APPENDIX-1

Cost Allocation by Separable Costs-remaining Benefits Method

Appendix-1 Cost Allocation by Separable Costs-remaining Benefits Method

This short reference is quoted from "Manual of Standard and Criteria for Planning Water Resource Projects", Water Resources Series No. 25, United Nations.

To illustrate the separable costs-remaining benefits method of cost allocation, a project has been assumed which serves the purposes of flood control, irrigation, hydro-power, domestic and industrial water supply, fisheries and navigation.

The project facilities consist of a dam and reservoir with appurtenant works, irrigation canals and distribution works, power plant and transmission facilities and a domestic-industrial water pipe line.

A summary of construction costs is shown in the following Table-1.1.

Table-1.1 Construction Costs

(Unit: US$1000)

Feature		Construction Cost
Dam & Reservoir		34,500
Includes power penstocks	$500,000	
Irrigation outlet	$300,000	
Damsite water outlet	$100,000	
Irrigation Canal & Distribution System		2,500
Power Plant and Transmission Facilities		2,000
Domestic-industrial Water Pipeline		500
Total Construction Cost		39,500

The estimated average annual benefits which the project will produce are shown in Table-1.2.

For the purposes of this illustration, the project is assumed to have a useful life of 100 years. At the end of this period the salvage value is assumed nil. Some of the facilities, such as power plant machinery, gates, etc., will have a life of less than 100 years.

Table-1.2 Benefit

(Unit: US$1000)

Annual Flood Control Benefits	500
Annual Irrigation Benefits	2,500
Annual Power Benefits	575
Annual Domestic-industrial Water Benefits	750
Annual Fisheries Benefits	90
Annual Navigation Benefits	100
Total Annual Benefits	4,515

In this analysis it is assumed that these short-life items will be replaced at the end of their service lives; therefore a replacement item is added to the annual operating and maintenance item is added to the annual operating maintenance costs. The replacement item is the annual sinking fund deposit which will accumulate to the cost of the replaceable facility by the end of its service life. The annual operating, maintenance and replacement costs of the project are shown in Table-1.3.

Table-1.3 Annual Operation, Maintenance and Replacement Costs

(Unit: US$1000)

Dam & Reservoir	25
Power Plant & Transmission Facilities	150
Irrigation Facilities	110
Domestic & Industrial Water	15
General Expense (Administration, Overhead, etc.)	35
Total Annual Costs	335

The separable costs of the various purposes are shown in Table-1.4.

Table-1.4 Separable Costs

(Unit: US$1000)

Cost Items	Flood Control	Irrigation	Power	Domestic & Industrial Water	Fisheries	Navigation
Construction Costs						
Entire Project	39,500	39,500	39,500	39,500	39,500	39,500
Cost with Purpose Excluded	31,500	32,700	32,800	37,900	39,500	39,500
Separable Cost of Purpose	8,000	6,800	6,700	1,600	0	0
Annual Costs						
Entire Project	335	335	335	335	335	335
Cost with Purpose Excluded	330	215	185	320	335	335
Separable Cost of Purpose	5	120	150	15	0	0

For use in this illustration of cost allocation, estimates of the cost of single purpose alternates were prepared for the flood control, irrigation, power and domestic and industrial water purposes. These alternatives represent the most likely installations which would be built in the absence of the project and which would produce benefits equivalent to those produced by the project. In the case of flood control, irrigation and municipal and domestic water, the major feature of each alternative is a single purpose reservoir. In the case of power the alternative is a thermal plant with the same capability and production as the project plant. The power benefits produced by the project are also the cost of power produced by the alternative, so in this instance the capitalized benefits and alternative cost are identical. No reasonable alternatives are considered possible for fisheries and navigation purposes. The cost of the single purpose alternatives is shown in Table-1.5.

Table-1.5 Construction Cost of Single Purpose Alternatives

(Unit: US$1000)

Flood Control	20,000
Irrigation	28,800
Power	12,622
Domestic & Industrial Water	15,600

In the example allocation presented in exhibit 1, construction costs and annual operation maintenance and replacement costs are allocated concurrently. If other items of annual cost such as taxes, etc., are considered appropriate they can be included in the same manner. In the example, in order to place all items on the same time level, the average annual benefits and annual operation, maintenance and replacement costs have been capitalized (converted to a lump sum by dividing by the "capital recovery factor" for 4½% interest over 100 years) for comparison with the construction costs. The interest rate is arbitrary and the time period represents the assumed useful life of the project. An equally acceptable procedure which would yield the same results would be to use the average annual benefits and annual costs with an annual equivalent of the construction costs.

Table-1.6 Summary of Cost Allocation Separable Costs - Remaining Benefits Method

	Item	Flood Control	Irrigation	Power	Domestic & Industrial Water	Fisheries	Navigation	Total
1.	Costs to be Allocated							46,853
	a. Construction Cost							39,500
	b. Operation, Maintenance & Replacement Costs (Capitalized)							7,353
2.	Justifiable Expenditure (Capitalized Benefit)	10,975	54,875	12,622	16,462	1,975	2,195	99,104
3.	Alternative Costs	20,000	28,800	12,622	15,600	-	-	-
4.	Justifiable Expenditure	10,975	28,800	12,622	15,600	1,975	2,195	72,167
5.	Separable Costs	8,110	9,434	9,992	1,929	-	-	29,465
	a. Construction Cost	8,000	6,800	6,700	1,600	-	-	23,100
	b. Operation, Maintenance & Replacement Costs (Capitalized)	110	2,634	3,292	329	-	-	6,365
6.	Remaining Justifiable Expenditure	2,865	19,366	2,630	13,671	1,975	2,195	42,702
7.	Per Cent Distribution	6.7	45.4	6.2	32.0	4.6	5.1	100
8.	Remaining Joint Costs	1,167	7,886	1,071	5,567	804	894	17,388
	a. Construction Cost	1,100	7,438	1,010	5,250	759	843	16,400
	b. Operation, Maintenance & Replacement Costs	66	448	61	316	46	51	988
9.	Total Allocated Cost	9,277	17,320	11,063	7,496	804	894	46,853
	a. Construction Cost	9,100	14,238	7,710	6,850	759	843	39,500
	b. Operation, Maintenance & Replacement Costs	176	3,082	3,353	646	46	51	7,353
10.	Annual Operation, Maintenance and Replacement Costs	8	140	153	29	2	2	335

Source: Manual of Standards and Criteria for Planning Water Resource Projects, Water Resources Series No.25, United Nations

Note: Line 1. Shows total cost to be allocated composed of: (a) total construction costs and (b) total annual costs, capitalized at 4.5% over a period of 100 years.
Line 2. Shows the benefits given in Table 2 capitalized at 4.5% over 100 years.
Line 3. Shows the cost of single purpose alternatives given in Table 5.
Line 4. Justifiable expenditure is the lesser of line 2 and 3.
Line 5. The separable costs given in Table 4 composed of: (a) separable construction costs and (b) separable annual operation, maintenance and replacement costs capitalized at 4.5% over 100 years.
Line 6. Remaining justifiable expenditure is the remainder after subtracting line 5 from line 4.
Line 7. The percentage distribution of line 6 (column 8) into its component parts (column 2 to 7).
Line 8. Remaining joint costs distributed according to percentages shown in line 7. The total joint cost shown in column 8 is the difference between the total separable cost (line 5 column 8) and the total cost to be allocated (line 1 column 8)
Line 9. Total allocated cost is the sum of the separable costs (line 5) and the allocated joint costs (line 8)
Line 10. Average annual operation, maintenance and replacement costs as allocated to the various project purposes.

APPENDIX-2

Laws and Regulations related to Water Resources Conservation

Appendix-2 Laws and Regulations related to Water Resources Conservation

1. Water Code

The Water Code, Decree 24643, July 10, 1934 stipulates general rules on the ownership of water of rivers, lakes and those of underground, as well as riverbeds and the marginal lands along the water. Those provisions on ownership, however, have been replaced by the new constitution as mentioned below. The Code also gives general stipulation on the concession, authorization or permission of water use and the obligations of the title holders.

Derivation of public water requires concession, authorization or permission, provided that the water use for the first necessity of life is free in case that the access to the water is lawful (Water Code, Art. 43).

The Water Code classifies water rights into the following two types:

- Concession; destined for public utility
- Authorization; in case of use other than public utility

The Code gives the highest priority in use of any water for the first necessity of life with free. The easement for the access to this type of use is also assured when compensated for the damage cased by the passage and when no other way without much difficulty is envisaged.

The second priority is, in normal situation, given to navigation when it is commercial one. The Code also gives many provisions are prescribed for the regulation and the administration of the hydro-power sector by the federal authority.

Water use for public utility has also a priority by a concession, compared to other types of use, such as agricultural and industrial use granted by an authorization. The concession or authorization does not confer any delegation of public water nor right to third parties but only the permission to use water for purpose and amount in a fixed term prescribed in the grants.

The Code allows the grants of water uses, at longest for 30 years, and will become ineffective in case no use occurs in certain consecutive years.

The Water Code prohibits degrading or contaminating waters by discharging effluent.. The Code orders the entity who causes the nuisance to take remedial activities at the polluter's expense and to compensate for the loss or damage caused by the effluent discharge.

2. Constitution of the Federative Republic of Brazil

The Federal Constitution of 1988 has one chapter for provisions on environment (Chapter VI). The Constitution allows all nations to have the right to possess an ecological balanced environment, which is an asset of common use and essential to health and quality of life. The Government and the community shall have the duty to defend and preserve the environment for present and future generations (Art. 225). In order to ensure the effectiveness of the right, it is Incumbent upon he Government to,

I. preserve and restore the essential ecological processes and provide for ecological treatment of species and ecosystems (I, Para. 1);

II. preserve the diversity and integrity of the genetic patrimony of the country and to control entities engaged in research and manipulation of genetic materials (II);

III. define, in all units of the Federation, territorial spaces and their components which are to receive special protection, any alternation suppressions being allowed only by means of law, and any use which may harm the integrity of the attributes which justify their protection being forbidden (III);

IV. demand, in the manner prescribed by law, a prior environmental impact study, which shall be made public, for the installation of works and activities which may potentially cause significant degradation of the environment (IV);

V. control the production, sale and use of techniques, methods or substances which represent a risk to life, the quality of life and the environment (V);

VI. promote environment education in all school levels and public awareness of the need to preserve the environment (VI);

VII. protect the fauna and the flora, with prohibition, in the manner prescribed by law, of all practices which represent a risk to their ecological function, cause the extinction of species or subject animals to cruelty (VII).

The Constitution requires those who exploit mineral resources to restore the degraded environment, in accordance with technical solutions demanded by the competent public agency, as provided by law (Pare. 2). Procedures and activities considered as harmful to the environment shall subject the infractors (violators), be they individuals or legal entities, to penal and administrative sanctions, without prejudice to the obligations to repair the damages caused (Pare. 3).

The --- Atlantic Forest, the "Serra do Mar" --- and the coastal zone are parts of national patrimony, and they shall be used, as provided by law, under conditions which ensure the preservation of the environment, there included the use of mineral resources (Pare 4). The unoccupied lands or lands seized by the States through discriminatory actions which are necessary to protect the natural ecosystems are inalienable.

The Constitution provides general principles of the economic activity in the Chapter I. The economic order, founded on the appreciation of human work and on free enterprise, is intended to ensure everyone a life with dignity, in accordance with the dictates of social justice, with due regards to the following principles (Art. 170);

I. national sovereignty

II. private property

III. the social function of property

IV. free consumption

V. consumer protection

VI. environment protection

VII. reduction of regional and social differences

VIII. pursuit of full employment

IX. preferential treatment for small Brazilian enterprises of national capital

Free exercise of any economic activity is ensured to everyone, regardless of authorization from government agencies, except in the cases set forth by law (Single Para.).

3. National Environment Policy

Based on the Section VI and VII of Article 23, and Article 225 of the Federal Constitution, the Law No. 6938, on 31st of August 1981, establishes the National Environment Policy, its objectives, mechanism of formulation and application, constitutes the National Environment System, and introduces Environmental Defense Registry (Art. 1).

The National Environment Policy has established taking into account of the following principles (Art. 2):

I. government actions in maintenance of ecological balance, considering the environment as a public property necessary to be assured and protected, keeping in mind collective use;

II. rationalizing the use of soil, underground, water and air;

III. planning and supervising use of environmental resources;

IV. protection of ecosystems with preservation of representative areas;

V. controlling and zoning of potentially or effectively polluting activities;

VI. incentives for studies and researches of technology oriented to rational use and protection of environment resources;

VII. keeping up with the conditions of environmental quality;

VIII. recovery of degraded areas;

IX. protection of areas threatened to be degraded;

X. environmental education at all teaching level including community education, aiming at enabling active participation in environmental defense;

The objectives of the Policy shall be the followings (Art. 4):

I. to make socio-economic development compatible with preservation of environmental quality and ecological balance;

II. to define priority areas for government actions related to the quality and the ecological balance, corresponding to the interest of the Union (Federal Republic), the States, the Federal District and the Municipalities;

III. to establish criteria and standards on environmental quality, and norms related to use and management of environmental resources;

IV. to develop researches for national technology oriented to rational use of environmental resources;

V. to diffuse technology for environment management, to publicize data and information on environment, and to form public conscience about the necessity of preservation of environmental quality and ecological balance;

VI. to preserve and restore environmental resources, aiming at the rational use and permanent availability together with maintenance of ecological balance necessary for well being.

VII. to impose on polluter and offender obligations to recover and/or to indemnify the damage caused, and on users contribution for the use of the environmental resources for economic purposes:

The Relational Environment System has been constituted to implement the Policy, allocating responsibilities to the Union, the States and the Municipalities as follows (Art. 6)

I. Superior Organ: the Governmental Council, with the function of advisory to the President of the Republic in formulation of the national policy and governmental guidelines for the environment and environmental resources;

II. Deliberative and Consultative Organ: The National Council of Environment, CONAMA, with the objectives of advisory, study and proposal to the Governmental Council guidelines of governmental policies for the environment and natural resources, deliberating to the extent of its competence on norms and standards compatible with ecologically balanced environment and essential to the healthy quality of life;

III. Central Organ: the State Secretariat of the Republic Presidency, with objectives of planning, coordinating, supervising and controlling, as a federal organ, the national policy and the direction of governmental performances for the environment;

IV. Executing Organ: the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), with objectives of executing directly or indirectly, as a federal organ, the national policy and governmental guidelines set up for the environment;

V. Sector Organs: the organs or integrated entities of federal administration, directly and indirectly, as well as Foundations established by the Public Power, whose activities are associated with protection of environmental quality and those for disciplining use of environmental resources;

VI. Section Organs: the organs of States' entities, responsible for execution of programs, projects and control, and for inspection of activities capable to provoke environmental degradation;

VII. Local Organs: the organs of Municipal entities, responsible for control and inspection of these activities under their respective jurisdictions;

The States, in the spheres of their competencies and in the areas of their jurisdictions, will elaborate in supplemental norms and complements, and standards related to the environment, observing those established by the CONAMA (Sec. 1, Art. 6). The Municipalities, observing the Federal and the State norms or standards, may also elaborate norms mentioned in the previous paragraph (Sec. 2).

The Central, Sector, Section and Local Organs mentioned in the above, are obliged to provide the results of accomplished analyses and their bases when requested by legitimately interesting person (Sec. 3).

The instruments for execution the National Environmental Policy are as follow (Art. 9):

I. establishment of environmental quality standards;

II. environmental zoning;

III. environmental impact assessment;

IV. licensing and revising of effectively or potentially polluting activities;

V. incentives for production and installation of equipment, and creation and absorption of technology, in view of improvement of environmental quality;

VI. creation of territorial spaces, especially those to be protected by the Federal, States' or Municipal Public Power, such as areas of environmental protection, of relevance to ecological interest and (extrativistas) reserves;

VII. national information system on environment

VIII. Federal Technical Registry of activities and instrument of environmental defense;

IX. disciplinary or compensatory penalties for disobedience and necessary measures for preservation and correction of degraded environment;

X. instituting Environmental Quality Report to be published annually by Brazilian Institute Environment and Renewable Natural Resources-IBAMA

XI. guaranteeing presentation of information related to environment, to be obliged for the Public Power, when not existing;

XII. Federal Technical Registry on potentially polluting activities and utilization of environmental resources;

Applications for licensing, their renewals and respective concessions shall be published in official gazette of the State, as well as in a regional or local periodic of large circulation. In cases and times foreseen in the CONAMA's resolution, licensing will be depend on the approval of the IBAMA. The State organ of environment and the IBAMA, being in supplementary character, if necessary and without prejudice of appropriate pecuniary penalties, can determine reduction of activities that generate pollution in order to maintain gas emission, liquid effluent, and solid waste disposal within the conditions and limits stipulated in the conceded license. The IBAMA is competent for the licensing of activities with significant environmental impact of national or regional interest (Art. 10).

The IBAMA is also competent to propose norms and standards to the CONAMA for implementation, following and inspection of the licensing except those originated by the CONAMA. Inspection and control of application of criteria, norms and standards, including analyses of projects of public or private entity which might affect the environment aiming at preservation and recovery of environmental resources which might be affected through plundering and polluting exploitation, shall be executed by the IBAMA, in supplemental character to implementation of State and Municipal competence (Art. 11).

Without prejudice of the penalties by the Federal, State of Municipal legislation, the violator shall subject to:

I. daily or simple fine corresponding to its importance, in case double imposition is not prohibited by a regulation

II. loss or restriction of incentives or fiscal benefits granted by the public power

III. loss or suspension of participation in official financing or credits

IV. suspension of its activities

The polluter is obliged to compensate or repair the harm or damage caused to the environment and to a third party. In case the State or Municipal authority does not exist, the Federal Secretary is due to execute the penalty (Art. 14).

A registry system shall be established under the administration of the IBAMA of activities and entities for compulsory registry of individuals or juridical persons that dedicate technical consulting, as well as compulsory registry of physical or juridical persons that will potentially involved in polluting activities, or in extraction, production, transportation and business potentially dangerous to the environment.

The Federal Decree No. 99274, June 6, 1990, gives stipulation for the execution of the National Environment Policy, assigning the responsibilities of the CONAMA and the IBAMA as given in the next chapter.

4. Resolution of the CONAMA No. 20, on Water Quality and Effluent Standards

Resolution of the CONAMA No. 20, 18th of June 1986, classifies water as follows (Art. 1):

1) Fresh Water
   * Special Class - water destined for;
     a) domestic water supply without previous disinfection or with simple disinfection
     b) preservation of natural balance of aquatic communities
   * Class 1 - water destined for;
     a) domestic water supply after simple treatment
     b) protection of aquatic communities
     c) recreation of primary contact (swimming, water ski, and diving)
     d) irrigation for vegetable consumed in raw and fruits growing in contact with soil, consumed in raw and with peel
     e) natural or intensive breeding of species for human consumption (aquaculture)
   * Class 2 - water destined for;
     a) domestic supply after conventional treatment
     b) protection of aquatic communities
     c) recreation of primary contact (water ski, swimming and diving)
     d) irrigation for vegetable and fruits-bearing plants
     e) natural or intensive breeding of species for human consumption (aquaculture)

* Class 3 - water destined for;
  a) domestic supply after conventional treatment
  b) irrigation for arboreal or cereal crops for forage
  c) animal breeding

* Class 4 - water destined for;
  a) navigation
  b) landscape harmony
  c) insignificant use

2) Saline Water
   * Class 5
   * Class 6

3) Brackish Water
   * Class 7
   * Class 8

The effluents of any polluting source can only be discharged into the waters, directly or indirectly, only if the conditions are met with the conditions stipulated in Art. 21.

The dilution of industrial effluents with non-polluted waters will not be permitted, such as in water supply, seawater and refrigerating water. In the case that a pollutant source generates different wastes or discharge, the limits within this Resolution will be applied to each of them or to the whole set after the mixture, to the criteria of each of the competent authorities (Art. 22).

The effluents could not confer to the receptive body, characteristics which do not agree with the classification of this Resolution. Under the quality standards of the receptive body, demonstrated through the environmental impact assessment carried out by the entity responsible for the waste water, the competent authority can authorize waste discharging above the limits established in the Article 21, thus fixing the type of treatment and the discharging criteria (Art. 23).

The methods of water collection and analysis must be specified in the regulations approved by the National Institute of Meteorology, Normalization and Industrial Quality - INMETRO or, in their absence, the Standard Methods for the Examination of Water and Wastewater APAHA-AWWA-WPC:F, last edition. The phenol must be determined according to the method 510B of Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985.

5. Resolution of the CONAMA No.001, on Report of Environment Impact Assessment

The Resolution of the CONAMA No. 001, 23rd of January 1986, with some alternation by the CONAMA's Resolution No. 011 and a IBAMA's Regulation, stipulates on the definitions, responsibilities, the basic criteria and general directions of the environmental impact assessment (Art. 1).

A Report of Environmental Impact (RIMA-relatorio de impact ambiental) shall be submitted to the approval of the responsible State organ and of the SEMA (National Secretariat) at the following establishment or commencement of activities, in addition to the relevant licenses required in other legislation (Art. 2).

.....

III. ports and mineral, petroleum, and chemical products terminal

.....

V. oil, gas or mineral pipelines, and pipelines for collection or distribution of sewage

VI. electrical energy transmission lines, above 230 kV

VII. works for exploitation of water resources, such as dams for hydroelectric aims over 10 MW, for sanitation (water supply) or irrigation, opening of navigation canal, improvement of water courses, dikes, etc.

.....

X. sanitary landfilling, treatment or final disposal of toxic or dangerous waste

XI. electricity generating plants whatever the source of primary energy, over 10 NEW

XII. industrial and agro-industrial complexes or units (petrochemical, metallurgy, alcohol distillery, coal, extraction and cultivation of water resources)

XIII. industrial districts and strictly industrial zones (ZEI-zonas estritamente industrials)

XIV. economic exploitation of wood or fuel wood in the areas larger than 100 ha or smaller in case of significant portion of importance from environmental point of view

XV. urban development project over 100 ha or in designated areas with environmental interests by the competent Municipal, State or SEMA (National).

XVI. any activities that utilize charcoal or derived or similar products in quantity more than 10 ton/day

XVII. agricultural and livestock projects in areas larger than 1,000 ha or smaller in case of significant portion of importance from environmental point of view, including areas of environment protection

.....

The environmental impact study at least includes the following technical activities (Art. 6):

I. environmental diagnosis of the influenced area of the project, with a complete description and analysis of the environmental resources and their interactions to characterize the environmental situation of the area before the implementation of the project, regarding;

a) physical environment - the underground, the waters, the air, and the climate, pointing out the mineral resources, the topography, the types and aptness of the soil, the water bodies, the hydrological regime, the marine current and the atmospheric current

b) the biological environment and the natural eco-system - the fauna and flora, pointing out indicative species of the environment quality, the scientific and economic values, rare and threatened species and the areas of permanent preservation

c) social and economic environment - the use and occupation of lands, use of water and socio-economic conditions, pointing out the archeological sites, the archeological, historical, and cultural monuments of the community, the relations and dependence among local communities, the environmental resources and future potential utilization of these resources

II. analysis of environmental impacts of the projects and of alternatives, through the identification and prediction of the magnitude, and interpretation of the importance of the probable relevant impacts, listing: the positive and negative (benefiting and adverse), direct and indirect, immediate and in a medium and long term, and temporary and permanent impacts; their degree and reversibility, their cumulative and synergic properties; the distribution of the social obligation, charges and benefits

III. identification of the measures to rescue the negative impacts, equipment of control and system for waste treatment, evaluating each efficiency

IV. elaboration of the program for follow-up and monitoring of the positive and negative impacts, indicating factors and parameters to be considered

By determining the execution of the environmental impact assessment study, the competent State, SEMA (National) or the Municipality will furnish additional instruction, whenever deemed necessary, according to the peculiarities of the project and environmental characteristics of the area (Single Para., Art. 6). All the costs incurred in the study shall be born by the person (physical or juridical) who proposes the project (Art. 8).

The RIMA shall contain at least (Art. 9):

I. objective and justification of the project, compatibility with the sectoral policy and governmental plans

II. description of the projects and its alternative, concerning technology and location, specifying phases of construction, areas of influence, raw material, labor, sources of energy, process and operational techniques, probable effluent, emission, energy residue, direct and indirect employment generation

III. synthesis of the result of the study and environmental diagnosis

IV. description of the probable environmental impacts of implementation and operation of the activities considering the project, its alternatives and the time limits of impacts, indicating methods, techniques and criteria adopted for their identification, quantification and interpretation

V. characteristics of future environmental quality of the influenced area comparing the differences with and without project or with alternatives

VI. description of expected effects of the mitigating measures related to the negative

impacts, mentioning those cannot be avoided and degree of alteration expected

VII. follow-up and monitoring programs

VIII. recommendations concerning the most favorable alternative

The RIMA shall be presented in objective form and adequate for understanding in accessible language, illustrated with maps, charts, tables and other visual techniques for communication so that advantages and disadvantages of the project are clarified (Single Para. Art. 9)

The competent State organ, SEMA (National) or the Municipality, whenever concerns, will have a term to manifest itself in a conclusive form about the RIMA (Art. 10). The RIMA shall be accessible to the public, respecting industrial secrecy. The competent State organ, SEMA (National) or the Municipality, whenever concerns, will have a term to receive the comments made by public organs concerned or shall promote public inquiry, when deemed necessary.

6. Law No. 7803 on Control of Toxic Agricultural Chemicals

The Federal Law No. 7803, 11th of July 1989 rules on research, development, production, packaging, labeling, storing, marketing, advertising, utilization, import, export and final disposal of residues of toxic agricultural chemicals, its components and similar products (agrotoxics), as well as their registry, classification, control and surveillance (Art. 1).

The Law requires prior registry for production, export, import, selling and usage of agro toxics, in accordance with the guidelines and requirements of the relevant federal agencies, which may grant permission of the circulation or use when the agro toxic is proved to be equally or less harmful to human beings and to the environment than the existing ones. A temporary registry is established for research and development of agro toxics with applicant's or permit holder's obligation to submit updated information to the Federal Government, which shall take immediate action when international organizations advise existence of risks. The registrations of the following types of agro toxics are forbidden (Art. 3):

a) to which Brazil does not have methods for deactivating or preventing remaining residue
b) to which effective antidote or treatment cannot be attained in Brazil
c) which reveals teratogenic, cancerogenic or mutagenic characteristics according to experiments carried out by the scientific community
d) which causes hormonal disturbance, damages to reproduction system according to experiments carried out by the scientific community
e) which might reveals to be more dangerous for human beings than the laboratory tests according to technical and scientific criteria
f) characteristics are environmentally hazardous

Persons or companies who provide, import, export or sell agro toxics are obliged to file for the registration to the responsible State or Municipal agencies, of which summary shall be published in the Official Daily Bulletin of the Federal Government. Regulations will establish the conditions for the process of registration, suspension or canceling,

determining the closing time of examination of regulating entity not exceeding 90 days after publication of the registration. Professional institutes, political parties representing the National Congress or legally constituted institutes to represent various interests related to the consumer, environment and natural resources are eligible to cancel or suspend the registration (Art. 5).

The packaging of agro toxics shall be made in such ways to prevent from leakage, evaporation and altering its contents with materials not susceptible and with sufficient strength (Art. 6). The Law gives detail provision on labeling of agro toxics for selling or display for sale, indicating manners and mandatory contents, such as identification of the products, instruction for storing and use, potential dangers, and recommendations to users to read the label, and limits for non mandatory information (Art. 7). The Law also provided obligations in advertising of agro toxics (Art. 8).

The Federal Government will be in charge of regulation of the production, registration, interstate marketing, export, transport, classification, technological control, surveillance of producing enterprises imports and export, and analysis of international agro toxics, while the States are responsible for ruling on the use, production, consumption, marketing, and surveillance of the use, consumption, marketing, storage and domestic transportation, and the Municipalities is complementarily in charge of control of the use and storage (Art. 9-11).

The agro toxics shall be sold to users through a prescription issued by legally qualified professionals, who is responsible for proper and accurate prescription (Art. 14). The executive powers of the governments shall carry out instructing, divulging and clarifying actions to promote or stimulate the safe and efficient use, aiming at reducing harmful effects on human beings and on the environment and at prevention of accidents caused by the misuse (Art. 19).

APPENDIX-3

Goals of Institutional Development of the Water Resources Sector for PROAGUA in Sergipe State

Appendix-3 Goals of Institutional Development of the Water Resources Sector for PROAGUA in Sergipe State

Activities in the Years	YEARS				
	1	2	3	4	5
Establishment of the UEGP linked to SRH	O				
Preparation of the first POA by the UEGP	O				
Creation of the Water Resources Secretariat – SRH		O			
Payment of raw water for urban and industrial usage			E		
Payment of raw water for agricultural usage					E
Review of the State Law taking into consideration the Federal Law		E			
SRH will have Staff Team necessary for managing the State water resources			E		
Management Contract between SRH and the State			E		
Implementation of Committees in at least two basins of state rivers				E	
Participation of the São Francisco River Basin Committee – Federal Government			E		
Implementation of supporting system for the management of the water resources in two river basins				E	
Implementation of river basin committees, in case of local interest	E	E	E	E	E
Support of SRH in the implementation of Water Users Associations, in case of local interest	E	E	E	E	E
Implementation of the correct water register			O		
Implementation of the hydraulic constructions register along the rivers			O		
Establishment of procedures, of legal state, between SRH and the State for granting of intake and dilution of effluents					O
Establishment of a formal agreement between the State and the Federal Government, for the implementation of an operation and maintenance system of other existing hydraulic structures				O	
Repair of dams and other hydraulic structures relevant to the State Government, which need to be repaired					O
Program of maintenance for dams and other hydraulic structures relevant to the State Government and the Federal Government					O
Review of State Plan of Water Resources			E		
Conclusion of feasibility and basic project studies, totaling the implementation of at least US$ 30 million, aiming to increase the water availability				E	
Project of review of the hydro meteorological network		E			
Implementation and review of the hydro meteorological network					O

Source: Operation Manual, Volume II, PROAGUA/Semi-arido, April 1998, MMARHAL
Remark: O – Obligation E – Expected

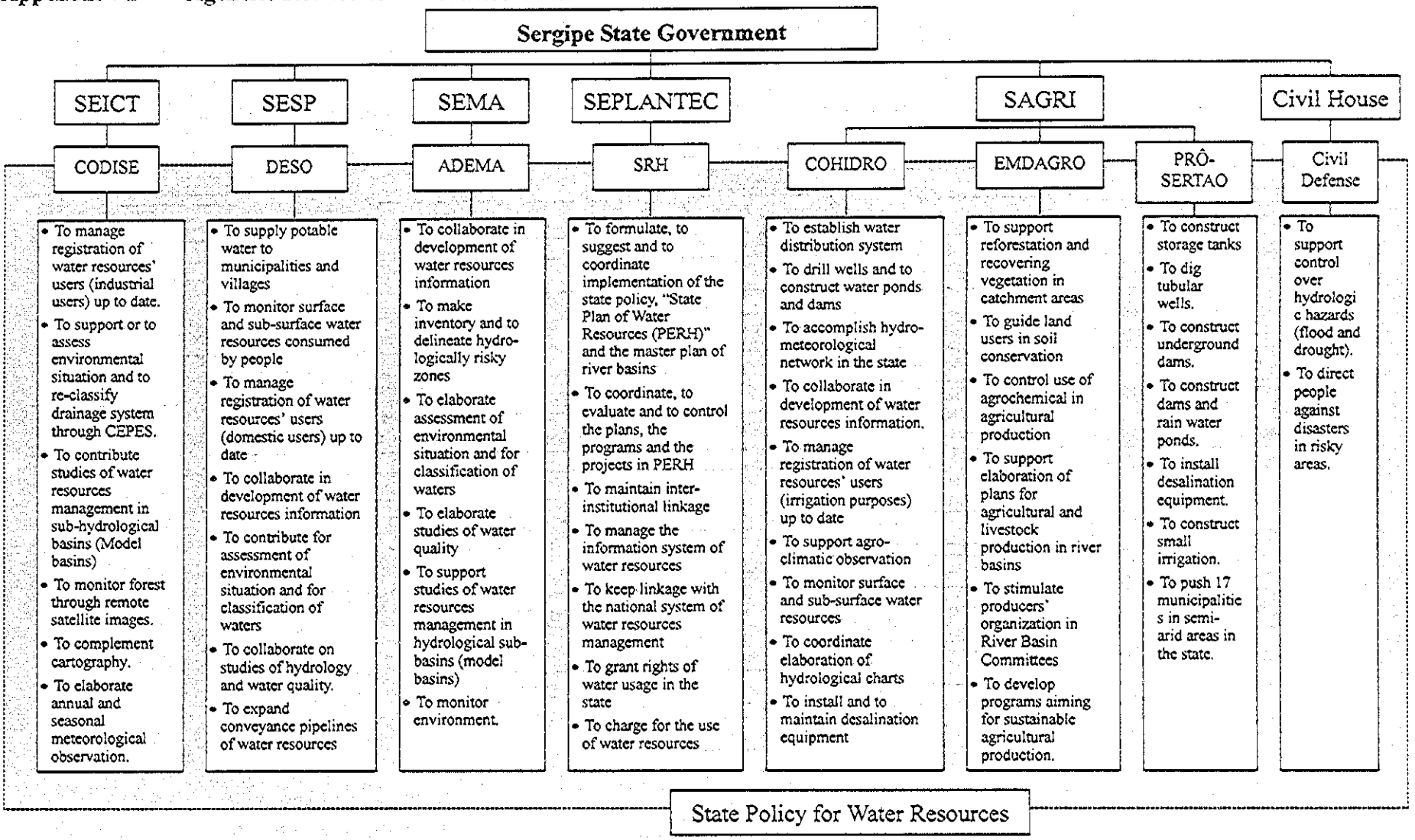
APPENDIX-4

Organizational Diagrams

Appendix 4 Organizational Diagrams

Appendix 4-1 Organization Diagram of Sergipe State Government

Appendix 4-2 Agencies Related to Water Resources



APPENDIX-5

Comparison of Water Resources Policy in National and Sergipe State

Appendix-5 Comparison of Water Resources Policy in National and Sergipe State

No.	National Policy of Water Resource (Law No.9433 on Jan. 8, 1997)	No.	State Policy of Water Resource (Law No.3870 on Sept. 25, 1997)
Title 1	National Policy of Water Resources	Title 1	State Policy of Water Resources
Chapter 1	Fundamentals	Chapter 1	Fundamentals
Article 1	Principles of the national policy I. Water is a good under the public domain. II. Water is a limited natural resource, having an economic value. III. Priority of water use is given to human and natural animal. IV. Multiple uses of water are provided to water resources management (WRM). V. River basin is a unit for planning of water resources. VI. WRM is decentralized and includes the public, users and community.	Article 1	Ditto
Chapter 2	Aims	Chapter 2	Aims
Article 2	I. To ensure water availability for users with an appropriate quality and enough quantity. II. To utilize water resources with ration and integration. III. To prevent from critical hydrological events and to defend against an inappropriate usage.	Article 2	Ditto
Chapter 3	Principles of Action	Chapter 3	Principles of Action
Article 3	I. To manage water resources of adequate quantity and quality. II. To adopt WRM to fiscal, biotic, demographic, economic, social and cultural issues. III. To integrate WRM with environmental management. IV. To link WRM between users and planning sectors. V. To link WRM with land use VI. To adopt river basin management with systems of river mouth and coastal zone.	Article 3	Ditto except II
Article 4	Union will link with States in WRM.	Article 4	State will link with Municipalities in WRM.
Chapter 4	Instruments	Chapter 4	Instruments
Article 5	I. Water resources plan II. Classification of waters III. Grant of water rights IV. Charge to water resources use V. Compensation to municipalities VI. Information system of water resources	Article 5	Ditto except V.

Section 1	Water Resources Plan	Section 1	State Plan of Water Resources
Article 6	The Plan is a master plan to guide NPWR and WRM.	-	-
Article 7	I. Assessment of water resources' present conditions	Article 6	Ditto
	II. Analysis of demographic growth, trend of production activities and change of land use patterns		
	III. Water balance between water potential and water demand under quality and quantity consideration		
	IV. Goals of rationalized water use, increment of water volume and improvement of water quality		
	V. Measures, programs and projects to realize the goals		
	VI. Priority of water rights on water resources use		
	VII. Guides and criteria of charging to water resources use		
	VIII. Proposals of areas where water use is restricted under consideration of water resources conservation.		
Article 8	The plan is drawn up for river basins, for state and for the country.	Article 7	The Plan is approved by law and regulated by decree.
Section 2	Classification of Waters	Section 2	Classification of Waters
Article 9	I. To ensure water quality compatible with more demanding usage	Article 8	Ditto
	II. To reduce water pollution control costs through permanent prevenive actions		
Article 10	Classification of waters is established by environmental legislation.	Article 9	Ditto
-	-	Section 3	State Fund of Water Resources (FUNERH)
-	-	Article 10	Water resources state fund (FUNERH) is created, for which SEPLANTEC is responsible in management of administrative, budgetary, and financial and facility operation.
		Article 11	FUNERH is a tool for implementation of WRSP
-	-	Article 12	Financial Sources of FUNERH
-	-		I. Fund from state and municipalities through legal disposition
			II. Resources from Union, states and municipalities having mutual interest in WRSP.
			III. Financial compensation from hydroelectric usage in the territory
			IV. Part of financial compensation from oil, natural gas and other mineral resources exploration
			V. Budget obtained from charges of water resources
			VI. Loans and resources from national and international co-operation
			VII. Income from making use of the fund

			VIII. Tariffs and taxes charged to beneficiaries of water rights IX. Financial resources from other origins
-	-	Article 13	FUNERH is applied to the following activities: I. Financing to public and private institutions which work for water development, conservation, rational usage, control over surface and ground water II. Programs of research, technologic development and training of human resources for WRM
-	-	Article 14	FUNERH is deposited in Banco de Sergipe (BANESE), except by the legal exemptions or regulation cases.
-	-	Article 15	FUNERH's program obeys the disposition in the law and technical-legal criteria used and related to budget and financial management.
-	-	Article 16	FUNERH is regulated through the executive power decree.
Section 3	Water Rights	Section 4	Water Rights
Article 11	Granting of water right is to ensure control of quality and quantity for water users and to give water access right.	Article 17	Ditto
Article 12	Public power grants the water rights to the following usage: I. Water use taking from waters, such as for water supply and for production process II. Water use taking from ground aquifer III. Discharge of sewage and other liquid into waters IV. Hydroelectric potential usage V. Other usage which changes water structure, quantity and quality in waters Excluding the following water users from grants of water right: I. Water use for small population in rural areas II. Water intake considered as insignificant III. Accumulation of consuming water volume considered as insignificant IV. Hydropower generation approved in the article 35-VIII	Article 18	Ditto
Article 13	The grant of water right is based on the priority set in WRNP and is considered to keep maintenance flow of waters and navigation, if that is the case.	Article 19	Ditto
Article 14	The grant is given by authority act of federal power, state power or federal district power. The federal power can transfer to the state power and the federal district power.	Article 20	The grant is given by authority act of the state power.
Article 15	The grant of water right is partially or totally suspended in the following circumstance:	Article 21	Ditto

	I. Unfulfilment of the terms by the grant II. Absence of usage for three consecutive years III. Urgent water need to assist calamity situation, including the one derived from unusual climatic conditions IV. Necessity to prevent serious environmental degradation V. Necessity to attend priority usage, to which there are no alternative means VI. Necessity to maintain navigation characteristics in the waters		
Article 16	The water right is renewed within 35 years.	Article 22	Ditto
Article 17	(Vetoed)	-	-
Article 18	The water right is granted to the simple right of its usage, and is not alienated to other usage.	Article 23	Ditto
Section 4	Charge for Water Resources Use	Section 5	Charge for Water Resources Use
Article 19	Purposes of the charge for water resources use: I. To recognize water as an economic good and to show value of water to users II. To give incentive of rational usage of water to users III. To obtain financial resources for WRNP	Article 24	Ditto
Article 20	The water resource users granted on the basis of Article 12 are charged for water resources use.	Article 25	The water resource users granted on the basis of Article 18 are charged for water resources use.
Article 21	The following items have to be considered to determine the value of water resources charge: I. In the case of extraction of water, total volume and rate of flow variation II. In the case of sewage and liquid disposal, total volume, flow variation and physico-chemical, biological and toxic characteristics	Article 26	Ditto
Article 22	The fund collected through charges of water resources use is mainly used for the following events in the said river basin: I. For studies, programs, projects and construction in WRM II. For implementation and administration of WRM (less than 7.5% of the total fund collected)	Article 27	Ditto
Article 23	(Vetoed)	-	-
Section 5	Compensation to Municipalities	-	-
Article 24	(Vetoed)	-	-
Section 6	Information System of Water Resources	Section 6	Information System of Water Resources
Article 25	The information system is formed of collection, treatment, storage and restoration of water resources information and management	Article 28	Ditto

	factors.		
Article 26	The basic principles are: I. Decentralization of collection and production of data and information II. Coordination unified in the system III. Accessibility to data and information for whole societies	Article 29	Ditto
Article 27	The purposes are: I. To unite, to organize and to disclose data and information about qualitative and quantitative situation of water resources II. To bring information up to date about potential and demand of water resources III. To give subsidies to WRNP	Article 30	Ditto
Chapter 5 Article 28	Cost Sharing (Vetoed)	- -	- -
Chapter 6 Article 29	Activities of Public Powers The roles of federal executive power are: I. To establish and to function the National System of WRM II. To grant water resources use rights, and to regulate and to collect charges of water use III. To implant and to manage the information system of water resources in the national level IV. To promote management integration of water resources with environmental issues	Chapter 5 -	Activities of Public Powers -
Article 30	The roles of state and federal district are: I. To grant water resources use rights, and to regulate and to collect charges of water use II. To carry out technical control of water works III. To implant and to manage the information system of water resources in the state or federal district level IV. To promote management integration of water resources with environmental issues	Article 31	The roles of state executive power are: I. To establish and to function the State System of WRM II. To grant water resources use rights, and to regulate and to collect charges of water use III. To carry out technical control of water works IV. To implant and to manage the information system of water resources in the state level V. To promote management integration of water resources with environmental issues
Article 31	The executive powers of federal district and municipalities promote the integration of local policies regarding sanitation, usage, occupation and conservation of soil and environment with the national and state policies of water resources.	Article 32	The executive powers of state and municipalities promote the integration of local policies regarding sanitation, usage, occupation and conservation of soil and environment with the NPWR.
Title 1 Chapter 1	National System of Water Resources Management Aims and Compositions	Title 1 Chapter 1	State System of Water Resources Management Aims and Compositions

Article 32	The nation system of WRM is created for the following aims: I. To coordinate the integrated information of water II. To settle administratively conflicts related to water resource III. To implement NPWR IV. To plan, to regulate and to control usage of water resources V. To promote collection of charges of water resources use
Article 33	The following councils are organized to integrate the national system of WRM: I. National council of water resources II. State and federal district councils of water resources III. River basin committees IV. Organizations of federal, state, federal district and municipal powers for WRM V. Water agencies
Chapter 2	National Council of Water Resources
Article 34	The national council of water resources comprises: I. Representatives of ministries and secretaries of the republic president II. Representatives of the state councils of water resources III. Representatives of users of water resources IV. Representatives of civil organization of water resources The number of the representatives of federal executive power can not exceed a half of the total number of the council.

Article 33	The state system of WRM is created for the following aims: Ditto
Article 34	The following councils are organized to integrate the state system of WRM: I. State council of water resources (CONERH) II. River basin committees (RBCs) III. State secretariat of planning, science and technology (SEPLANTEC), managing agency IV. Organizations of federal, state and municipal agencies concerned to WRM V. Water agencies
Chapter 2	State Council of Water Resources
Article 35	The state council of water resources coordinate, inspect and deliberate water resources' issues and establish the state system of WRM. The council is responsible for: I. To promote to link the water resources plan with national, regional, state and users' sector plans II. To support implementation of WRSP and to make necessary measures to attain the targets III. To settle administratively conflicts among the state councils of water resources IV. To approve basin-wide plan of water resources extending over several basins V. To resolve issues filed with the river basin committees (RBCs) VI. To approve proposals of institution by the river basin committees and to establish general criteria of management VII. To analyze amendment proposals of legislation regarding water resources and of the SPWR VIII. To establish general criteria of water resources use right and collection of usage charges IX. To establish guidelines of SPWR, applying the state system of WRM X. To approve an annual report of water resources situation in Sergipe State

			XI. To disclose other topics related to water resources, which may be subjected to assessment in the future.
Article 35	Competence of the national council of water resources are: I. To promote to link the water resources plan with national, regional, state and users' sector plans II. To settle administratively conflicts among the state councils of water resources III. To approve basin-wide plan of water resources extending over several states IV. To resolve issues filed with state councils of water resources or water agencies V. To analyze amendment proposals of legislation regarding water resources and of the NPWR VI. To establish guidelines of NPWR, applying the national system of WRM VII. To approve proposals of institution by the river basin committees and to establish general criteria of management VIII. (Vetoed) IX. To support implementation of WRNP and to make necessary measures to attain the targets X. To establish general criteria of water resources use right and collection of usage charges	Article 36	The state council of water resources comprises: I. Representatives of state secretariat, of entities or public institutions regarding WRM or water resources users, of environmental protection, and of strategic planning for water resources II. Representative of municipalities of river basin III. Representatives of users of water resources, authorized legally IV. Representative of river basin committee (RBC) V. Representative of state secretary of public works VI. Representatives of state secretary of legislation VII. Representatives of civil organization of water resources
Article 36	The council is managed by: I. A president who will be the minister of MMARHAL II. An executive secretary who will be the person in charge of water resources in MMARHAL	Article 37	The council is managed by: I. A president who will be the secretary of SEPLANTEC II. An executive secretary who will be the person in charge of water resources in SEPLANTEC
Chapter 3	River Basin Committee	Chapter 3	River Basin Committee
Article 37	Areas covered by the committee: I. Total area of the river basin II. Sub-river basins of the main course III. Group of the main basin and sub-basins The institution of the committee under the Union's domain is effected by the Republic President's Act.	Article 38	Areas covered by the committee: Ditto The institution of the committee under the state's domain is effected by the State Governor's Act.
Article 38	Competence of the river basin committee is: I. To promote a debate on topics related to water resources and to argue intervention in entities' activities II. To settle administratively conflicts in terms of water resources	Article 39	Competence of the state river basin committee is: I. To promote a debate on topics related to water resources and to argue intervention in entities' activities II. To settle administratively conflicts in terms of water resources

	III. To approve a water resources plan in the basin IV. To promote to execute the basin's water resources plan and to make necessary measures to attain the targets V. To propose what a small user in terms of intake, conveyance, storage and dumping of water is exempted from obligation to get a water use right to both the national council and the state council of water resources VI. To establish charging mechanism of water resources use and to suggest values of charges VII.(Vetoed) VIII. (Vetoed) IX. To establish criteria and to promote to allocate cost of works for multiple use and mutual interest		III. To approve a water resources plan in the basin IV. To promote to execute the basin's water resources plan and to make necessary measures to attain the targets V. To establish charging mechanism of water resources use and to suggest values of charges VI. To assess and to approve an annual report of water resources situation in the river basin VII. To propose what a small user in terms of intake, conveyance, storage and dumping of water is exempted from obligation to get a water use right to both the national council and the state council of water resources VIII. To establish criteria and to promote to allocate cost of works for multiple use and mutual interest
Article 39	The river basin committee comprises: I. From the union II. From states and federal districts, of which territories are totally or partially involved in the basin III. From municipalities of which territories are totally or partially involved in the basin IV. From water users in the basin V. From civil entities related to water resources in the basin - The representatives for public powers of union, states, federal district and municipalities are limited to a half of the total members. - In the case that the territory of the basin includes a part of native lands, the following representatives are appended to the committee I. From Indian National Foundation (FUNAI) as a part of union representatives II. From the native communities related to the basin	Article 40	The committee composes representatives of agencies, public entities related to water resources, municipalities involved in the basin and water users in associations. - The decisions of the river basin committee could be realized on the second judgement by the state council of water resources. - Organization, responsibility and function of the committee are established in regulation in this law.
Article 40	The committee is managed by a president and a secretary, elected by the committee members.	Article 41	Ditto
Chapter 4	Water Agency	Chapter 4	Water Agency
Article 41	The water agencies are managed by an executive secretary or members of the river basin committees.	Article 42	Ditto
Article 42	The water agencies have the same acting areas as one or more river basin committees have. - The creation of water agency is authorized by the national council of water resources or the state councils of water resources, if it is solicited by one or more river basin committees.	Article 43	Ditto

Article 43	The creation of the water agency is subjected to the following conditions: I. The river basin committee has been created already. II. Financial viability is assured of the charging of water resources use in the basin areas.	Article 44	Ditto
Article 44	Competence of the water agency is: I. To maintain the balance of water resources in the basin II. To maintain registration records of water resources users III. To collect the charges of water resources use through delegation of the granter IV. To analyze and to utter opinions regarding projects and works to be financed by the charging of water resources use, and send them to the financial institution responsible for the administration of the water resources V. To promote the financial institution of the water resources to collect the charges of water resources use in the basin VI. To manage the information system of water resources in the basin VII. To hold conventions and to contract finance and services for execution of the competence VIII. To make the budget proposal and to submit its appraisal report to the river basin committee IX. To promote necessary researches for management of water resources in the basin X. To make water resources plan for appraisal by the river basin committee XI. To propose the following issues to the river basin committee a) Classification frame of waters by usage class for guidance to the national council or the state council of water resources b) Values charged to water resources use c) Application plan of financial resources collected through charging to water resources use d) Cost allocation of facilities for multiple use	Article 45	Competence of the water agency is: I. To maintain the balance of water resources in the basin II. To maintain registration records of water resources users III. To collect the charges of water resources use through delegation of the granter IV. To analyze and to utter opinions regarding projects and works to be financed by the charging of water resources use, and send them to the financial institution responsible for the administration of the water resources V. To promote the financial institution of the water resources to collect the charges of water resources use in the basin VI. To manage the information system of water resources in the basin VII. To make the budget proposal and to submit its appraisal report to the river basin committee VIII. To promote necessary researches for management of water resources in the basin IX. To make water resources plan for appraisal by the river basin committee X. To propose the following issues to the river basin committee a) Classification frame of waters by usage class for guidance to the national council or the state council of water resources b) Values charged to water resources use c) Application plan of financial resources collected through charging to water resources use d) Cost allocation of facilities for multiple use
Chapter 5 Article 45	Executive Secretariat of Water Resources National Council The executive secretariat of water resources national council is carried out by members of MMARHAL, who are in charge of water resources management	Chapter 5 Article 46	Management Agency of SPWR Management agency of SPWR is the state secretariat of planning, science and technology (SEPLANTEC)

Article 46 Competence of the executive secretariat are:

I. To give administrative, technical and financial support to the national council of water resources
II. To coordinate the NPWR and to recommend an appraisal to the national council of water resources
III. To do office works derived from the state council of water resources and the river basin committee
IV. To coordinate the information system of water resources
V. To make work programs and annual budget proposal, and to submit them to the national council of water resources

Article 47 The management agency is responsible for:

I. To promote rational use of water and sustainable development
II. To formulate policies and instructions of the state's WRM
III. To coordinate, to supervise and to plan activities concerning to water resources
IV. To function as an executive secretariat of the state council of water resources, and to give necessary administrative and technical support
V. To promote engineering studies and economics of water resources in the state
VI. To implement and to maintain the state information system of water resources
VII. To make the state plan of water resources and to submit it for appraisal by the state council of water resources
VIII. To coordinate the SPWR and to recommend an appraisal to the national council of water resources
IX. To do office works derived from the state council of water resources and the river basin committee
X. To analyze applications and to grant water use rights on the basis of regulation by this law
XI. To analyze projects and to permit technical licenses for water facility construction in case of no environment problems
XII. To maintain communication and integration with agencies of operation and monitoring of hydrometric net and hydro-meteologic data
XIII. To make an annual report regarding situation of water resources in the state
XIV. To make research aiming at settling criteria and standards for granting usage and right, charging and arranging rational use of water resources and collection of water tariff
XV. To encourage water users to organize associations under the river basin committee

Article 48 In SEPLANTEC, the water resources superintendence is established to promote organizing, coordinating, executing, observing and controlling the activities of the secretariat on water resources, which are integrated by the department of planning and water resources coordination and by the department of water resources control and administration.

-	-	Article 49	The department of planning and water resources coordination is responsible for planning, observation and technical evaluation of policies, management standards and directions for water resources in the state, which are integrated by the co-ordinatory of planning and programming and by the co-ordinatory of evaluation and observation
-	-	Article 50	The department of water resources control and administration is responsible for production management of supply and demand for water resource applying instrument and legal way, and for implementation and management of the state information system, which is integrated by the co-ordinatory of approval and inspection and the co-ordinatory of information.
-	-	Article 51	The following positions are created in SEPLANTEC: I. One position of special commission of water resources superintendent, symbol CCE-08 II. One position of simple commission as a director of the department of planning and water resources coordination, symbol CCS-12 III. One position of simple commission as a director of the department of water resources control and administration, symbol CCS-12 IV. Four positions of simple commission as directors of co-ordinatories, symbol CCS-11
Chapter 6	Civil Organizations of Water Resources	Chapter 6	Civil Organizations of Water Resources
Article 47	The following civil organizations of water resources are considered for making this law effective: I. Inter-municipal Consortiums and associations of river basins II. Regional, local and sectorial associations of water resources users III. Technical, training and research organizations interested in water resources IV. Non-governmental organizations (NGOs) aiming at diffuse and collection of interests in the society V. Other organizations recognized by the national council of water resources and the state council of water resources	Article 52	The following civil organizations of water resources are considered for making this law effective: I. Inter-municipal Consortiums and associations of river basins II. Regional, local and sectorial associations of water resources users III. Technical, training and research organizations interested in water resources IV. Non-governmental organizations (NGOs) aiming at diffuse and collection of interests in the society V. Other organizations recognized by the state council of water resources
Article 48	The civil organizations of water resources are legally constituted to integrate the national system of water resources.	Article 53	The civil organizations of water resources are legally constituted to integrate the state system of water resources.
Title 3	Offense and Penalties	Title 3	Offense and Penalties

Article 49 The following deeds are infractions of the rules for usage of surface and ground water resources:

I. To derive or to use water resources to any purpose without grant of water right
II. To act activities and to establish enterprises to derive or to use water from surface and ground resources, which result in alter discharge flow, quantity or quality, without authorization of agencies or competent entities
III. (Vetoed)
IV. To utilize water resources or to execute works and services which dissent from conditions in agreement of the grants
V. To drill wells to extract ground water or to operate them without authorization
VI. To change meters for measuring water consumption volume and to declare the volume different from measured
VII. To transgress the rules established in this law and in administrative regulations, having instructions and procedures laid down by agencies or competent entities
VIII. To prevent or to hamper the inspection by the competent authorities to carry out their function

Article 50 In case of offence against any articles in this law referring to hydraulic works and services through derivation or usage of water resource, the offender is subjected to the following penalties:

I. A written warning, in which a deadline is established for the correction of the illegal acts
II. A fine, simply or ordinary in accordance with seriousness of offense, from R$100 to R$10,000
III. Provisory embargo, for a period determined and for hydraulic works and services, in accordance with seriousness of offence against the conditions of grant and the rules of water resources use, control, conservation and protection
IV. Definitive embargo, to revoke the grant and to replace immediately the structures of water resources in terms of articles 58 and 59 of "water code" or to close the wells of ground water extraction.

- Since the offense brings losses and risks on health and lives to the people served through public services, the fine to be given is not below a half of the maximum value imposed in theory.

Article 54 The following deeds are infractions of the rules for usage of surface and ground water resources:

I. To derive or to use water resources to any purpose without grant of water right
II. To act activities and to establish enterprises to derive or to use water from surface and ground resources, which result in alter discharge flow, quantity or quality, without authorization of agencies or competent entities
III. To utilize water resources or to execute works and services which dissent from conditions in agreement of the grants
IV. To drill wells to extract ground water or to operate them without authorization
V. To change meters for measuring water consumption volume and to declare the volume different from measured
VI. To transgress the rules established in this law and in administrative regulations, having instructions and procedures laid down by agencies or competent entities
VII. To prevent or to hamper the inspection by the competent authorities to carry out their function

Article 55 In case of offence against any articles in this law referring to hydraulic works and services through derivation or usage of water resource, the offender is subjected to the following penalties:

I. A written warning, in which a deadline is established for the correction of the illegal acts
II. A fine, simply or ordinary in accordance with seriousness of offense, from R$100 to R$10,000
III. Provisory embargo, for a period determined and for hydraulic works and services, in accordance with seriousness of offence against the conditions of grant and the rules of water resources use, control, conservation and protection
IV. Definitive embargo, to revoke the grant and to replace immediately the structures of water resources in terms of articles 58 and 59 of "water code" or to close the wells of ground water extraction.

- Since the offense brings losses and risks on health and lives to the people served through public services, the fine to be given is not below a half of the maximum value imposed in theory.

	- In the case of III and IV above, apart from the fine, the offender is charged the expenses that the competence authority incurs for foreseen measures in the articles 36, 53, 56 and 58 of water code. - The application of the foreseen sanctions in this title is responsible for the competent authority in terms of regulation. - In case of recidivating, the fine is applied doubly.		- In the case of III and IV above, apart from the fine, the offender is charged the expenses that the competence authority incurs for foreseen measures in the articles 36, 53, 56 and 58 of water code. - The application of the foreseen sanctions in this title is responsible for the competent authority in terms of regulation. - In case of recidivating, the fine is applied doubly. - Resources from collection of extra-charge (delay penalty) are taken into FUNERH
Title 4 Article 51 --- Article 57	General and Transitory Arrangement (Omission) (Omission)	Title 4 Article 56 --- Article 59	General and Transitory Arrangement (Omission) (Omission)

Remark:
NPWR: National Policy of Water Resources
SPWR: State Policy of Water Resources
WRNP: Water Resources National Plan
WRSP: Water Resources State Plan
WRM: Water Resources Management
FUNERH: Water Resources State Fund

APPENDIX-6

Annual Charges to Surface Water Resources Users in Japan

Appendix-6 Annual charges to Surface Water Resources Users in Japan

Appendix 6-1 Annual Charges in Japanese Yen in 1998

(Unit: Jyen/(liter/sec.)/Year)

Name of Prefecture	For Industry	For Power Except Electric Generation *1	For Other Uses: Fishery	For Other Uses: Others
I. Northeast Region				
Hokkaido	3,420	-	950	640
Aomori	1,837	-	-	135
Iwate	3,060	-	-	1,540
Miyagi	4,200	71	-	4,200
Akita	3,000	1,500	-	3,000
Yamagata	3,196	1,596	-	1,596
Fukushima	4,000	400	-	4,000
II. Kanto Region				
Ibaragi	4,133	1,848 *2	34	*3
Tochigi	3,800	120	-	120
Gumma	4,000	-	-	-
Saitama	4,310	-	-	-
Chiba	4,630	-	-	30
Tokyo	6,420	-	-	6,420
Kanagawa	4,250	4,200	-	-
III. Hokuriku Region				
Niigata	3,888	589	-	589
Toyama	4,230	-	-	850
Ishikawa	3,500	-	-	*3
Fukui	2,835	105	-	2,835
IV. Central Region				
Yamanashi	3,850	-	540	3,850
Nagano	3,800	-	-	-
Gifu	3,320	-	-	*3
Shizuoka	2,940	700	470	1,120
Aichi	3,566	1,192	-	118
Mie	3,150	-	-	157
V. Kansai Region				
Shiga	4,900	-	1,100	3,600
Kyoto	5,000	-	-	1,200
Osaka	615 - 9,728	*4	-	4,864 - 9,728
Hyogo	4,935	52	-	4,935
Nara	5,000	5,000	-	5,000
Wakayama	4,000	-	-	4,000
VI. Chugoku Region				
Tottori	5,880	-	-	-
Shimane	5,600	-	-	-
Okayama	5,966	99	-	5,966
Hiroshima	6,058	-	-	6,058
Yamaguchi	5,880	7,560	-	5,880
VII. Shikoku Region				
Tokushima	3,675	-	-	-
Kagawa	-	-	-	-
Ehime	3,130	-	-	100
Kochi	4,160	-	-	-
VIII. Kyushu Region				
Fukuoka	5,250	94	-	5,250
Saga	-	-	-	1,240 - 1,550
Nagasaki	1,500	1,500	-	1,500
Kumamoto	1,600	20	-	1,600
Oita	1,998	-	865	27 - 865
Miyazaki	1,836	61	-	613
Kagoshima	1,700	44	120	240 - 930
Okinawa	1,500	-	1,000	1,200
Average	3,860	1,330	630	2,500

Source: Handbook of Rivers 1998, Oct. 1998, Land Development Research Center

Note:
*1 Charges to electric generation are set up in another formulas.
*2 Per KW of regular theoretical power. Plus Yen917 per KW of the difference of peak and regular.
*3 Charge amounts are decided by the mayor when a user apply for water usage.
*4 Yen1,900 per sectional area (10 sq. cm.) of suction pipe

Appendix 6-2 Annual Charges in Equivalent US$ in 1998

(Unit: US$/(liter/sec.)/Year: Rate=JYen141/US$ at the end of August 1998)

Name of Prefecture	For Industry	For Power Except Electric Generation *1	For Other Uses: Fishery	For Other Uses: Others
I. Northeast Region				
Hokkaido	24.26	-	6.74	4.54
Aomori	13.03	-	-	0.96
Iwate	21.70	-	-	10.92
Miyagi	29.79	0.50	-	29.79
Akita	21.28	10.64	-	21.28
Yamagata	22.67	11.32	-	11.32
Fukushima	28.37	2.84	-	28.37
II. Kanto Region				
Ibaragi	29.31	15.40 *2	0.24	*3
Tochigi	26.95	0.85	-	0.85
Gumma	28.37	-	-	-
Saitama	30.57	-	-	-
Chiba	32.84	-	-	0.21
Tokyo	45.53	-	-	45.53
Kanagawa	30.14	29.79	-	-
III. Hokuriku Region				
Niigata	27.57	4.18	-	4.18
Toyama	30.00	-	-	6.03
Ishikawa	24.82	-	-	*3
Fukui	20.11	0.74	-	20.11
IV. Central Region				
Yamanashi	27.30	-	3.83	27.30
Nagano	26.95	-	-	-
Gifu	23.55	-	-	*3
Shizuoka	20.85	4.96	3.33	7.94
Aichi	25.29	8.45	-	0.84
Mie	22.34	-	-	1.11
V. Kansai Region				
Shiga	34.75	-	7.80	25.53
Kyoto	35.46	-	-	8.51
Osaka	5.13 - 81.07	*4	-	40.53 - 81.07
Hyogo	35.00	0.37	-	35.00
Nara	35.46	35.46	-	35.46
Wakayama	28.37	-	-	28.37
VI. Chugoku Region				
Tottori	41.70	-	-	-
Shimane	39.72	-	-	-
Okayama	42.31	0.70	-	42.31
Hiroshima	42.96	-	-	42.96
Yamaguchi	41.70	53.62	-	41.70
VII. Shikoku Region				
Tokushima	26.06	-	-	-
Kagawa	-	-	-	-
Ehime	22.20	-	-	0.71
Kochi	29.50	-	-	-
VIII. Kyushu Region				
Fukuoka	37.23	0.67	-	37.23
Saga	-	-	-	10.33 - 12.92
Nagasaki	10.64	10.64	-	10.64
Kumamoto	11.35	0.14	-	11.35
Oita	14.17	-	6.13	0.23 - 7.21
Miyazaki	13.02	0.43	-	4.35
Kagoshima	12.06	0.31	0.85	2.00 - 7.75
Okinawa	10.64	-	7.09	8.51
Average	27.60	9.60	4.50	18.10

Source: Handbook of Rivers 1998, Oct. 1998, Land Development Research Center

Note: *1 Charges to electric generation are set up in another formulas.
*2 Per Kw of regular theoretical power. Plus US$6.50 per KW of the difference of peak and regular.
*3 Charge amounts are decided by the mayor when a user apply for water usage.
*4 US$13.50 per sectional area (10 sq. cm.) of suction pipe

APPENDIX-7

Withdraw Capacity of Source Water by River Basin and by Users

Appendix-7 Withdraw Capacity of Source Water by River Basin and by Users

Appendix 7-1 Capacity Estimated in 1997

(Unit: lit/sec)

River Basin / User	Surface Water			Groundwater			Total		
	Total	Consumed	Transferred	Total	Consumed	Transferred	Total	Consumed	Transferred
1. Sao Francisco River Basin	21,003	21,003	0	381	381	0	21,384	21,384	0
Urban & Large Rural Water Supply	2,703	2,703	0	377	377	0	3,079	3,079	0
Small Rural Water Supply	0	0	0	4	4	0	4	4	0
Irrigation	18,300	18,300	0	0	0	0	18,300	18,300	0
2. Japaratuba River Basin	122	122	0	388	388	0	510	510	0
Urban & Large Rural Water Supply	122	122	0	386	386	0	508	508	0
Small Rural Water Supply	0	0	0	2	2	0	2	2	0
Irrigation	0	0	0	0	0	0	0	0	0
3. Sergipe River Basin	273	273	0	1,550	1,550	0	1,824	1,824	0
Urban & Large Rural Water Supply	73	73	0	1,545	1,545	0	1,618	1,618	0
Small Rural Water Supply	0	0	0	5	5	0	5	5	0
Irrigation	200	200	0	0	0	0	200	200	0
4. Vaza Barris River Basin	1,279	1,279	0	203	203	0	1,482	1,482	0
Urban & Large Rural Water Supply	279	279	0	198	198	0	477	477	0
Small Rural Water Supply	0	0	0	5	5	0	5	5	0
Irrigation	1,000	1,000	0	0	0	0	1,000	1,000	0
5. Piaui River Basin	891	891	0	340	340	0	1,231	1,231	0
Urban & Large Rural Water Supply	291	291	0	333	333	0	624	624	0
Small Rural Water Supply	0	0	0	7	7	0	7	7	0
Irrigation	600	600	0	0	0	0	600	600	0
6. Real River Basin	328	328	0	144	144	0	472	472	0
Urban & Large Rural Water Supply	128	128	0	140	140	0	268	268	0
Small Rural Water Supply	0	0	0	3	3	0	3	3	0
Irrigation	200	200	0	0	0	0	200	200	0
7. Total of Six Rivers	23,897	23,897	0	3,006	3,006	0	26,903	26,903	0
Urban & Large Rural Water Supply	3,597	3,597	0	2,979	2,979	0	6,576	6,576	0
Small Rural Water Supply	0	0	0	27	27	0	27	27	0
Irrigation	20,300	20,300	0	0	0	0	20,300	20,300	0
8. Total of Five Rivers w/o Sao Francisco	2,894	2,894	0	2,625	2,625	0	5,519	5,519	0
Urban & Large Rural Water Supply	894	894	0	2,602	2,602	0	3,496	3,496	0
Small Rural Water Supply	0	0	0	23	23	0	23	23	0
Irrigation	2,000	2,000	0	0	0	0	2,000	2,000	0
9. Total of 3 State Rivers	1,287	1,287	0	2,278	2,278	0	3,565	3,565	0
Urban & Large Rural Water Supply	487	487	0	2,264	2,264	0	2,751	2,751	0
Small Rural Water Supply	0	0	0	14	14	0	14	14	0
Irrigation	800	800	0	0	0	0	800	800	0

Appendix 7-2 Capacity Increment Estimated between 1997 and 2000

(Unit: lit/sec)

River Basin / User	Surface Water			Groundwater			Total		
	Total	Consumed	Transferred	Total	Consumed	Transferred	Total	Consumed	Transferred
1. Sao Francisco River Basin	19,220	17,219	2,000	49	48	1	19,268	17,268	2,001
Urban & Large Rural Water Supply	2,770	770	2,000	30	30	1	2,800	800	2,001
Small Rural Water Supply	0	0	0	19	19	0	19	19	0
Irrigation	16,449	16,449	0	0	0	0	16,449	16,449	0
2. Japaratuba River Basin	917	895	22	220	219	1	1,137	1,114	23
Urban & Large Rural Water Supply	196	174	22	212	211	1	407	385	23
Small Rural Water Supply	0	0	0	8	8	0	8	8	0
Irrigation	721	721	0	0	0	0	721	721	0
3. Sergipe River Basin	1,291	1,266	25	465	464	1	1,757	1,730	26
Urban & Large Rural Water Supply	195	170	25	440	439	1	635	609	26
Small Rural Water Supply	0	0	0	25	25	0	25	25	0
Irrigation	1,097	1,097	0	0	0	0	1,097	1,097	0
4. Vaza Barris River Basin	3,987	3,092	895	64	64	0	4,050	3,155	895
Urban & Large Rural Water Supply	1,075	180	895	51	51	0	1,126	231	895
Small Rural Water Supply	0	0	0	12	12	0	12	12	0
Irrigation	2,912	2,912	0	0	0	0	2,912	2,912	0
5. Piaui River Basin	1,027	910	117	183	178	5	1,210	1,088	122
Urban & Large Rural Water Supply	784	667	117	154	149	5	938	816	122
Small Rural Water Supply	0	0	0	29	29	0	29	29	0
Irrigation	243	243	0	0	0	0	243	243	0
6. Real River Basin	102	98	4	15	15	0	117	113	4
Urban & Large Rural Water Supply	102	98	4	0	0	0	102	98	4
Small Rural Water Supply	0	0	0	15	15	0	15	15	0
Irrigation	0	0	0	0	0	0	0	0	0
7. Total of Six Rivers	26,543	23,480	3,063	996	988	8	27,539	24,468	3,071
Urban & Large Rural Water Supply	5,121	2,059	3,063	888	880	8	6,009	2,938	3,071
Small Rural Water Supply	0	0	0	108	108	0	108	108	0
Irrigation	21,422	21,422	0	0	0	0	21,422	21,422	0
8. Total of Five Rivers w/o Sao Francisco	7,324	6,261	1,063	947	940	7	8,271	7,201	1,070
Urban & Large Rural Water Supply	2,351	1,289	1,063	857	850	7	3,209	2,139	1,070
Small Rural Water Supply	0	0	0	90	90	0	90	90	0
Irrigation	4,972	4,972	0	0	0	0	4,972	4,972	0
9. Total of 3 State Rivers	3,235	3,071	164	869	862	7	4,103	3,933	171
Urban & Large Rural Water Supply	1,174	1,011	164	806	799	7	1,980	1,810	171
Small Rural Water Supply	0	0	0	63	63	0	63	63	0
Irrigation	2,060	2,060	0	0	0	0	2,060	2,060	0

Appendix 7-3 Capacity Estimated in 2000

(Unit: lit/sec)

River Basin / User	Surface Water			Groundwater			Total		
	Total	Consumed	Transferred	Total	Consumed	Transferred	Total	Consumed	Transferred
1. Sao Francisco River Basin	40,222	38,222	2,000	430	429	1	40,652	38,651	2,001
Urban & Large Rural Water Supply	5,473	3,473	2,000	407	406	1	5,880	3,879	2,001
Small Rural Water Supply	0	0	0	23	23	0	23	23	0
Irrigation	34,749	34,749	0	0	0	0	34,749	34,749	0
2. Japaratuba River Basin	1,039	1,017	22	608	607	1	1,647	1,624	23
Urban & Large Rural Water Supply	318	296	22	598	596	1	916	893	23
Small Rural Water Supply	0	0	0	10	10	0	10	10	0
Irrigation	721	721	0	0	0	0	721	721	0
3. Sergipe River Basin	1,565	1,540	25	2,015	2,014	1	3,580	3,554	26
Urban & Large Rural Water Supply	268	243	25	1,985	1,984	1	2,253	2,227	26
Small Rural Water Supply	0	0	0	30	30	0	30	30	0
Irrigation	1,297	1,297	0	0	0	0	1,297	1,297	0
4. Vaza Barris River Basin	5,266	4,371	895	267	267	0	5,532	4,638	895
Urban & Large Rural Water Supply	1,353	458	895	250	250	0	1,603	708	895
Small Rural Water Supply	0	0	0	17	17	0	17	17	0
Irrigation	3,912	3,912	0	0	0	0	3,912	3,912	0
5. Piaui River Basin	1,918	1,801	117	524	519	5	2,441	2,320	122
Urban & Large Rural Water Supply	1,075	958	117	487	482	5	1,562	1,441	122
Small Rural Water Supply	0	0	0	37	37	0	37	37	0
Irrigation	843	843	0	0	0	0	843	843	0
6. Real River Basin	430	426	4	158	158	0	589	585	4
Urban & Large Rural Water Supply	230	226	4	140	140	0	371	367	4
Small Rural Water Supply	0	0	0	18	18	0	18	18	0
Irrigation	200	200	0	0	0	0	200	200	0
7. Total of Six Rivers	50,440	47,377	3,063	4,002	3,994	8	54,442	51,371	3,071
Urban & Large Rural Water Supply	8,718	5,656	3,063	3,866	3,859	8	12,585	9,514	3,071
Small Rural Water Supply	0	0	0	135	135	0	135	135	0
Irrigation	41,722	41,722	0	0	0	0	41,722	41,722	0
8. Total of Five Rivers w/o Sao Francisco	10,218	9,155	1,063	3,572	3,565	7	13,790	12,720	1,070
Urban & Large Rural Water Supply	3,245	2,183	1,063	3,460	3,452	7	6,705	5,635	1,070
Small Rural Water Supply	0	0	0	112	112	0	112	112	0
Irrigation	6,972	6,972	0	0	0	0	6,972	6,972	0
9. Total of 3 State Rivers	4,522	4,358	164	3,147	3,140	7	7,669	7,498	171
Urban & Large Rural Water Supply	1,662	1,498	164	3,070	3,062	7	4,731	4,560	171
Small Rural Water Supply	0	0	0	77	77	0	77	77	0
Irrigation	2,860	2,860	0	0	0	0	2,860	2,860	0

APPENDIX-8

Functions of Respective Organs for Water Resources Management in Sergipe State

Appendix-8 Functions of Respective Organs for Water Resources Management in Sergipe State

		Work Item	Present Condition		Proposal by SEPLANTEC/SRH					Proposal by JICA Study Team						
										First Stage			Second Stage			
			Exis-tence	Agency in Charge	CONERH	RBC	WA	FUNERH	SRH	CONERH	RBC	SRH	CONERH	RBC	WA	SRH
I.	1	To promote coordination between the state plan of water resources, and the plans of neighboring states, regions and the nation and/or the plans of the stakeholders related to water resources.	×		○					○			○			
	2	To approve the state plan of water resources, reflecting the state policy of water resources	×		○					○			○			
	3	To deliberate projects of interbasin water resources transfer	×		○					○			○			
	4	To establish a guideline for implementation of the state policy of water resources	×		○					○			○			
	5	To establish criteria to grant rights to users of water resources and to charge to users of water resources	×		○					○			○			
	6	To approve establishment of RBCs and WAs	×		○					○			○			
	7	To send the state plan of water resources to the national water resources council for integration of the national plan of water resources.	×		○					○			○			
	8	To appraise an annual report analyzing the situation of water resources in the state	×		○					○			○			
II.	1	To approve the master plan of water resources in the competent river basin and to suggest necessary procedures for execution of its goals	×			○					○			○		
	2	To coordinate conflicts concerning water resources use among users	△			○					○			○		
	3	To deliberate projects of water resources use	×			○					○			○		
	4	To establish charging mechanisms of water resources use and their values of water charges and to suggest them to CONERH	×			○					○			○		
	5	To propose exemption of obligation applying for water right and paying water charges for small users to the CONERH.	×			○					○			○		
	6	To propose creation of River Basin Sub-committee for its tributaries under proposal from the water users and/or the civil societies	×			○					○			○		
III.	1	To maintain an updated water balance on the basis of water resources potential	×				○					○			○	
	2	To make a report regarding the situation of water resources periodically, and to submit it to RBCs	×				○					○			○	
	3	To formulate a master plan of water resources, and to open it to the public through mass media.	×				○					○				○
	4	To collect water charges from water resources users as a delegation of the authorizing power, and to manage financial resources accruing from water charge system	×				○					○			○	

(To be continued)

(Continuation)

	Work Item	Present Condition		Proposal by SEPLANTEC/SRH					Proposal by JICA Study Team						
									First Stage			Second Stage			
		Exis-tence	Agency in Charge	CONERH	RBC	WA	FUNERH	SRH	CONERH	RBC	SRH	CONERH	RBC	WA	SRH
	5 To manage a state information system of water resources	×				○					○			○	
	6 To promote researches and studies necessary for water resources management	×				○					○			○	
	7 To render administrative, technical and financial support to RBCs	×				○					○			○	
	8 To propose the following data and information to RBCs: (a) classification of waters based on usage classes; (b) charging mechanism to water resources usage; (c) prices of water charges through technical studies; (d) operational plan of financial resources through collection of water charges; and (e) cost allocation of water works for multiple use	△	ADEMA ((a) only)			○					○			○	
IV.	1 To function as a financial agency for water resources' activities	×					○				○			○	
	2 To apply the fund for the following activities: (a) development, conservation and rational use of surface and underground resources; (b) compensation for resettlement of submerged areas and for conservation of water resources; (c) improvement of risky areas by multiple use, control, conservation, public hygiene, socio-economic hazards; (d) sewage system; and (e) researches and studies, technology development and human development.	×					○				○			○	
	3 To take responsibility for the following activities as fund management: (a) technical analysis of fund solicitation; (b) approval of projects from technical, economical and financing view points; and (c) checking of projects financed by FUNERH	×					○				○			○	
	4 To take responsibility for the following activities as financial agent: (a) financial operation of fund resources; (b) charging to credits conceived; and (c) supporting administrative and judicial measures	×					○				○			○	
	5 To submit a semestral financial report to (a) budget and financial inspection committee of legislative assembly and (b) CONERH	×					○				○			○	
	6 To make an annual report regarding working performance of fund	×					○				○			○	
V.	1 To promote rational use and sustainable development of water	×						○			○				○
	2 To formulate policies and instructions for the state's water resources management	×						○			○				○
	3 To coordinate, to supervise and to plan activities concerning to water resources	×						○			○				○
	4 To function as an executive secretariat of CONERH, and to give necessary administrative and technical support	×						○			○				○
	5 To promote engineering and economic studies of water resources	×						○			○				○

(To be continued)

(Conclusion)

	Work Item	Present Condition		Proposal by SEPLANTEC/SRH						Proposal by JICA Study Team							
										First Stage				Second Stage			
		Exis-tence	Agency in Charge	CONERH	RBC	WA	FUNERH	SRH		CONERH	RBC	SRH		CONERH	RBC	WA	SRH
	6 To develop and to maintain a state information system of water resources	×						○				○					○
	7 To make the state plan of water resources and to submit it for appraisal by CONERH	×						○				○					○
	8 To coordinate the state plan of water resources and to submit an appraisal report to CONERH	×						○				○					○
	9 To do office works derived from CONERH and RBCs	×						○				○					△
	10 To analyze applications and to grant water use rights on the basis of regulation	△	SRH					○				○				○	△
	11 To analyze projects and to permit technical licenses for water facilities in case of no environment problems	×						○				○				○	
	12 To maintain communication and integration with agencies of operation and monitoring in terms of hydrometric net and hydro-meteologic data	×						○				○					○
	13 To make an annual report regarding conditions of water resources	×						○				○					○
	14 To make research aiming to settle criteria and standards for granting water usage right, charging system to users and arranging rational use of water resources, and to collect water tariff	×						○				○				○	
	15 To encourage water users to organize associations under RBC	×						○				○				○	
VI	1 To develop and to maintain rainfall and flow gauging stations in the river basins in the state	×										○				○	
	2 To develop and to maintain groundwater level gage stations in the whole aquifers in the state	×										○				○	
	3 To conduct sampling surveys of water quality of river flow and groundwater in the state	×										○				○	
	4 To coordinate the persons interested in multiple water use projects	×										○				○	
	5 To plan and to implement the multiple water use facilities	×										○				○	

Source: Drafts of "Decree of water Resources Management", Vol. 1 to 9, SEPLANTEC/SRH

Note: "○": a function in charge, "×": not being executed and "△": to be executed a part of the function.

CONERH: State Council of Water Resources
RBC: River Basin Committee
WA: Water Agency
FUNERH: State Fund of Water Resources
SRH: Superintendency of Water Resources