Ping River. Thus, it would potentially have impacts on the levels and quality of water in the Mae Ping River in future. Her Majesty the Queen has, therefore, announced the establishment of “The Royal Initiated Project of a Station to Develop Agriculture in the Highlands of Doi Om Phai”.



The objectives of the above project are in the following :

1. To enable the clear cut terrain to yield optimum benefits; to be an institute to educate villagers and a sample place. For those who have joined/become involved in the project there is a piece of land of around 300 rais divided into plots where they could grow various plants on experiment in order to acquire knowledge; and another piece of 380 rais of land has been developed to be an area for integrated agriculture.
2. To rehabilitate the devastated forest areas and make them become the fertile productive forest areas as before
3. To conserve and maintain the fertile forest areas
4. To provide for the basic necessities and develop proper alternative occupations for the people residing in the vicinity of the project sites.



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