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# IMPLEMENTATION STRATEGY FOR COMMUNITY MANAGED WATER AND SANITATION

*Indonesia*

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# IMPLEMENTATION STRATEGY FOR COMMUNITY MANAGED WATER AND SANITATION

## EXECUTIVE SUMMARY

### INTRODUCTION

#### ■ Demography

Indonesia is an archipelago of more than 13,000 islands and has a population of about 180 million, 57% of which are in Java and Bali. By the end of the Fifth Five-Year Development Plan (March 1994) GNP per capita is projected to be \$570. There are large regional disparities in the incidence of poverty, with the poorest provinces being in the outer islands; the highest rates occur in East Nusa Tenggara (46%), West Kalimantan (34%), and Maluku (29%). The infant mortality rate is expected to decrease from an estimated 60 per thousand live births in 1992 to 45 in 2000. The mortality rate for children 1-4 years old was 10.6 per thousand in 1986 and is expected to decrease to 6.5 by the end of Repelita IV (1994). In 1986 diarrhea was the sixth most prevalent disease for all age groups, with an incidence of 4.38 per thousand; significantly, this was down from 7.62 in 1980.

#### ■ Existing Infrastructure and Technology Options

The present capacity for the production of piped water in urban areas is approximately 64,000 liters/second, up from 51,000 l/s at the end of Pelita IV (1989). Open wells continue to be the main source for drinking as well as washing/bathing, with 40% of urban residents and more than 55% of rural using wells. In dense urban areas, wells are not sufficiently separated from sewage effluent, and fecal contamination is widespread. It is estimated that 73% of urban residents have access to safe drinking water, up from 65% in 1989. However, many continue to bathe and/or wash in polluted water. A 1989 survey suggests that 60-64% of the urban population has adequate sanitation, but only 30-36% in rural areas. Solid waste management systems exist in 494 cities, a significant increase from the Pelita IV figure of 198. However, this includes only about 55% of all urban waste. With regard to drainage, 242 cities now have infrastructure

compared to 90 in 1989, and the total area subject to flooding has been reduced 17%, from approximately 75,000 ha to 62,000.

## ■ Institutional Framework

The planning for and implementation of water and sanitation programs and projects are undertaken both jointly and independently by the Ministries of Public Works (Directorate General Human Settlements) and Health, under the auspices of the National Development Planning Agency. Financial planning and disbursement are the responsibility of the Ministry of Finance, and the Ministry of Home Affairs oversees and supports government agencies at all levels in terms of their institutional structure, procedures, and human resources. These are the primary participants in any water and sanitation initiative, although their specific roles will vary depending on sources of revenue and program/project orientation (i.e. goals and targets). In addition, the Ministry of Population and Environment is involved where there are significant environmental aspects of development projects. The Ministry of Public Works as the lead sectoral agency provides the main inputs to sector policy formulation based on the national plan guidelines.

## ■ A Strategy For Community Water And Sanitation

The continuing need for major initiatives on a national scale to solve the problems of sanitation and water supply has been well documented, and high priority has been given to the attainment of goals and targets in this sector. As elements of the Community Water and Sanitation Program (CWSP), a concept and procedures for water and sanitation action planning at the district/sub-district level have been prepared, with pilot projects undertaken in East Java and Bali in order to formulate the working details of this process.

Based on this experience and on other recent similar undertakings, the Community Managed Water and Sanitation program (CMWS) has been prepared for implementation of this concept throughout Indonesia, covering the period of Repelita VI and beyond. CMWS will institutionalize the water and sanitation planning process in both urban and rural areas, with the specific goals of (1) improving sanitation at the community level, (2) improving public awareness of the need for good sanitation, (3) involving communities and individuals in the planning, financing and implementation processes, and (4) using local resources to the maximum extent possible for water and sanitation improvements. Included in CMWS are the following components:

- Water and Sanitation Action Planning
- Human Resources Development

- Sanitation Education/Social Marketing
- Water/Sanitation Implementation, Operation and Maintenance

Although the concept and approach of CMWS are national, it is intended that the Provincial and Regency/City governments make their own decisions as to the applicability of each of the four components within their jurisdictions, with support provided as appropriate and required from the central level. Furthermore, it is likely that the CMWS materials, which are presented as models, may need to be modified considering prevailing institutional, social and technical conditions. In effect, these governments will be required to prepare their own strategies in the form of provincial and kabupaten plans for the utilization of the CMWS method, as modified to best meet their particular requirements and capabilities.

CMWS is proposed to be implemented in urban areas (kelurahans) in the context of the Integrated Urban Infrastructure Development Program (IUIDP), which itself is now undergoing examination to determine what directions are appropriate for this approach to the provision of urban infrastructure during Repelita VI. Clearly, sanitation problems are most critically felt in urban areas, generally in direct proportion to population densities, and the national program for sanitation action planning will be concerned primarily with the urban and peri-urban areas of greatest need.

In rural areas (desas), the planning and implementation of measures to improve water and sanitation are proposed to be undertaken through P2LDT (Pembangunan Perumahan dan Lingkungan Desa Secara Terpadu - Integrated Village Development). The emphasis of P2LDT to date has been in the rehabilitation of housing, but improvements in village infrastructure, including roads, footpaths, drainage and public toilets, have also been undertaken. In 1991 there were 66 projects for water and sanitation, 35 more projects had significant water and/or sanitation components, and 20 other projects were indirectly related to the sector, primarily in the form of broader-based studies.

## ■ National Development Strategy

The national strategy for housing and settlements for Repelita VI includes the following main points. Those which coincide with Community Managed Water and Sanitation (CMWS) goals are printed in bold type.

- Development will emphasize (a) **improvement in housing quality**, (b) a balance between urban and rural development, (c) improvement in the welfare of all Indonesians, (d) **improvement in the quality of life of the family and the community**, and (e) the enhancement of social harmony.

- **Promote self-help and cooperative efforts.**
- **Provide proper infrastructure including water supply, facilities for social, religious, facilities, economic, transportation, sports and recreation needs, as well as environmental infrastructure including rubbish handling, and increase public awareness and responsibility in villages and cities so that more people live in healthy housing and communities.**
- **Make available technical information concerning housing construction and rehabilitation to upgrade environmental conditions.**

Related to the above policies are the following objectives for PJP II and Repelita VI, again with specific reference to water supply and sanitation :

### **PJP II :**

- Financing is not only through government but also from the community itself and the private sector.
- Development of housing and settlements is done by the community as the primary implementor.

### **Repelita VI :**

- Targets must be fulfilled regarding both quantity and quality, in particular with respect to the urban and rural poor.
- Sources and mechanisms of finance for the poor must involve both the formal and informal sectors.
- Government regulations, implementation guidelines and technical handbooks must support the strengthening of the role of the community in development.
- The decentralization of planning, implementing and monitoring development must be entrenched, and information provided concerning appropriate technology and the use of local materials.

Actual annual disbursements for sector projects have varied widely since 1990. The emphasis has been heavily in favor of water supply.

## ■ Action Plan For CMWS Implementation

A national strategy has been developed for the incorporation of CMWS within urban and rural development programs (IUIDP, INPRES etc.) to allow widespread adoption of workable solutions to the problem of water and sanitation in low-income settlements in Indonesia. The following action plan is required to ensure the adoption of the strategy and its effective implementation.

Central government must endorse and support CMWS as a means of attaining the goals and objectives noted above. Of particular importance is inter-agency coordination among the implementing ministries, and the incorporation of CMWS *within routine planning at the local level.*

In order to begin implementation of CMWS, the first requirement is that sufficient resources are allocated to provinces and kabupatens (i.e. BAPPEDAs) so that the process of institutional strengthening, including human resources development and, specifically, the training of trainers, can begin. Resources must also be available in order to promote, as early as possible, the concept and need for CMWS among the agencies concerned and the broader issues pertaining to public health and sanitation among the general population.

To mount this effort on a national scale in Repelita VI, the early and continued support of BAPPENAS and the Ministries of Public Works, Home Affairs, and Health are essential. It is also expected that the UNDP and the World Bank, among others, will provide sufficient support to this effort as a matter of priority throughout Repelita VI and beyond.

CMWS is intended to be implemented in every unit of government in the country: 27 provinces, 303 regencies, 3,839 districts and 65,350 villages. A first priority would logically be the 20,485 poor urban and rural villages which are included in the 'Desa Tertinggal' program.

A program of launch activities is required at the central and provincial levels to disseminate the elements of the strategy; at central level the dissemination will include the provision of information to all provinces. to enable the strategy to be incorporated in future plans. The CWSP will produce an overall CMWS strategy and action plan and separate manuals for use at the Central/Provincial/Regency-District and Village levels. The first step will be the organization of an CMWS Functional Coordination Team (TKF - Tim Koordinasi Fungsional PAB - PL), consisting of members of the LKMD Central Management Team (Tim Pembina LKMD Pusat). A Central Operational Working Group (Pokjanal) is recommended to be established by the TKF as its implementing unit.



A series of three or four regional workshops involving several provinces each could be held to introduce CMWS to provincial officials and to present the plans prepared for PHE/SM, the training of trainers, and the revolving fund. Each province would prepare a plan for the utilization of CMWS based on its own unique needs, constraints, resources, priorities etc. The plans may vary widely in terms of the applicability of the various components of CMWS, but this local perspective is both desirable and essential. Launch Workshops would be held in targeted regencies and planning then undertaken by their Pokjanals. These plans would then be presented to the concerned districts, who would in turn prepare plans for the targeted urban and rural villages with assistance from the regency. This planning should be undertaken as part of the Rakorbang process and could probably be completed within one month, as the role of the districts is primarily coordinative rather than strategic, as is the case for the regencies. After the village launch workshops are held, subsequent planning should be completed over 2-3 months, and implementation of the CMWS components initiated as funds are available. Establishment of the revolving fund system, starting with seed money from any government level as well as non-government sources, need not follow this schedule, as decisions could be made at the provincial, regency and village levels to initiate this component on a separate planning/implementation time frame.

The needs for institutional strengthening through staff deployment and/or training at Tingkat I, II, kecamatan and desa/kelurahan levels will vary widely. The analysis of such needs must be undertaken as an important aspect of the provincial strategy and plan for Water and Sanitation, which includes the specific role of CMWS in each province. Obviously, this analysis will be closely linked with the determination of what desas/kelurahans are to be included as discussed above.

The initial expenses incurred in implementing CMWS will be for program dissemination and the training of trainers, Pokjanals, and Pokjas in each concerned province, regency, district and village. In addition, there will be training for cadres and artisans in the villages, as well as hygiene/sanitation education. *These activities are essential to build the institutional capacity as required at all levels, including the development of community participation.* Approximate unit costs (1994 prices) have been calculated for all dissemination and training/education activities, assuming that government officials at each level are the primary implementers. These order-of-magnitude costs will have to be revised to reflect local conditions, of course.

Cost estimates in 1994 Rupiah are provided in the following sections for each program component (i.e. workshops, training, social marketing/public health education, village planning workshop, revolving fund) and for each of the three scenarios (i.e. all governments, poor villages, model project).

The total cost for each of the program components is presented below in three scenarios (all local governments, poor villages only, and a model project design):

**Total Cost by Component and Scenario (1994 Rupiah)**

<b>Component</b>	<b>All Governments</b>	<b>Poor Villages</b>	<b>Model Project</b>
1. Workshops	47,432,850,000	16,319,910,000	348,465,000
2. Training	1,106,316,850,000	349,037,835,000	2,188,082,000
3. SM/PHE	33,416,000,000	10,939,500,000	169,000,000
4. Planning Workshop	45,091,500,000	14,134,650,000	71,760,000
5. Revolving Fund	980,250,000,000	307,275,000,000	1,560,000,000
<b>Total</b>	<b>2,212,507,200,000</b>	<b>697,706,895,000</b>	<b>4,337,307,000</b>

# IMPLEMENTATION STRATEGY FOR COMMUNITY MANAGED WATER AND SANITATION

## INTRODUCTION

### COUNTRY CONTEXT

#### ■ Demography and Income

Indonesia is an archipelago of more than 13,000 islands and is divided into 27 provinces, 243 regencies (kabupatens), 60 municipalities, 3,839 districts (kecamatan) and 65,350 sub-districts (kelurahans/desas). It has a population of about 180 million, 57% of which are in Java and Bali. The annual growth rate has been 1.97% , but during Repelita VI (Sixth Five-Year Development Plan: April 1994 - March 1999) population growth is expected to decrease to 1.62%/year. The urban population increased by 5.36% per year in the period 1980-1990, and this rate is also expected to decrease, to 3.44% during Repelita VI. Thus the urban population is expected to increase from 64,500,000 (almost 34% of the total) in 1994 to about 76,500,000 or 37% of the total by 1999.

Indonesia has experienced sustained economic growth since the mid-1970s, and has averaged 7% over the past five years. In 1970 GNP per capita was \$150, and 60% of the population (70 million people) lived in poverty. By 1990 the official incidence of poverty had fallen to about 15%, having become much less widespread. By the end of the Fifth Five-Year Development Plan (March 1994) GNP per capita is projected to be \$570.

There are large regional disparities in the incidence of poverty, with the poorest provinces being in the outer islands; the highest rates occur in East Nusa Tenggara (46%), West Kalimantan (34%), and Maluku (29%). However, in terms of absolute numbers more than half (61%) of the poor live in Java. More than 20,000 of the sub-districts are officially termed 'poor villages' (Desa Tertinggal); they are located in 281 regencies and 2,897 of the districts.

## ■ Health Indicators

The infant mortality rate is expected to decrease from an estimated 60 per thousand live births in 1992 to 45 in 2000. There is considerable geographic variation, as the 1992 rate was in fact below 40 in DKI Jakarta (33) and DI Yogyakarta, below 60 in twelve other provinces, and below 80 in eleven more. Only one province (West Nusa Tenggara - 114) had a rate greater than 100. In 1992 the leading cause of infant mortality was respiratory infection (36%), followed by diarrhea (11%).

The mortality rate for children 1-4 years old was 10.6 per thousand in 1986 and is expected to decrease to 6.5 by the end of Repelita IV (1994). The incidence of diarrheal disease in 1989 was 1.3%, and this is expected to drop to .97% by 1994. The case fatality rate for diarrhea decreased from .97% in 1981 to .20% in 1989. However, diarrhea is the leading cause of death in this group, accounting for 23% of all deaths in 1992. Environmental sanitation is a much more pertinent factor for young children than for infants, since they have the ability to meet their own personal hygiene requirements and can drink whatever water may be available.

For the population as a whole, the crude death rate has decreased from 18.7 in 1971 to 12.5 in 1980 and 7.9 in 1990, and is estimated to decrease further to 7.5 by 1995. The leading causes of death in 1992 were circulatory infections (16%), tuberculosis (11.4%), respiratory infections (9.5%), diarrhea (8%), and other infectious diseases (7.8%). In 1986 diarrhea was the sixth most prevalent disease for all age groups, with an incidence of 4.38 per thousand; significantly, this was down from 7.62 in 1980. The rate for infants actually increased during this period, from 23.02 to 29.79, while that for children below 5 years decreased from 28.09 to 20.05. For all age groups, the incidence rate was 26 per thousand in 1986, dropped to 19.49 in 1989, and increased to 26.25 in 1991. The rate per province varies dramatically, with DI Aceh at only 4.17 and Timor Timur at 51.81. Yearly rates show few consistent trends, with about half the provinces having lower rates in 1991 compared to 1986 and half having higher. The crude fatality rate was .03, .02 and .032 for the same three years. In 1991 there were 282 outbreaks of diarrhea throughout the country affecting 62,512 people; the death rate was 1.03%.

## ■ Existing Infrastructure and Technology Options

The present capacity for the production of piped water in urban areas is approximately 64,000 liters/second, up from 51,000 l/s at the end of Pelita IV (1989). The population served increased from 16,000,000 (32% of urban residents) to 27,600,000 (40%) during this period, below the Pelita V goal of 47%. In rural areas, the increase has been from 30.5% to 55% of the population served for at least part of their daily water requirements. Total service as a proportion of provincial population varies widely, with less than 30% served in Jambi, DKI Jakarta, West Nusa Tenggara, Central Kalimantan, Southeast Sulawesi and Maluku, and more than 50% in Lampung, West Java and Central Sulawesi.

Open wells continue to be the main source for drinking as well as washing/bathing, with 40% of urban residents and more than 55% of rural using wells. In dense urban areas, wells are not sufficiently separated from sewage effluent, and fecal contamination is widespread. It is estimated that 73% of urban residents have access to safe drinking water, up from 65% in 1989. However, many continue to bathe and/or wash in polluted water. There are now 276 local water companies (PDAM) in operation, 17 water management boards (BPAM), and 9 other management agencies. Water loss averages 39%, and ranges from 19% to 58%.

Sanitation coverage is more difficult to assess. A 1989 survey suggests that 60-64% of the urban population has adequate sanitation, but only 30-36% in rural areas. Wastewater facilities have been provided in 337 cities, up from 62 in 1989. Public and private sector housing, both individual units and estates, generally provide on-site sanitation with twin leaching pits or septic tanks and leaching facilities. A few estates have been sewerred, and some of these have treatment ponds. Multi-story apartments generally employ septic tanks with leaching fields.

Shallow sewers and small bore sewerage are possible lower cost alternatives to conventional sewerage but have had limited application to date. Further testing is being done through several ongoing sanitation projects.

Solid waste management systems exist in 494 cities, a significant increase from the Pelita IV figure of 198. However, this includes only about 55% of all urban waste. Again, provincial figures vary widely, with over 70% of the population in Maluku, Bali and East Java served, and less than 40% served in ten provinces outside Java.

With regard to drainage, 242 cities now have infrastructure compared to 90 in 1989, and the total area subject to flooding has been reduced 17%, from approximately 75,000 ha to 62,000. However, proper drainage exists in less than 10% of West Nusa Tenggara, East Nusa Tenggara and East Timor.

## ■ Institutional Framework

The planning for and implementation of water and sanitation programs and projects are undertaken both jointly and independently by the Ministries of Public Works (Directorate General Human Settlements) and Health, under the auspices of the National Development Planning Agency. Financial planning and disbursement are the responsibility of the Ministry of Finance, and the Ministry of Home Affairs oversees and supports government agencies at all levels in terms of their institutional structure, procedures, and human resources. These are the primary participants in any water and sanitation initiative, although their specific roles will vary depending on sources of revenue and program/project orientation (i.e. goals and targets). In addition, the Ministry of Population and Environment is involved where there are significant environmental aspects of development projects. The Ministry of Public Works as the lead sectoral agency provides the main inputs to sector policy formulation based on the national plan guidelines.

## CONSTRAINTS TO PROGRESS

Many factors constrain the delivery of water and sanitation services to poor communities and no delivery system has been developed and adopted for large scale implementation. In planning for PJP II and Repelita VI, the following issues and problems have been identified by BAPPENAS and the implementing agencies.

Major issues in water supply include :

- Utilization of actual capacities is low.
- Rates of water loss are very high (25-40%).
- The PDAM/BPAM's generally have weak management.
- Service criteria are related much more to social aspects than economic (e.g. cost recovery).
- Dissemination of technology is poor, especially concerning the use of non-pipe alternatives which can be of direct benefit to the people.
- Sector planning is hampered by the lack of an information system, including basic population data.

- There is not yet a proportionate payment system between the central and local governments.
- There is a scarcity of water in many districts, resulting in high unit costs.
- Pollution is still increasing as control measures are inconsistent.
- Management of primary water sources is weak.
- Human resources in the handling of water supply are weak.
- Regulations pertaining to local autonomy are insufficient with regard to the handling of water supply programs, and there are still conflicts of interest in water utilization between sectors and between districts.

Issues in **sanitation** include the following :

- The application of available technology is not yet sufficiently widespread to overcome the increasing demands for addressing environmental quality.
- There is not yet an institution which can deal with sector problems.
- Spatial planning does not give sufficient attention to infrastructural requirements.
- There is not yet an ability to protect natural resources related to the sector.
- There is limited financial capability in meeting the demand for better environmental preservation and attaining the feasibility standards as well as the increasing demand for improved (and more costly) technology for environmental cleanliness; for example, the demand for centralized systems which are healthier and safer compared to on-site systems, but have higher unit costs.
- Standards, regulations and technical software for planning and managing environmental sanitation are incomplete.
- Sanitation demands and funding priorities are not yet in balance.
- The sector information system is weak.



- There is not yet a set of norms, standards, handbooks and manuals in the sector, while the demands for service are increasing.

## A STRATEGY FOR COMMUNITY WATER AND SANITATION

The continuing need for major initiatives on a national scale to solve the problems of sanitation and water supply has been well documented, and high priority has been given to the attainment of goals and targets in this sector. As elements of the Community Water and Sanitation Program (CWSP), a concept and procedures for water and sanitation action planning at the district/sub-district level have been prepared, with pilot projects undertaken in East Java and Bali in order to formulate the working details of this process.

Based on this experience and on other recent similar undertakings, the Community Managed Water and Sanitation program (CMWS) has been prepared for implementation of this concept throughout Indonesia, covering the period of Repelita VI and beyond. CMWS will institutionalize the water and sanitation planning process in both urban and rural areas, with the specific goals of (1) improving sanitation at the community level, (2) improving public awareness of the need for good sanitation, (3) involving communities and individuals in the planning, financing and implementation processes, and (4) using local resources to the maximum extent possible for water and sanitation improvements. Included in CMWS are the following components :

1. Water and Sanitation Action Planning
2. Human Resources Development
3. Sanitation Education/Social Marketing
4. Water/Sanitation Implementation, Operation and Maintenance

There are two primary support mechanisms related to the WSAP process: Human Resources Development and Sanitation Education/Social Marketing. Both are essential for the successful attainment of the goals of community based sanitation activities, but the degree to which they are required may well differ substantially from place to place. Water and sanitation action planning is a process, the technical aspects of which have been addressed at the community level for some time, at least in some locations. The CWSP model formalizes the structure of this process, relates it to existing institutions and programs, and, most importantly, provides a vehicle for community participation and responsibility in issues which are of great importance to each family in the community. In order for the WSAP model to be understood and implemented efficiently and effectively, support must



be provided as appropriate in a given locality depending on the existing institutional, socio-economic, and cultural context.

The CWSP has produced all the materials required for the implementation of a national CMWS, with formats and contents specifically targeted in manuals for usage at the national, provincial, regency, district and sub-district levels. These materials, in the form of guidelines, forms, media outputs, and training modules, are intended to be distributed nationally, with sets going to each province and to selected regencies and sub-districts.

## ■ Implementation Strategy

Although the concept and approach of CMWS are national, it is intended that the Tingkat I and II governments make their own decisions as to the applicability of each of the four components within their jurisdictions, with support provided as appropriate and required from the central level. Furthermore, it is likely that the CMWS materials, which are presented as models, may need to be modified considering prevailing institutional, social and technical conditions. In effect, these governments will be required to prepare their own strategies in the form of provincial and kabupaten plans for the utilization of the CMWS method, as modified to best meet their particular requirements and capabilities. What is most important is that the need for proper sanitation must be explained and accepted in every kelurahan and desa in the country, and that this acceptance be manifested by local initiatives in planning for and implementing measures to improve sanitation with full community support

## ■ Health Education/Social Marketing

There is a great need for increased awareness of public health and sanitation at the community level. Community members (families) will be asked to participate in both the planning and implementation of the WSAP and will be more willing and able to do so if they have a clear understanding of the direct benefits to them as individuals and as members of the community. CWSP has designed a program for the development of public awareness through the use of printed and electronic media, including the distribution of posters and booklets and the broadcasting of television and radio spots. The materials developed by CWSP for this purpose may need to be modified to reflect prevailing cultural conditions, but the same basic approach would be utilized nationwide. The printed material is to be distributed and explained by Pokjanal/Pokja PAB - PLP and Cadre personnel specifically trained for this purpose. Radio and television spots would be aired with much broader coverage, of course.

## ■ The Role of the Community

Community mobilization and organization is intended to provide a community focus for service delivery, through the Pokja, cadres, and user groups, supported by a TK II government Pokjanal in a promotion and extension role; this is coupled with related activities, such as 'door to door' hygiene education, by the cadres, using appropriate training and promotional materials. CMWS would provide a component which has not as yet been systematized in IUIDP, i.e. the involvement of the community in identifying needs and programming initiatives to meet them in consideration of local goals and priorities. Iterative Sanitation Action Plans prepared on a kelurahan basis can become significant elements of the Dati II (kabupaten/kotamadya) PJM (Program Jangka Menengah - Medium Term Program), particularly for addressing small-scale sanitation problems which tend to have serious cumulative consequences.

Village level plans are prepared with full community participation and submitted to the district by the Lurah or Village Head. After evaluation and prioritization in the kecamatan UDKP (Unit Daerah Kerja Pembangunan) meeting, they are submitted to the Regency Planning Board (BAPPEDA) for inclusion in the PJM, which is then discussed in the annual Tingkat II Rakorbang process. Finally, the draft PJM's are presented to the provincial BAPPEDA for consideration in its Rakorbang. Primary responsibility for actual preparation of the plans is delegated to the LKMD (Village Development Group), which is assisted by one or more of its constituent Working Groups.

## ■ Water and Sanitation Action Planning

Water and sanitation action planning as developed in the CWSP is the actualization of the bottom-up approach at the lowest jurisdictional level; i.e. the sub-district. It includes needs identification and program preparation with regard to water supply, drainage (both natural and sullage), human waste and solid waste. The Water and Sanitation Action Plan (WSAP) produced is in effect a village PJM for that sector, as well as input for the Level II PJM. It specifies the type of facility/infrastructure required, the number of units, and the unit cost, spread over an implementation period of three to five years. It also identifies sources of funding, e.g. Inpres, APBN/APBD (national, provincial or regency budget), NGOs, and/or the people themselves. Since the required infrastructure is usually very local in scope, standard designs are intended to be utilized to the extent possible, and specific engineering design may not be needed. Implementation can be initiated pending availability of funds. However, in cases where the technical problems and/or solutions are more complex, the WSAP would be followed by Level II Pokjanal assistance and engineering design prior to implementation.

## ■ Sanitation Technology

Appropriate sanitation facilities are selected on the basis of (1) suitability to local environmental conditions, (2) ease of use and maintenance, (3) use of locally available materials, (4) long service life, and (5) affordability. Using these criteria, choices are made between the following technical alternatives:

### *Water Supply*

1. Centralized system with reticulation (PDAM)
2. Point-of-use systems: shallow well, deep well with hand pump, and rainwater collection. Considerations are water quality, reliability, and cost.

### *Wastewater*

1. Centralized system with reticulation and treatment: conventional, shallow and small-bore sewerage.
2. On-site systems: septic tank, cubluk (twin leaching pit). Considerations are soils, depth to groundwater, distance from water sources, land availability, cost, population density and accessibility for emptying (septic tanks).

### *Solid Waste Disposal*

For both organic and inorganic wastes, facilities are required for disposal on-site, local collection, conveyance to transfer points, conveyance to final disposal site, and final disposal. There are alternatives in the physical attributes (e.g. shape, size, materials) of these facilities.

### *Drainage*

Drainage systems are classified as *major*, *minor*, and *micro*. Alternatives exist in terms of dimensions, materials, and type of facility (e.g. open unimproved drain, open improved drain, closed drain, pipe).

## ■ Revolving Fund

As noted above, the project approval and financing process for infrastructure called for in a community's Water and Sanitation Action Plan will follow existing procedures. However, at the sub-community scale it may be possible to undertake some projects with very little or no outside assistance, depending instead on self-help for labor, materials or financing. The CWSP has assisted in the formulation of a program of toilet construction in private homes on this basis in demonstrating how an important component of the WSAP - human waste - can be dealt with after public awareness has been enhanced and latent demand aroused. The model utilizes seed money from the Central Government for pre-financing, with monthly payments from the participants made available for furthering the scheme as a revolving fund. This type of scheme could be supported by funding from non-government sources as well and utilized for any number of community development initiatives, both within and outside of the sanitation sector. In Tanggul Angin (Sidoarjo, East Java) a revolving fund is being utilized for the provision of family water supplies; there are doubtless many other examples from across the country.

Key to the success of this program has been the ability to educate the public on the need for the proper disposition of human waste to the extent that families are willing to enter into financial obligations over a number of years, depending on the desired rate of payment. This willingness is a direct result of the education/social marketing program, which seeks not only to educate but to change behavior in ways which are considered to be beneficial to the community through the attainment of specific sanitation goals and targets.

CMWS includes a revolving fund enabling families to have toilets constructed in their homes. The real need for toilets and other basic facilities are in fact separate from the needs for the other CMWS components, although they are of course related to the same goal of improving sanitation. The perceived need for toilets is expected to be heavily influenced by the education/social marketing program as a concrete manifestation of that program's success in conveying its messages. Therefore, the credit program is expected to be closely linked with education/social marketing activities. It is quite possible, however, that a latent demand for toilets exists in locations where the level of awareness has already been raised through various means but no programs for meeting the demand have yet been initiated.

Of the four CMWS components, the use of revolving funds to meet sanitation needs, such as the provision of toilets and water, appears to be most widely applicable, and this component should be promoted on its own merits nationally apart from the progress of IUIDP, P2LDT, and the other CMWS components. Every village should be advised of the program, with progress on its establishment

assisted in the targeted ones and left to local initiative for the remainder. The first step is to devise a program/project for the disbursement of the initial capital requirement for the provision of facilities through contractors, with a system of monthly payments by the beneficiaries. This can be done first in villages which already have an awareness of the need for water and sanitation facilities, an understanding and acceptance of the revolving fund concept, and the ability to manage the process. Most villages will not meet these requirements until they have received the CMWS training. However, by the time the financial support may be in place, either from central government, the provinces, or the districts, a considerable amount of such training will hopefully have taken place.

In order to implement this program, communities would need to be given (1) guidelines and handbooks on the establishment, operation, monitoring and evaluation of a revolving fund, including all necessary forms and sampled documents; (2) information concerning the facilities suitable (i.e. low cost, simple technology) for financing through a revolving fund; (3) training in the understanding and use of this material; and (4) seed money to establish the fund. In many locations it may also be desirable to provide training for the artisans who will be constructing the facilities.

## ■ Operation and Maintenance

All water and sanitation facilities and infrastructure require proper operation and maintenance if they are to serve their intended purposes over a reasonable economic life. The Pokja PAB-PLP, as the unit responsible for community facilities and infrastructure, must attach high priority to implementing the detailed guidelines provided for each of the sanitation sub-sectors, and for managing funds allocated for operation and maintenance. At the user level, the guidelines must also be well understood and followed to ensure that each home, shop, school, workshop etc. gets maximum utility at minimum cost from their pumps, septic tanks and other hardware.

## ■ Legal and Regulatory Framework

Studies of legal issues and a review of regulations and laws concerning water supply and sanitation were carried out in East Java and Bali under CWSP. Such investigations are recommended for all CMWS provinces in order to identify where such devices are overlapping, particularly in terms of assigning responsibilities; where they are inadequate to deal with the technical aspects of modern development; and where they may be in conflict, either with other local or national laws and regulations.

## ■ Human Resources Development

Human Resources Development (HRD) has as its overall goal the emplacement of sufficient capacity for the implementation of water and sanitation action planning on a national scale. This pertains primarily to the adequacy of existing human resources at the community (neighborhood), village, district, regency and provincial levels. Adequacy means having sufficient numbers of people, whether they are community cadres or staff of government agencies, with levels of knowledge and ability commensurate with the requirements of their particular roles in the water and sanitation planning process. The question of numbers will have to be addressed in an institutional capacity context as the process is introduced, as it is not possible to know a priori to what extent this will be a constraint in each *dati II*, *kecamatan* and *kelurahan/desa*.

Generally speaking, the lack of personnel who have technical competence in water and sanitation issues and problems will be a major concern at the *kecamatan* level and below. A *kecamatan* has only one or two health centers (*Puskesmas*), with one Sanitarian assigned to each center. CWSP has, therefore, developed training modules in community development, health and sanitation, with *dati II* officials to be trained first, *kecamatan* level training then to be carried out by the *dati II* team, and *kelurahan/desa/cadre* level training done by the *kecamatan* personnel. The *dati II* and *kecamatan* teams also receive training in the methodology of non-formal training. The training curricula, modules and methodologies are included in the CMWS source material.

## NATIONAL POLICIES AND PLANS

Fiscal Year 1994-95 marks the beginning of the second long-term development period (*Pembangunan Jangka Panjang - PJP II*) and the completion of *PJP I*, the nation's first five five-year short-term planning periods (*Recana Pembangunan Lima Tahun - Repelita I - V*). Sectoral policies, goals and strategies for the entire 25-year *PJP II* have recently been enunciated, as have the more detailed programs for *Repelita VI* (1994/95 - 1998/99). These are based on the national development objectives as contained in the *Repelita VI Guidelines for State Policy (Garis-garis Besar Haluan Negara - GBHN)*.

## ■ National Development Strategy

The national strategy for housing and settlements for *Repelita VI* includes the following main points. Those which coincide with Community Managed Water and Sanitation (CMWS) goals are printed in bold type.



- Development will emphasize (a) **improvement in housing quality**, (b) a balance between urban and rural development, (c) improvement in the welfare of all Indonesians, (d) **improvement in the quality of life of the family and the community**, and (e) the enhancement of social harmony.
- Strengthening of the nation's cultural values is accomplished through family-oriented social harmony.
- Build new housing and settlements and renovate and improve existing ones while fulfilling the needs of the people and creating safe, peaceful and prosperous communities.
- Strengthen sources of financing and develop their roles in meeting the capital requirements for the construction of both sale and rental housing.
- Create an appropriate financial climate for housing construction, including adequate credit, the rental process, and mortgaging, and support an active community role in these matters.
- Provide housing and settlement development for low income communities while following local land use plans and social conditions.
- **Promote self-help and cooperative efforts.**
- **Provide proper infrastructure including water supply**, facilities for social, religious, facilities, economic, transportation, sports and recreation needs, as well as **environmental infrastructure including rubbish handling**, and **increase public awareness and responsibility in villages and cities so that more people live in healthy housing and communities.**
- **Make available technical information concerning housing construction and rehabilitation to upgrade environmental conditions.** Housing construction in large cities must be undertaken in recognition of the local social environment.

The approach for providing housing and settlements in both the long term (PJP II) and Repelita VI includes the following with specific reference to water supply and sanitation:

- To improve the welfare of the people, development must include the improvement and broader distribution of services, reaching all levels of society. Social awareness must be developed to improve community participation.
- To optimize urban functions it is necessary to improve facilities and infrastructure.

## ■ PJP II and Repelita VI Objectives

Related to the above policies are the following objectives for PJP II and Repelita VI, again with specific reference to water supply and sanitation:

### **PJP II :**

- Financing is not only through government but also from the community itself and the private sector.
- Development of housing and settlements is done by the community as the primary implementor.

### **Repelita VI :**

- Targets must be fulfilled regarding both quantity and quality, in particular with respect to the urban and rural poor.
- Sources and mechanisms of finance for the poor must involve both the formal and informal sectors.
- Government regulations, implementation guidelines and technical handbooks must support the strengthening of the role of the community in development.
- The decentralization of planning, implementing and monitoring development must be entrenched, and information provided concerning appropriate technology and the use of local materials.



## ■ Repelita VI Targets

The Ministry of Public Works has specified the following Repelita VI targets for infrastructural improvements in urban areas:

### *Wastewater*

256 urban areas, including metropolitan (7), large (51), medium (49) and small (149) cities, are prioritized. For the medium and large cities, the target is for 75% of the population to be served and for small cities 70%. On-site wastewater treatment systems using simple technology will be installed in each city. In addition some of the medium cities will be served in part with centralized systems and interceptors. 5,000 villages (desas) will also receive on-site facilities. The service target for rural areas is 60%.

In selected cities, areas with densities of about 200 persons/hectare will be served with sewerage systems, and areas of about 100 p/h with interceptor systems. Low-density (50 p/h) areas will be served with interceptors in connection with the clean rivers program. On-site systems will be built in all cities, using shallow sewers with communal septic tanks or vertical septic tanks, depending on soil and groundwater conditions and the availability of piped water.

### *Drainage*

Drainage facilities will be built in 17 metropolitan/large and 196 medium/small cities. Priority will be given to the rehabilitation and normalization of existing drainage in built-up areas and in fast-growing areas which have flooding problems. A further priority is the protection and preservation of water resources. Program components include planning, construction of new primary, secondary and tertiary drains, rehabilitation and normalization of channels, flushing facilities, procurement of pumps, program development and information.

### *Solid Waste*

Solid waste management and construction of facilities will be undertaken in approximately 500 cities to a service level of 60-80%. Priority will be given to areas with densities greater than 50 persons per hectare, commercial, office, industrial and tourist areas, and areas which are changing functions (i.e. in the process of redevelopment).

### ***Water Supply***

By the end of Repelita VI 90% of the urban population and 70% of the rural should have clean water, both through piped and non-piped systems. Of the 90%, 60% (47.8 million people) will be served by piped systems and 30% by their own means. The program for achieving this includes (a) reducing water loss to about 25% in 20 metro and large cities and 30% in medium and small cities; (b) increasing capacity in cities by 30,000 l/s and population served by 22,000,000; (c) serving an additional 22,000 villages and 16,500,000 rural dwellers; (e) improving the management efficiency and entrepreneurship in water supply companies (PDAMs).

The Ministry of Health has also specified targets for Repelita VI, as follows :

- Increase water quality and reduce the risk of pollution in both piped and non-piped systems.
- Increase the use of clean water in rural areas from 50% to 60% and in urban areas from 80% to 90% of the population.
- Improve early vigilance concerning the unusual occurrence of diseases which are spread by water.
- Ensure that water supply infrastructure, equipment and materials are in good condition from a health standpoint.
- Control the use of equipment and materials which are used in water management.
- Increase the improvement of the quality of water with respect to physical, chemical and bacteriological aspects, including the handling of residential wastewater and other sources of pollution.

Specific initiatives proposed to achieve the above targets are concerned with the (a) safeguarding of water quality, (b) improvement of water quality and (c) provision of water supply.

## CURRENT PROGRAMS AND PROJECTS IN THE WATER SUPPLY AND SANITATION SECTOR

The major strategies for integrated development in urban and rural areas, IUIDP and P2LDT respectively, are based on the fundamental strategy of decentralization, in which local governments are gradually assuming primary responsibility for the phases of (1) needs identification, (2) program/project preparation, (3) program/project implementation, and (4) facility ownership and responsibility, including operation and maintenance. Local financing for all of the above is also of growing importance. An integral part of the strategy is greater involvement of the affected people in the decision-making processes, particularly concerning phases 1 and 2. This is referred to as 'bottom-up' planning, as distinguished from the 'top-down' approach which has characterized the implementation of all four phases until very recently.

### ■ IUIDP

CMWS is proposed to be implemented in urban areas (kelurahans) in the context of the Integrated Urban Infrastructure Development Program (IUIDP), which itself is now undergoing examination to determine what directions are appropriate for this approach to the provision of urban infrastructure during Repelita VI. Clearly, sanitation problems are most critically felt in urban areas, generally in direct proportion to population densities, and the national program for sanitation action planning will be concerned primarily with the urban and peri-urban areas of greatest need.

IUIDP planning and implementation are coordinated by the Bureau for Urban Development, Human Settlements and Public Housing in BAPPENAS, with the Ministries of Home Affairs, Finance, Public Works, Communication, Housing and the Environment all having major roles in urban development in general. To date, seven major urban service components have been included; it is intended that this be expanded to sixteen during Repelita VI.

For Tingkat II (Level II - Regencies [Kabupatens and Kotamadyas]) jurisdictions water and sanitation action plans are components of the Medium Term Program (Program Pembangunan Jangka Menengah - PJM), which is prepared for the urbanized areas of the kabupaten (i.e. kota administratif and/or desa) or kotamadya and includes all infrastructural requirements for the 3-5 year planning period. Considerable progress has been made in preparing PJM's over the past several years as the primary output of the IUIDP planning process. As of June 1993, PJM's had been prepared for 168 Level II governments, including 376 towns, 18 of these were metro areas. For Fiscal Year 93-94, PJM's will be

prepared for 99 more Level II governments, including 197 towns. This work will continue in Repelita VI, with planning and implementation undertaken on a sector basis for the largest cities, where the scale of required infrastructure is large enough to justify this approach, and on an integrated (multi-sectoral) basis for the remaining cities. For both, needs identification and spatial planning will continue to be integrated through the PJM process.

IUIDP recognizes the need for community participation in the planning process, but in fact there has been little if any meaningful participation at the local (kelurahan/desa) level to date. Most planning and project preparation has been undertaken by consultants through tenders administered in Jakarta. They have worked closely with Tingkat I and II personnel, but since the emphasis has been on large-scale infrastructural requirements, frequently involving several kecamatans, communities have not been called upon to participate in the identification of local needs or in the programming of projects.

A specific IUIDP goal for Repelita VI is the design and implementation of practicable and sustainable programs for achieving adequate participation by community groups, the business sector, and informal and traditional entities. The involvement of community groups in IUIDP multi-year programming and budgeting is ostensibly through the Real Demand Surveys (RDS). On a broader scale they are also involved in the Rakorbang-Rakornas process, which are Development Coordination Meetings at the provincial/district and national levels respectively. Consultation at the kelurahan/desa and kecamatan levels takes place in the community development consensus meetings (musbangdes - musyawarah pembangunan desa). The actual utilization and effectiveness of these mechanisms to date are of concern and will receive priority attention during Repelita VI.

## ■ P2LDT

In rural areas (desas), the planning and implementation of measures to improve water and sanitation are proposed to be undertaken through P2LDT (Pembangunan Perumahan dan Lingkungan Desa Secara Terpadu - Integrated Village Development), which is coordinated by the Ministry of Housing and involves Directorate General Community Development (Pembangunan Masyarakat Desa), Ministry of Home Affairs; Directorate of Housing (Perumahan), D.G. Cipta Karya, Ministry of Public Works; D.G. Communicable Disease Control and Environmental Health (PPM & PLP), Ministry of Health and D.G. Social Welfare (Binkesos), Ministry of Social Affairs. The emphasis of P2LDT to date has been in the rehabilitation of housing, but improvements in village infrastructure, including roads, footpaths, drainage and public toilets, have also been undertaken.

P2LDT has since 1984 been assisting villages in identifying basic needs in housing and infrastructure, and in programming both rehabilitation (housing and

infrastructure) and the provision of new facilities (infrastructure only). During Pelita IV 7,286 villages were reached, and during Repelita V 18,878. About 5,000 more will be covered in Repelita VI, in addition to more than 3,000 groups of villages (Kawasan). Thus of the approximately 65,000 villages in Indonesia, more than 35,000 will have had planning and programming assistance through the P2LDT coordinative umbrella, which is implemented through the LKMD (Lembaga Ketahanan Masyarakat Desa - Community Development Board). All budgeting is done through the Provincial and Kabupaten mechanisms, as for IUIDP.

In Repelitas IV and V P2LDT utilized three categories of villages, essentially based on degree of need and ability to undertake project planning and implementation. These are (1) P2LDT Murni, for the poorest and least developed villages; (2) OKK-P2LDT, for those more advanced, and (3) P2DPP, which are growth centers and the most advanced villages. For the first two, simple needs assessments and work programs were prepared by provincial/kabupaten staff, with the emphasis heavily on housing rehabilitation but including roads, drainage and sanitation. For the third group, comprehensive village development plans (Rencana Umum Tata Ruang - RUTR) were prepared by consultants, with detailed analysis of present and future infrastructural requirements in the context of a spatial plan.

For Repelita VI, there will be three approaches to village development. P2LDT Murni will continue for villages with good development potential, and P2DPP will be implemented in villages in selected sub-regions (kawasan). There are six types of kawasan, including the growth centers. Planning will be strengthened through the adoption of the Community Managed Water and Sanitation Action Planning Program as a major component of the P2LDT Murni process. For the growth centers, consultants will extend their services to the preparation of detailed engineering design. Planning for these villages does not require incorporation of the CMWS sanitation action planning model, since the RUTR is a much more comprehensive approach and includes all infrastructure. However, other elements of CMWS may be appropriate for the high growth villages. The last group are low-growth villages in which activities are undertaken through KSM (Kelompok Swadaya Masyarakat) and IDT (Inpres Desa Tertinggal). For this group, 2,300 villages have been selected in 26 provinces for Fiscal Year 1994-95. The target for all of Repelita VI is for 20,000 of these villages to be assisted. Planning for the villages is done by each Dinas PU Tingkat II.

## ■ Presidential Instruction

The GOI frequently uses a system of direct grants to villages through a special instruction of the President (Instruksi Presiden - Inpres). Such grants are usually for set amounts per village, but are sometimes related to population or to a

maximum per application (e.g. a project). The major types of grants are as follows:

### ***Inpres Desa***

Presidential Instruction Number 6 of 1984 includes Village Development Assistance for self-help efforts, with funds used according to priorities set by the villagers. Grants are made directly from the center to the village; other grants under this Instruction to Provincial and District governments could also be used for village activities.

### ***Inpres for Water and Sanitation***

An Inpres program for water supply and sanitation was established in 1974. Local governments submit proposals, which are reviewed through the normal budgeting process at district and provincial levels and submitted to the center. Funding is then allocated based on annual physical targets, unit costs, and the available budget. Implementation is the responsibility of local government at the district level. In 1991 Guidelines for the Use of Assistance in the Development of Village Water Supply and Environmental Sanitation were issued by the Ministry of Home Affairs.

***Banpres Desa*** (Presidential Assistance to Villages) provides funds for the improvement of physical infrastructure.

A new approach for Fiscal Year 1994-95 is ***Inpres Desa Tertinggal*** (Presidential Program on Underdeveloped Villages), which provides seed capital for the creation of self-help groups and the improvement of household enterprises. Project proposals are submitted by the groups (KSM) to the LKMD, which submits them to the Rural Community Development Office at the sub-district (kecamatan). NGO's can play an important role in assisting the groups to prepare their proposals.

## ■ Ongoing Projects

The projects described below are current initiatives in the sector and are indicative of the approach and level of support which is likely to characterize externally-assisted activities. Most of them will be ongoing through Repelita VI and therefore have a bearing on recommendations concerning strategies and detailed planning. No attempt has been made to list the large number of sector-related projects, such as under IUIDP, which may have water and/or sanitation components on will otherwise affect sector development. In 1991 there were 66



projects for water and sanitation, 35 more projects had significant water and/or sanitation components, and 20 other projects were indirectly related to the sector, primarily in the form of broader-based studies.

## **CWSP**

The Community Water and Sanitation Project was launched with UNDP and Dutch government funding in 1989 to develop and test a comprehensive strategy for community-based environmental sanitation improvement. The strategy has been directly applied in the East Java-Bali Urban Development Project, where the approach and methodology were developed and tested. Planning is now underway to incorporate the strategy in IUIDP, P2LDT, and projects underway in the sector.

CWSP has produced manuals directed at the provincial/sub-regency and village levels describing the methodology for use by both urban and rural communities throughout Indonesia. A success of the project has been the use of a revolving fund for family-level sanitation improvements, with minimal monthly payback over an extended period. Initially set up to help families acquire proper toilets, such a fund can be used for any small-scale community sanitation requirement.

## **WSSPLIC**

In 1991 GOI, with support from UNDP and the World Bank through CWSP, began preparation of a Water Supply and Sanitation Project for Low Income Communities (WSSPLIC). The project, adopting strategies developed in the CWSP, incorporates an integrative approach involving three line ministries (DEPKES, Dalam Negeri, and PU) and a community-based, demand driven implementation strategy. This strategy will be tested, assessed and refined through the implementation of WSSPLIC in 1,414 low income communities (primarily in rural areas but also in several urban slums) in six provinces over a six-year period, with the intention to develop a national strategy for water supply and sanitation development in low income areas.

Project components are water supply, sanitation, hygiene/sanitation education, training and institutional/community development, support for project planning and implementation, and project management. The implementation strategy is based on targeting of poor, under-served villages; community participation; demand-driven interventions; cost recovery; programmatic or structured learning approaches; and use of NGO's. The project will institutionalize "village action planning" as the process for needs identification and improvements programming, based on the model of water and sanitation action planning developed in the Community Water and Sanitation Project.

A working group on community water and sanitation, the Functional Coordinating Committee (FCC), with members from the Ministries of Public Works, Health and Home Affairs, is the main forum in assessing the status of sector development and reviewing current policy in guiding the implementation of WSSPLIC. Working under the FCC is a Technical Coordinating Committee.

## **RWS**

The Asian Development Bank is supporting the Rural Water Supply (Sectoral Project) modeled on WSSPLIC. Now in the preparation stage, the project targets 350 villages in six provinces in Kalimantan and Sumatra.

## **Environmental Health Demonstration Village Program (EHDVP)**

The Ministry of Health through its Directorate General Control of Communicable Disease and Environmental Health has conducted this program since 1989 in six provinces (Lampung, West Java, Yogyakarta, East Java, Bali and South Sulawesi). It has expanded since then, and now includes 41 Tingkat II jurisdictions in 13 provinces (West Sumatra, Riau, Jambi, Bengkulu, West Java, Yogyakarta, Central Java, East Java, South Kalimantan, North Sulawesi, Southeast Sulawesi, West Nusa Tenggara and Maluku).

The program is directed toward those villages in which the Community Organizations (LKMDs) are functioning well. Funds are provided, either through Central and/or Inpres and UNICEF budgets, as stimulants to assist with individual water (Rp. 100,000/unit) and sanitation (Rp. 25,000/unit) facilities. The remaining budget required is intended to be provided by the communities as "self-help".

The stimulant fund is provided only once, at the beginning of the program, while the self-help component continues to support community activities under the guidance of cadre/GOI officials. The most important feature of the program is the high level of community self-help which has been devoted to the fulfillment of water and sanitation requirements.

## **PURSE**

USAID's Private Participation in Urban Services project was launched in late 1992 with the goal of increasing the stock of infrastructure in water supply and sanitation through expansion of private sector participation. The project will develop a minimum of 5 BOT and/or BOO pilot projects and 6 service contracts to



demonstrate the ability of the private sector (with government) to (1) implement projects; (2) test technology and methodology; (3) examine legal, financial and organizational frameworks; and (4) measure comparative efficiencies. The 6-year, US\$20.4 million project is intended to increase the supply of urban infrastructure without a corresponding increase in direct public sector investment and prove additional services at more efficient prices.

## **MFP**

The 4-year Municipal Finance Project (USAID) began in 1990 with the basic goal of formulating an overall PJM (short-term program) methodology for the planning of infrastructure by local governments, particularly small and medium-sized towns. An important component is institutional strengthening at the Tingkat I and II levels. The methodology includes assessment of the effectiveness of previous PJM's as instruments for guiding urban infrastructure investments. The project will be extended with a new name: Municipal Finance for Environmental Infrastructure, with a component concerning the management of urban environmental quality.

## **WSTCF**

The Water Sector Technical Cooperation Fund is a project of the Canadian International Development Agency and located in the Ministry of Public Works. It provides technical assistance and institutional support to the water/sanitation sector in project preparation, technology transfer, institutional strengthening and exchanges between Indonesian and Canadian contractors and consultants. The Can\$ 10 million project targets five provinces and has supported over 25 activities in irrigation, rivers, sanitation and water supply.

## **Health Education Program**

The Training of Provincial Health Personnel for the Implementation of Health Education Programs (GTZ) has been underway since October 1991 to increase the health impacts of the recently completed water supply projects in Padang and 8 small towns in West Sumatra. Activities include training in health and hygiene, the stimulation of community participation, and the establishment of a Health and Hygiene Training Unit.

## ■ Other Programs and Projects

In many communities which are not yet urban centers of sufficient scale to have been included in IUIDP or which are settlements (villages) which do not exhibit urban characteristics, the planning for infrastructural requirements has been undertaken in projects designed on a geographic/sectoral basis, e.g. Central Java Small Towns UDP; West Java Rural Water Supply and Sanitation; Proyek Penyediaan Air Bersih Pedesaan Propinsi Jawa Barat; Central Java Small Towns UDP; Small Towns Sanitation West Java; Yogyakarta Rural Development; Lombok Rural Water Supply and Sanitation. Projects have also been designed to include both urban and rural areas; examples are the Community Water Supply and Sanitation Project and Small Towns Sanitation - Aceh.

## ■ Investment Levels

Actual annual disbursements for sector projects have varied widely since 1990. See Table 1 below. Disbursements in 1990 for 66 water supply, sanitation and drainage projects were \$43,100,000 and constituted almost 2% of the total externally-assisted disbursements of \$2,175,119.

In 1991 such disbursements through 47 projects for drinking water and sanitation (excluding drainage) fell by more than 50% , totalling \$18,370,000. Almost half was for freestanding technical cooperation and about one-third for investment project assistance. This amounted to less than 1% of total disbursements (\$2,035,793,000) for that year, most of which were for economic management (25%), agriculture, forestry and fisheries (16%), transport (17%) and human resources development (7%).

The total development budget rose significantly to \$2,748,454 in 1992, and the sector's share more than tripled (to \$66,309,000), comprising 2.4% of the total. While the entire budget proposed for 1993 (\$1,573,029) is a 43% reduction from the 1992 level, sector support falls by less than 10%, and the sector's share of the total increases to almost 4%.

Total *commitments* for ongoing projects in the sector amounted to US\$459,361,000 in 1991 as shown in Table 2. By far the largest project is INS/SOC/0089, Jakarta Water Supply, which disbursed \$182,940,000 during 1974-1991. Next largest is INS/SOC/0214, Second IKK Water Supply Sector Project (1991-95), with a total commitment of \$39,000,000. It should be noted that there were other large projects during this time period (1974-91), such as the Jakarta Sewerage and Sanitation Project, but the above inventory includes only those which were still active in 1991.

**TABLE 1. External Assistance Disbursements By Year (\$000)**

Sector/Subsector	1990	1991	1992	1993*
Economic Management	552,604	509,300	655,825	133,967
Development Administration	46,545	55,226	62,955	19,966
Natural Resources	38,066	41,901	88,390	81,601
Human Resources Development	78,039	143,492	142,316	90,864
Agriculture, Forestry, Fisheries	492,157	302,377	294,956	389,474
Area Development	107,867	122,468	115,964	51,789
Industry	115,812	121,719	121,333	44,965
Energy	97,600	150,503	258,150	243,127
International Trade	3,821	3,593	3,476	571
Domestic Trade	288	1,589	1,775	369
Transport	359,473	326,545	607,367	204,773
Communications	100,633	93,279	145,539	56,467
Social Development	99,055	94,039	171,184	173,058
Urban Development	(49,742)	(69,181)	(88,639)	(105,218)
Drinking Water & Sanitation	<b>(43,100)</b>	<b>(18,370)</b>	<b>(66,309)</b>	<b>(60,802)</b>
Health	64,440	58,026	67,418	68,217
Disaster Preparedness	0	117	4,387	6,521
Humanitarian Aid & Relief	18,719	11,619	7,419	7,300
<b>TOTAL</b>	<b>2,175,119</b>	<b>2,035,793</b>	<b>2,748,454</b>	<b>1,573,029</b>

The emphasis has been heavily in favor of water supply, which is the subject of 36 of the 58 projects (\$342,315,000). 13 (\$81,902,000) include both water supply and sanitation, and 6 projects (\$32,974,000) deal only with sanitation. Three projects (\$2,407,000) cannot be clearly assigned to either sub-sector.

In 1992 total commitments were less but the amount designated for urban water supplies increased more than four times, with the largest being the Jakarta Water Supply Distribution Pipeline Project (\$44,635,000). Almost half of the total

committed budget for the sector was for water supply projects in medium and large cities in 1992.

**TABLE 2. Total Sector Project Commitments: 1991 and 1992  
(\$000)**

Project Type	Number		Commitments	
	1991	1992	1991	1992
1. Urban Water Supply	13	15	41,651	181,329
2. IKK Water Supply	7	5	63,607	70,357
3. Rural Water Supply	3	2	8,462	4,227
4. Rural Water Supply and Sanitation	4	3	26,065	19,212
5. Community Water and Sanitation	7	6	54,388	53,579
6. National Program Development	3	3	3,040	2,892
7. Sewerage/Wastewater	3	2	4,535	4,199
8. Com./Small Towns Water Supply	6	5	21,500	10,261
9. Human Resources Development	8	7	8,099	9,269
10. Small Towns Sanitation	1	1	1,920	1,920
11. Urban Sanitation	1	1	23,000	26,400
12. Maluku Water Supply	1	1	1,338	1,338
13. Rural/IKKS Water Supply Improv	1	1	1,756	2,494
<b>TOTAL</b>	<b>58</b>	<b>52</b>	<b>459,361</b>	<b>387,477</b>

(Note: The source of the data in Tables 1 and 2 is the *Development Cooperation Indonesia 1990, 1991 and 1992 Reports*, United Nations Development Programme, Jakarta, January 1992/3; February 1994.)

This sectoral information does not tell the whole story however. Projects in health, water resources management/development, urban/rural development, and human resources development frequently have components either directly or indirectly related to the sector. 35 such projects had significant water/sanitation components in 1991, and an additional 20 were more indirectly related to the sector, primarily in the form of broader-based studies. Flood alleviation and drainage improvements were made in 8 projects with total disbursements of \$77,984,000, which includes river improvements and irrigation facilities. 12 integrated development projects, in particular the Integrated Urban Infrastructure

Development Program, accounted for another \$65,590,000, and included an unspecified amount of sanitation and water supply activities. Finally, \$6,449,000 was disbursed through 11 projects for water resources policy planning, feasibility studies, master planning and other activities, all of which would have at least a tangential affect on water supply and sanitation.

At the same time, other types of projects (e.g. industrial development, irrigation) include explicit or implicit demands for water which are potentially competitive with community water and sanitation in terms of resource availability, with impacts on both water quantity and quality. In addition, many projects have direct impacts on water resource quality during both their construction and operation phases. The magnitude of such impacts varies considerably with project type and size, but the cumulative effects on water resources of a large number of projects in different sectors can be substantial, the more so if they are implemented in a relatively small geographic area.

For Fiscal Year 1994/95,

## **ACTION PLAN FOR CMWS IMPLEMENTATION**

A national strategy has been developed for the incorporation of CMWS within urban and rural development programs (IUIDP, INPRES etc.) to allow widespread adoption of workable solutions to the problem of water and sanitation in low-income settlements in Indonesia. The following action plan is required to ensure the adoption of the strategy and its effective implementation.

### **■ The Role of Central Government**

Before implementing the program, the central government must endorse and support CMWS as a means of attaining the goals and objectives noted above. Of particular importance is inter-agency coordination among the implementing ministries, and the incorporation of CMWS within routine planning at the local level.

In order to begin implementation of CMWS, the first requirement is that sufficient resources are allocated to provinces and kabupatens (i.e. BAPPEDAs) so that the process of institutional strengthening, including human resources development and, specifically, the training of trainers, can begin. Resources must also be available in order to promote, as early as possible, the concept and need for CMWS among the agencies concerned and the broader issues pertaining to public health and sanitation among the general population.

To mount this effort on a national scale in Repelita VI, the early and continued support of BAPPENAS and the Ministries of Public Works, Home Affairs, and Health are essential. It is also expected that the UNDP and the World Bank, among others, will provide sufficient support to this effort as a matter of priority throughout Repelita VI and beyond.

Although CMWS is an integrated program, it is recognized that much effort has already been expended in undertaking the four components in various initiatives and locations, either jointly or separately. Therefore, the implementation of CMWS will vary, with local needs and priorities determining to what extent each component is appropriate. In general, the overall approach during Repelita VI for the four components will be as described below.



## ■ CMWS Targets for Repelita VI

CMWS is intended to be implemented in every unit of government in the country: 27 provinces, 303 regencies, 3,839 sub-regencies and 65,350 villages (Table 3). However, for purposes of planning at levels which can be realized within Repelita VI, for example, it is necessary to target a number of provinces, districts and villages for a first phase of implementation of the strategy within ongoing/planned regional/urban/rural development programs.

It is proposed that a first priority would logically be the 20,485 poor urban and rural villages which are included in the 'Desa Tertinggal' program (Table 4). These villages (and their respective kecamatans, kabupatens/kotamadya and provinces) should be assisted in institutionalizing CMWS through implementation of the human resources development and social marketing activities, and in undertaking the CMWS planning process once the requisite capability to do so has been established.

### Urban Areas

The primary attribute of sanitation action planning as a process is that it entails the active involvement of the community on an individual level in the planning for and implementation of water and sanitation developments. As such, it is applicable in any urban area. Included would be those which have had an integrated water/sanitation program or project, such as KIP, since such programs/projects have been directed toward the improvement of specific infrastructural deficiencies, and have not necessarily established a planning process per se. There are almost 7,000 kelurahan in Indonesia; those which would benefit most from the institutionalization of CMWS should be so identified by the responsible Tingkat II governments. It is anticipated that kelurahans which consist primarily or have substantial areas of sub-standard housing would receive highest priority. This would certainly include the 1,000 urban villages (kelurahan) identified as low-income (Desa Tertinggal), 627 of which are in Java.

### Rural Areas

As noted above, CMWS should be included in the  $\pm$  5,000 villages which will receive assistance in the P2LDT Murni program during Repelita VI. These villages will be identified by the Tingkat I and II governments, who are responsible for program implementation, including the financing of developments. One of the most important criteria will be income. P2LDT is viewed as a model program in the sense that those villages not selected for participation in a given kabupaten are encouraged to mount their own initiatives based on the P2LDT activities in a

neighboring village. Obviously the kabupaten has an important role in encouraging this replication.

**Table 3. Units of Local Government by Province**

PROVINCE	REGENCIES	DISTRICTS	VILLAGES
D.I. Aceh	10	142	5,652
North Sumatra	17	243	5,321
West Sumatra	14	103	2,472
Riau	7	78	1,250
Jambi	6	54	1,086
South Sumatra	10	101	2,704
Bengkulu	4	31	1,130
Lampung	5	77	1,952
West Java	25	526	7,104
D.K.I. Jakarta	5	43	261
Central Java	35	532	8,495
East Java	37	609	8,407
D.I. Yogyakarta	5	73	438
Bali	9	51	631
West Nusa Tenggara	7	59	583
East Nusa Tenggara	12	114	1,724
East Timor	13	62	442
West Kalimantan	7	108	1,376
Central Kalimantan	6	82	1,228
South Kalimantan	10	109	2,393
East Kalimantan	6	73	1,167
North Sulawesi	7	85	1,394



PROVINCE	REGENCIES	DISTRICTS	VILLAGES
Central Sulawesi	4	62	1,355
South Sulawesi	23	185	2,210
Southeast Sulawesi	4	64	834
Maluku	5	56	1,530
Irian Jaya	10	117	2,211
<b>TOTAL</b>	<b>303</b>	<b>3,839</b>	<b>65,350</b>

Source: Biro Pusat Statistik. Data as of June 26, 1993.

## ■ CMWS Launch

A program of launch activities is required at the central and provincial levels to disseminate the elements of the strategy; at central level the dissemination will include the provision of information to all provinces, to enable the strategy to be incorporated in future plans. The CWSP will produce an overall CMWS strategy and action plan and separate manuals for use at the Central/Provincial /Regency-District and Village levels.

**Table 4. Poor Villages by Province, District, and Sub-District**

PROVINCE	REGEN- CIES	DIS- TRICTS	URBAN VILLAGES	RURAL VILLAGES	TOTAL VILLAGES
D.I. Aceh	9	132	31	2,244	2,275
North Sumatra	13	132	33	1,331	1,364
West Sumatra	11	91	25	674	699
Riau	7	66	18	442	460
Jambi	6	43	12	263	275
South Sumatra	10	80	38	677	715
Bengkulu	4	30	7	321	328
Lampung	4	61	8	627	635

IMPLEMENTATION STRATEGY FOR COMMUNITY MANAGED WATER AND SANITATION

PROVINCE	REGEN-CIES	DIS-TRICTS	URBAN VILLAGES	RURAL VILLAGES	TOTAL VILLAGES
West Java	21	366	203	1,357	1,560
D.K.I. Jakarta	3	5	11	---	11
Central Java	35	444	198	2,241	2,439
East Java	37	460	226	1,598	1,824
D.I. Yogyakarta	4	20	19	92	111
Bali	8	29	17	81	98
West Nusa Tenggara	6	47	13	112	125
East Nusa Tenggara	12	103	17	451	468
West Kalimantan	7	99	12	513	525
Central Kalimantan	6	79	3	693	696
South Kalimantan	10	95	13	555	568
East Kalimantan	5	55	5	499	504
North Sulawesi	6	71	24	337	361
Central Sulawesi	4	58	3	598	601
South Sulawesi	23	56	42	613	655
Southeast Sulawesi	4	54	6	321	327
Maluku	4	48	5	807	812
Irian Jaya	9	114	7	1,730	1,737
East Timor	13	59	4	308	312
<b>TOTAL</b>	<b>281</b>	<b>2,897</b>	<b>1,000</b>	<b>19,485</b>	<b>20,485</b>

Source: Daftar Nama Dan Indeks Peta Desa Miskin Menurut Kabupaten/Kotamadya Dan Kecamatan Propinsi-Propinsi 1993. Biro Pusat Statistik, September 1993. 4 Volumes.

## Central Launch Workshop

The first step will be the organization of an CMWS Functional Coordination Team (TKF - Tim Koordinasi Fungsional PAB - PL), consisting of selected members of the LKMD Central Management Team (Tim Pembina LKMD Pusat). The TKF is expected to plan for and undertake the launch of CMWS at the central level, with

the major event being a Launch Workshop. At the Workshop, CMWS will be explained in some detail, with less emphasis on the technical aspects and more on the proposed process of implementation, particularly with regard to the institutional framework. Of particular note will be CMWS's role as contributing to the existing major planning and programming processes in urban and rural areas, i.e. IUIDP and P2LDT respectively. Invited to the Workshop will be officials from Bappenas, the Ministries of Public Works, Health, and Home Affairs, and representatives from each province.

### **Central Pokjanal**

A Central Operational Working Group (Pokjanal) is recommended to be established by the TKF as its implementing unit. It is proposed that the initial tasks of the Pokjanal, which will be discussed during the Workshop, could be as follows:

1. Preparation of a Provincial Launch Plan, including the distribution of materials and Launch Workshops for provincial officials, perhaps on a regional basis.
2. Planning for the implementation of Public Health Education and Social Marketing initiatives at the national level, including the utilization of CMWS's electronic and printed media kits.
3. Planning for the training of trainers from the CMWS ministries, who will be responsible for the training of provincial trainers. The focus will be on the operational aspects of CMWS at all levels.
4. Planning for implementation of the revolving fund scheme for toilet construction (or other activities) on a national basis.
5. Planning for target numbers, formulation of selection criteria and identification of participant Dati II governments and desas/kelurahans by province and year for Repelita VI.

### **Provincial Launch Workshop**

A series of three or four regional workshops involving several provinces each could be held to introduce CMWS to provincial officials and to present the plans prepared for PHE/SM, the training of trainers, and the revolving fund. Formal endorsement of these plans would be solicited, after which implementation of the central level activities would begin.

## **Provincial Planning/Implementation**

Immediately after the workshops, planning for the implementation of CMWS in each province would be required by its BAPPEDA. Provincial Pokjanals would be established and charged with the same tasks as described above for the Central Pokjanal. In essence, each province would prepare a plan for the utilization of CMWS based on its own unique needs, constraints, resources, priorities etc. The plans may vary widely in terms of the applicability of the various components of CMWS, but this local perspective is both desirable and essential. It is also clear that progress in this planning effort, while receiving support from the center, will proceed at varying speeds among the provinces, so that the implementation of CMWS is likely to be very uneven.

## **Regency and Sub-regency Activities**

Launch Workshops would be held in targeted regencies and planning then undertaken by their Pokjanals. These plans would then be presented to the concerned districts, who would in turn prepare plans for the targeted urban and rural villages with assistance from the regency.

## **Village Planning**

After the village launch workshops are held, subsequent planning should be completed. This planning should be undertaken as part of the Rakorbang process and could probably be completed within one month. The implementation of the CMWS components initiated as funds are available. Establishment of the revolving fund system, starting with seed money from any government level as well as non-government sources, need not follow this schedule, as decisions could be made at the provincial, regency and village levels to initiate this component on a separate planning/implementation time frame.

## **■ Initiation of a Program of Social Marketing**

Public health education is well-established and the need for the CMWS printed and electronic media programs will also be examined carefully by the concerned governments considering their particular experience and needs. Since the task of public information and education can never be considered to be completed, however, it is recommended that the radio and television spots be delivered nationally, as early as possible. Printed material, including posters, leaflets and the use of periodicals, should be utilized in the CMWS target communities.

## ■ Human Resources Development

The needs for institutional strengthening through staff deployment and/or training at Tingkat I, II, kecamatan and desa/kelurahan levels will vary widely. The analysis of such needs must be undertaken as an important aspect of the provincial strategy and plan for Water and Sanitation, which includes the specific role of CMWS in each province. Obviously, this analysis will be closely linked with the determination of what desas/kelurahans are to be included as discussed above. However, it is possible that training may be required where other CMWS components are not.

## THE COST OF IMPLEMENTATION

With the very large numbers of governments and communities involved, the total cost for implementing CMWS nationwide is indeed prodigious. However, much work has been done in recent years, and there are several substantial projects now underway which are supporting the CMWS approach. The figures presented in the following tables are gross cost estimations and do not reflect such recent and ongoing efforts. These estimates, which will very quickly become outdated as progress is made and as costs change over time, are provided in three scenarios: (1) all local governments in the country; (2) only the poor villages and their respective regencies and districts; and (3) a model project which includes 13 provinces, 2 regencies in each, 2 districts in each regency, and 2 villages in each district. The 13 provinces are those in which there are no current community based water supply or sanitation initiatives underway: West Nusa Tenggara, East Java, Bali, South Sulawesi, East Kalimantan, Central Kalimantan, South Kalimantan, North Sumatra, Aceh, West Sumatra, Lampung, South Sumatra, and Bengkulu.

The estimates do not include the capital costs of providing facilities and infrastructure, except for that which can be built through the revolving fund scheme. This scheme is directed toward family-scale needs, and many problems can only be solved through a much broader approach, involving an entire community or even several communities.

Nevertheless, sector planning and implementation can legitimately be approached on a component basis, and the Government's strong commitment to targeting the poor is the reason for providing a cost estimation for the 20,485 poor villages. At the same time, it should be noted that the primary immediate goals of CMWS are to rationalize the planning process at each level of government, but focusing on the village, and to institutionalize it primarily through human resources development.

While this is done specifically for the water and sanitation sector, the process, once in place, can be applied to planning in the broadest sense at each level. Other sectors will also benefit from this enhanced capability to identify needs, establish priorities, and prepare implementable plans, all with complete community participation. In addition to this cross-sectoral benefit, there will also be benefits to the non-targeted communities, as the participating provincial and Dati II governments will be able to deal more effectively with all of the communities within their jurisdictions.

The initial expenses incurred in implementing CMWS will be for program dissemination and the training of trainers, Pokjanals, and Pokjas in each concerned province, regency, district and village. In addition, there will be training for cadres and artisans in the villages, as well as health education/social marketing program. *These activities are essential to build the institutional capacity as required at all levels, including the development of community participation.* Approximate unit costs (1994 prices) have been calculated for all dissemination and training/education activities, assuming that government officials at each level are the primary implementers. These order-of-magnitude costs will have to be revised to reflect local conditions, of course.

The social marketing/sanitation education activities, which consist primarily of the use of printed and electronic media to increase the level of awareness concerning water and sanitation, are considered to be supportive of the overall process of institutionalization, especially in engendering active community participation and investment, and hopefully leading to significant and measureable improvements in the availability and proper use of water and sanitation facilities and infrastructure. Approximate unit costs have also been prepared for a model program of social marketing. The degree to which these activities may be required or desired will no doubt vary considerably depending on many factors, such as the existence of recent or ongoing programs and projects, the availability of infrastructure, and socio-economic characteristics. *These costs are therefore not necessarily essential to the completion of community plans.*

Costs associated with the actual preparation of the Water and Sanitation Action Plans, including data collection (including the basic survey) and compilation, plan formulation, mapping etc. expected to be met through the normal administrative budget at each level. However, the CMWS program does include a Village Planning Workshop, at which the plans are finalized with community endorsement, and a budget for this is provided.

CMWS strongly promotes the use of revolving funds for water and sanitation improvements at the family scale. The need for and ability to efficiently use and manage such funds will also vary widely. For the purpose of calculating a national budget, it is assumed that each village will require an initial investment of approximately Rp 5,000,000 to 15,000,000 to establish a revolving fund



system. This amount is sufficient to construct 50-60 toilets depending on the types, which would be a reasonable first-year goal. Of course, the fund could be used for any type of water and sanitation facility, as determined by local needs and priorities.

Cost estimates in 1994 Rupiah are provided in the following sections for each program component (i.e. workshops, training, social marketing/public health education, village planning workshop, revolving fund) and for each of the three scenarios (i.e. all governments, poor villages, model project). The costs are summarised in Table 5 - 10.

## ■ Program Dissemination

**Table 5. Cost of Workshops (1994 Rupiah)**

Level	Number	Unit Cost	Total Cost
<b>A. All Governments</b>			
Province	27	7,095,000	191,565,000
Regency	303	7,095,000	2,149,785,000
District/Village	65,350	690,000	45,091,500,000
<b>Total</b>			<b>47,432,850,000</b>
<b>B. Poor Villages</b>			
Province	27	7,095,000	191,565,000
Regency	281	7,095,000	1,993,695,000
District/Village	20,485	690,000	14,134,650,000
<b>Total</b>			<b>16,319,910,000</b>
<b>C. Model Project</b>			
Province	13	7,095,000	92,235,000
Regency	26	7,095,000	184,470,000
District/Village	104	690,000	71,760,000
<b>Total</b>			<b>348,465,000</b>



The concept and implementation of CMWS are intended to be explained to targeted governments in a series of workshops from the provincial to the village levels. The one-day workshop module is included in the CMWS Training Set. Unit costs for undertaking the workshops at each level and total costs are estimated as follows:

## ■ Training

Training teams and Pokjanal members at the provincial and regency/district levels will receive intensive instruction in the operational aspects of CMWS, as will the Pokja members in each village. Cadres (one group per village) and Artisans (one group per two villages) will receive specialized training, and community members will be educated in hygiene. Unit costs for these activities are estimated as follows:

**Table 6. Cost of Training (1994 Rupiah)**

Activity	Number	Unit Cost	Total Cost
<b>A. All Governments</b>			
Province TOT/Pokjanal	27	11,110,000	299,970,000
Regency-District TOT/Pokjanal	303	11,110,000	3,366,330,000
Village Training	65,350	8,370,000	546,979,500,000
Cadre Training	65,350	3,865,000	252,577,750,000
Artisan Training	32,675	5,020,000	164,028,500,000
Hygiene Education	65,350	2,128,000	139,064,800,000
<b>Total</b>			<b>1,106,316,850,000</b>
<b>B. Poor Villages</b>			
Province TOT/Pokjanal	27	11,110,000	299,970,000
Regency-District TOT/Pokjanal	281	11,110,000	3,121,910,000
Village Training	20,485	8,370,000	171,459,450,000
Cadre Training	20,485	3,865,000	79,174,525,000

Activity	Number	Unit Cost	Total Cost
Artisan Training	10,245	5,020,000	51,429,900,000
Hygiene Education	20,485	2,128,000	43,592,080,000
<b>Total</b>			<b>349,037,835,000</b>
<b>C. Model Project</b>			
Province TOT/Pokjantal	13	11,110,000	144,430,000
Regency-District TOT/Pokjantal	26	11,110,000	288,860,000
Village Training	104	8,370,000	870,480,000
Cadre Training	104	3,865,000	401,960,000
Artisan Training	52	5,020,000	261,040,000
Hygiene Education	104	2,128,000	221,312,000
<b>Total</b>			<b>2,188,082,000</b>

### ■ Social Marketing/Public Health Education

Social marketing costs are incurred in both the preparation and implementation of a campaign excluding cost of electronic media reproduction. CMWS has prepared model campaign materials, and it is assumed that these materials will be used throughout the country. Therefore, the following costs include only the implementation phase.

**Table 7. Cost of Social Marketing/Public Health Education**

Level	Number	Unit Cost	Total Cost
<b>A. All Governments</b>			
Province	27	5,000,000	135,000,000
District	303	2,000,000	606,000,000
Village	65,350	500,000	32,675,000,000
<b>Total</b>			<b>33,416,000,000</b>

Level	Number	Unit Cost	Total Cost
<b>B. Poor Villages</b>			
Province	27	5,000,000	135,000,000
District	281	2,000,000	562,000,000
Village	20,485	500,000	10,242,500,000
<b>Total</b>			<b>10,939,500,000</b>
<b>C. Model Project</b>			
Province	13	5,000,000	65,000,000
District	26	2,000,000	52,000,000
Village	104	500,000	52,000,000
<b>Total</b>			<b>169,000,000</b>

### ■ Village Planning Workshop

In order to finalize the Water and Sanitation Action Plans, a workshop will be held in each village, with the following cost:

**Table 8. Cost of Village Planning Workshops (1994 Rupiah)**

Level	Number	Unit Cost	Total Cost
<b>A. All Governments</b>			
Village	65,350	690,000	45,091,500,000
<b>Total</b>			<b>45,091,500,000</b>
<b>B. Poor Villages</b>			
Village	20,485	690,000	14,134,650,000
<b>Total</b>			<b>14,134,650,000</b>
<b>C. Model Project</b>			
Village	104	690,000	71,760,000
<b>Total</b>			<b>71,760,000</b>

## ■ Revolving Fund

Establishing a revolving fund in each of the villages requires an initial investment of 'seed money', which could be arranged in a number of ways. Sources of financing may also vary. Government funds are required to be allocated to projects, which are implemented by contractors. Payment for facilities provided can they be made on a monthly basis by the recipients or whatever agreed by the community and acceptable to local government, and the accumulated funds borrowed for further construction. Funds from other sources may be made directly available to the recipients without passing through a project contract. In order to construct 50 toilets, a fund of approximately maximum Rp 15,000,000 would be needed; this is arbitrarily used as a benchmark for establishing a fund of sufficient size to undertake a substantial level of construction. Of course, the fund may be used for whatever type of facility a given village may require, based on its own priorities. Training in the management of the fund is included in the training program. The cost of establishing such a system is as follows :

**Table 9. Cost of Revolving Fund (1994 Rupiah)**

Level	Number	Unit Cost up to	Total Cost maximum
<b>A. All Governments</b>			
Village	65,350	15,000,000	980,250,000,000
<b>Total</b>			<b>980,250,000,000</b>
<b>B. Poor Villages</b>			
Village	20,485	15,000,000	307,275,000,000
<b>Total</b>			<b>307,275,000,000</b>
<b>C. Model Project</b>			
Village	104	15,000,000	1,560,000,000
<b>Total</b>			<b>1,560,000,000</b>

## ■ Total Cost

The total cost for the above activities (7.1 - 7.5) is presented below :

**Table 10. Total Cost by Component and Scenario  
(1994 Rupiah)**

Component	All Governments	Poor Villages	Model Project
1. Workshops	47,432,850,000	16,319,910,000	348,465,000
2. Training	1,106,316,850,000	349,037,835,000	2,188,082,000
3. SM/PHE	33,416,000,000	10,939,500,000	169,000,000
4. Planning Workshop	45,091,500,000	14,134,650,000	71,760,000
5. Revolving Fund	980,250,000,000	307,275,000,000	1,560,000,000
<b>Total</b>	<b>2,212,507,200,000</b>	<b>697,706,895,000</b>	<b>4,337,307,000</b>