NATIONAL POLICY

DEVELOPMENT OF COMMUNITY-BASED WATER SUPPLY AND ENVIRONMENTAL SANITATION

National Development Planning Agency/ BAPPENAS
Ministry of Settlement and Regional Infrastructure
Ministry of Health
Ministry of Home Affairs
Ministry of Finance

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(This Policy Document was unofficially translated from and based on the Bahasa Indonesia version)

2003
AGREEMENT

for

NATIONAL POLICY FOR DEVELOPMENT OF COMMUNITY-BASED WATER SUPPLY AND ENVIRONMENTAL SANITATION

With respect to the formulation of this National Policy for Development of Community-Based Water Supply and Environmental Sanitation, led by the Government of Indonesia and assisted by the Government of Australia through AusAID (Australian Agency for International Development) with direct support from WSP-EAP (Water and Sanitation Program for East Asia and the Pacific) on behalf of AusAID and The World Bank, we approve of this document as the NATIONAL POLICY FOR DEVELOPMENT OF COMMUNITY-BASED WATER SUPPLY AND ENVIRONMENTAL SANITATION.

Jakarta, June 26, 2003

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PREFACE

The process to formulate this Community-Based Water Supply and Environmental Sanitation National Policy began in 1998. This policy was prepared in stages by a Water Supply and Environmental Sanitation (WSES) Working Group led by the National Development Planning Agency/BAPPENAS and involving the Ministry of Home Affairs, the Ministry of Settlement and Regional Infrastructure, the Ministry of Health, and the Ministry of Finance. Departing from previous policy development efforts, this initiative incorporated participatory approaches implemented during various workshops, focused discussions, and seminars. In addition, it entailed wide-ranging collaboration and consultation with key stakeholders in the WSES sector such as local governments, donor agencies, non-government organizations, academia, and others.

Using the participatory approach to develop this policy required more time than usual. As a result, it became necessary for those involved in this policy development effort to emphasize the process, and thus internalize the principles highlighted in the policy. It is hoped that the participatory approach will help encourage a shift in the WSES development paradigm that will bring it in accord with the objectives of the policy formulation process itself.

In line with the spirit of the decentralization and regional autonomy policies, the WSES Working Group has accommodated inputs from local governments in the effort to finalize this policy document and to determine how a national policy can be implemented at the regional level. Several local governments were selected and have participated in a trial to comprehend the process of implementing a national policy. These district governments included Solok in West Sumatra, Musi Banyuasin in South Sumatra, Subang in West Java, and East Sumba in East Nusa Tenggara. The trial results contributed significantly to the finalization of this policy document.

Other equally significant contributions for the policy finalization were gathered from several case studies of the WSES sector and from trials involving the field application of the policy principles in large projects funded by loans from the IBRD and grants from KfW and UNICEF.

In essence, this policy emphasizes the need for a shift in the paradigm for WSES development into one that focuses on the sustainability and effective use of WSES infrastructure and services. The policy also outlines the basic strategies necessary to implement the policy principles such as how to help apply the demand-response approach, improve human resource capacity, raise community awareness, promote environmental sanitation, develop institutional arrangements, and strengthen the monitoring and evaluation schemes during all phases of the WSES development process. With the completion of the Community-Based Water Supply and Environmental Sanitation National Policy, the next crucial step is to formulate a national action plan that can be applied in both the long and medium term, as well as on an annual basis.

Congratulations to the WSES Working Group who has worked hard to develop this policy document. Many thanks to the Government of Australia, which through AusAID has provided technical assistance in the Water Supply and Sanitation Policy Formulation and Action Planning (WASPOLA) program, to WSP-EAP (Water and Sanitation Program for East
Asia and the Pacific), and to other stakeholders who have contributed to the formulation of this policy.

It is hoped that this policy will serve as a guideline for the development of community-based water supply and environmental sanitation.

Jakarta, June 26, 2003

Deputy Minister for Infrastructure
Ministry of National Development Planning/BAPPENAS

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<td>Local Budget</td>
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<td>APBN</td>
<td>National Budget</td>
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<td>BAPPENAS</td>
<td>National Development Planning Agency</td>
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<td>CMA</td>
<td>Community Management Approach</td>
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<td>DRA</td>
<td>Demand-Responsive Approach</td>
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<td>DPRD</td>
<td>Legislative Branch of Local Government</td>
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<td>FLOWS</td>
<td>Flores Water Supply Project</td>
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<td>GBHN</td>
<td>National Policy Guidelines</td>
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<td>IKK</td>
<td>Kecamatan (Sub-district) Capital Program</td>
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<td>INPRES</td>
<td>Presidential Mandate</td>
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<td>IPLBM</td>
<td>Community-based Wastewater Treatment Installation/Facility</td>
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<td>Kabupaten</td>
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<td>KIP</td>
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<td>MCK</td>
<td>Public Bathing, Washing, and Latrine Facility</td>
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<td>NGO</td>
<td>Non-Government Organization</td>
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<td>P3AB</td>
<td>Water Supply Facility Provision Project</td>
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<td>PAM</td>
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<td>PHAST</td>
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<td>PMD</td>
<td>Community Development Program</td>
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<td>PPMLP</td>
<td>Contagious Disease Eradication Environmental Sanitation Program</td>
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<td>PRA</td>
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<td>PROPENAS</td>
<td>National Development Program</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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<td>UNICEF</td>
<td>United Nations International Children Fund</td>
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<td>UPS</td>
<td>Facility Management Organization</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>WASPOLA</td>
<td>Water Supply and Sanitation Policy Formulation and Action Planning</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WSES</td>
<td>Water Supply and Environmental Sanitation</td>
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<td>WSP</td>
<td>Water Supply and Sanitation Program</td>
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<td>WSSLIC</td>
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DEFINITION OF TERMINOLOGY

- **Aim** is defined as the ultimate goal or purpose for undertaking the activity. The aim need not be achievable in the short term, nor able to be measured precisely.

- **Community-based WSES Management** defines the community as the decision-makers and responsible party; management are by the communities themselves or done by an institution selected by the communities, without the need for formal legalization; beneficiaries are prioritized to be the local communities themselves and investment sources may come from anywhere.

- **Demand-Responsive Approach (DRA)** is an approach where the decision on an investment is based on the demand of the community.

- **Demand vs. Wish**
  - **Demand** is the user's readiness to obtain WSES services based on the available options and local conditions accompanied by a willingness to sacrifice something to sacrifice for the intended goods or services (willingness to pay).
  - **Wish** is the user's desire to obtain WSES services with influence by external parties.

- **Drinking Water** is water with or without treatment process that has met water quality standard and safe to drink (Kepmenkes RI no 907/2002).

- **Effective Use** is the convenient access to and use of WSES services by the user community in a fair, appropriate, and healthy way.

- **Empowerment** is the effort performed by an individual or group of individuals to build and strengthen a community's independence and self-reliance/confidence by stimulating the community's own initiative and creative potential.

- **Environmental sanitation** is the effort to prevent the spread of diseases through management of domestic wastewater, drainage, and solid waste.

- **Equity** is the equal access of all community members to use provided services.

- **Institutionally-based WSES Management** defines decision-making and management by a legal institution of either profit or non-profit oriented nature.

- **Jointly-based WSES Management** defines management carried out by the community and the institution with a formal or non-formal legal basis, and where the decision is made by both parties, and responsibility is distributed based on agreement and clear arrangement.
• **Objectives** are intermediate medium-term (say 5 year) goals, which should be stated in as specific way as possible, realistically achievable and independently measurable. Progress on achievement of objectives may be monitored.

• **Participatory Approach** is an approach that uses one or several methods to actively involve relevant parties in strengthening:

• **Policy** is defined as statements of outcomes or directions which need not be specific, but indicating clear directions in the many decisions that need to be taken in putting the policy into effect.

• **Sustainability** is a continuous service of, by, and for the user in a self-reliant manner, taking into account the technical, financial, social, institutional, and environmental aspects.

• **User Community** is the person(s) within the community who uses WSES services.

• **Water Supply** is water used for daily activities that has met water quality standards and is of drinking water quality after being boiled. 
  a. Expression of knowledge and ideas, and decisions to choose a service; and 
  b. Initiative to identify and solve problems, make decisions, and work together.
I. Introduction

1.1. Background for Water Supply and Environmental Sanitation (WSES) Sector Policy Reform

The fundamental factors that drive WSES policy reform are linked to ongoing sector issues, as well as the opportunities arising and the lessons learned from the implementation of WSES sector development.

1.1.1 WSES Sector Issues

WSES development so far has had a positive impact, such as increasing the level of services and thus indirectly improving the overall health of the people. Despite the progress, however, several issues have remained unresolved:

a. Lack of Effective and Efficient Investment in WSES Infrastructure Development

The term “drinking-water supply” represents a positive direction in terms of improved service coverage. But it also signals the lack of efficient investment in water-supply system development because, although the systems were designed to provide drinking water, the water actually produced from these systems is not of drinking-water quality.

With respect to the quantity of users receiving service, overall WSES development remains deficient; WSES service coverage is still minimal and the development of facilities is waging a losing battle in keeping up with the population increase. At least 100 million people in Indonesia today, mostly the poor and those living in rural areas, have neither reliable service nor access to water supplies and sanitation facilities. Recent data indicate that this number is increasing annually.

The implementation of WSES development from Pelita I (1969-1974) to today is summarized as follows (see Appendix A for details):


National development initiatives prioritized agriculture and irrigation in efforts to increase food production and maintain food supply; infrastructure development, including WSES, were lower in priority and remained limited. WSES service coverage therefore remained limited and WSES development was unable to cope with the population increase.

b. Decade 1980-1990

Community ownership and demand-responsive approach concepts were introduced. The development of water supply infrastructures was associated with specifically targeted communities and with the use of appropriate technologies, such as hand pumps, cord pumps, and hydraulic rams. A new funding mechanism based on the national budget (APBN) was established to encourage the involvement of local governments in the provision of rural WSES facilities.

c. Decade 1990-2000

The central government relinquished authority over provision of WSES services to local governments. With respect to development, the central government’s role was only to provide technical assistance.
Past experiences show that existing WSES facilities are not optimally functioning, due mainly to the lack of active community involvement and participation in the planning, construction, operation, and maintenance process during WSES development. In addition, the limited technology options led communities to select options that neither met their demands nor were compatible with local conditions such as culture, managerial capacity, and geographic circumstances.

Poor community involvement leads to neglect, and is a main cause of the lack of sustainability and ineffective use of WSES infrastructure. As a result, these facilities and services have not provided long-lasting benefits to users.

Supply-driven investments commonly implemented during that time also contributed to the ineffectiveness of the facilities and services. In many cases, WSES facilities were frequently installed without taking into account the demand from the community; in other cases, communities who requested WSES services did not receive them.

b. Water being Perceived as a Social Good

Past paradigms define water as a “free” public good, confirming the community’s lack of awareness and knowledge about water scarcity. This belief made the community reluctant to pay for water, which in turn made it difficult for water-supply providers to improve services, which required additional investments for raw-water transmission, treatment plants, distribution systems, etc. Communities paid little attention to water-scarcity issues, and hence the user-pays principle was not applicable in the past.

The inconsistent tariff-regulation process reflects the difficulties encountered by the state-owned water enterprises, or PDAMs. Tariffs and payment structures are usually set by the DPRD, and are often inadequate to cover actual production costs. Consequently, the revenue generated does not cover operational costs, let alone the investment costs needed for service expansion.

In the 1990s, the importance of water and the push for adequate WSES became more prominent, largely due to the worldwide commitment to the Dublin-Rio principles of water use. Despite this growing awareness, campaign initiatives remain essential as a method to disseminate information to the communities as well as officials of the government and its legislative branch about the importance of water and its use.

c. Limited Government Capacity

The current funding for WSES relies on the government, especially the central government. However, the government’s capacity to provide future funding is decreasing. Therefore, a new paradigm that taps potential funding from local governments and from users of WSES facilities will become increasingly important. To optimize this new funding mechanism, a sustainable WSES system must be set up so that the benefits reaped can be sustained.
d. **Lack of Policies and Regulations to Bring Out the Hidden Potential from the Communities**

Present policies and regulations, such as ways to transfer assets from the government to the community, have not adequately tapped the hidden potential in the communities, thus neglecting the optimal capacities of the communities to develop their own WSES infrastructures.

e. **Low Priority for Environmental Sanitation**

The lack of attention to environmental sanitation and environmental quality by the government and the communities has resulted in the low coverage of sanitation services.

For instance, several large cities are presently facing difficulties managing the centralized (off-site) sewerage treatment; these issues are related to the community’s lack of willingness to pay and to weak management of the systems. Similar conditions persist in rural communities, where the demand for basic sanitation (latrines) remains low due to the community’s lack of education/awareness of the importance of proper hygiene behavior, as evidenced by continued defecation in traditional sites such as rivers, open fields, and rice fields.

Similar problems are faced in the management of solid waste and drainage. Rapid population growth and urbanization have resulted in: (1) more solid waste generated, (2) less available land for waste management, (3) the neglect of the 3R principles (reduce, reuse, and recycle)$^1$, (3) expansion of areas of inundation, and (4) reduction of available catchment areas. As a result, drainage systems have become common sites for solid-waste collection and dumping activities.

### 1.1.2 Past Experience as the Basis for Policy

#### a. Past Experience in Indonesia

Several experiences and lessons learned drawn from the implementation of APBN (national) and foreign-funded WSES programs$^2$ are as follows:

- Active community participation in WSES development fosters a high level of service effectiveness and sustainability.
- Engaging all groups in the user community in the decision-making and institutionalizing (of management organizations) process results in better operation and management (O&M) participation in the management of infrastructure and services.
- The active participation of women and other disadvantaged community groups (the poor, the disabled, etc.) in the decision-making for O&M enhances the effective use and sustainability of WSES services.

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1. 3R Principles are **Reduce** (reducing the amount of consumption), **Reuse** (reusing materials) and **Recycle** (recycling used materials).
2. Such as **WSSLIC I** (Water Supply and Sanitation for Low Income Communities - I), **FLOWs** (Flores Water Supply), water supply and sanitation programs with UNICEF support.
• The easier the access to WSES services and facilities, the greater the effective use and the more sustainable the facilities and services.
• Public-service campaigns about proper hygiene behavior are necessary in environmental sanitation improvement programs.
• The more technology options offered to the communities and the bigger the communities’ roles in the decision-making process, the greater the likelihood of the WSES facilities fulfilling the communities’ demand—which in turn means the facilities will be used in a more effective and sustainable manner.
• Effective use and sustainability are attainable when the technology options and their financial implications are determined at the household level, when community contributions are decided based on the types of services offered, and when the WSES management unit is formulated in a democratic manner.
• Users of WSES facilities have the ability to pay for the types of services offered in accordance with their demands. Users are concerned about the quality of WSES services and are willing to pay more for services that meet their demands.

Application of the demand-responsive approach (DRA)\textsuperscript{3} reinforces the need to involve communities in all aspects of WSES development from start to finish. However, there are constraints in the application of DRA, such as:
• Lack of a mutually-agreed policy framework between the stakeholders involved, including the central and local governments, recipients of aid and donor agencies, and NGOs;
• Some direct and indirect resistance to the application of the DRA between the various levels of government and its sector departments, between aid recipients and donor agencies, and even within the community itself;
• Stakeholders’ limited knowledge, information, technical know-how and access to funding, especially the government’s and NGOs’;
• Slow bureaucratic process, rigid procedures/rules for disbursement of funds, and the lack of human resource capacity to support the DRA activities;
• Length of time required for effective implementation of the DRA principles and relatively large amount of funding needed for facilitation of the DRA.

To anticipate and resolve the constraints in applying effective DRA principles, the following should be implemented:
• Policy aspects:
  Integrating the DRA into local development plans and building up the districts’ (kabupaten) and municipal (kota) governments’ capacity to implement the DRA.

\textsuperscript{3} Demand-Responsive Approach means an approach where the decision on an investment is based on demand from the community. The main characteristics of this approach are: (1) the availability of informed choices, (2) the role of the government as facilitator, (3) the open opportunity for all stakeholders to participate, and (4) the accessibility of information to communities.
• **Financial aspects:**

Preparation of a legal framework that enforces active community participation in funding for WSES infrastructure and empowering communities to hone their capacity to manage, control, and channel their own financial resources.

The lessons learned from the implementation of WSES development programs in Indonesia are presented in Appendix B.

**b. International Experiences**

Sustainability is the key objective in the provision of WSES in urban, rural, and small-town settings. In the effort to meet this objective, all parties have agreed to use the Dublin-Rio principles as guiding principles.

Within the context of WSES development, the Dublin-Rio principles state that “successful development must consider and integrate all the different, but equally important, aspects, notably social and gender equity and social, technical, financial, institutional and environmental factors.” The principles are defined in detail as follows:

- Water is a scarce resource; it cannot be considered a free and valueless commodity. Sustainable water service requires that the costs expended for water use are equal to the value and benefits received from having and using water.
- Final decisions about water use should involve the active participation of the user community. The typically government-based assistance (supply-driven) approach should be changed to a community-based assistance (demand-driven) approach where the government is responsible for providing and disseminating informed choices to the community in order to raise awareness about available options.
- There is a greater chance of sustainability when women actively participate in the WSES development decision-making process. Women are the primary managers of household water use; they are responsible for family hygiene and household cleanliness.

Resources are fundamentally limited, including government funding. Conversely, demand is basically limitless. Thus government funding will never be able to meet every individual’s demand for WSES services. Given this, there are three important predicates to consider:
• Fundamental reform of the existing institutional and legal framework of the WSES sector is required to apply and enforce the Dublin-Rio principles.

• The funding to fully cover construction, O&M, and expansion costs of WSES services must be provided by the users. Private sector and the user community involvement should be endorsed to overcome funding constraints.

• All stakeholder capacities should be increased.

Experiences from the implementation of WSES development to date have revealed potential in the communities that should be developed. In the past, a number of myths hindered the implementation of participatory approaches in WSES development. However, findings derived from a recent study proved otherwise, as shown in the following:

• Communities are more appreciative of their water supply services:
  - Poor community members often pay much more for their water supply than the wealthier members of the community; poor families will pay for good service.
  - If communities do not receive adequate service, they will neither use the WSES facility nor pay.

• Communities are willing to participate actively in the WSES development process. Several lessons learned pertaining to community participation are:
  - Standardized and generalized WSES implementation procedures and mandates usually lead to failure.
  - Community participation should come from within, possibly developed but not influenced by external sources; the participatory process enforces decision-making by the communities.
  - Communities will support and accommodate activities that are responsive to their demand through the establishment of local community institutions.
  - The participatory approach is rooted in basic community behavior in decision-making, and can be replicated as demanded.

1.1.3. The Need for Policy Reform

Previous sections illustrated the challenges facing WSES development in Indonesia. Fundamental changes to overcome these obstacles rely on the development of a new paradigm that requires reforms of policies and institutions and their associated implementation mechanisms.

This document sets out the national policy framework that supports the new paradigm based on the dynamics of communities, notably self-reliance, decentralization, autonomy, and democracy.
1.2. Purpose of Policy Formulation

This policy document is intended to:
1. Produce a national-level WSES policy document that is acceptable across the different agency lines, from the central to the local governments, communities, NGOs, academicians and bilateral/multilateral donor agencies;
2. Identify priorities and strategies in the existing national policy on WSES facilities and services; and
3. With respect to decentralization and reform, re-arrange the order of priorities for a long-, middle- and annual-term central and local government WSES development programs.

1.3. Scope

Through an analysis of past and current WSES management models, three basic types have been identified: (1) management by an institution, or Type A; management by the community, or Type C; and joint management by an institution and the community, or Type B.

This document does not specifically address the Type A model. The initial focus of discussion is on community-managed WSES services (Type C). However, the scope of the policy extends into joint management between communities and institutions (Type B), and specifically enables the formal recognition of such arrangements and a definition of the relationship between the stakeholders. Other WSES management arrangements are shown in Appendix C.

Figure 1. Types of WSES Services Management
Types of WSES Services Management

Type A: Managed by Institutional

The decision-maker in this arrangement is a formal institution. This institution has ultimate responsibility for the planning, design, construction, operation and maintenance, and management of WSES facilities, even though different institutions may be responsible for one or more of the aspects. The institution may or may not consult its customers (the end users). The relationship between institution and customers is a purely commercial one: the customer pays fees for connection to the service and regular charges for the services rendered. Typical examples of Type A are the PDAMs, PDKs, and PDALs in several cities.

Type C: Management by the Community

The defining characteristic of Type C arrangements is that the community is the ultimate decision-maker for all factors related to WSES development and establishment, from the initial identification of demand to decisions on levels of service, technical design and planning, system implementation, and finally to long-term operation and management of the facilities and services. The community may be facilitated in one or more phases of the process; for example, through the provision of informed technical options and external assistance (e.g., from consultants, contractors, tradespeople, or professional workers); the final responsibility for all decisions, however, remains with the community.

Type B: Joint Management by an Institution and the Community

Type B arrangements occur because of the overlap of service areas managed by institutions and by communities. The Type B approach allows the possibility of a hybrid in which some elements are managed by the institution and some by the community; the relationship between them is purely a commercial one, although how that works within the community is up to the community to decide.

Informal examples of the Type B arrangement exist commonly in densely populated urban areas, such as groups of water users operating public taps and making payments to water utilities.
II. Policy for the Development of Community-Based Water Supply and Environmental Sanitation

This section outlines the aims, objectives, supporting legal framework, and general policies for the development of community-based WSES\textsuperscript{4}. Implementation strategies are discussed in the next chapter. The policy framework is shown in Figure 2.

![Figure 2. Water Supply and Environmental Sanitation Policy Framework](image)

2.1 Aim

The aim for WSES sector development is “people’s improved welfare through sustainable management of water supply and environmental sanitation”.

2.2 Objectives

Specifically, the WSES development objectives are: (a) to improve the development, provision, and maintenance of WSES infrastructure and services, and (b) to increase the manageability and sustainability of WSES infrastructure and services. To attain these objectives, the following essential and fundamental factors must be considered:

a. Sustainability

In the context of WSES, sustainability is defined as the effort made and the action taken to ensure continuing services and benefits in favor of the community. The sustainability of WSES services should be thought of as a system consisting of interrelated aspects including infrastructure construction, O&M, management, and service improvement.

\textsuperscript{4} Aim is defined as the ideal expectation of a condition far in the future (long-term). Objective is a set condition that is anticipated in the near future (short- to mid- term). Policy represents a collection of concepts and principles that form the basis for the implementation of a development plan.
Community empowerment is a useful tool to help promote change in community behavior to improve health and hygiene, and to facilitate the steps toward sustainable WSES facilities and services. Aspects of sustainability that must be considered for sustainable WSES development are:

- Financial sustainability
- Technical sustainability
- Environmental sustainability
- Institutional sustainability
- Social sustainability

b. **Effective Use**

Effective use of WSES facilities and services will be achieved when the infrastructure and services are implemented according to the user demand, are readily accessible, and are in accordance with established technical, health, and institutional standards. In addition, the infrastructure should help promote proper hygiene behavior and take into account the managerial capacities of the beneficiaries. Effective use consists of the following two aspects:

- **Ease of Access**

  Ease of access to WSES infrastructure and facilities increases the likelihood of their sustainability. Therefore, WSES infrastructures built and used for private households and the general public should be carried out with appropriate and available technologies, be easily operated and maintained, and be conveniently accessible (i.e., located near the sites of daily activities).

- **Equity**

  Equity means that all community members should have access to WSES facilities and services without discrimination against gender, religion, age, race, or social status. It is hoped that through equity and the provision of equitable services, communities will realize the need to enhance the role of disadvantaged groups and women in WSES development. The increased participation of the disadvantaged and women signals a new paradigm that positions them as subjects rather than objects.

### 2.3 Main Policy Guidelines

The WSES policy framework is based on the following precedent national policies and legal framework:

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5 Effective use is considered more important than coverage, although coverage data denote the effective use of the facilities. Coverage is usually referred to as a number indicating the proportion of the population of a certain area (village, cities, provinces, national) who receive WSES service from functional infrastructures, and is strictly quantitative (with no qualitative consideration such as the identification of functional or non-functioning infrastructures). On the contrary, effective use entails the qualitative aspect, rendering coverage unsuitable as a WSES policy objective.
a. Constitution 1945
   Art. 33, Para 3:
   “The land and water, inclusive of the wealth contained therein, are the state’s possession and shall be used to the utmost benefit for all the people.”

b. GBHN 1999-2004 (Tap No.IV/ MPR/ 1999)
   Passage B. Economy, Para 17:
   “Improve the development and maintenance of public infrastructure and services in transportation, telecommunication, power and electricity and water supply to ensure consistent levels of development, provide public service at a reasonable rate, and reach the isolated and remote areas.”

   Passage F. Social Culture, Para 1.a:
   “Improve the quality of human resources capacity and the environment, both of which are mutually supporting, under the health paradigm approach with priorities on better health conditions, preventative contamination measures, recovery, and rehabilitation from human conception to old age.”

c. Law No. 23/1992 on Health
   Chapter V Health Initiatives
   Part Five: Environmental Quality
   Art. 22:
   “Improvements to produce sound environmental quality should be implemented in public places, settlements, working environment, public transportation and others. A healthy environment means improvements in water and air quality and better control of solid waste, wastewater, gas waste, radiation, noise, vector diseases and other health and safety issues.”

   Chapter VII Community Participation
   Art. 71:
   “People have the opportunity to participate in the implementation of efforts to improve the environment and its resources.”

d. Law No. 24/1992 on Spatial Planning
   Chapter V Community Participation:
   “Every citizen has the equal right and limitless opportunity to actively participate in the development of housing and settlement.”

e. Law No 23/1997 on Environmental Management
   Chapter III Rights and Obligation of Community Participation
   Para 3:
   “Enable sustainable development with respect to a sound environment in the development of every individual in Indonesia.”
Para 5:
1. Every individual has an equal right to a sound and healthy environment.
2. Every individual has the right to information about the environment and its link with environmental management.
3. Every individual has the right to participate in environmental management based on established regulations and laws.

f. Law No. 22/1999 on Regional Governance

Para 4:
“Provincial, District, and Municipal governments have the right to regulate and manage the welfare of respective local communities based on the initiatives and aspirations of the communities themselves.”

g. Law No. 25/2000 on National Development Program (PROPENAS) 2000-2004

Chapter VIII Social and Cultural Development
Art. C Development Programs
1.1 Healthy Behavior and Environment Program, and Community Empowerment

Para B. Hygiene Behavior and Community Empowerment:
“Specific emphasis on: (1) improvements to the level of hygienic and healthy behavior in the daily lives of the communities; (2) improvements to the community support network to ensure that demand of the communities for service is ultimately increased.”

Chapter IX Local Development
Art. C Development Programs

Para 2.6:
“Prioritize the following: (1) improvement in the service quality and management of housing infrastructure including water supply, drainage, waste water, garbage, flood control, local access roads, public transportation terminals, markets, schools, villages, etc.; (2) improvement in the quality of operation and maintenance of housing facilities.”

h. Millennium Development Goals (MDG)\(^6\)
“The Johannesburg Summit in 2002 outlined the agreement to reduce half of population who lacked access to safe water supply and basic sanitation by 2015 (as stated in the Millennium Declaration).”

i. **Kyoto Declaration (World Water Forum)**, March 24, 2003

a) “Access to water supply is essential for sustainable development and the eradication of poverty and hunger.”

b) “Increased investments in water supply and environmental sanitation are necessary to halve the proportion of people without access to safe drinking water and basic sanitation by 2015.”

2.4 **General Policy**

As noted, the objectives of WSES development are to improve development, provision, and maintenance, and to enhance the sustainability and effective use of WSES infrastructure and services. In achieving these objectives, profound changes to the existing WSES development paradigm are needed, and should be based on the following general policies:

a. **Water as an Economic and Social Good**

Water as the source of life is a widespread belief in nearly all communities. Even today, some communities think of water as a social/public good with no economic value, to be obtained and used at no cost to the user. Such views have resulted in communities not seeing that water is an indispensable resource with economic value, eliminating their motivation to conserve not only the environment (both quantitatively and qualitatively), but also other related water resources. As a result, excessive exploitation and unchecked use of water are ongoing, coupled with slow progress in the development of skills and technology for reusing and recycling water.

In order to change such existing public perceptions and to confirm that water is a scarce commodity requiring a degree of sacrifice (either in time or money) to obtain and use, public campaigns targeting all levels of the community should be implemented. It is hoped that with increased awareness and understanding from the communities of water's status as an economic good, overall practices of water use will improve, leading to a reduction in exploitation, an increased efficiency in use, and a greater “willingness to sacrifice” to obtain water.

The underlying principle of WSES as an economic good is that “the user pays for service”, implying that the costs paid for WSES service includes the costs of convenience and ease of access to WSES infrastructure as well as fees for operations and maintenance of the facilities.

b. **Informed Choice as the Basis for a Demand-Responsive Approach**

The demand-responsive approach (DRA) places the community in the role of decision-maker in the selection, financing, and management of the WSES system. In order to effectively implement the DRA, the government should play a role as

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7 Translated from the original document, which states: (1) access to clean water is essential for sustainable development and the eradication of poverty and hunger, and (2) far more investment in water supply and sanitation is needed to halve the proportion of people without access to safe drinking water and basic sanitation by 2015.
facilitator to provide informed choices⁸ to the community regarding the development and construction of sound WSES infrastructure and services, taking into account local financial, technical, environmental, social, and institutional factors.

c. Environmentally-Based Development

Sustainable and environmentally-based development should be an intentional and well-planned initiative, integrating environmental aspects (including water resources) into the process to ensure that the welfare and quality of life for present and future generations are improved.

Development of water-supply infrastructure, starting from raw water intake, through distribution and treatment systems, and ultimately to the household distribution network should follow the rules and regulations pertaining to environmental conservation. Likewise, the development of environmental sanitation infrastructures, especially those built to manage waste should abide by environmental rules and regulations. It is hoped that a synergy will emerge between the initiatives to ameliorate the environment and enhance the communities’ quality of life.

d. Hygiene Education

Sustained WSES management requires WSES development to be comprehensive and capable of stimulating change for better community hygiene behavior to improve quality of life. Initiatives to change behavior should emphasize comprehensive proper hygiene and healthy living education as a compulsory and principal component of future WSES development; development planning and implementation should not focus solely on the physical construction of infrastructure.

e. Poverty Focus

In principle, every individual in Indonesia has the right to receive adequate and sustained WSES services. Therefore, the government’s limited capacity to provide such services to each and every person necessitates a new approach to WSES development, one that focuses on the poor and other disadvantaged members of the community and that requires them to be active participants and decision-makers. This approach should ensure that the demands of WSES from the poor and other disadvantaged groups are fulfilled fairly and properly.

f. Active Role of Women in Decision-Making

Women play a prominent role in the daily activities to meet the demand for household WSES. Women are the main users of WSES facilities and services and thus are most familiar with access and ease of use of such systems.

According to UNICEF and World Bank studies of WSES projects in Indonesia, women’s involvement in the development process of WSES systems, from planning through

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⁸ Informed choices are provided in participatory sessions, covering technology and service options based on willingness to pay, to provide insight on the service provision schedule and know-how, management of funds and responsibilities, and management of services.
implementation to management, increases the sustainability of the systems. It is thus natural to place women as the main players in WSES development.

As principal subjects, women should actively participate in determining problems, identifying underlying causes, recommending possible solutions, and ultimately making decisions to solve related problems.

g. Accountability in the Development Process

The era of decentralization and transparency no longer positions communities as objects; they are now positions as subjects in the WSES development process. This policy aims to enhance community ownership of infrastructure and community awareness of sound management principles early in the process.

The principle of “by, from, and for the community” means that the community should operate, maintain, manage, and improve the operation of constructed WSES infrastructure. Consequently, WSES development should foster transparency and openness, providing the opportunity for all stakeholders to contribute according to their capacity during the process, from planning, implementation, and O&M, to service improvement.

h. Government’s Role as Facilitator

Empowerment is defined as the initiatives implemented by an individual or group of individuals to help develop self-reliance and build the capacity of the community by unleashing the community’s potential and creativity. In Law No. 22/1999 (Art. 92, Para 2), empowerment is referred to as the effort to improve community ownership and participation in the planning and implementation of infrastructure. In accordance with the law, the role of the government in the empowerment process has now become that of facilitator, not provider.

As facilitator, the government should provide the opportunity for other competent stakeholders to encourage innovations to improve WSES service efficiency.

The government’s role as facilitator, especially at the district and municipal levels, is to provide continuing technical and non-technical advisory services—as opposed to direct subsidies—for infrastructure construction. In principle, the government’s assistance is aimed at empowering the community to bear the central role in the planning, implementation, and management of WSES systems. To help optimize the role of the government as facilitator, local governments should motivate other competent stakeholders, such as the private sector and NGOs, to participate in the development process of WSES infrastructure and services. Local governments should also aim to improve coordination and collaboration across their regions in the provision of WSES services, encouraging two or more different regions to work together.

Local governments (district and/or municipal) should readily provide adequate access to WSES data and information to the communities and function as their consulting partners in the development process.
In addition, existing initiatives for community empowerment by the community, universities, NGOs, and other non-government agencies, should be supported and intensified.

i. **Active Community Participation**

All community members should participate and be actively involved in each stage of the development process. The participation process should therefore establish and support a democratic system that reflects the needs and demands of the majority, especially for community members who lack the time to participate due to tight work schedules.

j. **Optimal and Target-Oriented Service**

Development of WSES services should be properly target-oriented, meaning that WSES infrastructure should be built according to the demand of the users/beneficiaries (i.e., the communities themselves), and be optimal, meaning that WSES services should be conveniently accessible by all members of the community and suitable according to their abilities to pay or contribute.

k. **Application of the Cost-Recovery Principle**

Available funds from and the financial capacity of the government (both central and local) are insufficient to cover the investments associated with the construction and management of WSES infrastructure for all. To ensure sustainability, therefore, future development and management of WSES infrastructure should be based on the principle of cost recovery, meaning that all financial components of development (such as budget planning, physical construction, O&M, and depreciation) have to be considered and accounted for. Recurring fees required to pay for the operational costs of WSES services should be discussed and agreed to by the user communities, and should be in line with ability to pay (poor, middle, and well-off).

This principle must be openly communicated to all stakeholders, especially the communities, to increase awareness of the investment costs required for infrastructure development. The communities themselves can then choose the system that suits them best, provided that they are aware of what they have to contribute. It is hoped that the application of the principle of cost recovery will motivate the communities to sustain and effectively use the WSES infrastructure.
III. IMPLEMENTATION STRATEGY

Strategies to implement WSES development support the general policy statements outlined in the previous chapter, and provide a general framework for the establishment of sustainable and effective use of WSES facilities and services, both of which contribute to improvement in the community’s quality of life. The interrelated strategies are based on a demand-responsive approach (see Figure 3) and form a comprehensive approach to the implementation of the policy and the achievement of the set objectives.

![Figure 3. Water Supply and Environmental Sanitation Implementation Strategies](image)

**Strategy 1**

*Develop a legal framework that enforces active community participation in the planning, implementation, and management of WSES infrastructure and services*

The establishment of a legal framework is essential not only to enforce and support active community participation in the planning, implementation and management of WSES infrastructure, but also to prevent factors that may inhibit community involvement. The framework should incorporate the principles of the demand-responsive approach and community empowerment, and be founded on the principles of good governance, such as accountability, transparency, equity, establishment and enforcement of appropriate law, responsiveness, forward-thinking, efficiency, effectiveness, and professionalism.

Financing or funding methods should take into account that the process of community empowerment is neither bound nor restricted by time. Therefore, a new legal funding
method that accommodates the community empowerment process and timeframe should be formulated and implemented.

In addition, the legal framework should define and institute a rule of law for WSES infrastructure development where funds are channeled through sharing mechanisms, such as between “the government and the community”, “the community and funding agencies (grant or loan)”, “the community and local organizations or NGOs”, “the community and other alternative funding sources”, “the community members themselves”, and in instances where assets are transferred directly from the government to the community.

**Strategy 2**

*Increase investment to enhance the community’s human resource capacity*

Limited human resource capacity, including the capacity of WSES users, remains a challenge in the management of WSES infrastructure. Investment to improve the overall capacity of human resources in WSES management should be increased through different mechanisms, such as the provision of technical assistance and/or informed choices, and facilitation during the WSES development process.

Technical assistance, along with the provision of informed choices, will help widen the community’s perceptions and views about the range of WSES choices available and therefore help them to select the most appropriate choice. With informed choice, the selection process will be one that allows the community to realize the benefits and risks associated with each option with respect to the technical, financial, institutional, social, and environmental aspects.

The role of the government as the facilitator, particularly the role of local governments in direct interaction with the community, should also be enhanced through further education, training, seminars/workshops, comparative studies, and on-the-job/interactive practice to deal quickly with problems and issues occurring in the field.

Funding for human-resources capacity building may be allocated through the local or central government budget or through collaboration with partners who have a similar outlook on WSES development in Indonesia.

**Strategy 3**

*Encourage different funding options for the development and management of WSES infrastructure and services*

In accordance with the principle of cost recovery, the user community of WSES services should fund all the investment costs, from initial construction expenses to subsequent operating and maintenance fees, of WSES development.

Given the government’s limited funding capacity, it is important that all stakeholders in the sector agree to abide by the principle of cost recovery for WSES infrastructure development, meaning that all costs should be borne by the user.
In putting the principle into practice, the community should have access to the various forms of alternative funding, e.g., the cost-sharing schemes implemented in the WSLIC2 project (where the central and local governments share the burden with the community in developing WSES), ProAIR, or other projects where NGOs collaborate with the community. External agencies (i.e., the government, NGOs, and donor agencies) are vital to facilitating dissemination of information to the community about available funding options for WSES infrastructure and services development.

The government should be responsible for facilitating the coordination of all local/regional WSES stakeholders (community groups, NGOs, donor agencies, the private sector, and other branches of the government) to improve the overall efficiency of WSES development fund channeling. It is hoped that coordination among the stakeholders will synchronize funding mechanisms for WSES development.

**Strategy 4**  
**Enable community involvement in decision-making in all aspects of WSES development and management**

Decisions about WSES development and management in rural and small towns should be made by the lowest level of the community, particularly by the beneficiaries/users of said infrastructure. The beneficiary/user community should be able to determine the level of service it wants, the type of technology to be used, the different funding options to avail itself of, and the management system or institution of WSES services. Strengthening the community's capacity to make decisions is part of the application of community empowerment through the participatory approach. The demand-responsive approach motivates the communities to understand completely the WSES system so that they are able to balance their demands with their capacity to fund the development.

**Strategy 5**  
**Improve the community's overall technical, financial, and institutional capacity in WSES development and management**

In assuming responsibility for development and management for WSES services, the community will require assistance to help build overall technical, financial, institutional, and managerial capacity. Technical capacity-building, provided by the central or local governments, universities, NGOs, or the private sector, should help the community to understand the benefits and risks—taking local conditions into account—associated with different technology options, and to manage, operate, and maintain WSES infrastructure based on established technical standards.

Financial capacity-building should include assistance for the community to improve administrative bookkeeping skills, such as the specific bookkeeping practices required to manage loans or grants from non-government agencies (NGOs, donor agencies, universities, and others), and ensuring transparency in the disbursement of funds. The training initiatives can be performed through multi-organizational joint efforts, comparative studies, or on-the-job practice.

Institutional capacity-building should incorporate the provision of information to the community about the organizational structure of a typical WSES management
institution, including information about the organization’s function and duties, its relationship with other similar institutions and stakeholders, and the skills to raise funds and prepare transparent and accountable financial reports for the community.

In order to support the capacity-building initiatives identified above, the user community and the local service management institution should, in collaboration, formulate guidelines that clearly define the responsibilities and rights of each party within the organization; the government’s role in this process is to help with the development of the guidelines and their subsequent dissemination to the community.

**Strategy 6**  
Prepare norms, standards, guidelines, and manuals (NSPM) to improve the WSES development at the planning, implementation, operating, maintenance, and management levels

Initiatives are required to enhancing the effectiveness and performance of a community-based WSES program in improving its planning, implementation, and management mechanisms. One such initiative is the provision of assistance and consultation about technical issues and the mechanisms of obtaining information about WSES development programs to the community at the district, sub-district, and village levels. Norms, standards, guidelines, and manuals (NSPM) are effective reference materials that should be prepared to help with infrastructure development and environmental protection, such as protection of raw-water sources and wastewater management. The NSPM should be readily accessible by, easily understandable by, and highly informative for all members of the community.

Participatory methods, notably Participatory Rural Appraisal (PRA), Participatory Hygiene and Sanitation Transformation (PHAST), Community Management Approach (CMA), and the Methodology for Participatory Assessment (MPA), should be incorporated into the NSPM design and disseminated for broader application. An example of a participatory approach is included in Appendix E.

**Strategy 7**  
Support the consolidation of research, development, and dissemination of WSES technology options to support community empowerment

To date, many field trials and appropriate technology studies have been conducted by the government, research institutions, universities, donor agencies, NGOs, and even the communities themselves. Yet the results of these initiatives, namely the relative advantages and disadvantages of the WSES technology options used and applied, have not been effectively compiled.

To support the principle of informed choice, information collection and maintenance schemes should be implemented and an institution responsible for information management should be established to provide access for the community. In addition, activities to disseminate results from research and development initiatives to all WSES stakeholders, including the community and central and local governments, should be intensified.
Strategy 8
Raise the community’s motivation through formal and informal education

Factors that cause water supply demand in communities are different from those for environmental sanitation. In practice, environmental sanitation and its link to hygiene behavior are individual and specific to each community household; hence, changes in behavior typically occur at the individual or the household level. The downstream effects of improved environmental sanitation service also take longer to be perceived/felt than that of water supply, as more time and effort are needed to convey the importance of proper hygiene behavior on environmental sanitation. Proper hygiene behavior should be promoted through community outreach programs and schools, incorporating participatory methods involving households and communities. Participatory methods have proven effective in increasing community awareness and benefits of having WSES services.

Education about the importance of WSES should be included early in the primary-school curriculum, where children are introduced to examples of proper hygiene practices through pictures and games that stimulate the imagination and their understanding about hygienic behavior. It is hoped that instilling a culture of hygienic practices during childhood will influence the practice of proper hygiene behavior in adulthood. Other examples of WSES education include the publication of magazine articles and newsletters concerning WSES and group discussions of WSES issues facilitated by trained schoolteachers.

Strategy 9
Emphasize and enhance environmental conservation and management, especially of water resources

In order to ensure sustainability, WSES development policies, strategies, and programs should focus on conservation and management of water resources, including, but not limited to, surface water, groundwater (both shallow and deep), and springs. This should be accompanied by the establishment and enforcement of a strict legal framework capable of meting out both rewards and penalties and disincentives for all stakeholders of water resources.

Conservation approaches should incorporate strategies to improve environmental quality through protection of spring water, maintenance and rehabilitation of watershed areas, reducing groundwater exploitation, and increased management of wastewater and solid wastes.

The country’s rapid population growth and consequent increase in wastewater discharge from households and small-scale industries have placed a great burden on the environment; therefore, management of wastewater effluents should be enhanced through appropriate, environmentally-friendly, and easily implemented technology.

Likewise, the population growth results in increasing solid-waste production and reduces available land for final solid-waste disposal (TPA). As a result, communities often discharge solid waste in existing waterways, causing pollution. In order to alleviate this problem, the principles of reduce, reuse, and recycle should be
emphasized and a strict legal framework incorporating rewards and penalties should be enacted and enforced.

**Strategy 10**

Change the approach of WSES infrastructure management from administrative-based to system-based

WSES development approach using administrative boundaries (urban and rural) is no longer applicable because the necessary means to attain efficient and effective WSES service management and to support water resources conservation are not restricted by administrative boundaries.

Numerous urban settlement areas that are characteristically rural but are still within the city boundary (such as those found along the city’s edges or in pockets within the city center), currently do not receive adequate WSES services typical of urban areas. In rural areas, there are also expansive residential areas that are too large for the local community to manage, yet too small for urban institutions (like PDAMs, PDALs, etc.) to manage.

Local governments’ attempt to hold on to control of their jurisdictions, as well as inappropriate use of decentralization and regional autonomy policies, continue to challenge the development of a sound approach to WSES infrastructure management. The result is limited community participation and inadequate provision of WSES services.

To overcome this challenge, a new approach synchronizing regional resources should be introduced. This approach should stress the synergy of existing regional resource capacities and enforce a regional or system-based management of WSES development, one that is comprehensive, integrated, and coordinated.

**Strategy 11**

Improve the community’s capacity to manage WSES services

Management of WSES facilities and services by the community is typically channeled through the Unit Pengelola Sarana (UPS) or the village-level infrastructure management organization. The UPS, with its human, “software”, and “hardware” resources, is responsible for sustainable community-managed WSES services; it is therefore a vital institution.

In supporting the principles of sustainability, technical aid for UPS functions should be extended through assistance in resolving technical and administrative issues, building human resources capacities, and developing effective communications with the community. With respect to the improvement of WSES services, the organization’s role in training the community to perform simple water-quality tests should also be enhanced.

Improvement to the management quality of existing non-functional (unsustained) infrastructures should also be performed in the following phased initiatives: (1) creating an inventory of all non-functional facilities, (2) assessing the causes of the impairment, and (3) preparing action plans (with the users) for rehabilitation.
**Strategy 12**  
**Increase the community’s awareness**

Existing WSES facilities and services are better and more effectively used when they provide equitable access to all community members and when they are easy to operate and maintain. It is thus essential to involve the community during all phases of the WSES development process.

Active community involvement and awareness during the development process are crucial prerequisites that will enhance ownership and result in the implementation of both equitable and user-friendly WSES infrastructure. More importantly, community involvement leads to community awareness and concern about maintaining WSES infrastructure and services, protecting the qualitative and quantitative sustainability of water resources, and an increase in positive changes toward proper hygiene behavior.

Efforts to increase community awareness should be done through campaigns addressing the importance of WSES for health and quality of life.

**Strategy 13**  
**Ensure equitable WSES services for disadvantaged community members**

The provision of WSES services should not discriminate against any member of the community; all community members are entitled to adequate WSES services. The existing gaps in gender and social equity with respect to WSES services are attributed to differences in the willingness and ability to pay for the services.

The gap in demand usually results from the inconsistent quality of service received by the communities. To eliminate this gap in access to WSES service, alternative service options that meet the communities’ demand should be provided. For disadvantaged community groups, this means that better-off community groups, the government, or other involved stakeholders should be given the opportunity to help.

In reality, the gap does not result from the disadvantaged members being unwilling or unable to pay for services, but rather from their lack of active participation and empowerment in decision-making.

Elimination of these discriminatory practices will enhance the sustainability of WSES services. Specific initiatives, such as socio-cultural approaches, should be implemented to ensure that disadvantaged members of the community are able to participate actively in the development process and to help them voice their ideas and opinions equitably as part of the decision-making for WSES services.

**Strategy 14**  
**Develop monitoring and evaluation mechanisms to measure the attainment of defined objectives and proper WSES development**

In the effort to successfully implement WSES development programs, strategies to meet the set goals and objectives should focus on strengthening the monitoring and evaluation system from the planning, implementation, and management stages through to the monitoring and evaluation phase. The monitoring and evaluation
sub-system or methods should be fine-tuned to be oriented toward measuring the achievement of defined objectives and proper WSES development rather than targets.

Existing monitoring and evaluation methods for WSES development programs so far have focused on verifying whether the facilities built have met proposed design standards (target-oriented), resulting in the inaccurate compilation of information and lack of data about the service quality of the WSES facilities. These methods have fallen short of evaluating and recording the advantages and disadvantages of WSES services experienced by the community.

**Strategy 15**

*Develop monitoring and evaluation activities at four levels:*

a. Community  
b. District/Municipality  
c. Province  
d. Central

Fundamentally, monitoring and evaluation activities function as an information-exchange mechanism to observe field practices during program implementation and to verify whether field implementation activities have been performed as designed by the program initiator, either at the central or local government level. In practice, the program initiator seldom conducts the monitoring and evaluation process in detail, resulting in minimal exchange of information about field conditions and verification of program implementation.

Interruptions to this information-exchange flow process are attributed to the lack of commitment for and awareness of the need of monitoring and evaluation activities, the lack of software and hardware resources to support these activities, and the usual inter-institution conflicts and disagreements.

To ensure that the information-exchange flow continues, a bottom-up approach for sound monitoring and evaluation of WSES development should be established; this approach focuses on monitoring and evaluation at the lowest level, i.e., the community, and moves up to the central government level.

**a. Community**

Monitoring and evaluation at the community level should be undertaken using a participatory method. Different from commonly-used approaches, the participatory method provides opportunities for the community to be involved actively in the monitoring and evaluation activities, from data collection and problem-solving to the selection of available technology options and WSES facilities and service planning, implementation, and management. By design, this approach allows all members of the community to make their own decisions.

At this level, findings from the monitoring and evaluation activities will be used by the community to decide on corrective measures required to meet the community’s agreed goals and targets with respect to WSES development. Performance indicators should be decided upon and agreed to by consensus of the community members.
The role of external agencies, such as local governments, in this process should focus mainly on facilitating the process. It is also important to emphasize the need for sound monitoring and evaluation data management, including a clear identification of who is responsible for data management, and how the data will be disseminated to all stakeholders.

b. District/ Municipality

In accordance with regional autonomy, the central government should provide to local government (district/municipality) general guidelines for monitoring and evaluation and associate performance indicators. The purpose

c. Province

The provincial government (as representatives of the central government) should be responsible for coordinating and documenting results of the monitoring and evaluation programs implemented by the district/municipal governments. In essence, the role of provinces should be more clearly defined as districts are more prominent in the current era of regional autonomy.

d. Central

The central government's role in the monitoring and evaluation process should be to feed the information into the national WSES policy development and to ensure that the policy will be rational, operational, and complementary with the demands of the community. Because the monitoring and evaluation process is dynamic by nature, WSES policy development should be equally flexible to adapt to the changes in the community. Findings gathered from the provincial, district, and community levels should be clarified and validated to make sure that they reflect actual conditions and changes occurring in the community.

Strategy 16  
Develop and disseminate performance indicators for WSES development

An improved monitoring and evaluation method will require further development (and dissemination) of WSES performance indicators. These indicators are used to track the performance during each WSES development phase and to ensure that the results are in line with set goals and objectives. At the national level, such indicators should be general and be sufficiently flexible to accommodate additional input from local governments regarding regional conditions. It is crucial that participatory indicators are included in every WSES program.
IV. Closing

With the completion of this National Policy for Community-Based Water Supply and Environmental Sanitation Development, it is expected that all the agreed-upon general policies contained herein will be the reference for development efforts in community-based water supply and environmental sanitation.

This national policy is intended to be general by nature, thus requiring more in-depth interpretation by those involved in its implementation. Initiatives to adopt and adapt the national policy will be different in every region and therefore should incorporate the individual characteristics of and issues faced by each region.

Each department or agency responsible for further implementing this national policy needs to clarify and use the policy as a guideline for WSES development. As in the policy development process, each relevant agency should involve major stakeholders and apply the participatory approach in the process of formulating detailed sector strategies for policy implementation. In addition, the sector strategies must be able to accommodate the different characteristics and cultures of each region in Indonesia to ensure that past failures of WSES development efforts, caused by the implementation of a standardized policy in all regions, are avoided.
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4. Law No. 24 of 1992 on Spatial Planning
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9. Regulation from the Ministry of Health No. 907/Menkes/VI/2002 Dated July 29, 2002 about Drinking Water Quality Standards

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APPENDIX A

APPENDIX A


This section briefly highlights the history of the development of water supply and environmental sanitation (WSES) facilities and services in Indonesia over the past 30 years.

1. Decade 1970-1980

- **General:** During Pelita I (1969-1974) and Pelita II (1974-1979), the development of water supply and other public utility sectors (including communications, transportation, electricity, and environmental sanitation) ranked low on the national priority list. Instead, national development initiatives focused primarily on the agriculture and irrigation sectors in an effort to maintain food availability. During Pelita II, changes in the global economy resulted in an increase in oil prices. Consequently, investments in Indonesia—a major oil-producing country with vast oil reserves—rose greatly, boosting the national economy and increasing growth in urban areas. The boom led to the migration and settlement of a large labor force from rural to urban areas, resulting in an increase in demand for infrastructure such as roads, water supply and environmental sanitation, energy, and communications.

- **Urban Water Supply:** Water supply facilities during Pelita I and Pelita II consisted mainly of pre-independence (pre-1945) infrastructure; new investments in water-supply facilities following independence in 1945 were lacking while the existing facilities were generally unable to cope with the rapid population increase. The PU (Ministry of Public Works) managed investments and operations and maintenance for water-supply facilities and services. Funding for the construction of facilities was made available through national and regional government budgets (APBN and APBD, respectively) and through bilateral/multilateral funding agencies such as the World Bank and the Asian Development Bank. Small-scale water-supply projects were usually linked with other projects, as in the case of Kampung Improvement Project I (KIP I).

- **Rural and Small-Towns Water Supply:** During Pelita I and Pelita II, water-supply services had not reached villages and small communities (IKK) with populations of less than 20,000 people. Rural communities generally continued to obtain water from traditional sources (wells, rivers, etc.). During the same time, the Ministry of Health took the lead in the development of water-supply facilities, joined by other organizations (NGOs, UNICEF with technical assistance from WHO and 

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*Environmental sanitation encompasses basic sanitation, household wastewater management, solid-waste handling, and drainage-settlement management.*
UNDP). Often, these efforts became pilot projects to test the application of certain “appropriate technologies” (e.g., hand pumps) at the field level to verify the application of “software” initiatives, such as active community participation and the establishment of facility-management institutions. These were typically small-scale projects with an equally small impact and a limited area of coverage. The water-supply systems built were often short-lived because they were not maintained.

- **Environmental Sanitation**: In Pelita I and Pelita II, environmental sanitation of both rural and urban areas was not a priority. Dialogues within the government about environmental sanitation did not translate into physical construction of facilities. Systematic domestic waste management was nonexistent. At the household level, the prevalent method for domestic wastewater management relied on the use of latrines ultimately discharging into septic tanks; communities without access to latrines continued to use traditional places (rivers, ponds, gardens, rice fields, etc). Within the urban slum areas, the government built communal bathing, washing, and toilet (MCK) facilities. MCKs had very limited coverage, were not well-maintained, and were rarely used by the communities.

2. **Decade 1980-1990**

- **General**: Pelita III (1979-1984) and Pelita IV (1984-1989) marked even greater economic growth, particularly in the manufacturing and technology industries, and contributed to the increase of investments in infrastructure development. During the same time, the International Water Decade was established, which pushed for the provision of water for all global citizens. Both the rapid economic growth and the declaration of the International Water Decade provided impetus for the government to improve water services to communities and thus led to increased investment in the construction of water-supply facilities. By the end of Pelita III, water-supply coverage grew by 20-30%; by the end of Pelita IV, water-supply systems served 55% of the population.

- **Urban Water Supply**: In Pelita III, the government invested considerably in the construction of urban water-supply facilities and in building the planning and management capacity of government personnel. The government also began to work closely with international funding agencies for loans to increase investment in the water-supply sector. The central government formulated development-approach models and technical standards, including those for smaller-scale facilities, like the /KK program at the sub-district (kecamatan) level. The Ministry of Public Works planned and implemented the construction of water-supply infrastructure based on international standards, which linked design with population growth. As a result, most investments in water facilities occurred mainly in large cities in Java and Sumatra, where the population growth rate was highest. Nevertheless, service coverage remained relatively low and investments could not keep up with the high rate of the population increase.

- **Rural and Small-Town Water Supply**: In small towns with populations of less than 50,000 people, the Ministry of Public Works was responsible for the implementation of water supply facilities. Water utilities (BPAMs) managed the O&M activities and evolved into the current state-owned
PDAMs. In rural regions, the Directorate Generals for Water and Sanitation (DG PPM and PLP) of the Ministry of Health, assisted by the DG for Village Community Development (PMD) of the Ministry of Home Affairs, were responsible for the development of water-supply facilities. The central government, through its respective technical departments, designed the framework for water supply development, including the planning, implementation, and O&M phases.

Financial assistance from bilateral and multilateral foreign agencies, such as WHO, UNICEF, and UNDP, continued to increase. NGOs, though small in size, also began to take part actively in the field of water supply development with funding from various donor agencies. As a result of the growing autonomy and decentralization policies, the central government created a funding mechanism (INPRES) in the form of grants to local governments to increase the provision of water supply facilities and services. Service coverage figures indicated a significant increase as a result; however, in reality many of the facilities did not satisfy the user communities. In the end, these facilities were not properly operated and maintained.

- **Environmental Sanitation**
  
a. **Domestic Wastewater**: The Ministry of Public Works built large, centralized sewerage systems in several big cities. The expensive and highly technical O&M methods of these facilities prompted the central government to initially undertake the O&M responsibility; however, it slowly relinquished the O&M process to local governments. The government began and continued to promote on-site waste management and MCKs, but the MCKs failed because the communities rarely used them. In densely populated urban areas, the government and the community generally collaborated to construct private septic tanks to collect domestic wastewater (human waste). The government typically provided initial stimulant funding; the communities themselves then constructed the facilities. In rural areas, the government decided on all the types of materials and the designs for latrines (a “top-down” approach), resulting in low levels of acceptance and usage. Data showed that service coverage increased significantly, but in reality the majority of rural population continued to defecate in traditional places like rivers, ponds, etc.

b. **Other Environmental Sanitation Conditions**: Management of solid wastes in urban areas remained poor primarily due to community negligence and ignorance. In the early 1980s, the government began to systematically implement solid-waste management programs, but the technologies implemented were often harmful to the surrounding environment. The government did not endorse innovative and more environmentally-friendly technologies due to high costs associated with their construction, operation, and maintenance. Furthermore, the government had not systematically developed integrated wastewater and storm-water-runoff drainage systems and relied on partial problem-solving initiatives. As a result of the lack of a comprehensive management approach, the provision of adequate drainage in one area would cause flooding in another, for example. Weak and irresponsible drainage-management institutions, coupled with the lack of sufficient funding, further contributed to persistent flooding problems.
3. **Decade 1990-2000**

- **General**: Pelita V (1989-1994) and Pelita VI (1994-1999) highlighted the globalization era, especially in the economic sector. Autonomy and decentralization policies eased the control of the central government, thus fueling uncertainty and volatility in government structures and functions. At the same time, the Dublin-Rio Principles came into prominence internationally. Meanwhile, private investments in the industrial sector increased sharply and, to a lesser degree, began to venture into the development of public utilities in urban areas. In Repelita VI, the planned development of water supply facilities was supposed to cover 60% of rural and 80% of urban communities. However, the economic crisis in 1997, followed by the political turmoil in 1998, resulted in economic instability and stagnation, and reduced any available funding for infrastructure development.

- **Urban Water Supply**: Investments for infrastructure came from bilateral and multilateral agencies as a result of the success of the *P3KT* (IUIDP) project, which integrated urban infrastructure as one system. The Ministry of Public Works played a major role in establishing the *P3KT* concept and subsequently delegated its authority to local governments at the provincial and district/municipality levels. However, the consequent excessive number of projects developed and the lack of adequate human resources to implement them resulted in poor construction quality of many facilities; the lack of resources ultimately resulted in a lack of quality control and deficient implementation.

The *IKK* approach intended for small towns was applied to larger, medium-scale towns. The application failed because the main objective focused strictly on new facility construction to increase service coverage rather than maintenance and rehabilitation of existing ones. Performance of *PDAMs* remained below standard, for several reasons: (1) a weak organizational structure caused by bureaucrats being involved in operations rather than professionals, (2) restriction on proper tariff rates, (3) costly new investments, and (4) limited human resources. There were other challenges also, including natural constraints such as the depletion of water-storage capacity (due to the lack of environmental management) and the decrease of useful water springs. Consequently, the majority of *PDAMs* relied on central government subsidies to survive, especially in small towns where there were only few active consumers. By 1998, the general consensus from stakeholders was that *PDAM* management needed to undergo profound change. Private-sector involvement was attracted due to the potential of having competent professionals capable of shifting the *PDAM* management structure into one that was more profit-oriented and less bureaucratic.

- **Rural and Small-Town Water Supply**: Pelita IV marked the beginning of community participation and NGO involvement in implementing government projects funded by international
funding agencies at both central and local levels. Although implementation was limited, concepts of community ownership and the Demand-Responsive Approach\textsuperscript{10} began to gain acceptance.

Public utilities development projects that included components of WSES, such as P3KT, P3DT, and others, had varying levels of success. These projects provided opportunities for communities to be directly involved with infrastructure development. Local governments functioned as facilitators and technical advisors. Nevertheless, service coverage fell short of planned figures and any of the constructed WSES facilities were not optimally used due to the communities’ limited capacity to operate and maintain the facilities.

- **Environmental Sanitation**

  a. **Domestic (Human) Waste**: Community awareness about the importance of domestic wastewater management remained small relative to water supply, resulting in few household connections to centralized sewerage systems. This lack of connections in turn led to the inability of management institutions to cover their O&M costs, let alone pay for expansion of the sewerage network. Many institutions at the central and local levels tended to ignore the need for adequate domestic wastewater management.

  Even so, there was some evidence of awareness about wastewater management. For instance, neighboring households in some areas agreed with one another to implement a community-based waste-management system (IPLBM)\textsuperscript{11}. The system typically consisted of a shallow sewer to carry household sewage into a large communal septic tank, and then into an open pond. In other areas, like in Cirebon\textsuperscript{12}, NGOs convinced the community to agree to establish connections to the existing sewerage system,

  In public utilities development projects (P3DT and others), the MCK concept remained common, although many of the facilities built were not functioning as intended. In every large-scale WSES project, latrine construction became a major component. Stimulant programs, by way of giving out materials and one type of technology option decided upon from “the top”, continued. Even though these programs were generally less successful, there were few exceptions. Successful programs were linked to the effective and sustained use of the facilities by the community.

- **Environmental Sanitation**: Bappedal, as the agency responsible for the environment, concentrated on large-scale issues rather than those of the smaller settlements. Bappedal did not pay attention to environmental sanitation, such as trash and drainage. Trash and drainage issues

\textsuperscript{10} Demand-Responsive Approach is an approach where the decision of an investment is based on the demand of the community.

\textsuperscript{11} An example of a functioning IPLBM is in hamlet Tlogomas in the town of Malang. The system was planned, constructed and funded by the involved communities themselves.

\textsuperscript{12} The city of Cirebon has a distribution and centralized waste management system; household connections were conducted by an NGO.
were viewed as the responsibility of the respective technical departments; a view which ignored the fact that these problems also involved management, human resources, and institutional aspects.

The P3KT project as a whole was somewhat effective in resolving some urban infrastructure problems, but limited funding and resources prevented its application to all infrastructure issues; urban infrastructure problems thus became compartmentalized and non-systematic. These conditions, along with a “project-oriented” rather than “program-oriented” approach, resulted in the development of facilities and services that did not meet the needs of communities; many facilities were therefore neglected and poorly maintained. Consequently, infrastructure problems persisted and the means to solve them were funded by loans. Large investments went into constructing drainage networks and solid-waste collection systems, but the end results were dismal. These problems remain apparent in urban areas today.
APPENDIX B

Lessons Learned from Water Supply and Environmental Sanitation Development Programs
APPENDIX B

Lessons Learned from Water Supply and Environmental Sanitation Development Programs

Lessons from the implementation of the water supply and environmental sanitation (WSES) include those specific to a project and those linked with other projects. The following section highlights lessons extracted from different sources, but mostly from those who were directly involved in the process of WSES facilities and service development. Appendix B is divided into two sections: experiences common to international WSES projects and country-specific experiences from Indonesia.

1. International Lessons Relevant to Indonesia
The main focus of the sustainability of WSES facilities is to be beneficial to users and built according to design. Experience has shown that large investments in WSES development often fall short of expectations, resulting in short-lived use of WSES facilities.

In light of these experiences, a change in the WSES development focus is necessary; various aspects of WSES development—from the setting of aims and objectives to the implementation of the final program evaluation—need to be reformed. Of special concern is the development of an approach that results in sustainable service. A 1992 international conference attended by experts on water supply management in Dublin and Rio defined a global agreement, also known as the Dublin-Rio principles, to guide the water supply development efforts.

**Dublin-Rio Principles**
The Dublin-Rio Principles emphasize the following:

- Water is a limited resource and is important to life; it should be managed holistically amongst all its users;
- The development and management of water resources should be based on a participatory approach, where decisions should be made at the lowest possible level of the community;
- Women should have a central role in the decision-making on water supply development because they have influence on the effectiveness of water consumption;
- Water does not only have social value; it also has economic value.

Within the context of WSES development in Indonesia, the Dublin-Rio principles imply:

- Water supply and environmental sanitation are necessary to human life.
- Water cannot be treated as a commodity given free by God, king, or other authority figure, or be considered valueless; water has value, suggesting that one should pay to use it, including paying for

Appendix B - 1
O&M to receive sustained service. Sustained service can be obtained only if the fee the user pays (either in cash or in kind) is judged reasonable by the user for the service and quality received. Water must be valued according to its quality, depending upon the benefit derived from it.

- The planning, construction, operation, and management of water supply have wide-ranging implications. Final decisions should be made through the participation of all users, without exception. There is a need for a change from assistance based on government planning (supply-driven) to assistance based on community demand (demand-driven). In addition, to lay the basic foundation of demand responsiveness, it is necessary to provide the community with a range of options of the types of service available and explain the associated risks and benefits of each type of service. The government should be responsible for the development of options and for the dissemination of information to the communities. Government institutions should therefore be capable of communicating effectively to ensure that the people are well informed.

- The greater the involvement of women in the decision-making, the better the chances of sustainability. Women are the prime managers of water use within households and are responsible for family hygiene. Women have the highest interest in the availability of water; they will suffer most if the water supply facility does not function adequately, and consequently they will decide whether or not to use the facility if the service does not meet expectations.

Government resources are insufficient to meet the demand of WSES facilities and services for all. Therefore, there are two important issues that should be considered:

- Financial: It is necessary to create alternative mechanisms to cover costs of construction, O&M, etc.
- Human resources: It is necessary to strengthen human resources capacities at all levels.

Efforts should also be directed toward assisting the community or well-to-do families to assume the responsibility for improving their WSES services. It is important to facilitate within these communities a demand for a healthy life, and consequently to optimize the benefits of WSES facilities. Since the motivations for environmental sanitation are quite different and more complex than those for water supply, it is necessary to stimulate interest in hygiene at the individual as well as at the family level. In any case, there is no single method that guarantees success for all situations and conditions. Every case is accompanied with a complex set of its own problems. The solution is implementing learning approaches where every lesson learned may be reviewed and considered input for improvement in the development process.

A World Bank study of 121 village-level water supply projects around the world (conducted by various foundations and organizations) concluded that active participation of the community in decision-making and project implementation would result in effective WSES facilities and sustainable services. The study debunks several myths that had formerly influenced the thinking on water supply development:

- **Myth:** Poor communities are unable and unwilling to pay for water supply services; therefore the government should provide such services for them. **Reality:** Poor community members often pay more for...
their water supply than wealthier members of the community. Poor families will pay if they get good service.

- **Myth:** Poor people are unable to solve or manage technical problems; they do not know what is best for them. **Reality:** Communities are capable of designing their own system and managing natural resources.

- **Myth:** To create an equitable and evenly distributed service; it is enough to provide a community with a facility that provides a minimum level of service so that the limited water resources can be spread over a wider area. **Reality:** If the community does not get what it expects, it will not use the facility nor pay for the service.

- **Myth:** If the community is involved in the decision-making, the interest of women as the prime managers of water use at the household-level is met. **Reality:** Due to socio-cultural factors, the interests of women will never be satisfied unless they are specifically invited to be involved in a strategy to strengthen the position of women.

- **Myth:** The responsibility for construction of WSES facilities should rest with a technical agency; completion of construction is the performance indicator. **Reality:** A technical agency can achieve success through monitoring and providing technical assistance to NGOs, the private sector, and other non-technical agencies. Its main duty is to improve the capability of the community in the management of the facilities and the sustainability of services.

- **Myth:** Prior to the implementation of a project, it is necessary to have a general plan and a uniform approach based on a complete set of data. **Reality:** Standardization in an overall plan hinders the participatory development process. It is not really necessary to have complete data collection prior to implementation; what is needed is only the specific data that are really important and much of that can be collected while the project is ongoing. Standardization too early in the implementation procedure usually leads to failure.

- **Myth:** Decision-making by the user community is an important matter, but the control of a program implementation must always rest with the project manager. **Reality:** The essence of a participatory process is to provide options and opportunities to the community to express their desires. Community participation may not be created or destroyed by an outside party; a participatory process means relinquishing the reins to the community.

- **Myth:** Participatory approaches need a long time to succeed, and are applicable only on small-scale projects. **Reality:** If the project is responsive to its needs, the community can act and organize itself quickly.
• **Myth:** Participatory approaches are difficult to replicate on large-scale works, because they need a charismatic leader, an experienced NGO, or other talented individuals. **Reality:** Community participation can be replicated. Charismatic leaders play their role in the initiating process; anybody in general can keep the process going. NGOs are typically highly competent in applying the community-strengthening strategy and are excellent mediators. Like other technical skills, improvement in the design and implementation of participatory program is achieved through a learning-by-doing process.

• **Myth:** Participatory approaches are an uncertain process; therefore they are difficult to define and measure. The objective in human-resource development by way of participatory decision-making is important but impractical. **Reality:** Participatory concepts can be applied and measured easily. Measuring, monitoring, and evaluating through community participation will make it easier for government agencies to fulfill their responsibilities in their mission to support human-resource development.

An analysis of all the water supply projects globally concluded that 20 out of the 121 projects were considered very effective. The indicators of success vary from project to project, but in general they can be grouped under the following criteria:

- User communities are satisfied with the quality and the quantity of the water.
- No facilities are overlooked; design and construction quality meet the demands of the community.
- Most of the installations are still functioning 10 years after completion of construction.
- The community undertakes sustainable operation and management of the installations.
- The community shows a strong sense of ownership and responsibility towards the facility and is capable of sustaining it.
- Women benefit directly benefit from the service as it is more convenient and saves time in getting water for the family; this is turn produces an economic benefit such as more time for child care, tending the garden, or for handicraft activities.
- Reduced occurrence of waterborne diseases.
- Increased rate of latrine usage.
- The community contributes to cover the costs of construction.
- Strengthening the community institution in the management of facilities, including the participation of women in any activity, though still less so in realm of decision-making.
- Establishment of good cooperation with the local government.

Out of the 20 highly effective projects, two are in Indonesia, the rest are scattered in various countries, namely Swaziland, Ethiopia, Panama, Ecuador, India, Kenya, Malawi, Togo, Mali, Haiti, Yemen Arab Republic, Rwanda, and Peru.
2. **Lessons Learned in Indonesia**

The successes and shortfalls in the implementation of WSES in Indonesia over the past 30 years in Indonesia could be used as the basic foundation in the formulation of the WSES policy. Some of the lessons are listed below.

2.1 **Lessons Learned in the Development and Management of WSES**

- The implementation of the two water supply projects in Indonesia out of the 20 projects of the same kind that the World Bank considered successful were undertaken by an NGO, with involvement of the user community at every phase of the development. The development strategy consisted of (1) the establishment of an institution involving all segments of the community; (2) using participatory approaches in problem-solving; and (3) conducting training in management, design, construction, O&M, and hygiene awareness. The old development paradigm used by government agencies should be changed. Development of public utilities is intended to benefit the communities; thus, without the significant participation of the communities, it is difficult to obtain the acceptability and sustainability of the development. The indicators of success for the two projects are:
  - Effective design, acceptable to all segments of the community, including women; the system is simple yet reliable.
  - The project is acceptable to the community and capable of motivating them to actively participate, including financially.
  - The communities are motivated and are capable of undertaking O&M.
  - Users pay a fee for the water supply service at an agreed-upon rate.
  - Women are involved in every phase of the development, though still less in the decision-making.
  - Time saving for women, allowing them to do other activities.
  - Women become active members of the water-users group.
  - When community members build latrines for and by themselves, the rate of latrine usage is high.
  - Women become active members of the health-awareness group.

- A study of the relationship between participation, gender, and demand responsiveness and the impact and sustainability of WSES facilities in the implementation of WSSLIC (Water Supply and Sanitation for Low Income Communities) and FLOWS (Flores Water Supply)\(^\text{14}\) projects drew the following conclusions:

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\(^{14}\) Participation, Gender & Demand Responsiveness: Making the Link with Impact and Sustainability of Water Supply & Sanitation Investments, Institute for Research of University of Indonesia in partnership with UNDP/World Bank Water and Sanitation Program and IRC-International Water and Sanitation Center, 1999.
• The development of water supply facilities that meet the demand of the community show a high rate of effectiveness and sustainability.

• The availability of realistic O&M costs result in a better sustainability.

• The better the organization of the O&M management, the more the funds flowing in from the users, creating better sustainability.

• Participatory management involving all segments of the user community, both in the institution and in decision-making, result in a higher degree of participation in O&M.

• The active involvement of women in decision-making, operation, and maintenance results in high effective use and sustainability.

• Equality of both poor and rich people in the decision-making process results in better sustainability.

• Ease of access to water supply services results in higher effectiveness and better sustainability.

• The availability of alternative water sources coupled with a complicated design of the facilities developed by the project result in users returning to their alternative sources.

• The approach to environmental-sanitation development should be distinguished to that for water supply. The essential aspect in the environmental-sanitation program is to make the community realize that the disposal of excrement in the open is harmful to not only one's own and one's family's health, but also to the community at large.

• If the benefit is not directly felt by users relative to the construction costs, the rate of latrine usage tends to drop.

Some lessons can also be gathered from the WSSLIC\textsuperscript{15} project, which is aimed at developing WSES facilities that are safe, available in sufficient quantity, and easily accessible; another project aim is to promote education on hygiene/health of the poor communities, through the principles of sustainability and community-based management, in (1) villages where such services are not available and (2) in thickly populated areas. The overall lessons learned are:

• Community participation that can influence program implementation toward the effective use and sustainability can be achieved if the service options and their financial implications are determined by the community at the household level, contributions from the community are decided based on the type of service offered, and the organization of the management unit is formulated in a democratic manner.

• The user community should have the authority to control the use of funds from community contribution, and the quality as well as the schedule of the ongoing construction.

\textsuperscript{15} It is expected that this project could serve 2 million people in selected areas of Central Java, and five provinces in the eastern part of Indonesia (Sulawesi Tenggara, Sulawesi Tengah, Sulawesi Utara, Maluku, and Nusa Tenggara Timur) where the poverty rate is still high. The villages are selected based on several criteria, such as the poverty level, occurrence of waterborne diseases, water scarcity, infant mortality, and the willingness to pay O&M fees. This project has six components, namely water supply, environmental sanitation, hygiene promotion, community development, technical assistance, and project management. With the improvement of the environment and hygiene promotion, this project was expected to produce a positive impact on the community health and productivity, especially for women and children.
• WSES users are deeply concerned with the quality of the facilities and are willing to pay more for service that meets their expectations. The decision to select an option up to a certain limit of costs and minimizing the level of service will result in a facility that produces unsatisfactory service; the community thus will be discouraged and not be motivated to sustain it. With an effort that is more responsive to the demands of the user community, WSES projects could increase financial contributions to guarantee effective funding and sustainability of investments.

  o The lessons learned from UNICEF-funded water supply and environmental sanitation projects during Pelita V are\textsuperscript{16}:

  • The effectiveness of usage and sustainability of WSES facilities can be achieved by involving the community as early and as effectively as possible; this will ensure that the community will get the WSES services it wants. The more options offered to the community and the bigger its role in decision-making, the greater the likelihood of the facilities fulfilling the community’s demands; which in turn increases the likelihood that the facilities will be used in an effective and sustainable manner.

  • The effective use and sustainability of WSES facilities cannot be achieved simply by promoting community participation in O&M without prior application of demand-responsive approaches. If so, the users will only be moderately motivated to organize themselves in the operation of the facilities, but will be unlikely to feel responsible for maintaining them.

  o The WASPOLA-UNICEF Field Trial \textsuperscript{17} was a comparative study aimed at showing and testing the application of certain policy principles. The lessons are:

  • Willingness to contribute should be encouraged and should be measured not only directly with the nominal (monetary) value of the contribution, but also indirectly in other ways of contributing (i.e., in kind); communities with a higher degree of willingness tend to be more effective in accommodating external assistance.

  • The MPA process helped achieve program goals and increased the effective use, maintenance, and technical quality of the facilities. Field results showed that rating scores were higher in villages with intervention than in those without; sites with intensive support from MPA facilitators tended to comprehend more about the aid program and program activities.

  • The MPA facilitation process helped improve access for the poor; field results indicated a higher proportion of the poor communities received assistance in villages with intervention.

  • User satisfaction showed a positive correlation with both quality of life and user understanding of about latrine usage. User satisfaction rating in villages with intervention was less than in those without because communities in the former underwent the MPA process and therefore knew

\textsuperscript{16} Study of Community-Based Approaches Utilized in UNICEF’s Water and Environmental Sanitation (WES) Program in Indonesia, UNDP-World Bank Water and Sanitation Program, 1999.

\textsuperscript{17} In this field trial, there were three topics tested: (i) sanitation option, (ii) willingness to pay, (iii) facilitator capacity building; WASPOLA applied the policy principles in several villages in the Subang and Garut districts.
more about better hygiene behavior and its relationship with latrine use; they were thus less satisfied with what was provided through the assistance program because they were more aware of the pros and cons of latrine use.

- The improvement in facilitator ability was positively correlated with sustainability and effective use; field results indicated higher scores of sustainability and effective use in villages with intervention.

Key findings from the comparative case study on two program-evaluation approaches (conventional method and participatory method) in Wonosobo are:

- The case study shows that the two approaches produced some similar and some different assessment results. However, it is also clear that the use of different approaches can provide comparable results if sufficient attention is given to their design and implementation, particularly with respect to sample selection and questionnaire development.

- The sampling process was a key factor in the discrepancy between assessment results. The participatory method was sensitive to the representation of men-women and rich-poor groups in the respective communities to reflect differences in village conditions, such as latrine ownership, use, and benefits. The conventional survey results were sensitive to the total number of respondents in order to properly represent the village conditions. Identifying a representative sample requires a lot of effort, especially in village households with greater diversity. Therefore, by excluding considerations of village-level variations during the design of the sampling process, assessment results may be biased toward certain groups within the village.

- The participatory method encouraged village residents to voice their ideas, opinions, issues, and add local knowledge to the response categories, the resulting in a broader picture of sanitation conditions in their villages, such as latrine benefits and latrine uses. The conventional survey entailed a predetermined set of response categories, thus restricting the respondents' preferences to those listed. In theory, this problem in the conventional-survey technique could be overcome by extensive field testing of the survey questionnaire. But in practice, as the study shows, inadequate time was spent in undertaking this part of the survey, resulting in a less-accurate picture of village conditions.

- The total cost of the participatory method was comparable to the cost of the conventional survey. The conventional survey employed more, less-expensive enumerators, whereas the participatory method used fewer, better-trained facilitators. The participatory method required less time to implement and was easier to manage because of its one-time application to assess both before and after village conditions, whereas the conventional approach required two separate surveys (baseline and evaluation) to measure and assess pre- and post-project conditions.

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18 Sanitation in Wonosobo: Two Evaluation Approaches Compared, Water and Sanitation Program for East Asia and the Pacific; Field Note, April 2002.
The Flores study was conducted to obtain a comprehensive overview about the conditions of WSES facilities\(^\text{19}\). The study applied the MPA to evaluate large-scale WSES investments. The results are:

- Equity should be addressed as a specific cross-cutting issue from the planning stage onwards; equality is not equitable (requiring equal contributions often disadvantage the poorest).
- Gender- and socially-inclusive community management (decision-making) is a key factor in the sustainability of service.
- All aspects of sustainability (technical, financial, social, institutional, environmental) are interrelated and equally important.
- Flores projects were all early applications of many of the same principles included in the new policy, but in practice the designs were often not followed; where they were followed, outcomes were significantly better (results statistically correlated).
- Monitoring and reporting did not involve beneficiaries, so managers and agencies were not well informed.
- Policies and project rules that are rigid and prescriptive cannot fit all practical realities.
- Implementers must understand and own the basic principles, and be able to apply them flexibly, putting decision-making in the hands of the ultimate owners.
- Converting policy into practice requires much more than directives—it requires a paradigm shift.

Historically, communication and coordination of development projects have been poor. A WASPOLA-WSLIC2 field trial\(^\text{20}\) on the topic of project coordination was therefore conducted to verify and demonstrate coordination mechanisms that may work to improve delivery of service and function. The key findings are:

- **Myth:** Project coordination is almost impossible. **Reality:** Project coordination is quite possible.
- **Myth:** That without funding, there is no coordination. **Reality:** Having minimal funds is not an obstacle to coordinate. For example, the established coordination forum will rotate the hosting of meetings among the participating projects as a way to resolve the financial issues. **Myth:** That “formality” (through more bureaucracy) is the ultimate factor for success. **Reality:** “Formality” is sometimes a constraint. Informal discussions and meetings between projects prove to be more effective. **Myth:** That project-scheme differences (rules, source of funding, sector, etc.) inhibit coordination. **Reality:** The differences actually widen the opportunity to coordinate. **Myth:** That there is a “culture” that obstructs cooperation between projects. **Reality:** There is a “willingness” to

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\(^{19}\) The facilities were built under several projects such as AusAID, ‘FLOWS’ (most), WB, WSSLIC, NGOs.

\(^{20}\) WASPOLA and WSLIC2 have jointly identified several topics for cooperative implementation as field trials. The first, on the theme of project coordination, tested and demonstrated how various multilateral, bilateral, and NGO-managed community development and WSES projects might coordinate to better serve the “demands” of their targeted communities.
collaborate through integrated planning/implementation. Myth: That project coordination “initiator” must be from certain government agencies. Reality: The “initiator” can be from any agency, even NGOs. The determining factor in an initiator is commitment. Myth: That when a project ends, the entire program also stops. Reality: That with coordination, a program’s functions and services can be transferred to another project. Myth: That local human resources are weak. Reality: With coordination, local agencies and communities can find, use, and share better resources.

2.2 Lessons for Policy-Framework Development

- Lessons as input for the refinement of the policy document can be derived from several processes, such as workshops, seminars, comparative studies, field trials, etc. There are several requirements to reach the success in WSES development:
  - An honest admission that the development approach previously used needs to be improved.
  - Various approaches that were studied should be considered as input for the development of the new improved policy.
  - There is willingness and support from all parties concerned to implement the policies and regulations in a manner designed to achieve an effective result.
  - Commitment to change and to translate the policy into real action must be reflected in the process of agreement formation through honest participation and the spirit of cooperation for change.
  - The creation of ownership sentiments and commitment from the participation of all parties concerned will take time.
  - The policy framework should be sufficiently flexible to allow adjustments to cope with changes in conditions and sector needs, and also sensitive enough to allow incorporation of new experiences.

- The constraints to application of the demand-responsive approach (DRA) are:
  - There is no common policy framework agreed upon by the agencies involved, including the central and the regional governments, the recipients and donor agencies, and NGOs, in applying a DRA.
  - There is some direct and indirect resistance from various levels of the government and between agencies, the recipient and donor agencies, and even within the community itself.
  - Lack of knowledge, information, and technical know-how as well as funds, in all levels of the government and among NGOs.
  - Slow bureaucratic process and rigid procedures for the disbursement of funds and hiring the required manpower to support the activities.
To be effective, DRA principles need a long time for implementation, and must be supported with sufficient funds, more so if this is linked to community willingness to contribute.

In an effort to implement a project under the guiding theme “Moving from Policy to Practice”, we might anticipate the emergence of some constraints, and to face them we need to apply some steps of the DRA. The steps are classified into two categories, namely policy aspects and financial aspects.

**Policy Aspects**

The steps are as follows:

- To clarify and create a strategy and mechanism for applying DRAs that are agreed upon by all the agencies involved. It is hoped that this document will clarify the *PABPL-SKM* strategy, and that that strategy will be applied throughout Indonesia.
- To hold a campaign on the agreed-upon strategy, and make an effort to institutionalize DRA as the development approach to be applied at kabupaten/city level;
- To institutionalize DRAs into the regional-development mechanisms and at the same time improve the capabilities of the kabupaten and city governments in applying a DRA.

**Financial Aspects**

The steps are:

- To develop a budget mechanism that stimulates fund-raising. Through WSSLIC, Indonesia has created an incentive method of fund-raising from the community to finance a development project. This must be retained, evaluated, and refined for replication in future WSES projects.
- To develop a mechanism that would support the capability of the community to manage and control their own financial resources. The village infrastructure project (*P3DT*) has made several innovations in the development of control mechanisms and financial management by the community. Although it was not intended for fund-raising, new breakthroughs in the channeling of development funds from the government directly to the community might be used as a model for future projects.
- To harmonize the model of financial management between donors and the government with the development approach in the related sector. Many countries as well as donor agencies do not have flexible mechanisms to allow channeling of funds directly to the government; this might upset the overall DRA process.
- To develop the legal framework to urge all agencies involved to participate in the budget and financial management of the project.

The community-based WSES policy trial was implemented in selected local governments in four districts: Solok (West Sumatra), Musi Banyuasin (South Sumatra), Subang (West Java), and East Sumba (East Nusa Tenggara - NTT). The objective of the trial is to obtain feedback from local governments and evaluate how the national policy may be adopted or adapted with respect to local conditions. The results are:
• Participatory method increased stakeholder participation during the local policy-development process.

• Identifying local WSES management issues and examining the substance of the national-policy principles using participatory activities were highly effective.

• Adaptation/adoption of the WSES national policy objectives (sustainability, effective use) and action plans to resolve WSES-related issues are different in each district; these action plans should incorporate local conditions such as geographical regions, local cultures, and established government priorities. Facilitator’s role is essential in the process to facilitate local stakeholders in trial implementation activities; a facilitator was able to cover more than one district.
APPENDIX C

An Alternative Perspective on WSES Services
(Including the “Grey Areas”)
APPENDIX C

An Alternative Perspective on WSES Services (Including the “Grey Areas”)

Introduction

Historically, the approaches to water supply and environmental sanitation (WSES) services have been defined as being either “urban” or “rural”. These terms often have administrative significance, unrelated to issues of WSES services, but giving rise to some difficulties in approaches and outcomes for end-users. A universally challenging area is in small towns, which seem to fall between “large urban” and “small rural” settlements, and are typically not well served, even in many developed countries. In the developing world, where access to WSES services is low across all settlement sizes, traditional approaches have not been working well, provoking the search for more effective ways of improving access.

Back to Basics

The best place to start is at the beginning, by re-examining the fundamental structure of the sector and the assumptions implicit in approaches to service provision, especially:

- the nature of water resources
- the nature of settlements (their evolution and the process of urbanization)
- corresponding social, technical, and administrative aspects of the development and management of WSES services

Water does not respect administrative boundaries. Water-resource management requires acceptance of the nature and behavior of water, and the need to adapt the approaches to suit, not vice-versa. The provision of WSES services is a subset of overall water-resource management, and the same rules apply. The simplest statements of key principles for sustainable water management are known as the Dublin Principles\(^1\): four short sentences, one of which recommends informed decision-making at the lowest appropriate level.

Settlement patterns vary greatly, both physically and over time. People gather in settlements, and settlements evolve, for a number of reasons. They may start from a market at a road junction, or follow an access route (as in Figure 1), and slowly build on these foundations, attracting more people with more

\(^{1}\) First agreed in Dublin in 1992, later ratified in Rio de Janeiro (so also referred to as Dublin-Rio) and subsequent international conferences on sustainable development. The four principles cover a holistic approach to managing water in all its uses, water as an economic good, the central role of women, and decision-making at the lowest appropriate level.
reasons for wanting to be there at that time. The reasons and the settlements will not remain static and will change over time.

As settlements change, so too will administrative boundaries. What is a village today may be two villages or a town tomorrow. As towns and cities grow, they take over or merge with surrounding settlements and decisions are made about their boundaries. At what point does a village become a town and a town a city? Settlements are not homogeneous; within the boundaries of villages, towns, and cities, there is wide variation in the density of settlement (how closely people live together), socioeconomic groups, and classes of housing. These factors are important for the provision of services.

![Figure C1 - The nature of settlements](image)

![Figure C2 - settlement classification as Rural or Urban](image)

**Traditional classification** of approaches to service provision have split the sector into “rural” and “urban” subsectors. At the extremes, or applying clichés to these terms, as shown in Figure 2, it is relatively easy to see the differences. But where exactly should the dividing line be drawn between urban and rural, and what does it mean? The terminology has come to represent administrative and bureaucratic boundaries more than the nature of settlements; classifications like this determine whose authority prevails, especially when it comes to allocation of responsibilities and budgets between ministries and departments.

Within many governments and between many agencies, the perspectives on this boundary and its position are often hotly contested. As shown in Figure 3, the clean administrative approach would be to define a division that could be applied to all aspects of sector activities in financial and physical terms; the problem is simply one of defining the dividing line. As the definitions of the terms are vague and administrative, the
rationale for defining any firm boundary position becomes tenuous and arbitrary, but it has huge implications for the approaches taken on the provision of services.

The approaches to providing services that are implicit in this traditional subdivision are often based on a stereotypical or clichéd understanding of the settlements and clientele (as in Figure 2), in some cases softened by lessons from experience. For example, in many countries all sector development was delivered directly by the government in a “top-down” manner, with all decisions made centrally—or at least remotely—and including minimal consultation with the intended beneficiaries. Failures were most apparent in the “rural” subsector; hence, in many cases approaches for that segment were modified to become more inclusive, consultative, and “bottom-up,” allowing user communities more involvement in the decision-making and management of their own services. Meanwhile “top-down” approaches continued to be applied to the “urban” subsector, often accompanied by attempts to expand the bureaucratic territory by moving the dividing line, and applying these (“urban”) approaches to ever smaller settlements.

The Realities

In the field, there are limitations to “bottom-up” approaches; as systems become larger and more complex, the “rural” models tend to fail. Similarly, at the other end of the spectrum, the “top-down” institutional approaches result in a higher proportion of failures as settlement sizes become smaller (as had been the case earlier for “rural” applications). In fact, the truly “urban” approaches serve a relatively small proportion of the population, and the truly “rural” approaches a similarly small proportion. Between the two is not a boundary line as much as a large gap—fuzzy “grey area” (Figure 4) —containing a large proportion of the population not well served, or not served at all, by either approach.

Figure C3 - Dividing the Sector: where is the boundary?

Figure C4 - The sector as it is
What does this “grey area” look like in reality? Who and where are this large number of underserved and not-served households? Mostly they are in the medium-sized settlements—the “small towns”—the peri-urban areas at the fringers of larger cities, and the poor within the city who live a more “collective” or “rural” lifestyle. Looking again at the nature of settlements, we are reminded that they are not homogeneous; within the boundaries of most large cities there are areas where the population density is low, and others where people live outside the formal economy, much as they do in “rural areas”. They are also at the margins of the larger “rural” areas, beyond the effectiveness of uniform community-management approaches. We need to understand more about the “grey areas” if the great majority of the population is have access to improved water supply and sanitation service. In fact, we need a new paradigm, which allows for indistinct boundaries and fuzzy “grey areas” where different approaches are not only possible, but can be examined and defined with greater clarity.

An Alternative Perspective

This alternative perspective of the WSES sector is based on decision-making, sometimes loosely called management. The key feature is who makes the important investment decisions. In this model, there are two generic classes or types of decision-makers: “community” and “institution.”

It is important to define carefully the key terminology to ensure a common understanding of what these terms mean in this context. Even though they are apparently imprecise collective nouns, they were chosen deliberately so as not to limit the scope and application of the concept.

Briefly:

Community means a socially cohesive group of householders, whose currency of transactions involves trust.

Institution means a formal or legal arrangement, outside a community group, whose currency of transaction involves money.

It can be seen that under this definition, “community” can be quite a small group of people who know and trust one another, or can exert social pressure equivalent to trust. In terms of WSES, it covers the range from a single
household up to a neighborhood or hamlet. The maximum size will vary widely among different cultures and countries, perhaps up to a whole village or suburb; most importantly, it can only be determined by the community itself.

Examples of institutions include a wide range of enterprise models, from public-sector entities and companies and joint public-private arrangements, partnerships, and sole-trader businesses, through to cooperatives and NGOs. Within the public sector in many countries, most services including electricity and communications as well as water supply and sanitation were funded, built, and managed by the “government” directly through line ministries and departments. While the constitutional authority may still reside with the “government,” now the preferred delivery is most often through service providers: “corporatized” autonomous public-owned entities through to fully “privatized” models, with many variations in between. For the purposes of this discussion, it is important to clarify who is the investment decision-maker—the “institution” under this definition. In all cases, the relationship between the institution and the end-user is a business-like one, as between a supplier and customer, even when the institution is a not-for-profit entity.

Communities are also encouraged to be more institutional and business-like in their internal management practices, including forming committees and managing user payments. However, these informal practices are distinct from the formal and legal arrangements that define an “institution”.

The “Grey Area”

Understanding and applying this deceptively simple concept implies quite a radical change in perspective. It is not simply a matter of changing terminology, e.g., using “urban” and “institutionally-managed” interchangeably, and equating “rural” with “community-managed”, or adjusting the terminology to apply it to the status quo. It means changing from an administrative-boundary approach to one based on decision-making or management models. At the far extremes, the changes are less significant, e.g., individual and small groups of households agreeing to share a well or hand pump, and in large cities each householder paying a municipal water-supply company for a connection to a piped water system and for the water used each month. But the new perspective allows for mixing these approaches across traditional boundaries, opening up an exciting range of possibilities.

For water supply, examples of joint management by institutions and communities include a number of variations on the theme of the institution providing bulk water supplies up to a certain point, with communities responsible for the distribution arrangements beyond that point and for collection of money and payment to the institution. In effect this means changing the normal boundaries; instead of the institution having a relationship with each individual household, the institution’s customer is a community group of households. The institution is not concerned with the details of what happens within the community, i.e., how the water is distributed and levels of service (pipe network, public taps, house connections) nor the formula and mechanisms for payment (equal share, volumetric, according to means, internal credit arrangements, etc.). Some practical examples:
• A single, metered, bulk offtake from a city water-supply network (institutionally-managed) serving a group of households or neighborhood, with the community through a neighborhood committee or similar group managing internal distribution and payments.
• A public standpipe on a large piped network, sustainably managed by the community it serves through a formal arrangement between the institution and the community group.
• A bulk distribution system serving several villages or hamlets; the bulk supplies managed by an institution (see definition) and the internal arrangements within each community, including payments, managed by that community.

Other examples or variations on possible arrangements within the “grey area” include:
• Communities deciding to contract a service provider to undertake some or all aspects of water-supply provision while still retaining the ultimate decision-making powers.
• Town water-supply companies providing bulk supplies only, with each neighborhood deciding on its internal distribution and management arrangements, collectively and/or subcontracting aspects of the services to small-scale service providers.
• Towns served with hybrid systems by design, allowing options for community-managed elements to convert to direct individual house connections, and for community-developed and managed sources to supply surplus water into the town network.

These are but a small sample to whet the imagination. The “grey area” is not a physical area, limited to the small towns, urban fringes, and multi-village systems as mentioned above; the “grey area” is the potential for joint approaches to managing WSES services, and exists within the boundaries of cities, towns, and villages. It can be the key to some of the previously locked doors, such as natural monopolies, direct investment and financial contributions for infrastructure from private households, community groups, and small and medium enterprises. The concept can be further developed to examine and clarify the roles and responsibilities of the different parties under each model.

When this perspective has been presented at workshops for policy-makers, sector professionals, and end-users, the participants have invariably come up with a number of new possibilities relevant to their situations. Applying this paradigm opens up a range of options, often not previously considered, for offering users real choices in service levels. Offering informed choices to decision-makers at the lowest appropriate level is the fundamental basis of demand-responsive approaches, which show a strong positive correlation with sustainability of WSES services.
APPENDIX D

Empowerment and Monitoring Strategy Diagram
APPENDIX D

Empowerment and Monitoring Strategy Diagram

1. Institutional Relationship:
   “Emphasizing Empowerment, Not Direction”

Central Level

- Central Government
- Policy Framework

Regional Level

- Community
- Demand Creation

- WSES Knowledge Center (Advisory Basis)
- Other Stakeholders: Private / NGO
- Donor
- WSES Knowledge Center (Advisory Basis)
- Community

2. Strengthening of Monitoring and Evaluation Process

- Central Government
- Performance Indicators
- Local
- Performance Indicators
- Community
- Self-Monitoring

- WSES Knowledge Center (advisory basis)
- Donor
- WSES Knowledge Center (advisory basis)
APPENDIX E

Methodology for Participatory Assessments (MPA)
APPENDIX E

Methodology for Participatory Assessments (MPA)

Helping Communities Achieve More Sustainable and Equitable Services

The Methodology for Participatory Assessments* (MPA) has proven to be a valuable tool by which policy makers, program managers, and the community can monitor the sustainability of services and take actions to enhance it. The methodology reveals how equitably poor households and women participate in and benefit from the services, compared to the better-off and men. It makes visible the key factors for attaining success in community water-sanitation projects, while simultaneously allowing quantitative aggregation of village-level participatory monitoring data for use at program and policy levels.

What is new about the MPA?

The MPA draws upon participatory approaches such as PRA22 and SARAR23 for tools and methods that have proven effective in involving communities over the years. It also adds important new features:

- The MPA is a methodology aimed at helping both project agencies and communities achieve more equitable and sustainable services. It is designed to involve all major stakeholders and analyze the community situation with four major user groups—poor men, poor women, better-off men, and better-off women. In doing so, it creates a gender- and poverty-analysis framework for assessing the sustainability of water and sanitation services.

- The MPA uses a set of sector-specific indicators for sustainability, demand, gender, and poverty. It measures these factors using a sequence of participatory tools with communities, project agencies, and policy makers. After assessments in the community, the results are used by representatives of users and agencies in "stakeholder meetings" to jointly evaluate institutional factors that are affecting the project's impact and sustainability at the community level. Results of institutional assessments are then used to review policies at the program or country level.

- The MPA generates large amounts of village-level qualitative data, some of which is quantified, using an ordinal scoring system, by the villagers themselves. The quantitative data that results can be

* Rekha Dayal, Christine van Wijk, and Nilanjana Mukherjee. Methodology for Participatory Assessments with Communities, Institutions, and Policy Makers. Water and Sanitation Program, March 2000. The MPA was developed and tested in 15 countries and 88 communities by the Water and Sanitation Program in collaboration with the IRC International Water and Sanitation Center (Delft) during 1988-2000.

22 Participatory Rural Appraisal
23 Self esteem, Associate strength, Resourcefulness, Action Planning, Responsibility
statistically analyzed. This feature enables analysis across communities, projects, and time, and at the program level so the MPA can be used to generate management information for large-scale projects and data suitable for program analysis.

**Who can use the MPA? For what?**

The MPA lends itself to many potential uses. The quantitative information generated visually at the community level allows easy conversation to both numeric process as well as graphic representation. Community-level graphics are produced immediately following applications of participatory tools with women and men, both the poor and the better-off groups, allowing for presentation to and verification of results with the rest of the community. Consolidation of the same information across time and communities helps project implementers and managers see trends and analyze causes. Assessments from several projects can be quickly consolidated at program or country level for policy analysis.

<table>
<thead>
<tr>
<th>Who can use the MPA?</th>
<th>What does the MPA enable them to do?</th>
</tr>
</thead>
</table>
| **Community members and Community organizations** | - To illicit and express demands for service from all segments of the community.  
- To identify actions for enhancing sustainability.  
- To reduce gender and poverty inequities.  
- For planning, self-monitoring, and assessment.  
- To collect baseline data on existing services, the socioeconomic make-up of a community, and an indication of existing demand for services.  
- For assessments from the user's perspective at all project stages.  |
| **Project manager and Project staff**        | - To compare communities for sustainability and equity.  
- To assess progress, especially on qualitative aspects of project implementation (e.g., capacity building) that are more difficult to measure.  
- To identify and assess institutional factors influencing project sustainability.  |
| **Government planners, External support agencies** | - To plan for sustainability\(^{24}\)  
- To design equitable (gender-and poverty-sensitive) and sustainable projects designers.  
- To monitor sustainability of services and impact.  |

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\(^{24}\) These applications are currently being developed in collaboration with interested government and donor partners in new projects in the design phase.
What does it take to use the MPA?

The MPA is designed to be an integral part of a project, not an add-on or a stand-alone. Using the MPA thus requires either a funding agency committed to designing a new project or an ongoing participatory project wishing to undertake participatory assessments.

While many countries have pools of facilitators experienced in using participatory methods, specific training in the MPA is essential because the MPA comprises a lot more than a set of participatory tools. First, the MPA adds an analytical framework that drives towards sustainability and permits participatory data to be coded quantitatively for the analysis of sustainability. Second, because it is participatory throughout, it encourages learning on the part of participants. Skilled facilitators sensitive to gender and poverty issues are critical to fostering the cycle of learning and action, at the community, stakeholder meeting, and policy levels.

A comprehensive training program that combines workshop learning with supervised field experience is essential to build the necessary skills.

Cost of MPA assessments

Typically, using the MPA for a sustainability assessment requires two facilitators to spend a minimum of five days in a village, and at least one day in a stakeholder meeting at the district or province level. This does not include time for planning, data analysis, and reporting, which would vary depending on the size of the project, assessment objectives, and required sample. Generally, MPA assessments for project design may require a sample of only a few communities that together represent the major design-influencing variables for a new project, e.g., geo-hydrological conditions or rates of relative poverty and diarrhea morbidity. Using the MPA micro-planning community interventions implies assessments in every project community, and the costs should be built into routine project-implementation procedures. Monitoring and evaluation applications are likely to use stratified or purposive sampling of 5-10% of the communities at similar points in the project cycle.

Following the global assessments, the MPA is now being applied on a larger scale. Budgets prepared for its application in planning and monitoring in a large-scale project in Indonesia suggest that costs of the MPA are comparable to those of other community-based approaches when MPA is integrated in project implementation. MPA seems to best suit projects aiming at community-driven development, which typically allocate between 20-30% of total project cost to software investments.

The framework for sustained and equitable services

The findings from the 88 communities suggest strongly that demand-responsive approaches that integrate gender and poverty are the route to sustainability of community-managed water supply and sanitation services. Also, effective use of the services, which is necessary for improved community
health, shows a more significant link to effective sustainability of the services than to any other independent variable. The following framework for sustained and equitable services emerges from the findings. The MPA, with its emphasis on helping disadvantaged groups—in particular, women and the poor—obtain access to services, is a powerful tool that communities and aid agencies can use to achieve greater equity and higher quality of life for all.

<table>
<thead>
<tr>
<th>Key Characteristics of a Project-Level MPA Training Course</th>
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<tbody>
<tr>
<td><strong>Source and type of trainees</strong></td>
</tr>
<tr>
<td>Existing project staff, or persons recruited for a planned project. Equal numbers of technical (engineering) and social (including hygiene and sanitation) staff, preferably gender balanced, and interested in learning or already experienced in applying participatory methods. Up to 16 trainees per batch.</td>
</tr>
<tr>
<td><strong>Nature and duration of training</strong></td>
</tr>
<tr>
<td>1) 14 days in combination workshop and community-level practice.</td>
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<tr>
<td>2) 5 days conducting an actual MPA assessment and two days conducting a stakeholder meeting, under supervision.</td>
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<tr>
<td><strong>Trainers</strong></td>
</tr>
<tr>
<td>National-level MPA trainers, with support from the international MPA core teams.</td>
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<tr>
<td><strong>Follow-up</strong></td>
</tr>
<tr>
<td>Periodic support from national-level MPA trainers to assure quality and continue the learning process.</td>
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<tr>
<td><strong>Costs</strong></td>
</tr>
<tr>
<td>Trainees' staff time, per diem, travel, etc.; varies from country to country.</td>
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</tbody>
</table>
# Drinking Water Standards

## MINISTRY OF HEALTH REGULATION

**NUMBER:** 907/MENKES/SK/VII/2002  
**DATE:** July 29, 2002

## APPENDIX F

### 1. BACTERIOLOGY

<table>
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<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Maximum Acceptable Level</th>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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**a. Drinking Water**  
*E. Coli* or fecal coli

<table>
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<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Maximum Acceptable Level</th>
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<tbody>
<tr>
<td># per 100 ml sample</td>
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**b. Water entering distribution system**  
*E. Coli* or fecal coli

<table>
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<th>Parameter</th>
<th>Unit</th>
<th>Maximum Acceptable Level</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td># per 100 ml sample</td>
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Total bacterial coliform

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<tr>
<td># per 100 ml sample</td>
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</table>

**c. Water in the distribution system**  
*E. Coli* or fecal coli

<table>
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<td># per 100 ml sample</td>
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Total bacterial coliform

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<td># per 100 ml sample</td>
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2. Chemicals having direct effect on health.
   A. Inorganic

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<tbody>
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<tr>
<td>Mercury</td>
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<tr>
<td>Arsenic</td>
<td>(mg/liter)</td>
<td>0.01</td>
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<tr>
<td>Barium</td>
<td>(mg/liter)</td>
<td>0.7</td>
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<tr>
<td>Boron</td>
<td>(mg/liter)</td>
<td>0.3</td>
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<tr>
<td>Cadmium</td>
<td>(mg/liter)</td>
<td>0.003</td>
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<td>Chromium (Valence 6)</td>
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<tr>
<td>Copper</td>
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<td>Cyanide</td>
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<td>Fluoride</td>
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<td>Lead</td>
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<tr>
<td>Molybdenum</td>
<td>(mg/liter)</td>
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<td>Nickel</td>
<td>(mg/liter)</td>
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<tr>
<td>Nitrate (as NO₃⁻)</td>
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<tr>
<td>Nitrite (as NO₂⁻)</td>
<td>(mg/liter)</td>
<td>3</td>
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<tr>
<td>Selenium</td>
<td>(mg/liter)</td>
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### B. Organic

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<tr>
<td>Carbon tetrachloride</td>
<td>(µg/liter)</td>
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<tr>
<td>Dichloromethane</td>
<td>(µg/liter)</td>
<td>20</td>
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<tr>
<td>1,2-dichloroethane</td>
<td>(µg/liter)</td>
<td>30</td>
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<tr>
<td>1,1,1-trichloroethane</td>
<td>(µg/liter)</td>
<td>2000</td>
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<td><strong>Chlorinated ethenes</strong></td>
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<td>Vinyl chloride</td>
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<td>1,1-dichloroethene</td>
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<td>30</td>
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<tr>
<td>1,2-dichloroethene</td>
<td>(µg/liter)</td>
<td>50</td>
<td></td>
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<tr>
<td>Trichloroethene</td>
<td>(µg/liter)</td>
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<tr>
<td>Tetrachloroethene</td>
<td>(µg/liter)</td>
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<td><strong>Aromatic hydrocarbons</strong></td>
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<tr>
<td>Benzene</td>
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<tr>
<td>Toluene</td>
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<tr>
<td>Xylenes</td>
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<tr>
<td>Benzo(a)pyrene</td>
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<td><strong>Chlorinated benzenes</strong></td>
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<tr>
<td>Monochlorobenzene</td>
<td>(µg/liter)</td>
<td>300</td>
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<tr>
<td>1,2-dichlorobenzene</td>
<td>(µg/liter)</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>1,4-dichlorobenzene</td>
<td>(µg/liter)</td>
<td>300</td>
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</tr>
<tr>
<td>Trichlorobenzenes (total)</td>
<td>(µg/liter)</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
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<tr>
<td>Di(2-ethylhex) adipate</td>
<td>(µg/liter)</td>
<td>80</td>
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<tr>
<td>Di(2-ethylhex) phthalate</td>
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<td>8</td>
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<tr>
<td>Acrylamide</td>
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<tr>
<td>Epichlorohydrine</td>
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<tr>
<td>Hexachlorobutadiene</td>
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<tr>
<td>Edetic Acid (EDTA)</td>
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<tr>
<td>Tributyltine oxide</td>
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C. **Pesticides**

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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Alachor</td>
<td>(μg/liter)</td>
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</tr>
<tr>
<td>Aldicarb</td>
<td>(μg/liter)</td>
<td>10</td>
<td></td>
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<tr>
<td>Aldrin/dieldrin</td>
<td>(μg/liter)</td>
<td>0.03</td>
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<tr>
<td>Atrazine</td>
<td>(μg/liter)</td>
<td>2</td>
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<tr>
<td>Bentazone</td>
<td>(μg/liter)</td>
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</tr>
<tr>
<td>Carbofuran</td>
<td>(μg/liter)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Chlordane</td>
<td>(μg/liter)</td>
<td>0.2</td>
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<tr>
<td>Chlorotoluron</td>
<td>(μg/liter)</td>
<td>30</td>
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<tr>
<td>DDT</td>
<td>(μg/liter)</td>
<td>2</td>
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<tr>
<td>1,2-dibromo - 3-chloropropan</td>
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<td></td>
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<tr>
<td>2,4-De</td>
<td>(μg/liter)</td>
<td>30</td>
<td></td>
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<tr>
<td>1,2-dichloropropane</td>
<td>(μg/liter)</td>
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</tr>
<tr>
<td>1,3-dichloropropene</td>
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<tr>
<td>Heptachlor and</td>
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<tr>
<td>Heptachlor epoxide</td>
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<tr>
<td>Hexachlorobenzene</td>
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<td>Isoproton</td>
<td>(μg/liter)</td>
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<tr>
<td>Lindane</td>
<td>(μg/liter)</td>
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</tr>
<tr>
<td>MCPA</td>
<td>(μg/liter)</td>
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<td></td>
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<tr>
<td>Methoxychlor</td>
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<tr>
<td>Metolachlor</td>
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<tr>
<td>Molinate</td>
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<td>Pendimethalin</td>
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<tr>
<td>Pentachlorophenol</td>
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<tr>
<td>Permethrin</td>
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<tr>
<td>Propanil</td>
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<tr>
<td>Pyridate</td>
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<tr>
<td>Simazine</td>
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<tr>
<td>Trifluralin</td>
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<tr>
<td>Herbicides other than 2,4D and MCPA</td>
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<tr>
<td>2,4-DB</td>
<td>(μg/liter)</td>
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</tr>
<tr>
<td>Dichlorprop</td>
<td>(μg/liter)</td>
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<tr>
<td>Fenoprop</td>
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<tr>
<td>Mecoprop</td>
<td>(μg/liter)</td>
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</tr>
<tr>
<td>2,4,5-T</td>
<td>(μg/liter)</td>
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</table>

**Chlorophenoxy**

**Herbicides other than 2,4D and MCPA**

- 2,4-DB
- Dichlorprop
- Fenoprop
- Mecoprop
- 2,4,5-T
## D. Disinfectants and byproducts

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<th>Comments</th>
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<td><strong>Monochloramine</strong></td>
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<td></td>
</tr>
<tr>
<td>Chlorine</td>
<td>(mg/liter)</td>
<td>5</td>
<td></td>
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<tr>
<td>Bromate</td>
<td>(µg/liter)</td>
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<tr>
<td>Chlorite</td>
<td>(µg/liter)</td>
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</tr>
<tr>
<td>Chlorophenol</td>
<td>(µg/liter)</td>
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<tr>
<td>2,4,6-trichlorophenol</td>
<td>(µg/liter)</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Formadehyde</td>
<td>(µg/liter)</td>
<td>900</td>
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<tr>
<td><strong>Trihalomethanes</strong></td>
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</tr>
<tr>
<td>Bromoform</td>
<td>(µg/liter)</td>
<td>100</td>
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<tr>
<td>Dibromochloromethane</td>
<td>(µg/liter)</td>
<td>100</td>
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<tr>
<td>Bromodichloromethane</td>
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<tr>
<td>Chloroform</td>
<td>(µg/liter)</td>
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<tr>
<td><strong>Chlorinated acetic acids</strong></td>
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<tr>
<td>Dichloroacetic acid</td>
<td>(µg/liter)</td>
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<tr>
<td>Trichloroacetic acid</td>
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<td><strong>Chloral hydrate</strong></td>
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<tr>
<td>(Trichloroacetaldehyde)</td>
<td>(µg/liter)</td>
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<tr>
<td><strong>Chlorinated acetic acids</strong></td>
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<tr>
<td>Dichloroacetonitrile</td>
<td>(µg/liter)</td>
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<tr>
<td>Dibromoacetonitrile</td>
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<tr>
<td>Trichloracetonitrile</td>
<td>(µg/liter)</td>
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<tr>
<td><strong>Cyanogen chloride</strong></td>
<td>(µg/liter)</td>
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</table>
2.2. Chemicals possibly causing consumer dissatisfaction/complaints

**A. Inorganic**

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<th>Comments</th>
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<td>Aluminum</td>
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<tr>
<td>Chloride</td>
<td></td>
<td>250</td>
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</tr>
<tr>
<td>Copper</td>
<td></td>
<td>1</td>
<td></td>
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<tr>
<td>Hardness</td>
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<tr>
<td>Hydrogen Sulfide</td>
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<td>0.05</td>
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<tr>
<td>Metals</td>
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<tr>
<td>Manganese</td>
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<td>0.1</td>
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<tr>
<td>PH</td>
<td></td>
<td>6.5 – 8.5</td>
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<tr>
<td>Sodium</td>
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</tr>
<tr>
<td>Sulfate</td>
<td>(mg/liter)</td>
<td>250</td>
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<tr>
<td>Total dissolved solids (TDS)</td>
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<tr>
<td>Zinc</td>
<td>(mg/liter)</td>
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**B. Organic, disinfectants, and byproducts**

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<tr>
<td><strong>Organic</strong></td>
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<tr>
<td>Toluene</td>
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<td>24 – 170</td>
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<td>Xylene</td>
<td>(µg/liter)</td>
<td>20 – 1800</td>
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<tr>
<td>Ethylbenzene</td>
<td>(µg/liter)</td>
<td>2 – 200</td>
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</tr>
<tr>
<td>Styrene</td>
<td>(µg/liter)</td>
<td>4 – 2600</td>
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</tr>
<tr>
<td>Monochlorobenzene</td>
<td>(µg/liter)</td>
<td>10 – 120</td>
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<tr>
<td>1,2-dichlorobenzene</td>
<td>(µg/liter)</td>
<td>1 – 10</td>
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<tr>
<td>1,4- dichlorobenzene</td>
<td>(µg/liter)</td>
<td>0.3 – 30</td>
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<tr>
<td>Trichlorobenzenes (total)</td>
<td>(µg/liter)</td>
<td>5 – 50</td>
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<tr>
<td>Detergent</td>
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<td><strong>Disinfectants and byproducts</strong></td>
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</tr>
<tr>
<td>Chlorine</td>
<td>(µg/liter)</td>
<td>600 – 1000</td>
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</tr>
<tr>
<td>2-chlorophenol</td>
<td>(µg/liter)</td>
<td>0.1 – 10</td>
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<td>2,4-dichlorophenol</td>
<td>(µg/liter)</td>
<td>0.3 – 40</td>
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<td>2,4,6-trichlorophenol</td>
<td>(µg/liter)</td>
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3. **RADIOACTIVITY**

<table>
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<tr>
<td>Gross beta activity</td>
<td>(Bq/liter)</td>
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4. **PHYSICAL**

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<tr>
<td>Taste and odor</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Temperature</td>
<td>°C</td>
<td>Ambient temp ± 3°C</td>
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</tr>
<tr>
<td>Turbidity</td>
<td>NTU</td>
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</tbody>
</table>

**Notes**
- mg: milligram
- NTU: Nephelometric Turbidity Unit
- ml: milliliter
- TCU: True Color Unit
- L: liter
- Bq: Becquerel
- Heavy metal is dissolved metal
APPENDIX G

Implementation Strategy Indicators
(sample indicators to be further developed)
APPENDIX G

Implementation Strategy Indicators
(sample indicators to be further developed)

Strategy 1
Develop a legal framework that enforces active community participation in the planning, implementation, and management of WSES infrastructure and services

Indicator:
- Regulations on active community participation in the planning, implementation, ownership, and management of WSES facilities and services at both the central and local government levels.

Strategy 2
Increase investment to enhance the community’s human resource capacity

Indicator:
- Increased investment allocated to enhance human-resource capacity-building at both the central and local government levels.

Strategy 3
Encourage different funding options for the development and management of WSES infrastructure and services

Indicator:
- Admission by all stakeholders that government resources for WSES investment are limited.
- Regulations protecting funding sources of WSES facilities and services.
- Incentives for funding WSES developments (e.g., tax reduction for companies that provide WSES facilities and services at their sites).

Strategy 4
Enable community involvement in decision-making in all aspects of WSES development and management

Indicator:
- Increase of the application of demand-responsive principles in program design.
- Training of facilitators at the local government level.

Strategy 5
Improve the community’s overall technical, financial, and institutional capacity in WSES development and management
**Indicator:**
- Training for user communities.
- Presence of accessible WSES service facilities for the communities at the local level.

**Strategy 6**
**Prepare norms, standards, guidelines, and manuals (NSPM) to improve the WSES development at the planning, implementation, operating, maintenance, and management levels**

**Indicator:**
- Establishment of standards and guidelines for WSES facilities and services.

**Strategy 7**
**Support the consolidation of research, development, and dissemination of WSES technology options to support community empowerment**

**Indicator:**
- Establishment of institutions responsible for compiling and maintaining WSES development and research results.
- Use of the media to disseminate WSES development and research results.
- Readily accessible WSES development and research results.

**Strategy 8**
**Raise the community’s motivation through formal and informal education**

**Indicator:**
- Integration of proper hygiene behavior and healthy living programs into grade-school curriculum.
- Implementation of proper hygiene behavior and healthy living awareness campaigns.

**Strategy 9**
**Emphasize and enhance environmental conservation and management, especially of water resources**

**Indicator:**
- Efforts to protect water sources.
- Efforts to manage and treat wastewater prior to discharge into water bodies.

**Strategy 10**
**Change the approach of WSES infrastructure management from administrative-based to system-based**

**Indicator:**
- Presence of WSES management based on a systematic approach.
• Establishment of rules and regulations for cross-administrative boundary WSES development and management.

**Strategy 11**
Improve the community’s capacity to manage WSES services

_Indicator:_
• Readily accessible technical assistance for the community.
• Increase of the numbers of WSES infrastructure that are properly functioning.

**Strategy 12**
Increase the community’s awareness

_Indicator:_
• Noticeable changes in behavior in water-supply use and waste disposal.
• Improved environmental conditions.
• Increased WSES service coverage.
• Effective use and maintenance of WSES facilities and services by the community.

**Strategy 13**
Ensure equitable WSES services for disadvantaged community members

_Indicator:_
• Accommodation of the views of women and the poor in WSES development.

**Strategy 14**
Develop monitoring and evaluation mechanisms to measure the attainment of defined objectives and proper WSES development

_Indicator:_
• Establishment of monitoring and evaluation models geared toward accomplishing goals.
Strategy 15
Develop monitoring and evaluation activities at four levels:
1. Community
2. District/Municipality
3. Province
4. Central

Indicator:
- Realization by all stakeholders of the importance of monitoring and evaluation processes.
- Establishment of a monitoring and evaluation system agreed to by all stakeholders.
- Delegation of rights and responsibilities at all levels.
- Clear information exchange flow at all levels.
- Usage of tools and methods in the monitoring and evaluation system.

Strategy 16
Develop and disseminate performance indicators for WSES development

Indicator:
- Creation of indicators for WSES development.
- Efforts to disseminate and widely apply the indicators.