Chapter 3

Water supply and sanitation in the DFID programme and project cycle

The principles and practices described in Chapter 2 are relevant throughout the programme and project cycle. In this Chapter, the aim is to demonstrate how the interdisciplinary nature of the WS&S sector can be taken into account in each stage of the cycle. First, a reminder of the eight stages of a Project Cycle used in this document, based on DFID practice.

1. Policy development, sector planning, and programme formulation
2. Programme and project identification
3. Preparation
4. Appraisal and approval
5. Implementation and monitoring
6. Operation and monitoring
7. Extensions or next-phase project identification
8. Evaluation

The dotted arrow linking Stages 7 and 3 represents a cycle within a cycle. Stages 1 and 2 are conducted at national level at the start of DFID’s co-operation in the sector. They are major exercises establishing partnership arrangements involving all stakeholders. Their outcomes then set the criteria for what may be a series of projects within the country. Those criteria may change as the overall programme or project is evaluated (Stage 8). Within the criteria, new projects may be identified (Stage 7) and prepared (Stage 3) without necessarily repeating Stages 1 and 2.
The guidance in this chapter includes frequent cross-referencing to Chapter 2. DFID staff are also referred to the DFID Office Instructions, which include fuller descriptions of the purpose, structure, and reporting requirements of the eight stages than it is possible to include in this manual. Brief summaries of the process are included here stage-by-stage, to set the context of the guidelines which follow.

A number of basic principles are common to all stages. They are described in Chapter 1 (Section 1.4) and Chapter 2 (Section 2.1) and include:

- Dialogue and joint activities with partners and other stakeholders, including continuously matching project objectives and achievements with the agreed goal of improving services for the poor.
- Promotion of partnership, local ownership, and the empowerment of communities.
- Adoption of the process approach in which projects evolve through a continuous learning process and regular review.
- Interlinkages with the broader issues of water resources management, sustainable development, and environmental protection.
- Matching the recognized need to treat water as a scarce and valuable resource which must be paid for, with the priority of the poor for affordable services which meet their basic needs.
- Considering a wide enough range of technical, institutional, and financial options to ensure that stakeholders are not unreasonably
constrained in their choice of service level, management structure, or financing methods.

- Capacity building which enables stakeholders to participate as equal partners in decision-making and to fulfil their subsequent roles effectively.

At the heart of the whole process is the requirement to be responsive to demand. DFID has developed guidance (summarized in the box opposite) on how best to incorporate demand management into the process of project formulation and design. It has implications throughout the project cycle in that care must be taken in planning consultancies and technical assistance to create flexibility in both timing and project options. This argues for a series of consultancies, with each Terms of Reference (ToR) reflecting the emerging picture, rather than one major study. As it may take several years to reach large-scale activity and expenditure, interim measures such as pilot projects may be needed to maintain momentum and strengthen stakeholder partnerships. This increases programme managers’ responsibility for maintaining continuity, and detailed attention must be paid to drawing up ToR and briefing information, monitoring consultants’ performance, and reviewing their work. The logical framework is a key tool for integrating the different professional perspectives within a single programme or project, and at each stage of the cycle.

Moves towards user-oriented partnerships take time. Institutions and organizations may require training and professionals may feel that they are compromising what they are used to doing. The time and resources needed to bring the whole team with you are worthwhile investments that will reap benefits in programme effectiveness, appropriateness, and sustainability.

Social marketing to promote improved hygiene behaviour is an iterative process, which does not fit easily into the stages of the Project Cycle, the demands of which will vary from project to project. In these guidelines it is assumed that the programme and project preparation will include data collection and planning with stakeholders. The implementation stage will include the training of health promoters and the development of promotional materials; it also covers piloting and scaling up. Revision and refining through consultation run throughout the programme.

### 3.1 Stage 1: Policy development, sector planning, and programme formulation

This first step in the development of a WS&S programme is where the partnerships are established and the criteria for collaboration agreed with the partner government and other stakeholders. In some cases WS&S may be only part of a package of proposals that are being negotiated. At other times, a WS&S component may be being proposed as an addition to an ongoing programme, or the WS&S intervention may be DFID’s first involvement in a particular country.
The different types of negotiations may involve different DFID professional staff, but the WS&S sector principles remain valid for each type.

The ultimate decision at this stage is whether or not the programme goes ahead. That will depend on DFID, possibly other donors, and the partner government committing themselves to a series of common objectives and specific inputs to be made during the following stages. This is the time therefore when it is vital to ensure that the partners’ policies are compatible and that all agree on the need to maintain a multidisciplinary approach from the start. Often in the past, hygiene promotion, for example, has been seen as an element to be added in later (if at all). As we saw in Chapter 2 (Section 2.2.8), the long lead time needed for successful hygiene interventions makes it crucial that inputs are made from the start.

Important outputs of Stage 1 will be a comprehensive review of the WS&S sector in the partner country, and a strategy for achieving the agreed objectives. In some countries, this may be a matter of reviewing a national strategy that has already been formulated, and relating it to a range of activities which DFID is interested in cooperating. In others, there may be a need to commission a participatory study to develop a strategy and establish baseline data.

Key issues which will need to be addressed relate to the management of the WS&S sector in the country, and the government’s declared policies on sector approaches. The attention will focus on:

- the relevant WS&S institutions;
- how decisions are made and responsibilities shared between governments and communities in a particular country or context;
- NGO and private sector participation, and the regulatory framework;
- policy towards sustainable WS&S for poor people (particularly institutions, finance, the scale and uses of public subsidy, and hygiene promotion issues);
- interaction between WS&S and related sectors or sub-sectors such as health (particularly on hygiene promotion) and irrigation (including integrated water resources management);
- national indicators of need (WS&S coverage and other available indicators); and
- key external support agencies and their programmes.

The discussions are likely to be held at senior levels of government and with high-level representation of all partners. Briefing documents need to make clear the ‘non-negotiable’ elements of sustainable WS&S programmes.

Figure 3.1 shows the type of steps which may be involved in reaching a satisfactory outcome from the strategy development process.
Participatory processes take time and there may be pressures from various sources to take shortcuts. In particular, some stakeholders may wish to identify and design projects quickly to meet specific demands or electoral promises. In some situations, it is possible that partners may agree to undertake some activities while the sector review is in progress.

The types of questions which need to be addressed during the review are grouped by discipline, matching the headings in Chapter 2.

Figure 3.1.1. Sector strategy development — an iterative approach
3.1.1 General considerations

Are existing national/state policies compatible with DFID aims and objectives?
Compatibility of policies makes collaboration in programme development easier. However, a willingness to reform and introduce changes can be a good basis for providing support in policy and programme development. ‘Consider where is the sector now?’ and look at opportunities for making improvements. This implies a thorough understanding of the existing institutional and socio-economic environment. If a proposed project or programme is dependent on policy or institutional changes for its sustainability, there are risks that the policy changes may take a considerable time to agree and operationalize (see Section 2.6 for advice on institutional issues).

Is the environment appropriate for using a Broad Sector Approach in order to develop a Sector Improvement Programme (SIP)?
DFID Institutional and Economic Advisers should be consulted as to whether it is advisable to consider a SIP. Even if it is not appropriate, it may be worthwhile to seek donor and host government collaboration in sector-wide work, including institutional aspects, focusing on DFID’s priorities (see Sections 1.6.3 and 2.6.6).

With whom should DFID collaborate in the development of a water sector strategy?
The first contact point is invariably the appropriate national ministries. The collaboration of other key stakeholder institutions who have a primary role in the sector should be sought at an early stage. DFID’s Guidance Note on Stakeholder analysis of aid projects and programmes (ODA, 1995b) has a comprehensive checklist for identifying stakeholders.

Should field data collection be conducted as part of a Sector Strategy Review?
Existing data on water supply and sanitation service levels is prone to inaccuracies because of reasons such as poor maintenance and rapidly increasing demand. A judgement needs to be made as to whether further field data should be collected either at the sector strategy stage or the project identification stage when a particular area has been identified.

3.1.2 Social development perspectives
The questions here relate to entry points for advancing a social development perspective in policy dialogue, sector planning, and programme formulation. They focus on:
- maximizing the use of existing commitments on social development issues by partner governments and donors;
- evaluating and building on past experience in the sector; and
- identifying secondary stakeholders and their involvement in the sector.
Do existing national policies on water resource management and sanitation services have a focus on issues of poverty, inequality, and gender?

The task of integrating a poverty or equity focus into policy dialogue and sector planning will be much easier if existing policies on water and sanitation are already concerned with these issues. Some national programmes and investments in water supply and sanitation also take into account gender differences in needs, priorities, and access to and control over resources. This makes it easier, although not automatic, to ensure that benefits and opportunities are extended equitably to both women and men.

What national commitments have been made to poverty reduction, equality, human rights, and gender equality?

In many of DFID’s partner countries, even if policies on water supply and sanitation do not have an explicit pro-poor focus, other national policies or the adoption of international conventions may provide a basis and a justification for pursuing social development agendas. For example there may be constitutional guarantees relating to equality and human rights, while partner countries may be signatories to international conventions such as the UN Committee on the Elimination of Discrimination Against Women (CEDAW) and the Beijing Platform for Action which pursue women’s rights and gender equality.

What are the policy approaches of other donors involved in the water supply and sanitation sectors to poverty reduction, equity issues, gender equality, and participatory approaches?

A key challenge for DFID is to promote pro-poor, gender-aware, and participatory approaches to water supply and sanitation within the context of co-ordinated support to sector planning. In order to engage in effective brokering and to identify entry points, it is important to understand the concern and capacity of partner agencies in relation to social development in water supply and sanitation. It is important at this stage too, to draw upon the DAC Guidelines (DAC 1997a and b).

Are there lessons from previous water supply and sanitation programmes or other parallel sectors regarding participatory approaches and partnership?

Participatory approaches are not usually enshrined in constitutions or guidelines, but rather gain acceptance through evidence of good practice. It is useful, therefore, to draw on examples of successful
participatory projects, ideally from the country or region concerned. This will require exploring the activities of NGOs and local initiatives as well as other donors.

**Are there international, national, regional, or local-level organizations that could support the development of poverty-focused, participatory, and gender-aware interventions in WS&S?**

Even when they are willing, governments are not always able to engage in participatory processes. It is useful, therefore, to identify and involve intermediary NGOs working in water supply and sanitation or in the target areas which can provide links to community-level organizations.

### 3.1.3 Water, sanitation, and health

The objective here is to ensure that the national government and all local and national stakeholders understand the issues and the relatively small incremental costs involved in achieving optimum health benefits. Answers to the questions raised here should form the basis of a health improvement component as an integral part of the project formulation.

**What are the current national objectives for WS&S-related health improvements?**

How significant are water supply and sanitation-related health problems to public health in the country? How large do they figure in the health and/or social welfare policy? Official statistics are probably not reliable for ranking health problems as so many cases and deaths go unrecorded; conversations with those working on health among the poor will often indicate a higher priority for water, sanitation, and hygiene than may be evident from reported statistics. Improved health should not be the only objective for WS&S interventions, but it is an important and well-established one.

**How is progress towards the health objective measured within the sector?**

It is not realistic to expect routine health statistics to reflect the health benefits achieved by water, sanitation, and hygiene interventions, nor is it worth counting on epidemiological studies in the country to establish the benefits; done rigorously, measurement of environmental health will divert a substantial amount of relevant human and financial resources away from the work of actually improving health (see Section 2.3). Instead, it makes sense to focus on proxy indicators, such as sales of children’s potties and soap, use of latrines, etc. Experience elsewhere has already established the significance of these variables in contributing to health. Not only are they easier to measure; the results have greater diagnostic power as they will suggest concrete steps to improve the project and its prospects of attaining health improvements (see Section 2.3.9).

**What, if any, scope is there for linkage between hardware and software in the sector?**

What is the current attitude and policy towards the linkage of hardware (water supply investment, latrine construction, etc., with
software (promotion of demand, hygiene promotion, community organization)? To what extent are approaches culturally aware, recognizing local systems of belief and understanding? Are current approaches didactic or based on dialogue? Sector objectives can be expressed in different ways, for example, ‘The supply of water to the city through the construction and maintenance of plant and pipe, funded by the sale of water’, or ‘Creating conditions for the satisfaction of demands for the sustainable provision of clean and palatable water’. Sanitation can be viewed as ‘Protection of the environment through the construction and maintenance of sewerage, funded by public taxation’, or ‘The improvement of environmental health and well-being, especially among the poor, through the promotion of hygienic excreta management’. These differing definitions have different software implications, particularly if health is a major objective, which require development or support of hygiene promotion.

**How effective is current interdepartmental collaboration?**

To what extent, and at what levels, do relevant government agencies collaborate on environmental health? This collaboration often varies across levels; in some cases stronger at the top than at the bottom, and in others stronger at the bottom than at the top. What works to promote this collaboration, and what are the obstacles?

### 3.1.4 Environmental sustainability

Under this heading, DFID and partners are seeking to ensure that any WS&S programme which emerges is effectively integrated into a national water resources management strategy and that projects will be designed to contribute to water quality protection and environmental improvement objectives. The Commission for Sustainable Development (CSD) recommends that national water policy should include, among other things:

- an understanding of the quantity and quality of the freshwater resource base;
- principles for allocation of the resource;
- the incorporation of health concerns into freshwater management;
- the protection of the aquatic environment;
- management of demand; and
- the development of appropriate institutions.

The policy also needs to be supported by an appropriate regulatory and legislative framework.

**What is national policy towards the environment and environmental assessment?**

Most countries have a high-level political commitment to *Agenda 21*, the action programme of the Rio Earth Summit, and to environmental resolutions at other international meetings following on from Rio. Existing national conservation strategies and environmental action plans are a helpful starting point for determining programme objectives and procedures.
In 1993, in recognition of the fact that water resource developments were taking place across the state in a piecemeal manner on a scheme-by-scheme basis, the government of Tamil Nadu established a high-level coordinating body called the Water Resources Control and Review Council (WRCRC). This council is chaired by the Chief Minister and includes ministers representing all government departments concerned with the development and use of water resources.

The WRCRC was created to handle multi-sectoral water planning and allocation, and acts as the state’s principle water policy implementation body. The Council receives support and advice from a technical secretariat on issues such as water policy, strategy, legislation, regulation, and allocation within the state.

Recent institutional reforms in Tamil Nadu

There have been a number of key institutional reforms in Tamil Nadu, many under the auspices of the World Bank-funded Water Resources Consolidation Project (WRCP). The principal changes where the:

- issuing of the Tamil Nadu State Water Policy;
- creation of the specialist Water Resources Organization (WRO);
- creation of a Water Resources Control and Review Council (WRCRC) to oversee multi-sectoral water planning and allocation;
- reorganization of the Chief Engineers of the WRO on a river-basin basis;
- institution of river-basin allocation and planning committees headed by basin Chief Engineers; and
- strengthening of WRO’s environmental management capabilities.

In addition, a major component of the WRCP has been directed at planning and institutional strengthening in the water sector. The changes and rationalization of the water sector in Tamil Nadu are consistent with the new international agenda and its focus on integrated water resource management. In particular, the water sector has been given a higher profile via this disaggregation of water sector functions under the newly formed WRO.

Changing roles and responsibilities in Tamil Nadu

One of the changes introduced by the TN-WRCP has been the reorganization of operation decisions on a basin, rather than district basis. Tamil Nadu therefore finds itself with at least three families of institutional structures. District collectors from the colonial period, sectoral departments of the 1960s, and the new river basin institutions headed by basin managers.

Committees comprising the basin managers, local representatives of other sectors such as agriculture, industry, and domestic water supply, and the collectors of the relevant districts will make water allocation decisions at a basin level. Basin managers head these committees, but the changing roles and responsibilities may lead to conflict or resistance from the district collectors. Despite the potential for conflict, the reorganization has generally met with wide approval.

DFID, 1998b
Is there a national procedure for environmental impact assessment which includes public participation?
DFID’s own Manual of Environmental Appraisal (ODA, 1996b) has details of favoured approaches. There may be a national procedure, or some countries may follow the World Bank’s OD 4:01 (World Bank, 1991).

What is the current national environmental picture and how dependable are the data?
Reports and secondary data can be used to obtain an environmental profile. They may also provide a good indication of how serious the issue of environmental sustainability is in the country and how complete the data are. In addition to statistics on historic WS&S coverage and future targets, data on river water and groundwater quality trends will be important. Policies and plans related to wastewater treatment, re-use, and disposal should be assessed in relation to pollution trends.

Is any form of integrated river basin management in operation?
Though this is an institutional issue, it relates also to considerations of environmental sustainability and integrated water resources management (IWRM) as a whole. (See Sections 2.4.1 and 2.4.3.) A river basin or sub-basin base is a very practical unit for IWRM. In relation to WS&S programmes, the basin may also be a useful confining unit when identifying stakeholders.

Is there a mechanism for resolving conflicts over water demands and usage?
Conflict resolution is becoming a bigger and bigger issue as scarcity increases. WS&S is generally specified as a priority use, but that does not help many communities who suffer regular cut-offs and service interruptions, despite the small amount of water that is used for domestic purposes. A logical output of the development of agreed priorities and allocations for water demands is a system of abstraction licences which can include conditions specifying rates of abstraction and constraints related to season and/or river flows or groundwater levels. It is important that such systems be properly funded, to ensure enforcement.

3.1.5 Economic perspectives
The general questions are ‘How appropriate is the enabling framework of policies?’ and ‘What changes are needed?’ More specific questions under various policy headings are given below.

Integrated water resource management
National water sector policies should be cohesive and consistent with efficient and equitable water use for agricultural, industrial, and domestic purposes. Pricing policy should reflect the opportunity cost of water. Although water is an increasingly scarce resource, irrigation water is heavily subsidized in some countries, often to the detriment of the affordability and sustainability of domestic water supply schemes. There should be a framework of incentives for the use of water, based on demand management (using pricing and non-pricing
measures), and reinforced by a public expenditure programme in the water sector in support of these principles. Such a framework is spelled out in the Draft DAC Guidance on the treatment of aid-financed projects in the water sector (Winpenny, 1997b).

**Key questions are:**
- Are policies (e.g. on water pricing) giving the right incentives to water users to reduce integrated water resources management problems?
- If there is intersectoral competition for water, do prices for irrigation water need to be raised to release water for urban use?
- Is sufficient use made of water demand management approaches?

**Policy towards the poor**
Ensuring the sustainable provision of basic water and sanitation services to those who lack them should be a government’s first priority in the water sector. Policy on the use of subsidies, or on reforming utilities or sector institutions, or on increasing the role of the private sector, should be built around this priority. The proportion of the population with access to functioning safe water and sanitation services is important. So are trends showing how this proportion has been changing. Coupled with subsidy analysis, they can help to focus attention on alternative uses for available public subsidy and the trade-offs between extending service coverage on the one hand and recovering a higher percentage of costs from those served on the other.

Policies with the best prospects for reducing poverty are likely to be built on principles of:
- recovering overall a high proportion of costs from users;
- ensuring basic services to poor people are available at affordable prices;
- targeting available subsidies on poverty-focused services; and
- adopting a demand-responsive approach which allows consumers a choice between the level of service options.

**Key questions include:**
- What proportion of poor people currently have reasonable access to safe water and sanitation? (If using official statistics, check what proportion of water systems are actually working.)
- What is the policy on charging poor people for water and sanitation services?
- What do poor people actually pay?
- What are government’s plans to extend coverage of services to more poor people?

**Policy on cost recovery and financial sustainability of sector institutions**
A sustainable extension in the coverage of safe water and sanitation systems among large numbers of poor people, especially in urban areas, is heavily dependent on much stronger cost recovery than has been the norm. It will be difficult for individual projects to attain financial sustainability where tariff setting is politically controlled and
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tiff levels are kept very low. Agreement is needed at the political and policy level before progress can be made in improving the financial sustainability of sector institutions.

Key questions are:
- What is the financial status of key sector institutions?
- Are they able to cover O&M costs fully?
- How far is failure to recover capital costs limiting the scope for improving the coverage or quality of service?
- What is policy on recovering (a) capital and (b) recurrent costs from:
  - users in small rural schemes;
  - users in urban schemes;
  - commercial and industrial users; and
  - government establishments.
- Are proposals for tariff reform appropriate?

Policy on subsidies
Subsidies are legitimate on income distribution grounds and where significant external benefits are expected, but they should be transparent, equitable, and sustainable. Subsidy analysis (see Section 2.5.10) can reveal who benefits from current subsidies. If cost recovery is low, a reform of utilities will need to form part of any proposed package of DFID assistance to extend the coverage of safe water and sanitation to poor people on a sustainable basis.

Key questions are:
- Are subsidies transparent?
- What is the objective of subsidy?
- Should subsidy policy be more clearly targeted (e.g. on services for poor people)?
- What is the realistic forecast of the future availability of the subsidies, from domestic and foreign sources?
- How could these be used more effectively (e.g. to extend coverage to more people)?

Policy on attracting private investment
Private investment in water and sanitation is needed because the scale of funds required to meet demand is well beyond public sector and donor financial capacity. The private sector has better prospects than the public sector for improving operational and financial efficiency of sector institutions. A range of private sector participation (PSP) options is available.

Key questions are:
- What are the main options for attracting more private investment (private sector participation) into the sector?
- How can more private investment be promoted?

Policy on demand responsiveness
WS&S service providers have rarely been responsive to demand. Consumers vary greatly in what services they want, however, and what they are willing to pay for. There is scope for both increasing aggregate well-being and enhancing the impact on poverty reduction.
by responding to people’s willingness-to-pay for improved services and recovering a higher proportion of costs from users. Demand-assessment surveys can help identify willingness-to-pay for a wider range of levels of service than has been traditionally planned, and can inform policy dialogue about sector reform.

**Key questions are:**
- What evidence is there of unmet demand?
- How can policy encourage more demand-responsive water and sanitation services, such as by making a range of level of service options available, or showing flexibility on standards of service?

### 3.1.6 Institutional perspectives

A broad institutional appraisal should be one of the first activities undertaken in a sector strategy review. The aim should be to ensure that the institutional structure is adequate to plan, manage, and sustain a WS&S programme with a fully participatory approach. In most cases, the appraisal is likely to identify a need for capacity building and possible institutional reform, depending on the scale of the planned DFID co-operation in the sector. The focus areas and tools to be used in institutional appraisal are described in Section 2.6.

*Is the institutional framework (with any planned changes) able to operate sustainable services for the urban and rural poor?*

As we have seen in Chapter 2 (Sections 2.6.2 and 2.6.3), the institutional needs vary enormously both between rural and urban communities and within urban areas, depending on whether existing urban utilities are able to offer services to squatter settlements. Deficiencies need to be identified at this stage, so that capacity-building initiatives can be included if necessary.

*What is the history of NGO and private-sector involvement in WS&S?*

The right model for any particular country may well involve an enhanced role for NGOs or private entrepreneurs in all aspects of WS&S service delivery. The scope for their involvement should emerge from the participatory appraisal of any proposed programme.

*Is there any commitment to decentralization and management at the lowest appropriate level?*

Most countries have decentralized in recent years, but in some instances it may be more a matter of passing the buck than equipping and empowering local agencies to manage services autonomously. It is important therefore to assess progress on decentralization both in terms of determining the long term sustainability of any proposed project, and in agreeing the scope of any institutional support.

### 3.1.7 Technical aspects

Though detailed technical considerations apply later in the project cycle, this initial stage is an important one. It is the time when partners need to agree on both the principles of consumer-led choices of technology and service levels. These principles will have
implications for government norms and standards and donor conditionality.

**Is there a national or local policy of standardization of engineering practices?**
Standardization of equipment, design, and construction methods may be desirable at a country level (see Section 2.7.4). If the government has made any attempts to standardize practices then this should be discussed and built upon at the earliest stage. It may be appropriate to encourage the development of policies and guidelines for the standardization of future projects or programmes in the sector. This will ultimately aid sustainability and replicability. The purpose of standardization needs to be clarified, however, so that it does not constrain innovative approaches.

**Are there any policy constraints or preferences which preclude or favour certain technology choices?**
There may be political reasons why certain technologies are favoured by donors or governments. These preferences (or constraints) need to be identified at the start of the project cycle and, if appropriate, incorporated into project or programme planning. The Benin and Belize governments specify the use of India Mark II handpumps for example. If it is unacceptable to work within these constraints, alternative technologies must be negotiated with the project partners.

**Do all the project partners accept that the choice of engineering hardware must be demand responsive?**
The importance of a demand-responsive approach to design must be understood and adopted at the highest level. While technology may be able to address most water and sanitation situations in developing countries, policymakers and engineers must appreciate that the hardware has to match people’s desired level of service. If these are mis-matched, the project will not be successful or sustainable. (See Sections 2.7.8 and 2.7.14.)

**Are government-specified levels of service too specific?**
Some country governments specify precise service levels or norms, for example a minimum supply of 55 litres/capita/day. This can be counter-productive to a demand-responsive process that is based on willingness-to-pay, and may lead to some appropriate technical options being rejected. Partners should be encouraged to take a more flexible view.

### 3.1.8 Hygiene promotion and sanitation promotion

**How should a consumer-oriented approach to hygiene promotion and sanitation promotion be presented to DFID’s partner governments?**
The sector is undergoing a major paradigm shift towards consumer orientation. Some new approaches have yet to be accepted; for social marketing, for example, may be a suspect phrase in some circles. The approach described here to hygiene and sanitation promotion draws on social marketing but is less top-down (see Section 2.8). Insisting on a user-oriented approach to hygiene and sanitation promotion may
be too radical a move for programme partners. There is the wider problem that partners may become weary and sceptical of the continual introduction of a succession of supposedly new approaches. It is a mistake to rely on external consultants; rather, DFID needs to offer human resource development to local partners so that they can lead such initiatives from the start. An external consultant might provide guidance and on-the-job training at the formal research stage. If a local group carries out the formal data collection, capacity is created for subsequent projects. Instead of insisting on the new promotional approach DFID should offer it as an option and ensure that there is the capacity for it to be a viable alternative.

**What are the attitudes and policies (formal and informal) towards health and hygiene promotion?**

What is the attitude of the government and other potential project partners to a demand-responsive approach? (See Section 2.8.2.) What are the stumbling blocks? How can these be overcome? If the partner government has no experience, then DFID can help reduce the risks of the approach. If they have had a bad experience, the focus needs to be on what made it fail the first time. Are there key individuals within the Ministry of Health, or other responsible agency, who are open to the marketing approach to hygiene promotion, rather than the simple didactic approach based solely on information transfer? Is there experience in the country which can be shown to officials to convince them? (See Section 2.8.5.) Does the capacity exist, possibly among local consultants or NGOs, to implement the approach? Is there room for some experimentation, and is there the possibility that experimentation and piloting may influence policy?

### 3.2 Stage 2: Programme and project identification

The agreements reached in Stage 1 with project partners on policy and strategic background and on the roles of different stakeholders form the basis for this stage. With most negotiations still conducted at the national level, Stage 2 extends the discussion process to include local stakeholders involved in specific project proposals. Usually, the government partner will have a pipeline of possible projects and a set of criteria for prioritizing them. During Stage 1, these will have been reviewed in general terms, and the criteria may well have been revised to accommodate the principles and approaches agreed by the programme partners.

In Stage 2, the criteria need to be developed in detail and then applied to the preparation of an agreed programme of WS&S projects with defined roles for all partners. This stage includes environmental appraisal and its outputs for DFID, including an Environmental Screening Summary as described in the ‘Manual of Environmental Appraisal’ (ODA, 1996b) and a Project Concept Note, Volume II: D4 (ODA, 1996c). The Concept Note will include an outline of the key features of each selected project in the form of a narrative summary (not the complete log frame). It will also have notes on the Stakeholder Analysis which is the key activity in this stage. It is
important that the identified projects are defined in sufficient detail to confirm the multidisciplinary approaches which will be followed and the roles of different partners in the design and implementation stages to come. The definition should not be so precise as to inhibit flexibility of choice in subsequent stages, when the process approach to project development will require discussion of a wide range of options.

Figure 3.2.1 illustrates the process of project identification. In addition to the overall agreements reached in Stage 1 with all partners, DFID may have its own specific criteria, reflecting the UK Government’s priority focus on the poor, the involvement of other donors, and DFID comparative advantage. The selection will be influenced too by the dialogue with potential project partners and the climate for innovation and change communicated by the project champions.

Suggested key questions to be addressed in Stage 2 follow.

### 3.2.1 General

**Are the rules for selecting and defining projects clear to all stakeholders?**

*Selection criteria* for inclusion of village/areas should be transparent and based on need and demand. *Project Rules* such as the capital cost contribution, disbursements of funds, and management arrangements need to be agreed and understood by all stakeholders.

**Do all partners agree on the approaches to be followed in defining the projects?**

*A participative process approach* is needed, encouraging local institutions and community organizations to take a proactive and leading role in the project. *Demand assessment* is required to confirm a community’s commitment to a project and may include willingness-to-pay surveys and beneficiary assessments.

**Is there agreement on the institutional and financial implications of project selection?**

The right *institutional framework* is crucial in terms of providing adequate support to community management and stakeholder institutions. *Funds and financial flows* are a key feature in project progress and sustainability. Fund allocations and disbursements should be adequate, flexible, timely, and involve simple procedures.

**Will there be a flexible approach to enable communities to make real choices in the design stage?**

*Technology and choice of service level* involves spending time with interested communities, working out and explaining to the communities the implications of each viable technical option, thus enabling them to choose the technology and service level.

Are the identified projects clearly linked to an IWRM strategy? The means of achieving full integration of projects into national sector strategies should have been agreed in Stage 1. It may involve a *master plan approach* or a *learning process* or a combination of the two,
Figure 3.2.1. The project identification process
particularly where there are area-wide problems such as water resources management or contamination problems.

**Will there be adequate provision for monitoring progress and assessing the sustainability of selected projects?**

Monitoring and evaluation processes need to be spelled out at this point. They should support community management and encourage community self-assessment activities. Participatory evaluations with project partners should focus on progress in achieving the project purpose.

Each of these questions is addressed in more detail in the discipline-specific questions which follow.

### 3.2.2 Social perspectives

Good programme and project identification depends crucially on social analysis and the two critical tools used are social impact analysis (SIA) and stakeholder analysis. The key questions informing social impact analysis and stakeholder analysis in water supply and sanitation schemes are:

**Is the programme or project responsive to the needs of the people affected?**

- Is the project culturally appropriate in terms of technology and planning approaches?
- Is behaviour change necessary for the project to have an impact and do primary stakeholders see a need for changes to the practices associated with the new technology?
- Will some groups be excluded from or negatively affected by the project, for example water vendors or owners of land where current water resources are located?
- Have user preferences about feasible technical options, the siting of installations, and the institutional arrangements for operation and maintenance been elicited?

**Does the programme or project reach poor and disadvantaged people?**

- Are the areas where poorer people live and work included in or targeted by the project?
- Does the project include all members of the target communities, particularly those who may be disadvantaged by poverty or their status in society?
- Does the project take account of the different needs of women and men, of older and younger people, and of people with different abilities?
- What are the financial costs of current water supply and sanitation provision and will they be affordable, for example connection fees and maintenance charges?
- If user charges pose a problem for poorer households what arrangements can be made to facilitate take-up such as credit funds, public standposts, or cross-subsidization?
- Where necessary, what inputs are needed to reform the policy and
institutional frameworks in which water supply and sanitation are delivered, so that they take account of poverty?

**Does the programme or project recognize the different roles, needs, and contributions of women and men?**

- Will women benefit as well as men?
- Have women and men been consulted about the issues raised, such as the sitings of installations, technological choices, and institutional arrangements, and have their responses informed project design?
- Is hygiene promotion directed towards those most often responsible for it, that is adult women, and are the informal communication networks of women and men used to develop health education messages?
- Are the multiple demands on women’s time and the opportunity costs they face recognized when planning to include women in consultation and participation?
- Have women’s and men’s different responsibilities for household budgeting been taken into account for assessing willingness and ability to pay?

**What is the level of demand for water supply and sanitation and where will it be necessary to develop a shared agenda?**

- What problems are identified in relation to water supply and sanitation? What causes are discussed? Who sees them as important?
- Are there competing requirements for water use, for example between domestic use and productive activities such as livestock raising?
- Do priorities differ between primary and secondary stakeholders?
- Do priorities differ among different members of a community or among different communities/villages/neighbourhoods?
- What are the existing land and property ownership arrangements and will these be affected by the project?

**What institutional relationships exist at the local level and how will they relate to the project?**

- Is there a tradition of setting up or maintaining water supplies, waste management systems, or public facilities?
- What institutional structures have been involved and could they be used again? Will women be represented?
- Could existing local institutions or a modification of them be used as channels for dialogue with potential users in the design, implementation, and monitoring of the project?
- Who in the community will make decisions and how will local power structures be affected by the project?

**What level of participation and partnership is possible and appropriate among stakeholders?**

- Are the professionals and officials involved in the project experienced in taking a participatory approach to water supply and sanitation provision? If not, what capacity-building components
could help facilitate this approach?

• Do community members have the confidence and skills to engage effectively in participatory processes and partnerships? Which groups need support and of what kind?

• Is provision being made for community maintenance and how will the project deal with abuse of the system, for example through (a) mobilizing community pressure through existing organizational structures; (b) additional work incentives; (c) public awareness campaigns; (d) disincentives for abuse such as all residents sharing the cost of repairs; and (e) maintenance skills training?

• Who from the community will contribute labour and engage in operation and maintenance? Will this affect their status? Will it contribute to their income?

• Will the project increase the responsibilities and workload of certain groups?

In order to assess the participation of different stakeholders it is important to identify them in the first place. As well as identifying appropriate types of participation by different stakeholders at different stages of a project, stakeholder analysis can help assess different interests in a project, conflict of interest, and the potential for cooperation and coalitions. Examples of what a stakeholder analysis and a summary participation matrix for water supply and sanitation might look like are included for illustration (see Tables 3.1 and 3.2).

A stakeholder analysis helps assess which stakeholders are important for project success. In Figure 3.1, for example, although politicians are not directly involved they are ranked relatively high because they could sabotage the project. Stakeholder analysis also helps assess appropriate and feasible roles for different stakeholders. For example, when is it appropriate to expect primary stakeholders to participate and in what capacity? While DFID has the right to make a judgement on the extent of participation it wishes to see from different stakeholders in a project, other stakeholders may reach different conclusions. This will require discussion and the development of mutual understanding.

3.2.3 Water, sanitation, and health

Because improved health is a key objective of WS&S programmes, comparison of project options has to include an assessment of realistic health benefits which might arise from an intervention. Even where the total numbers are uncertain, the differences in health impacts between various options can often be clearly identified.

**What is the existing environmental health situation?**

To understand the links between water, sanitation, and hygiene, and the possible effects of any proposed intervention, you need to understand the existing environmental health conditions. Ideally, it would be valuable to know something about beliefs and practices concerning hygiene behaviour as well; if this is not possible, formative studies should be included as part of the project preparation.
<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Interests</th>
<th>Potential project impact</th>
<th>Relative priorities of interest</th>
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<tr>
<td><strong>Secondary stakeholders</strong></td>
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<tr>
<td>Ministry of Water Affairs</td>
<td>Achievement of targets</td>
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<td>Co-ordination of activities</td>
<td>(+)</td>
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<td></td>
<td>Liability for failures and resource misuse</td>
<td>(-)</td>
<td>= 2</td>
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<td>Politicians</td>
<td>Timely delivery of visible services</td>
<td>(+)/(-)</td>
<td>= 3</td>
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<tr>
<td>Formal suppliers</td>
<td>Sales and profits</td>
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<td></td>
<td>Effective delivery</td>
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<td>Evidence of poverty impact</td>
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<td><strong>Primary stakeholders</strong></td>
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<td>Low-income communities</td>
<td>Improved access to water</td>
<td>(+)</td>
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<td></td>
<td>Better health and opportunities</td>
<td>(+)</td>
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<td>Women and children in those communities</td>
<td>More time and energy</td>
<td>(+)</td>
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<tr>
<td></td>
<td>Better health and education</td>
<td>(+)</td>
<td>= 1+</td>
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<tr>
<td>Men in those communities</td>
<td>Access to water for livestock and crops</td>
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<td></td>
<td>Better health</td>
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<td>Increased costs on ‘ability to pay’ principle</td>
<td>(-)</td>
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<tr>
<td></td>
<td>Loss of status and income from water sales</td>
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<td>Partnership</td>
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<td><strong>Stage in Project Cycle</strong></td>
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<td>Women’s groups</td>
<td>DFID</td>
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<td>Implementation</td>
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<tr>
<td>Monitoring and evaluation</td>
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<td></td>
<td></td>
<td>Women’s groups</td>
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(Stage 3). To begin with, however, what are the levels of service available for water and sanitation; which fractions of the population receive what levels? The water and sewerage utilities are aware of the number of formal connections, but this is often only a small part of the story; in many cities the turnover of the informal water sector (i.e. vending) is greater than the revenue of the water authority. It is especially important to focus on the existing situation for the poor and marginal groups, as they are usually at greatest risk and are the target groups for DFID co-operation. To determine their ‘access’ to water and sanitation services you need to visit poor communities and look closely at how people get their water and dispose of their wastes. Existing health statistics and studies can sometimes highlight dramatic outbreaks attributable to water and sanitation, but often understate the daily toll of endemic disease. Consultation with healthworkers regularly working with the poor may give a better idea of the relative significance of sanitation-related diseases than official statistics.

**How plausible are the health benefits of the project?**

It is critical to understand how many people will be affected, and in precisely what ways. Health benefits accrue when (a) people use more water; (b) more people (especially children) use sanitation; and (c) hygiene is effectively promoted (see Sections 2.3.1 to 2.3.3). The main health benefits of increased water consumption are likely to be in reduced faecal-oral diseases, especially diarrhoea, and reduced skin and eye infections. The main health benefits of sanitation are likely to be reduced faecal-oral disease, especially diarrhoea, and reduced intestinal worm burdens. Health benefits rarely accrue from sewage treatment, with the possible exception of waste stabilization ponds (see Section 2.7.22), in which case downstream beneficiaries using the receiving water should be explicitly identified.

**Who will really be affected, in health terms?**

Health benefits tend to be focused on changes in the household environment (see Section 2.3.8). Will more water reach more people at the household level? (Note Figure 2.3 showing water consumption as a function of travel time.) Will more households have sanitation coverage? How is the issue of children’s health and hygiene promotion likely to be addressed? While centralized investment is also necessary, it is critical to find out what the effects of such investments will be at the household level.

**Who can be project partners in health?**

Who are the partners responsible for maximizing health benefits from the project, and what are their understandings of the role of health in the project? Do they have resources and an interest in adopting the hygiene promotion approach outlined in Section 2.8? What has been the past experience in health education and hygiene promotion in the project area? Partners with a willingness to try new approaches, and with local credibility with the community, are far more valuable than formally qualified professionals who see no alternative to the traditional educational approach.
3.2.4 Environmental perspectives

Stage 1 will have established the national environmental goals and policies and the institutional, legislative, and regulatory framework under which projects will operate. In Stage 2, the aim is to assess the likely environmental impacts (positive and negative) of proposed projects. An Environmental Screening Summary is a DFID requirement for all projects. It will also be necessary to judge the sustainability of the project itself and its possible impact on the sustainability of the local environment and/or future downstream projects.

**Does the scheme have any significant environmental consequences?**

River abstraction schemes may involve the construction of weirs or barrages which can prevent the passage of fish and inhibit water transport. Impounded waters may encourage algal growths which can alter the ecology of the water. Wastewater discharges to a watercourse or lake can affect the fish population and may encourage algal growths and eutrophication. On the positive side, improved urban sanitation can significantly reduce the polluting load on rivers. One cautionary note here: sewerage without treatment simply converts scattered pollution into point-source pollution where the sewers discharge. It can actually have a negative environmental impact, by short-circuiting the natural biodegradation of human wastes and so increasing the pollution load.

**Is there a guaranteed and sustainable allocation of water for the project?**

In some cases, such as where a community is drawing small quantities of drinking water from a well-replenished aquifer, there may be no doubts about the long-term sustainability of good quality water. More frequently, there will be competing uses for the resource, and the modest WS&S needs may be threatened by larger demands from agriculture and/or industry. (See Section 2.4.1.) In such cases, all significant existing and potential uses of water within the area need to be identified and quantified as accurately as possible. Realistic forecasts of future needs for the various uses must also be made in order to assess the longer term sustainability of a scheme. There needs to be an agreed mechanism for allocating water, and an agreed priority of maintaining potable supplies in times of scarcity or drought.

**Surface water developments**

**Is the source perennial?**

If the source is perennial it may be able to supply the demand throughout the year, whereas an intermittently flowing river will need an impounding reservoir to maintain supply during periods of no flow. In the absence of a reservoir alternative sources of water must be available if supply is to be maintained.

**Are validated flow records available?**

In the absence of reliable flow records at the abstraction point it will be difficult in later stages to estimate the likely surface water
availability or the yield of a river basin. Precipitation records can be used in conjunction with estimates of direct runoff and evaporation to estimate yield in the absence of flow records. It may be possible to estimate the yield in an ungauged basin by comparison with a similar gauged basin if one exists.

**What existing abstractions occur upstream and downstream of the proposed development?**

Even though the government or basin agency should have guaranteed the allocation of water for the proposed scheme, its effective sustainability will be governed by the balance between yield and total abstractions. It is therefore important that, as part of a resource management exercise, all significant abstractions are identified and investigated (possibly including gauging), and that estimates are made of likely changes in these abstractions. Upstream uses, if consumptive, will reduce flows at the abstraction point. Downstream uses may not be able to continue if the abstraction means that the river is unable to support the required flow. Diversionary uses which return water to the river system may return most of the abstracted water (cooling water) or relatively little (irrigation). Returned waters do sustain low flows but are likely to have some degree of quality deterioration, and quality also needs to be investigated.

**What regulatory or legal mechanisms control abstractions and polluting discharges?**

Although collaboration and co-operation between water users should be a target, feelings can run high about water and its availability. The existence of a legal or legislative framework to control abstractions in times of stress is essential. Such administrative frameworks are, however, of little value if the regulatory authority lacks the resources to undertake its duties. They are also ineffective if they ignore or counter informal community-level rules and institutions governing common property. Unless both some form of appropriate pollution prevention and control measures are available it will be difficult to maintain good quality water at an abstraction point. (See Section 2.4.5.) All major effluent discharges should be subject to discharge consents which place limits on the content and volume of the discharge. Where potential pollution risks are present measures should be available to institute remedial or preventative steps. Human and financial resources must be available to implement pollution control measures and ensure compliance without being subverted by corrupt malpractice.

**Are other abstractions and/or developments under consideration for the same river basin?**

Liaison with other administrative, planning, and commercial organizations within a river basin must be undertaken to ensure, as far as possible, that the project will not be negated by new demands in other parts of the basin.

**Groundwater developments**

**Are validated records of groundwater levels available?**

If abstractions from aquifers exceed the recharge, groundwater levels will fall. There are many instances where increasing the number of
boreholes to provide a greater yield from an aquifer has resulted in eventual failure of the source. Over-abstraction can cause the ingress of seawater if near the coast, or of poorer quality groundwaters from contaminated sites (see Section 2.4.1). Reliable records of groundwater levels supplemented by pumping tests will give some indication of the potential yield, although the yield of groundwater sources is more difficult to predict than that of surface water sources.

**What regulatory or legal mechanisms control potentially polluting discharges to the aquifer?**

Groundwater protection policies should prevent the establishment and/or operation of potentially polluting activities in the vicinity of a groundwater abstraction, and should closely regulate such activities over the area of the groundwater catchment. (See Section 2.4.5.)

**Are the environmental quality objectives for the scheme derived from appropriate local criteria?**

The use of environmental quality objectives from developed countries can sometimes be quite inappropriate for developing countries with very different conditions. For example, a water quality objective approach for environmental management of a receiving water is quite unrealistic for a watercourse which is not perennial. In the absence of natural flow, water quality downstream of a discharge cannot be better than that of the discharge. (See Section 2.4.2.)

### 3.2.5 Economic perspectives

Questions arise under various policy headings.

**Project Purpose**

**Is the Purpose appropriately specified?**

**Key questions are:**

Does the Project Purpose, and the approach to project development:

- allow consideration of a wide range of technical, policy, and institutional approaches (e.g. demand management) to solving the project problem?
- recognize that provision of the same level of services to some people will be more costly than to others, for technical reasons, because of population density, etc.?
- recognize that some people may be willing to pay the full costs of a higher level of service, so the cheapest project design or level of service option is not necessarily the most desirable economically?

**Demand assessment**

Demand assessment is central to designing a demand-responsive project. A variety of demand assessment techniques are available (see Table 2.1.2, Section 2.5) and the most appropriate approach will depend on project circumstances. Contingent valuation method (CVM) studies are the best way to assess demand for improved levels of service, especially where users will be required to pay much more than they do at present, but CVM studies are expensive. Revealed Preference surveys are cheaper but only show what people are
currently doing, and are a less reliable guide to how they might respond to new options made available in the future.

Often a multi-stage process using a mix of informal and formal approaches will be appropriate. Demand assessment needs to be co-ordinated with participatory processes undertaken as part of the social analysis.

Key questions are:
- How important will demand assessment be to project design decisions? What will be the most appropriate methods to assess demand?
- How will reliability of demand assessment be assured (e.g. using randomly selected survey sample, using specialist expertise for quality control of contingent valuation studies)?
- What are the present use and consumption patterns: for different groups, from different sources, and for different purposes?
- What signs of unsatisfied demand are there?
- What are projections of demand, and sensitivity to price?

Equity issues
It is inequitable to require poor people to pay more per litre for water than richer people. The main ways to make services more affordable for poor people are through tariff structures (e.g. ‘lifeline’ tariffs), cross-subsidy, and targeted subsidy (see Section 2.5.11). Given the scarcity of public funds, however, a higher level of subsidy per litre will usually translate into fewer poor people benefiting from it.

Key questions are:
- Who will benefit, and by how much, under each project design alternative or level of service option?
- Which poor people are expected to benefit?
- How much might they be expected to pay for improved services?
- How might this compare with what they currently pay, and with what other consumers currently pay or might pay in the future?
- Could more poor people have access to affordable services if subsidies were restructured?

Prospects for economic justification
The economic justification for alternative approaches to addressing the Project Purpose should be compared. Other things being equal, the approach with the strongest economic case should be adopted. Where possible, projects should be subjected to cost-benefit analysis, using standard economic techniques. Benefit estimates can be derived from demand assessment studies.

Where it is not possible to value demand, cost effectiveness analysis should be used. Comparison of unit costs (capital and O&M) with those from similar projects elsewhere in the same country can help cross-check cost-effectiveness, (although on occasions meeting relatively high unit costs may be justified if there are strong reasons for expecting a similarly high level of benefits).
Benefits, which often vary seasonally, can include financial savings, time savings, convenience benefits, health benefits, and sometimes production benefits. Focus group meetings and field observations can help gain a first impression of possible benefits. The scale of water vending and the prices charged, and/or the round-trip time fetching water, can be useful proxies of demand for improved water supplies. However, these rough indications of the current situation will not be sufficient if the options presented by the project will require users to pay much more money than they do currently. In such cases the numbers of people choosing to use the new option and how much water they use will have a big impact on the scale of project benefits.

Without using the contingent valuation method it is difficult to predict benefits accurately. Revealed Preference studies may underestimate demand. Both Revealed Preference and CVM will tend to underestimate the health benefits (both private benefits and externalities) which are likely to be particularly important in sanitation projects, but health benefits are in any case hard to forecast or measure directly. Distance to water and the nature of the disease burden can help identify whether they are likely to be significant.

Key questions are:

- Is a suitably wide range of options being considered?
- Has there been an investigation of the scope for phasing investment more slowly, to match growing demand incrementally?
- What costs — capital and recurrent — are associated with each option?
- From projections of demand, what are the projected benefits?
- What steps will be taken to ensure investment funds are used where economic returns will be high (that is to consider the costs as well as benefits, for instance, in deciding which villages should benefit from public investment in supply systems?)
- What is the economic case for wastewater treatment, versus wastewater collection, treated separately?
- What would the costs and benefits be without the project?
- Are the incremental net benefit flows (i.e. benefits minus costs, relative to the without-project situation) likely to justify investment?

Demand management

Key question:

Have demand-management options (e.g. tariff reform; pricing for non-essential uses; reducing unaccounted for water; leak reduction; use of low-volume flush toilets; tighter billing, enforcement, and collection) been systematically considered?

Prospects for financial sustainability

Key questions are:

- What are the broad financial targets for key institutions?
- What is likely to be the impact of the project on their finances?
- Will they be able to cover at least O&M costs?
- What is the process for reform of cost recovery, tariff structure, tariff levels, etc.?
• What prospects are there for
  - stronger billing, collection, and enforcement (specially important when large increase in revenues are forecast);
  - metering (where this is economic);
  - improving the operational efficiency and lowering the costs of utilities; and
  - recovering installation and connection costs?

**Prospects for use of subsidy**

*Key questions are:*

• What will be the project’s impact on the public budget?
• What limits will be there on use of subsidy?
• What are the alternative ways in which subsidy could be used?

**Options for Private Sector Participation (PSP)**

• Is a sufficiently wide range of options for PSP being examined?

**Risks and sensitivity**

• How sensitive to key assumptions are costs, benefits, poverty impact, financial sustainability, and budgetary impact?
• What measures can be taken to reduce these risks (e.g. building more flexibility into project design)?

3.2.6 Institutional perspectives

The national institutional appraisal undertaken in Stage 1 will provide a basis for comparing project proposals and identifying any institutional strengthening needs. It needs to be supplemented in this Stage with appraisal of local institutional frameworks related to individual project localities (see Section 2.6.8). It is worth noting here that some past DFID WS&S projects have experienced difficulties because institutional and financial appraisals were not undertaken at an early enough stage.

Discussions with stakeholders should include critical assessments of the existing institutional set-ups as they relate to each stakeholder’s anticipated role. Almost invariably there will be suggestions for strengthening the capacity of partner institutions to respond to user needs and maintain the participatory approach. The need for strengthening should not in itself invalidate a project proposal. Capacity building is an important part of DFID’s co-operation with partner countries and can have knock-on effects in terms of improved sustainability and replicability.

As in Stage 1 (Section 3.1.6) two questions need to be addressed first:

**Is the institutional framework (with any planned changes) able to operate sustainable services for the urban and rural poor? And what is the history of NGO and private sector involvement in WS&S?**

This time, the assessments are more localized, relating to particular local and regional institutions and their capacity to manage specific proposed projects.
The third question extends the appraisal undertaken in Stage 1 related to decentralization and management at the lowest appropriate level.

**Do local agencies have the skilled human resources needed to implement and manage participatory WS&S projects?**

Stakeholder participation, gender sensitivity, responsiveness to user demands, and the participatory management of services all demand specialized skills (section 2.6.15). These are not the kind of skills commonly taught in engineering courses, where many sector agency staff received their training. Human resources development (HRD) components are frequently a key part of institutional strengthening. They require careful consideration in the Preparatory Stage (Stage 3). Now the aim should be to ensure that there is scope for HRD to be effective. That means a minimum core staff committed to the WS&S sector principles, working in a utility or agency with autonomy (or a government commitment to achieve autonomy), and incentive structures capable of retaining trained staff.

### 3.2.7 Technical aspects

At this stage, the engineer should provide a supportive and enabling role for the project partners by assessing the technical viability of outline project options.

**What baseline information is available?**

Baseline studies should be carried out in the proposed project area(s) alongside the development of project concepts by the stakeholders. The type of baseline information required includes data on existing infrastructure/levels of service, local skills and resources, potential water sources, and other technical or physical constraints. The exercise will probably be a desk study, making use of available secondary data through information sharing and discussions with partners. Some supporting fieldwork or observations may be required. The potential for rehabilitating or upgrading existing infrastructure should be considered at this stage but is not always the most appropriate solution. Before rehabilitation is adopted, the cause of past failure has to be clearly identified and the means of remedying it judged feasible (see Section 2.7.6).

**Are there lessons to be learned from past programmes/projects?**

An important part of the desk study will be to establish which technological solutions have been most successful in the past. There will be many lessons to be learned from the successes and failures of previous projects in the region and these must be taken on board and also fed back to sector or programme level.

**How is a viable outline project arrived at?**

This will be an iterative process with engineers assisting the partners to develop a broad range of options and outline costs. The options proposed initially may be reviewed and refined a number of times with the partners until an acceptable and viable project is arrived at for submission in the Project Concept Note. At this stage, no final decisions should have been made on the choice of technical hardware.
Issues such as replication, incremental improvement, and operation and maintenance are crucial to project sustainability (see Sections 2.7.5 and 2.7.6) and should have been addressed. These issues may already have limited the choice of appropriate technologies.

3.2.8 Hygiene promotion and sanitation promotion

Is there a need for better excreta disposal and hygiene?
Local data on diarrheal disease incidence from routine data sources is unlikely to be of much use. Clinic reports, for example, can be underestimates and give biased views which reflect only those cases reported at health facilities, and not those actually occurring in the community (see Section 3.2.3). Extrapolation from studies in similar environments is more useful. It is more important to find out if there are problems of poor hygiene and faecal contamination. If so there is likely to be a diarrheal problem.

What is the time scale for these interventions?
While improving sanitation infrastructure house-by-house is a long-term project which can take many years, hygiene promotion can do something about risk behaviour in the short term, and it can create demand for sanitation. Nevertheless, any attempt to by-pass the essential period of formative research and programme design (typically three to six months, if local capacity exists already) will lead to failure of the intervention.

Who are the partner organizations in government for hygiene promotion and sanitation promotion?
Water and sanitation are generally the responsibility of different agencies from those which deal with hygiene. While some degree of co-ordination between them is necessary, this separation may not be a bad thing. Agencies which implement engineering works are likely to be ill-suited to offer the flexible response required by promotion and the resources for promotion need to be ring-fenced to protect them from the vagaries of the (much more expensive) infrastructure construction programmes. Different solutions will fit different countries.

There is little point in going with a project if there is no real government commitment to it, if the relevant ministry is unconvinced or does not have the capacity to take on more projects. Is there potential for other partnerships with NGOs, CBOs, etc., who may have the flexibility to grow, learn, and be motivated? Investing in NGOs has short-term benefits in getting the work done. This, however, will be both a short- and a long-term drain on government capacity. Hygiene promotion is not sustainable if it depends on an externally funded NGO.

Who will do hygiene promotion and sanitation promotion?
Which organizations will partner the programme team and be responsible for hygiene promotion and sanitation promotion? Are there likely NGOs, CBOs, or social research organizations? Do they have resources and an interest in adopting the hygiene promotion
approach outlined in Section 2.8? What has been the past experience in health education and hygiene promotion in the project area? Are there partners who are willing to try new approaches, and who have local credibility with the community? These will be far more valuable than formally qualified professionals who see no alternative to the traditional educational approach.

**What other organizations will be affected by the programme?**
What does a stakeholder analysis suggest? What role will the water and sanitation utilities play? This may be important if they are not keen on low-cost sanitation, are not familiar with it, and feel it is not their job.

**Who pays for hygiene promotion and sanitation promotion?**
If there is a choice between funding hardware or software, funds should be allocated to promotion. It makes more sense to create demand than to create supply. In the same way subsidies for hardware should be to manufacturers or workshops as start-up funds to enable the businesses to succeed. If the construction of household sanitation facilities themselves are subsidized then the market is effectively constrained by the programme funds available. If any subsidy is devoted to the promotional activities then the funds required are not linked to the number built and the potential for growth is enormous.

### 3.3 Stage 3: Programme and project preparation

Stages 1 and 2 relate primarily to discussions about national and regional priorities. We are now entering the project cycle proper and focusing on the detailed requirements for designing the identified projects and the supporting software components. Its outcome will be a clear statement of the goal and purpose of each project with measurable indicators of performance. Except for very small projects, executed for example by NGOs, a full project logframe will be prepared and agreed by all partners.

DFID has its own guidelines for the format and content of a Project Submission (Volume II: D6 Annex 2, ODA 1996c). It includes summaries of the evaluations and agreements from the first two stages documenting the stakeholder consultations. There are separate sections dealing with technical, environmental, economic and financial, institutional, and social issues. Staff also need to identify the management arrangements for implementing the project (Stage 5), the contracting and procurement requirements, and the timing and accounting procedures for DFID inputs.

In the past this stage has often meant a feasibility study of the identified project by a consultant. This may be less appropriate in the favoured process approach, in which the project develops over a period of time in dialogue with stakeholders. This is a more iterative process, which may involve DFID staff and consultants working with partners in several separate studies, to consider different options and to develop from these the most acceptable solution. The project components will consist of both software and hardware.
Typical software components would be: hygiene promotion and sanitation promotion work, including training workers and preparation of materials; training community management teams; institutional strengthening activities, etc.

Hardware components could include: building of workshops to manufacture sanitation equipment; procurement of equipment (for example handpumps); and construction of water systems and latrines.

Project preparation will include quantification of the outputs and inputs for each component, and time scheduling to ensure that they occur at the right times to maximize the impact on the project Purpose. Note that software components will often need to precede the hardware. This stage also involves agreement with partners on appropriate management arrangements for the project, to meet the time-bound, quantified Output targets.

In addition, the logical framework design requires the selection of indicators at each level and a decision about how these indicators will be measured using a suitable baseline and monitoring framework.

It is during the project preparation stage that technical options are selected, and Figure 3.3.1 illustrates an outline process for water supply and sanitation technical-option selection with the participation of community and support institutions. Many of the activities indicated are likely to be done in the project implementation stage, but project partners need to understand the likely process at the preparation stage. If an agreed process is not developed, there is a risk that the whole process can become too drawn out and stakeholders will lose interest in participation. Processes/action plans also need to be agreed for other project components.

### 3.3.1 General

Which stakeholders will be appropriate project partners?

DFID’s ‘Guidance Note on Stakeholder Analysis’ (ODA 1995b) has checklists to help identify appropriate stakeholders in different project environments. The analyses and institutional appraisals already undertaken in the earlier stages should have revealed the main institutional stakeholders. This is particularly important where there is fragmentation of responsibilities, which is common in WS&S programmes. The choice of partners could include: government water boards, national, state, or local government departments (for water, sanitation, and health), private firms, NGOs, academic institutions, consultants, or a combination of these partners. Discussions in the target community may identify which are likely to have a potentially influential role on project preparation. Aspects such as implementation capacities and willingness to adopt a participative approach will be among the criteria.

### 3.3.2 Social development perspectives

It is during this stage that fundamental decisions are made on the design of the programme and the project process. It is therefore
Figure 3.3.1. Project preparation — outline process for WS&S technical option selection
essential for the social development specialists to discuss the potential impact on the poor and other vulnerable groups, the gender approaches to be used, and the need for contingent valuation or rapid appraisal methods for assessing the community’s needs and aspirations.

**Key questions to be addressed are:**

**Do secondary stakeholders understand the implications of process projects?**
If projects are demand responsive, include cost-recovery measures, and adopt participatory approaches, they will foster more assertive users. They will also require more professional and project time. It is important that secondary stakeholders recognize that this may involve a less familiar approach involving the development of shared agendas and two-way lines of accountability. Partnership may also involve a re-negotiation of roles and responsibilities at different stages of the process.

**Are primary and secondary stakeholders familiar with consultative and participatory practices and methods?**
Process approaches involve on-going consultation, going beyond assessment exercises to include participatory planning and management. Half-hearted commitment or poorly understood application of participatory approaches on the part of secondary stakeholders or confusion over objectives and goals on the part of primary stakeholders can do a great deal of harm. It can raise unrealistic expectations or lead to suspicion and mistrust. There are capacity-building implications here.

**Can primary stakeholders develop and agree objectives and weigh up risks for themselves?**
It is important that the people involved in or affected by a project fully understand the implications of any decisions they make. For example, they need to understand in cost-recovery projects that agreement to pay for water supply or sanitation provision may go beyond contributions to capital and construction costs and extend into payment for operation and maintenance.

**Have local institutional arrangements and management regimes been identified?**
Externally imposed institutional arrangements for water and sanitation projects can interfere with the customary management of common pool resources. It is possible to work with existing informal institutions and it is necessary to identify whether local management regimes can be incorporated into project management. It is also important to identify how they will need to be supported or developed.

**Have all primary stakeholders been involved in selecting appropriate objectives, outputs, and indicators?**
Monitoring is discussed in more detail in Section 3.5 but it needs to be noted here that the involvement of primary stakeholders in monitoring is often facilitated after the initial project framework has been drawn.
up, rather than during preparation. However, stakeholders’ involvement at the early stage is crucial, particularly in relation to monitoring outputs and process, and should not be delayed.

For example, if communal latrines are opted for by community leaders on the basis of cost and convenience in an informal urban settlement, the implications of collective management have to be understood by all those involved. While leaders might agree to a roster for the cleaning and maintenance of the latrines, the overburdened women who are expected to perform this task are rarely consulted and may be unable to deliver.

3.3.3 Water, sanitation, and health
As with the social development considerations, this is the stage in which the principal health-related inputs and anticipated outcomes need to be defined. The questions aim to ensure that DFID staff and partners identify the interventions needed to maximize health impact.

**Do you know enough about how many people get sick and how?**
Even for a single disease, there may be low-risk and high-risk routes of transmission. Before claiming health benefits for a project, someone must study how people become sick. The first stage of formative research for hygiene promotion (Section 2.8) is critical for identifying major faecal-oral disease transmission routes. A critical review of outbreak reports may also be helpful. Ways in which people currently handle water, their excreta disposal, and hygiene practices are important to understand in order to recognize which issues need to be addressed.

**What changes are most important to reducing illness?**
Is part or all of the project or programme aimed at these changes? If not, can activities aimed at these changes fit within the scope of the project or programme? Is this seen the same way by both DFID and partners, or are there different perceptions about the importance of health and the effect of the proposed interventions upon it? To gather support both within DFID and among partners, a consensus should be reached early in the project design on the importance of health benefits and the ways in which the project will achieve them. Disagreement about this undermines confidence in the project and its credibility.

**What means are most suitable for effecting these changes?**
If hygiene promotion is needed, which groups are most likely to be involved? If they are unable to be involved now, why? Is it simply an issue of training, or are there issues of policy, power, and political will involved? Can these be overcome? If so, how? What are the best routes to overcome these difficulties? If technical measures are required to improve health (e.g. house or yardtap connections), are these on the agenda of the local water supplier?

**How can collaboration with project partners in health be strengthened?**
The earlier identification stage focused upon identifying potential partners and allies in achieving health objectives, from government at
all levels in the education and health sectors, and from NGOs and CBOs concerned with health. Now the focus must be on developing strong partnerships in project and programme design, so that sound activities for health are developed and integrated into the project, and the health partners are effectively integrated into the project team. Without such team integration, health can become an ineffective final stage bolt-on to the project, which will not withstand serious appraisal.

**What is the existing level of service? How will it change?**
For water supply, health is most improved when water is delivered at the household or courtyard level, provided adequate drainage is part of the package. Some improvement in health can also be expected from increased water consumption when return travel time is reduced to below 30 minutes, or when particularly heavily contaminated sources are replaced. For sanitation, service at the household level is by far the best arrangement. Where this is not possible, sharing facilities among a small number of households may be viable for maintenance; in such arrangements, children’s access to sanitation remains critical. Public latrines are usually unhealthy because of poor maintenance, and they never fully meet people’s needs. They are therefore not recommended as an intervention.

**Where wastewater treatment is part of the project, how effective is the technology in removing disease-causing organisms?**
Most conventional sewage treatment is good at removing organic matter, solids, and nutrients, but almost completely ineffective at removing bacteria, viruses, and parasites. 90 per cent bacterial removal by conventional treatment as reported in many textbooks has little value for public health where wastewater contains between $10^6$ and $10^8$ *E. coli* /100 ml. Waste stabilization ponds (Mara, 1992 and 1997) are a low-capital, low-maintenance alternative that are very effective in removing disease-causing organisms; where adequate land for the site is available, they are by far the most effective treatment technology from a public health perspective.

**Who is at risk from untreated wastewater? In what ways?**
Wastewater, combined with freshwater, is often re-used for crop irrigation. The risks of such practice depend very much both on which crops are irrigated, and on how the wastewater is applied. Investigation of the practice of wastewater re-use, as described in the *WHO Guidelines for Wastewater Re-use* (Mara and Cairncross, 1991), may identify opportunities to reduce health risks.

### 3.3.4 Environmental perspectives

The Project Submission document needs to identify all the potential adverse and beneficial environmental impacts of the proposed project. Precautionary and mitigation measures must also be described. A useful way of presenting the required information is to compare a series of design alternatives with each other and with the ‘do nothing’ situation.
Depending on the outcome of the earlier environmental screening and on the agreements reached with partners, this stage may require any of three progressively more detailed approaches: Environmental Analysis; Environmental Audit; or Environmental Impact Analysis. These three options involve significantly different levels of data collection and analysis. They are each described in the *DFID Manual of Environmental Appraisal* (ODA 1996b).

If a full Environmental Impact Analysis is needed, there are comprehensive checklists and standard procedures for impact identification, quantification, and valuation including provision for public participation.

Some of the main environmental impacts of WS&S interventions were described in Section 3.2.4. In this stage, they need to be addressed in a project-specific context and comparisons drawn with development alternatives. The end product of this stage is an Environmental Management Plan which describes how positive impacts can best be achieved and negative ones mitigated. It is also necessary to:

- draw up environmental criteria for engineering design and environmental management clauses for construction contracts;
- carry out pre-construction baseline surveys for monitoring and evaluation;
- check national environmental acts and design appropriate monitoring protocols; and
- establish or reinforce an interdisciplinary institutional structure for environmental issues.

*Key questions to be addressed are:*

**Surface water**

*Will the proposed abstraction together with any existing abstractions be less than the reliable yield of the river basin?*

If this is the case the management of the river basin should be sustainable but the yield and demands must be assessed on a probability basis to determine the likely return period of failure to satisfy all demands. Prioritization of demands is essential in times of limited resources to avoid collapse of the system.

*Is the river basin vulnerable to pollution from existing or future planned activities within the catchment area?*

River basins which have within them industrial activities likely to give rise to polluting discharges or accidental releases of pollutants will require additional water quality monitoring provisions and possibly the provision of bank-side storage and/or additional treatment processes. Communities without effective sanitation can pose major threats to water quality in a river basin as can grazing cattle and intensive agricultural activities. Solid-waste disposal practices can sometimes generate serious water pollution problems. A land-use study of the basin above the abstraction point is therefore recommended.
Groundwater

Has an assessment been made of the potential yield of the aquifer?
Evidence should be sought as to whether the yield of the aquifer has been determined by pumping tests and/or groundwater modelling procedures. Estimates of recharge can assist in this assessment.

Will the proposed abstraction together with any existing abstractions from the same aquifer be less than the long-term recharge?
It is normally considered that, over a period of say three years, total abstractions should not exceed 95 per cent of the recharge of an aquifer for sustainability. For short periods it is permissible to abstract at a rate in excess of the long-term recharge, but abstractions must be reduced at other times to maintain the permitted average abstraction rate.

Is the aquifer vulnerable to pollution from existing or future planned activities in the source catchment?
The catchment of the aquifer needs to be defined and land uses within the area determined. Particular attention needs to be given to solid-waste disposal sites and to industrial or agricultural activities which may give rise to soluble pollutants.

Processes

Are water treatment project proposals based on reliable information about raw water quality?
In the absence of water quality data covering at least 12 months, and preferably longer, any decision as to the location of intakes and type of treatment required can only be tentative, although it may be possible to draw on information from similar basins.

Will potentially hazardous chemicals be used in the treatment process?
Disinfection using gaseous chlorine or liquid chlorine requires the provision of safe transport and handling arrangements to reduce the risks of a release of chlorine caused by leaks, breakages, or faulty handling. Since chlorine gas is heavier than air it can escape from a leak and reach areas beyond the treatment plant site. Chemical coagulation often needs acid or caustic reagents to control pH and here again care is necessary to ensure that leaks and spillages do not contaminate the treatment plant or the surrounding locality. Coagulants are normally added as strong solutions which can be corrosive and potentially harmful if misused. Potential hazards should be subjected to risk analysis to avoid the situation where the perceived existence of a hazard results in the abandonment of a process which brings with it clear benefits. Reducing chlorine usage because of the formation of disinfection by-products or possible accidents in handling the gaseous form cannot be seen as a fair exchange for increasing the risk of supplying water containing cholera or typhoid bacteria.
Have provisions been made for the satisfactory treatment and disposal of residues from the treatment process?
Sludges and residues are produced by the clarification and filtration stages in the treatment of surface waters. Much of the material used is inorganic silt from the water to which chemical coagulation adds metallic hydroxides. If the bacteriological quality of the raw water is poor the residues may contain large concentrations of microorganisms. It is not good practice to return these residues to the source of raw water since they cause problems for downstream users. A treatment plant which will produce significant quantities of residues must make provision for their dewatering and ultimate disposal.

Sanitation
Does the sanitation component pose any significant threat to water quality in local watercourses?
Surface soakaways and sewerage schemes, even with some form of treatment, are capable of significantly contaminating nearby waters with bacteria. (See Section 2.4.2.) Such discharges must not be made to watercourses upstream of nearby abstraction points and ideally not to sources used for water supply. The effects on water quality required by other uses of the receiving water should also be assessed since water supply considerations may not always be the most demanding.

Could the scheme cause significant pollution of local groundwater sources?
Wet latrine systems, septic tanks with soakaways, land treatment, and lagoons are all potentially capable of contaminating groundwaters depending upon the local soil and geology (but see Section 2.7.20 — these risks may be exaggerated). Groundwater protection policies should be implemented to monitor and reduce these risks.

If soakaways have been proposed for the disposal of wastewaters is there evidence that the percolation capacity of the soil is sufficient to absorb the volumes expected?
With low percolation rates wastewaters will accumulate in the soil and may waterlog the surrounding area, creating unhealthy conditions and encouraging insects. High percolation rates will ensure that wastewaters are rapidly dispersed but may result in dangers to local groundwater quality.

If wastewater is to be discharged to a watercourse is there evidence that possible effects on the watercourse have been assessed in a rational way?
The effects of conservative pollutants like salts and non-conservative pollutants such as organic matter and micro-organisms can be estimated by simple mass balance and decay calculations to predict the downstream effects of wastewater discharges. The consequences of the wastewater discharge on water quality objectives for the receiving water can then be determined and the quality of the discharge regulated accordingly. The possible beneficial effects of treated wastewaters in supplementing natural flows in dry weather should be assessed.
Have provisions been made for the safe treatment and disposal of sludges from any treatment process?
The sludges from wet latrines, septic tanks, and conventional wastewater treatment processes are potentially very polluting because they contain organic matter and large populations of faecal microorganisms. The nutrient content of wastewater solids is of considerable value in developing countries, but its use in agriculture must be carefully regulated to prevent contamination of the food chain. Has consideration been given to the possible beneficial uses of the sludges? (See Section 2.7.12.)

3.3.5 Economic perspectives

Questions arise under policy headings as follows:

Demand responsiveness
- What is the mechanism for allowing users to choose between levels of service?
- What is the estimated demand for different levels of service at the anticipated tariffs?
- How is this demand expected to change over the project time frame or life of the facilities (say 20 years), taking account of increases in coverage, shifts to improved service levels, and population growth?

Equity issues
- What is the predicted impact on the poor of the chosen project option?
- What specific measures are to be used to meet the basic needs of poor people at affordable prices?
- How are cross-subsidies to work?

Project economic justification
- Relative to the without-project situation, what is the economic justification (using cost-benefit analysis if possible, otherwise cost-effectiveness analysis)?

Demand management
- How are opportunities for demand management to be realized?

Financial sustainability of key institutions
- What are the financial targets for key institutions?
- How will the financial sustainability of these institutions be assured? (What are the financial projections?)
- What are the specific targets and mechanisms for reform of cost-recovery levels and processes?
- What are targets and mechanisms for improving utility operational performance and efficiency improvements?

Subsidy
- How will subsidy be kept transparent, targeted, and limited in scale?
Private sector participation
• What are the specific measures for promoting PSP?
• What regulatory provisions will maintain quality and protect users?

Risks
• What mechanisms for flexibility have been built into the design?
  For example, is there scope for the system to be incrementally upgraded over time, depending on demand, and for individual households to upgrade the level of service they access over time?

3.3.6 Institutional perspectives
In this stage, the institutional appraisal is more detailed and relates especially to the institutions which will be charged with the long-term management of the facilities installed through the selected project (Section 2.6.8). The appraisal results will also need to be placed in the context of the overall sector and the external environment. A priority is likely to be the collection of essential institutional performance data. That may take time to obtain. Decisions will need to be made concerning how much of the appraisal work and institutional development (ID) design can be left to the implementation stage, bearing in mind that ID work is best done as part of a process approach. On the other hand, an early activity may be longer term training to develop the necessary capacity to undertake the project.

In developing any institutional strengthening/development proposals, aspects to be considered include:
• Project support to local training institutions as HRD is likely to be a key component.
• Working with project champions in host government organizations, to identify who owns the project at the various stages and to provide appropriate encouragement and support.
• Ensuring that where new institutions are created as part of the project or where there are significant changes proposed, legitimacy and legal aspects are dealt with. Changes to legislation or regulations can be time consuming and delay the project. In general terms new institutions such as Village Water Committees (VWCs) require a lot of support if they are to be sustainable. The alternative of working through existing institutions should also be assessed.
• Encouraging options for piloting institutional strengthening, with a view to replication elsewhere, so maximizing potential benefits.

How can commitment to the ID project design and process best be promoted among project partners?
Project partner participation should be encouraged in the process of institutional analysis, in promoting ID ideas, and in the development of institutional strengthening options, with the use of workshops, consultants, and core groups (Section 2.6.7). The level of commitment will need to be continually assessed in order to assess the planned pace of change or to consider whether change is achievable. The prospect of significant capital funds may lead to conditions being agreed without real commitment. Look for progress indicators on
things that the organization could do from its own resources (DFID, 1995).

**What are the potential benefits of including project conditions?**

Conditions included in the Project Agreement can be used to establish the minimum institutional/financial arrangements for project implementation and operation. Further dialogue can then proceed with project partners on the adequacy of arrangements for sustainability. Conditionality should support commitment rather than be a substitute for it and hence back those promoting change (DFID, 1995). Conditions can also be included as minimum benchmarks for community participation and management. For example on the DFID Maharashtra Rural Water Supply Project, a condition stipulated that VWCs shall be formed, trained, and established before the village pipe distribution network was agreed. That ensured that construction organized by the State Water Board did not take place until the condition was met and community participation took place. Project partners may also find project conditions useful in terms of providing a lever in obtaining support for government approvals or changes in policy.

**What are the key considerations in agreeing project management and support arrangements?**

It is important to establish effective arrangements for delivering all of the project software and hardware components with co-ordinated timing. This may be through local government structures or a dedicated Project Management Unit (PMU). For reasons of sustainability after the donor has withdrawn, it is preferable not to establish PMUs as part of a new project. PMUs often are established in water and sanitation sector projects, however, for a number of reasons:

- Water, sanitation, and health projects normally involve a number of government departments, parastatals, etc., so a PMU provides an opportunity to co-opt people from the various departments into the PMU and thus enable more project integration.
- Larger projects, particularly those involving participatory approaches, are usually time consuming and involve substantial co-ordination. Capable staff within existing institutions are invariably busy with a multitude of duties and are not able to devote sufficient time to the co-ordination of such participatory projects.
- A wide variety of skills are invariably required on projects in the sector, including: HRD/communications, women’s development, social development, technical, finance and administration, health promotion, sanitation, etc. The PMU provides the opportunity to assemble experts in these fields, in order to ensure that adequate attention is given to each of these important disciplines.

A key issue is the level of autonomy a PMU should have from government. It is generally preferable for the PMU to be within government, although this depends on how restrictive bureaucratic
procedures are on project implementation. Obtaining agreement/commitment to placement/replacement of key project staff is particularly important where there are skill shortages.

**What technical support can DFID offer to help the PMU develop the skills to do its job?**

Appropriate inputs need to be quantified, scheduled, and costed. These may include technical assistance and/or external training.

**What arrangements should be considered for phasing, sequencing, monitoring, and evaluating project components?**

The introduction of a pilot phase to a project can be beneficial where there are doubts about institutional arrangements. It provides an opportunity to test and agree processes, as well as time for further appraisal and dialogue. Activities such as hygiene promotion, HRD for project preparation and implementation, and institutional data collection should commence as early as possible in the project to enable other activities to proceed satisfactorily. It is preferable to agree arrangements for: piloting/phasing, stakeholder participation, reviewing, and incorporating lessons learned into the project. A process approach entails focusing on key project milestones rather than construction completion dates.

Project proposals should include arrangements for participative monitoring, evaluation, and impact assessment, including baseline surveys where appropriate.

### 3.3.7 Technical aspects

The flowchart in Figure 3.3.1 (page 259) illustrates technical option selection at the project preparation stage for a typical water supply project.

Many of the important principles which need to be considered are detailed in Section 2.7. These include: linkages between technology and hygiene promotion, standardization of technology and management, sustainability, operation and maintenance, convenience, incremental improvement, design life, gender in technology, and choice of water supply and sanitation technologies. Some additional issues to bear in mind at this stage are discussed briefly below:

Confidence on water source selection will aid the consultation process. The choice of source will affect the range of technical options available. It is therefore important to try and obtain reliable hydrological/hydrogeological information as early as possible. This will ensure that the stakeholders only have to consider viable options. For example, there is no point in going through a lengthy consultation process for a new deep borehole scheme, only to find at a later date that the water is too saline. Sections 3.2.4 and 3.3.4 describe the main criteria for water source selection.

**Speed is not of the essence in a participatory approach**

The participatory approach means that options or outline designs may have to be revisited a number of times until all the stakeholders are
happy with the final design package. This will clearly take time, and
the engineering team must be prepared to match its pace with the
consultation process.

**Choices of levels of service must be clearly explained**
The different levels of service on offer to the community need to be
well understood so that they can make informed choices. The example
in Figure 3.3.2 proposes three alternative design packages. Each
package will offer water at a different cost for its particular level of
service. The three levels of service offered to individuals are private
house connections, private (or shared) yardtaps, and communal
standposts.

Photographs, diagrams, or pictures are useful to communicate, in
simple terms, the levels of service potentially on offer to communities.

**Project cost estimates need to be as accurate as possible**
At this stage of the cycle preliminary cost estimates need to be made
for the proposed design packages (see Section 2.7.7). Although these
packages will change and evolve throughout the consultation process,
it is important that early cost estimates are reliable. They will be used
as the basis for discussions with stakeholders on potential capital
charges and tariffs, and it would be inadvisable to base these
discussions on tenuous estimates. Also, willingness-to-pay surveys
need to be based on accurate estimates of the likely range of costs for
different services. Cost data should be obtained from similar,
completed projects in the same area if possible.

**How can arrangements be made for spare parts to be available
during the operation stage of the project?**
This may require provision of spare parts during the implementation
stage or working with private-sector suppliers to set up supply
channels.

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**Case study to illustrate technical aspects in the project cycle**

Figure 3.3.2 represents the decision-making process at project preparation
phase for a typical water supply project. The scenario is as follows:

Community X is a peri-urban community situated some five miles from a
significant urban centre which has a centralized water supply system,
Community X currently has no access to a piped supply and relies on
traditional sources such as protected springs or shallow wells. There is
perceived, by the local government, to be a strong need and desire for a more
convenient and safer water supply. The average consumption is 15 l/c/d and
some women take up to three hours a day to collect water. The wealthier
people pay vendors to transport water from the distant sources. Although most
households rely on subsistence farming, there is a certain amount of
expendable income available in families where the males work in the informal
sector in the town.
Figure 3.3.2. Case study to illustrate technical aspects in the project cycle
3.3.8 Hygiene promotion and sanitation promotion

By the end of this stage the Ministry of Health, or its local equivalent, should have agreed if they will contribute and, if so, in what capacity. The roles of the different institutions will be laid out, defined, and harmonized.

Data collection for hygiene promotion and sanitation promotion

This stage is analogous to the Feasibility Study of a major engineering programme. In the same way that baseline data are collected before the rehabilitation of a sewer system, or before a borehole programme proceeds, so must baseline data be collected on the population (see Section 2.8.9).

If water agencies do not have enough engineers to conduct a Feasibility Study, they hire in expertise by contracting out to consultants. If there is not a government department with capacity for collecting data pertinent to promotion, it is advisable to use NGOs or local consultants.

When the data have been collected the programme must not be rushed — sustainable demand takes time to create and even longer to translate into sales (see box opposite). This is a common problem between hardware and software projects. Avoid short cuts. Hardware and software projects have different rhythms and it is disastrous to allow the promotional activities to be rushed by the impetus to pour concrete (see Section 2.8.6).

How should terms of reference for good data collection for hygiene promotion and sanitation promotion be drawn up?

The ToR for data collection should ask questions on the specific behaviours which allow diarrhoeal microbes to be transmitted, which of these behaviours are most widespread, and which are most amenable to change. It is vital to ask how existing hygiene and sanitation practices differ according to gender. Who socializes children about hygiene-related practices?

There are a number of questions as to who should form the cadre of marketers/trainers/mobilizers. What is their social status in the community? Some people might not accept a message from women or from young women, for example. Would they be accepted and at what opportunity cost (e.g. time) and with what benefits (e.g. improved status)? Are there existing roles or positions in society which could be used — e.g. traditional story tellers? Is there a role for those already involved in selling and installing sanitation equipment?

If there is no existing market for latrines, this must be investigated and the reasons why not determined.

How will the data be collected for hygiene promotion and sanitation promotion?

What local partners have the necessary capacity and experience? What experience do they possess? Do they have experience of the promotional approach or are they wedded to the didactic educational approach? Is there a need for training and if so, how much? Is this feasible within the time-frame of the project? How far afield should
the project look if there appears to be no capable research organization locally?

**How much demand needs to be created for hygiene promotion and sanitation promotion?**

What facilities for sanitation promotion exist? What kind of market exists already? Are there competent contractors who can cope with an increased demand and carry out the work satisfactorily? Is the project unrealistic in assessing the logistical necessities? Is there a distribution system and are there points of sale for the materials, e.g. builders’ yards or sanitary marts?

**How are hygiene and sanitation promotion linked?**

Funds are often committed with undertakings to ‘co-ordinate the hygiene and sanitation promotion closely to ensure complete demand creation, cost recovery, and sustainability’. The problem, in reality, is that if the hardware is brought in before the software the demand for the products will be small. If the software is introduced too early, or by itself, then the health promoters may be encouraging people to change their behaviour but not offering the means. The effectiveness of the programme is reduced if there is no possibility of recommending hardware. Health promoters should be able to refer people in the project area to somebody who can answer their questions, and supply the technologies. Is there a realistic low-cost sanitation option to which the health promoters can turn?
What are the key steps in a hygiene promotion plan?

The box in Section 2.8 has examples of how to formulate objectives, to pick out key questions, and to develop an appropriate mix of methods for developing answers. Remember that the focus is on only a few key issues and that results are returned to stakeholders for discussion and collaborative programme design. The key questions for both hygiene promotion and sanitation promotion are: what are the target practices (or product)? Who and where are the target audience? How do the beliefs and practices differ across groups within the target audience? What attention has been paid to message positioning and, through which communication channels will the message, or messages, pass?

These results are used, collaboratively, to develop an intervention which is imparted along appropriate channels. The chief characteristics of the message are that it is positive, simple, repeatable, feasible, affordable, attractive, and memorable.

3.4 Stage 4: Project appraisal and approval

In this stage, the Project Submission Document is reviewed by high-level DFID staff to make the final decision as to which projects DFID will seek to participate in.

Clearly, the issues elaborated in Section 3.3 related to project preparation remain valid for the Appraisal stage. They are not therefore repeated here. In this stage, the decision-makers will wish to check particularly:

Possible alternatives: Is this the best way (effective, equitable, sustainable, efficient, replicable) to achieve the project Purpose?

Impact: Is the project well targeted? Are water supply, sanitation, and hygiene promotion components appropriately designed to maximize health and other benefits? What will be the impact on the poor? On women? Have these been realistically assessed in project preparation?

Risks: Have the risks and assumptions been correctly identified and recorded in the logframe? Can any of the risks be reduced through additional project activities?

Sustainability: Is government policy supportive and will the project’s institutional, financial, and technical provisions ensure sustainability? Has the project been developed in consultation with key stakeholders, including users, with a realistic package of technical options and charges tailored to demand?

Project programme and milestones: Are these agreed with partners, realistic, and providing a reasonable combination of targets, review, and flexibility?

Focusing of programme investments: Software needs as much investment, if not more, in a promotion programme, and judgments may be needed on the likely ratio of inputs to impact.
**Long-term commitments:** Are partners likely to continue activities after cessation of external funding?

**Social development v. social marketing:** The proposals for hygiene promotion and sanitation promotion may need to come under special scrutiny, as this is an area where there could be a danger of DFID seeming to exercise undue influence on community development. The compatibility between social development and social marketing aims should have been made clear in the Project Submission Document and verified by the logframe, but a few extra checks are merited (see box below).

Once approval is given, the logframe becomes the key tool for assessing progress on the project.

---

**Appraisal of social marketing component: Some key questions**

- What steps were taken in the preparation of the hygiene promotion and sanitation promotion components to ensure that the partnerships will be fruitful?

- Will the projections from the preparation stage hold good when the project is scaled up? Have the projections been based on a short visit to the area of interest or has a pilot project already been run? How was the pilot project assessed? By whom, and on what basis? Did the success of the pilot project rely on a high degree of intensive one-to-one work or is it replicable? Was the positioning of the message such that demand was created?

- What did DFID’s partners make of the promotional approach?

- Is the scheduling of the programme for hygiene promotion and sanitation promotion realistic and flexible?

- It can take a long time for demand to translate into sales. While people may well be interested in, and tempted by, the advertised latrines, they may also want to wait for their old pit to fill before changing to a new slab or a new design. They may also want to see the performance of similar latrines installed by their neighbours before investing in their own. Can the programme cope with this time span and with the need to continually refine and check the way the promotional efforts are being received? How will the promotional activities be reviewed?

- At an institutional level what partnerships were built and what interest was shown in the promotional approach?

- Urban sanitation programmes often face the seemingly intractable problems of land tenure and drainage. Have the programmes been considered in the wider context of sanitary infrastructure and urban planning? Did the demand-led and consumer-oriented focus minimize these, and other, difficulties? Did it spread beyond the boundaries of the project? What role did partner organizations play? Was there any interest in the promotional approach at a ministerial level or were the relevant ministries involved more as passive observers? Which other organizations helped?

- What assumptions are being made about the target population? Did the project have any adverse effects? What are the costs, be they social, psychological, or financial, of the proposed behaviour change? Do the changes affect different groups disproportionately? How was the message received by the target audience? Is the message perceived as being relevant to all people and not morally stigmatizing?
3.5 Stage 5: Programme and project implementation and monitoring

3.5.1 General

The implementation stage extends to the end of DFID-funded involvement in project activities, and will include operation of facilities and institutional development, where this is part of the DFID support.

Implementation focuses on the Activities and Outputs levels in the logical framework. It includes:

• assembling packages of interventions based on the implementation philosophy;
• detailed design of components;
• procurement;
• preparation and delivery of community development, hygiene promotion, and institutional strengthening activities;
• construction of facilities; and
• preparation for transition to the operating stage of the cycle (operation and maintenance procedures, training of staff, etc.).

Table 3.1 summarizes DFID management and monitoring activities at the implementation stage. With the general use of the process approach to projects, the setting of annual workplans and the review/revision of logframes will be particularly important. Section 3.3 gives guidance on planning Outputs to achieve the project Purpose. It is important not just to monitor that Outputs are achieved as planned, but also to review their contribution to the project Purpose.

3.5.2 Social development perspectives

The implementation of process projects in WS&S is complex. It requires the co-ordination of a wide range of activities, diverse institutional arrangements, and different time frames. It is important that social development perspectives do not get lost in this complexity.

Are the engineering and the social development components of the project well co-ordinated and synchronized?

Implementation is often driven by the engineering components of a project; the social development dimensions, such as developing local ownership or capacity to manage water supply and sanitation facilities, can get left behind. This can happen either because social development takes longer and is seen to hold the process up, or because new actors who are unfamiliar with the process approach and social development issues become involved at the implementation stage.

There are differences between water supply projects and sanitation projects in terms of how engineering and social development perspectives impact on each other. For example, water supply tends to be technically complex from an engineering point of view, while sanitation projects are often viewed as community self-help activities.
From a social development perspective, however, water projects can achieve social acceptance more easily than sanitation projects, where changing people’s attitudes and behaviour, or generating demand for improved sanitation facilities, is a slow process.

Are there mechanisms in place to share information collected within monitoring systems with all project partners?

Within process projects monitoring systems are set up to provide systematic and continuous assessment of progress for all project partners, not only donors and governments. It is important to identify who should be involved in monitoring, including data collection, maintaining the system, and analysing the data. If joint responsibility for achieving programme or project objectives is to be established, information needs to be shared. A key factor during the implementation and operation stages is feedback. It is important to provide the opportunities to discuss findings with all people who are interested in or affected by a project and for the results to be incorporated into the analysis of the monitoring data.

Are social development perspectives evident in both impact and process indicators?

Impact monitoring provides information on progress towards achieving social objectives, such as sustained improvements in water

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### Table 3.5.1 DFID management and monitoring activities at the implementation stage

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Key issues/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual workplans</td>
<td>co-ordination of inputs</td>
</tr>
<tr>
<td></td>
<td>planning for future years</td>
</tr>
<tr>
<td>Revisions to the logframe</td>
<td>review of the logframe</td>
</tr>
<tr>
<td>Baseline surveys</td>
<td></td>
</tr>
<tr>
<td>Project reports (progress on planned Activities and Outputs)</td>
<td></td>
</tr>
<tr>
<td>Monitoring reports (progress to achieving Outputs and Purpose)</td>
<td>monitoring techniques</td>
</tr>
<tr>
<td></td>
<td>(including participatory process monitoring)</td>
</tr>
<tr>
<td>Reviews (Mid-Term and Output to Purpose reviews) or informal snapshots</td>
<td>achievement ratings</td>
</tr>
<tr>
<td></td>
<td>progress ratings against Purpose</td>
</tr>
<tr>
<td></td>
<td>issues which may influence progress</td>
</tr>
<tr>
<td></td>
<td>remedial action to be considered</td>
</tr>
<tr>
<td>Completion report</td>
<td>lessons learned</td>
</tr>
<tr>
<td>(at end of implementation)</td>
<td></td>
</tr>
</tbody>
</table>

ODA, 1996c Vol II, GI

(White, 1997). From a social development perspective, however, water projects can achieve social acceptance more easily than sanitation projects, where changing people’s attitudes and behaviour, or generating demand for improved sanitation facilities, is a slow process.
supply. Process monitoring helps track the use of resources, the progress of activities, and the way these are carried out. In other words, the information collected should provide an ongoing picture of progress towards meeting objectives, as well as a picture of the process of development, analysing, for example, whether it is developing local capacity or increasing gender awareness among project staff or partners.

**Are both women and men involved in identifying indicators, in monitoring change and impact, and in feedback processes?**
Participatory methods can be used to find out how different groups, including groups of women and men, are involved in or affected by a programme, and how they view its progress. To ensure that all are able to participate in feedback processes, it is necessary to be aware of the timing and location of meetings so that they do not interfere with key income-earning activities, domestic tasks, and childcare responsibilities. The methodology used and the way meetings are run should reflect the different ways in which women and men participate in these processes.

**Is qualitative information necessary to monitor progress?**
On-going monitoring is usually undertaken through filing checklists and reports. When it includes qualitative information it is useful to use other methods. For example, diaries or reports written up after attendance at meetings and based on observation can be used to assess levels of participation. In order to measure behaviour change as a result of hygiene promotion, case-studies of particular households or lanes can be undertaken to assess changes over the longer term.

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**Indicators of social development in a community-based rural water supply and sanitation project**

**Impact indicators:**
- new sources or improved quality, quantity, and reliability of water
- new installations in working order and being used appropriately by all groups
- improvements in living environment
- reduced workload and time spent collecting water by women and children
- reduced reliance on local elites such as landowners controlling access to water sources

**Process indicators:**
- higher level of participation of primary stakeholders
- increased involvement of women in decision-making
- better understanding of technical constraints and costs
- improved ability to cope with conflict over water sources
- greater willingness to approach officials
- continued inclusive organization after project completion
3.5.3 Water, sanitation, and health

Are the timing and co-ordination of health-related components on track?

Scheduling and co-ordination issues are critical for all project and programme implementation. They may be more complex on the health side, however, because of the need to work across multiple sectors (e.g. public works, social welfare, health, and education sectors in government; assorted NGOs and CBOs). One problem could arise if hygiene promotion creates demand for sanitation or improved water supply that cannot be met in a reasonable time; alternatively, if major infrastructure works proceed quickly, but sanitation promotion drags behind, critical public demand may be lost.

How are working relations between sectors and partners?

Much of the ‘monitoring’ of collaboration and co-operation must be informal. Field management staff must make time to establish an atmosphere of candour and trust with partners during implementation so that concerns may be raised (and often resolved) informally. Examples of suitable indicators are included in the sample logframe 3 in the Appendices.

3.5.4 Environmental perspectives

Environmental monitoring

It is important to continue environmental monitoring during the implementation period to determine whether initial assumptions, which are almost always necessary, have been confirmed. Such monitoring can provide valuable information and assistance for use in later projects in similar situations. (See Section 2.4.3.)
3.5.5 Economic perspectives

The key issue at the implementation stage is to ensure co-ordination of project components, and ways to do this are considered in the section below. Implementation in the past has been largely driven by the engineering components of projects, which dictated the speed and direction of events, and prevented health, hygiene, and sanitation components from being fully integrated into the whole (see para 4.14 of DFID’s Rural water and sanitation evaluation synthesis study, White 1997). Points to monitor are noted below:

Revealed demand

• Are communities responding as expected in contributing to the investment phase and in preparing (e.g. making cash collections) for O&M?

• What is the evidence of demand for improved levels of service (e.g. new connections)?

Equity

• What progress is being made in improving access by the poor to basic services at affordable prices (coverage, use made of new facilities, prices paid, etc.)?

Economic justification

• How are costs and benefits (demand) diverging from design projections?

• Why? How can economic performance be improved? How can programme be modified to match demand?

Demand management

• How well are demand management targets being met?

Financial viability

• What is progress in reform of cost recovery and financial reform?

Subsidy

• How well are arrangements for transparency, targeting, and limiting of subsidies working?

Private sector participation

• What progress has been made in increasing PSP?

• How far has the private sector complied with contractual requirements?

• How well are regulatory arrangements working?

3.5.6 Institutional perspectives

This is the time to encourage the final formulation and operationalizing of ID plans within the organizations eventually responsible for providing support to or managing the facilities. This is best done with inputs from competent consultants/NGOs including facilitators to guide the process. This should be discussed briefly, taking note of the importance of co-ordination of components; Section 2.6.8 identifies the likely focus areas. Activities which need to be co-ordinated in a comprehensive ID programme may include:
• assembling inter-disciplinary project teams/committees at the various levels, and selling and reviewing the project concepts and plans;

• encouraging good stakeholder participation from the outset;

• reviewing key indicators for monitoring and developing a monitoring/evaluation system for the project process, activities, and outputs;

• encouraging the development and operationalizing of ID plans within the organizations eventually responsible for providing support to or managing the facilities. This is best done with inputs from competent consultants/NGOs including facilitator(s) to guide the process (see the guidelines on institutional development in Section 2.6.11);

• encouraging interlinkages with other concerned organizations;

• ensuring that key posts are filled early in the process;

• promoting policy dialogue and further institutional appraisal to take into account the changing institutional environment, being opportunistic as new staff or information becomes available;

• exploring options for collaboration with other able local consultants and institutions; and

• promoting ‘learning by doing’ and reviewing the project design and project management arrangements in the light of experience, and adapting the project plans and logframe as appropriate.

The focus should be on critical path activities such as HRD, institutional changes, community mobilization, and planning activities. Institutional change takes time and may experience setbacks before substantial progress is achieved. If necessary, consider reviewing construction targets, in order to allow adequate institutional and community development to be completed.

Generally water and sanitation projects experience their most serious problems with operation and maintenance and with cost recovery aspects. The proposed arrangements for these need particular attention. If they are not likely to be sustainable, how can they be amended? Consideration should be given to providing project support during these stages, with a planned withdrawal of support as local ownership builds.

Plan well in advance for project evaluation and impact assessment. Participatory evaluations with project partners should be encouraged, with agreement on key indicators, particularly at the Project Purpose level.

Seek to develop good project documentation and disseminate lessons learned to a wider audience.

3.5.7 Technical aspects

The detailed design, tendering, and construction of the project will take place during this part of the cycle. There are therefore many
engineering aspects to be considered. Most of the issues are covered in Section 2.7 and the previous sections of Chapter 3. Some further issues are specific to the implementation stage as discussed below:

**What choices of technology and level of service can be offered to each household?**
Work at previous stages (Section 3.3.7) will have closed down some options and settled on a limited range of technologies and levels of service (with corresponding tariffs) which could be offered. It will be necessary to decide whether each household can make an individual choice from the available options (as should be possible for latrines), or whether small groups of households need to make a common choice (as is probably necessary for handpumps). (See Sections 2.7.20, 2.7.21, and 2.7.26)

**What is an appropriate process for choice of technology?**
In the past, choices have often been made by engineers exercising technical judgement, but ignoring the need to secure the necessary recurrent funding, which usually has to come from user tariffs. Following a demand-responsive approach, a simple form of agreement could be prepared, setting out the choices (technologies and tariffs). The issue of future changes to the tariffs needs to be considered, as does the question of who in the household decides (or is approached) and how the agreement is signed? Clearly this will require liaison with other specialists (social development, economics, or institutions). The timing of householders’ choice should preferably be after they have been exposed to hygiene and sanitation promotion activities.

**How can the system design provide for future growth in population and per capita demand for water?**
Although the system design needs to be based on supplying water to meet individual households’ current choices, it should have the flexibility to meet future demand, especially to facilitate the increased use of water, which brings important health benefits and increases in the number of private connections (see Section 2.7.16).

What is the estimated demand for different levels of service at the anticipated tariffs?

How is this demand anticipated to change over the project timeframe or life of the facilities (say 20 years), taking account of increases in coverage, shifts to improved levels of service, and population growth?

**Does the detailed design incorporate local practices and standards?**
It is not appropriate to design works to a British Standard if these are not used in the project country. In some countries the quality of concrete work is very poor, while masonry skills are excellent. These local practices and skills should be exploited in the design and construction of the infrastructure. Similarly, local standards for water treatment and effluent disposal should be specified wherever possible.
Is there potential for introducing new skills to the community?
It may be appropriate to use the project to improve the local skill base, for example by involving the local labour force in construction, which develops skills which may be useful for O&M (see Section 2.7.10). Another example is by specifying the use of simple pre-cast concrete units. The local labour force can then be trained to use this technique, which may prove useful in future projects.

Has the use of local materials and plant been specified wherever possible?
Local materials and construction methods should be employed wherever possible. This may not always be possible, for example if rotary drilling in rock is required, but the community should be consulted because they may have their own ideas. In some cases the use of local materials is unacceptable to the partners if it is of a very low quality; it would probably not be cost-effective to purchase local asbestos cement pipes with a design life of five years, if imported ones have a design life of 30 years.

Have the end-users been consulted on the detailed design of services?
Consultation is particularly important for the location of facilities. The end-users of water supply projects are often women and children. The height and strength of these users also needs to be taken into account when specifying the height of well headwalls, washing stands, and borehole plinths for example (Section 2.7.9). It is not uncommon to see handpump outlets which are too low to fit a 20-litre jerrycan underneath — consultation with the end-users would have avoided this sort of mistake.

Have standard designs been used wherever possible?
Sections 1.5 and 2.7.4 discuss the merits and pitfalls of standardization. Standard designs for project components have important implications for sustainability.

What written agreements or contracts are needed to implement the project?
In many cases it may not be appropriate to have a formal engineering contract between parties, particularly if the construction work is to be undertaken by the community (see Section 2.7.10). However, there has to be some guarantee of quality and an understanding of the scope of the work. It is useful to have a written agreement between the primary and secondary stakeholders (community and government, say) defining roles and responsibilities and also agreeing the scope of the works. This will avoid confusion or disagreement later on in the project.

Formal written contracts are required where specialist construction or installation work is being undertaken by external contractors. This work should be awarded through a competitive tender process to ensure value for money.
How much supervision of construction work will be required?
The level of supervision required will naturally depend on the complexity of the construction work. However, if the design includes any engineering specification, then qualified staff should be available on a full-time basis to oversee construction of the works. The quality of work will suffer if supervision is inadequate because corners may be cut, inferior materials used, and safety compromised.

3.5.8 Hygiene and sanitation promotion

How are hygiene promotion and sanitation promotion monitored?
Monitoring a hardware intervention involves checking that it stays on time and on budget. The procedure for installing a water supply or sewer system is well established, and it is unlikely that the design will alter at this stage. On the other hand, the messages which promote changes in behaviour cannot be standardized. The methods of promotion are drawn from a wide range. While these methods themselves are standardized, both the implementation of the intervention, and the intervention itself, are likely to change as a result of monitoring. Promotion marketing demands a continual rechecking of the design and should include qualitative data collection, for instance from focus groups, to ensure that the messages, their positioning, and the communication channels continue to be the most suitable. Allowance should be made for more re-design of the programme than would be acceptable in an engineering intervention simply concerned with hardware.

Field managers need to ask questions of partners to ensure good practice. For example if government co-operation is deemed essential, is the NGO or project team receiving support?

How is the scheduling of the hygiene promotion and sanitation promotion proceeding in practice?
If sanitation provision lags too far behind, should resources be diverted to hygiene promotion or should sanitation promotion be delayed? This can be monitored by checking project ‘sales’, or by unscheduled visits to find out if people are behaving in a way that is compatible with the original design. It is important that monitoring should be done by someone who has no axe to grind with either the project or the implementing body.

What should be monitored in hygiene promotion and sanitation promotion?
It is a reality of project management that it is always difficult to get totally objective data about who has done what. There are many conflicting interests to negotiate. It is important to answer questions such as: Did everybody do what they were supposed to do? How many home visits were conducted? How many questionnaires were completed? What level of programme coverage has been achieved? Have the targets for the numbers of people having had one, two, or three exposures to the programme messages been met? What other targets for the programme outputs have been achieved? These might
include behaviour changes, sale of potties, sale of soap, latrine construction, and so on. (See Section 2.8.8 for a more detailed list in *Implementation of a hygiene promotion programme* and *A product-based social marketing plan for sanitation.*

**What useful distinctions can be made while monitoring?**
Those engaged in social marketing and hygiene and sanitation promotion should be distinguished from those in the target groups — e.g. number of people trained, or staying on as trainers, is a different type of indicator to the number of people attending street theatre/puppet shows, etc. (see Section 2.8.6).

It is also useful to distinguish between those directly affected (target audience) and those indirectly affected (neighbours who might adopt practices through observation/demonstration effect) (see Section 2.8.4).

Finally achievement indicators, such as changed behaviour or the number of applications received, and process indicators, e.g. readiness of people to participate, degree of user participation in design of message, communications, etc.

**What should not be monitored in hygiene promotion and sanitation promotion?**
Health change (see Section 2.3.9). There are too many variables and confounding factors which intervene in the relationship between water and sanitation and health. It is better to concentrate on behavioural and environmental factors which are measurable and achievable.

### 3.6 Stage 6: Programme and project operation and monitoring

#### 3.6.1 General
This stage of the cycle follows the end of DFID support, and continues for the life of the services or facilities put in place by the programme, until they need replacement. This stage covers the delivery of the benefits of the intervention. Both the level of benefits and also the period for which they are enjoyed are crucial for assessing the success of the project. Sustainability issues come into prominence at this stage, particularly any related deficiencies which have not been overcome in the earlier stages.

#### 3.6.2 Social development perspectives
Continuous training, support, and supervision are all essential to ensure successful monitoring of social impact and participatory processes. This is best achieved when close contact is maintained at the local level and when primary stakeholders are consulted and informed on a regular basis.

**Do those involved in operation and monitoring understand why they are undertaking their assigned tasks?**
For example, people collecting monitoring data on the use of newly installed tubewells or latrines need to understand why they are doing it and how the information will be used, otherwise they might see
themselves or be seen as ‘policing’ the community on behalf of government agencies or donors.

**What is the impact of involvement in operation and maintenance on social relations?**

In the post-construction stage careful attention needs to be paid to those responsible for operating and maintaining water supply and sanitation systems. It is just as important to identify how involvement in operation and maintenance activities affects social relations as it is to provide the right sort of training. The impact on social relations might only be possible to observe during the operation stage itself. For example, the following sub-set of questions might present themselves:

- If women are involved in pump maintenance, does this challenge the existing gender division of labour?
- In the case of on-going hygiene promotion, does this compete with or complement the work of community healthworkers?
- Are those who are delegated to clean around latrines or public standposts willing to do it and what effect does it have on their status in the community?
- Do those who collect user fees have sanctions they can use in the exercise of this task? Do they face resistance or conflict?
- Does the management of operation and maintenance activities fit in with the overall system of governance at the village or settlement level?

**3.6.3 Water, sanitation, and health**

**How sustainable are any long-term health interventions in practice?**

The main health-related monitoring issues will be the growth or decline of activity in hygiene promotion. Is this activity increasing or decreasing during project operation? Why? Are there unanticipated stumbling-blocks to growth in this activity? What can be done to overcome them? At what level do difficulties arise, and what can be done about them? Do these suggest another project, or a revision of the current project/programme?

**How effective are long-term health interventions in practice?**

Part of the ‘sustainability’ issue is the quality of the work being done, and the quality of its monitoring by local institutions. Is there regular local monitoring? How is it done? To what extent does such monitoring reflect changed *behaviour* as opposed to repetition of learned *knowledge*? Does this monitoring focus on the issues of the most vulnerable groups (children and adolescents) and the most influential groups (women, especially mothers)? Effective monitoring of behaviour change can lead to truly sustainable improvements in the hygiene promotion programme; without effective local monitoring, there is a danger that the work will become overly formal and ritualized.
3.6.4 Environmental perspectives

Performance monitoring

This should be aimed at monitoring the performance of the project against quantifiable environmental objectives such as the:

- provision of the design yield without undesirable environmental consequences like lowered groundwater levels, or reductions in flora and fauna; and
- achievement of the intended water quality in receiving waters below effluent discharges.

In addition, the performance of the project with regard to its environmental impact should also be assessed. In particular, whether there have been impacts as anticipated in the Environmental Analysis, and whether these have been controlled as indicated in the Environmental Analysis.

If any of the targets are not being met, this is a serious issue and the question has to be asked, why not? Is it a short-term deficiency, which can be rectified later (e.g. construction of an earth dam may be causing temporary water quality problems which should cease once construction is complete)? It may be a more serious problem, with longer term implications. In such circumstances, the environmental objectives and practices need to be reviewed. Aspects to consider include:

- Are the objectives as set realistic and attainable, in the light of the project experience?
- If not, do they need to be reviewed (for example, effluent discharge standards may have been set which are too strict and unattainable)?
- Were the assumptions made at the beginning of the project valid? If not, do they need to be reviewed?
- If the objectives and assumptions are still valid and monitoring reveals a serious problem, action needs to be taken. How can the effects be minimized? What is the effect of any minimization proposal itself? Is the problem so big that the initial project as undertaken should be stopped — either temporarily or permanently? Is there a need for another project to mitigate the negative impacts that have become apparent?

It is important to state that Environmental Analysis and monitoring programmes are there to serve a purpose. If measurement of performance against them reveals that the objectives are not being met, and after review it is recognized that the objectives are still valid, then this is a very serious issue and action must be taken. It is for these reasons that environmental issues and the tools for monitoring need to be rigorously considered at the very early stages of project planning and preparation. Also, it is crucial to recognize when mistakes are being made, and to take action.
3.6.5 Economic perspectives

Questions at this stage are essentially the same as at the previous stage. Key issues are (a) the extent of and (b) the reasons for divergences between appraisal projections and observed performance in relation to:

- the impact on poor people;
- demand;
- supply;
- level and use of subsidy;
- O&M expenditure; and
- adequacy of cost recovery.

Adoption rates of new facilities

It is important at this stage to monitor who actually uses the new facilities and to what extent, that is the number of connections to a new system or users of new facilities and, for water, their consumption levels. The adoption rates determine the financial sustainability and economic justification for the project. The sustainability of benefits is in turn crucially dependent on the operational performance of the utility, or the robustness of the O&M arrangements put in place for community-managed schemes. It is also dependent on the project having met peoples’ needs.

Are funding arrangements for the O&M of projects working satisfactorily?

A major weakness in past projects has been the lack of funding for O&M. Actual O&M expenditure should be monitored closely against that forecast, and compared with what is required. For community- or village-level managed projects there may be issues of lack of trust in the accountability and transparency of user committees, which should be investigated in tandem with social monitoring.

Has the utility achieved its cost-recovery targets?

Financial and operational weaknesses are the main cause of low standards of service of water and sanitation utilities, and so progress made by the utility in reforming its financial and operational performance provides a key indicator of project sustainability. Points to establish are: is the utility meeting all capital and operating costs, except those met by transparent public subsidy? Has the tariff structure been reformed in line with revenue objectives? Are collection rates improved sufficiently? Is subsidy policy clear in its objectives and strategy? Are households receiving regular and reliable water supplies?

Are the new facilities in working order and being used?

It is important to check the number of new water points that are in operation and in use. Where water-points are functioning, not all people will use them for all of their needs, all of the time. Conversely they may be forced to use malfunctioning water-points in the absence...
of alternative sources. A possible classification of functioning and use is shown in the box below. For details of approach and indicators of use see White, 1997. Where water points are not in use it is important to distinguish between those where people chose to return to their traditional water sources and those which are broken down.

### Improved water supplies functioning and in use: Borehole rehabilitation programme in Uganda

<table>
<thead>
<tr>
<th>Boreholes</th>
<th>Total</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>No. rehabilitated</td>
<td>215</td>
<td>100</td>
</tr>
<tr>
<td>In heavy use</td>
<td>75</td>
<td>35</td>
</tr>
<tr>
<td>In moderate use</td>
<td>53</td>
<td>25</td>
</tr>
<tr>
<td>In light use</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>Not in use</td>
<td>61*</td>
<td>28</td>
</tr>
<tr>
<td>Functioning satisfactorily</td>
<td>132</td>
<td>61</td>
</tr>
<tr>
<td>Functioning satisfactorily and in moderate use</td>
<td>118</td>
<td>55</td>
</tr>
</tbody>
</table>

* of which 48 (22 per cent) were abandoned, not broken down

### Have the poor benefited from the project?

Are poor households receiving a minimum level of water to meet their basic needs at an affordable price? What measures have been put in place (possibly within the context of reform of a utility’s cost-recovery programme) to protect the poor, e.g. lifeline or block-level tariffs, and have they had the intended effect? Have the poor benefited in other ways, e.g. in the form of cost savings? Have some opted for private connections or individual latrines?

### 3.6.6 Institutional perspectives

**How can institutional support be encouraged to ensure sustainability after DFID has withdrawn from the project?**

All institutional project initiatives should be working towards this phase when DFID withdraws its support. This implies that those initiatives should be realistic and not over-ambitious, to avoid donor dependence. There are means of developing longer term on-going institutional support, particularly for new or weak institutions, and these include:

- encouraging the use of local consultants, NGOs, and the private sector by the concerned organizations on an ongoing basis, providing guidance as appropriate;
- promoting better linkages between key institutions by such measures as joint reviews of the allocation of responsibilities, management agreements, and the use of benchmarking;
- support to nearby training institutions during the project who can continue to provide appropriate support during the operation phase; and
promoting the development of an appropriate monitoring system that will produce information for and maintain the interest of other key institutions. Good institutional monitoring information will also be invaluable for the Evaluation phase.

Sections 3.6.5 and 3.6.7 on the economic and technical perspectives of the Operation & Monitoring Phase also address institutional-related issues.

### 3.6.7 Technical aspects
Monitoring of appropriate indicators must continue throughout the operational period. Narayan (1993) provides a comprehensive list (Table 3.6.1) which includes many technical indicators. In addition, specific indicators may be developed for the particular circumstances, as described in the following paragraphs.

**Are the facilities being operated in the way they were designed to function?**
It is important to monitor the mode of operation that is being employed for the new facilities, because this may affect the quality of the service being provided and the long-term sustainability of the infrastructure. For example, if a new borehole pump was designed to run for twelve hours continuously each day, this regime should be adhered to. If the pump is run more erratically then increased mechanical wear and tear will reduce the design life of the pump, and storage reservoirs will not be fully used. The root cause of this problem needs to be investigated: it may be that the original regime was not designed in agreement with the future operators. The situation should be reviewed so that an acceptable and sustainable mode of operation can be achieved.

**Is the design level of service being achieved in practice?**
The facilities should be monitored to ensure that they are being used and are providing the design levels of service to all users. Depending on the complexity of the scheme, this may involve checking operating pressure and discharge at standposts, checking water quality, or ensuring that communal water points are draining properly. Monitoring of on-site sanitation facilities could include smell, flies, and stability of construction.

**Are technological constraints preventing people from using the facilities?**
There may be simple design reasons why users, especially women and children, are not using the facilities: headwalls may be too high, handpumps hard to operate, latrines considered unsafe, etc. These constraints must be identified and rectified if possible.

**Is routine preventative maintenance being carried out?**
Routine preventative maintenance will include changing washers in handpumps and taps, greasing bearings, and other straightforward tasks that would probably be the responsibility of the community. If these jobs are not being done regularly, then the life of the installations will be reduced and the system will eventually fail.
### Table 3.6.1  Indicators of progress in water and sanitation programmes

#### Sustainability

**S.1 Reliability of Systems**
- S.1.a Quality of water at source
- S.1.b Number of facilities in working order
- S.1.c Maintenance

**S.2 Human capacity development**
- S.2.a Management abilities
- S.2.b Knowledge and skills
- S.2.c Confidence/self-concept

**S.3 Local institutional capacity**
- S.3.a Autonomy
- S.3.b Supportive leadership
- S.3.c Systems for learning and problem-solving

**S.4 Cost-sharing and unit costs**
- S.4.a Community contribution
- S.4.b Agency contribution
- S.4.c Unit costs

**S.5 Collaboration among organizations**
- S.5.a Planning
- S.5.b Activities

#### Effective Use

**E.1 Optimal use**
- E.1.a Number and characteristics of users
- E.1.b Quantity of water used (all purposes)
- E.1.c Time taken to use facilities
- E.1.d Management of water resources

**E.2 Hygienic use**
- E.2.a Water quality at home
- E.2.b Water transport and storage practices
- E.2.c Home practices to improve water quality
- E.2.d Site and home cleanliness
- E.2.e Personal hygienic practices

**E.3 Consistent use**
- E.3.a Pattern of daily use
- E.3.b Pattern of seasonal use

#### Replicability

**R.1 Community ability to expand services**
- R.1.a Additional water/latrine facilities built
- R.1.b Upgraded facilities
- R.1.c New development activities initiated

**R.2 Transferability of agency strategies**
- R.2.a Proportion and role of specialized personnel
- R.2.b Established institutional framework
- R.2.c Budget size and sheltering
- R.2.d Documented administrative/implementation procedures
- R.2.e Other special/unique conditions

Narayan, 1993
The reason for failure to maintain the system must be identified. It may be due to a lack of spare parts or tools, or because the people originally trained under the project have moved on without passing on their knowledge and expertise.

**Have any external changes taken place which are affecting operation?**
Physical conditions may have changed during the life of the project to make the system less efficient (for example: change in groundwater level or flow of river, new developments or settlements, political problems, change in water quality). These changes should be monitored and the need for modification or upgrading may need to be considered.

### 3.6.8 Hygiene and sanitation promotion

Operation, for a software intervention, does not have the same meaning as ensuring that the hardware is working and is being maintained. But this is the stage at which the impact of social marketing should be evident in behavioural change, as people become accustomed to having the improved WS&S services available. We can look too at the longer term on a more institutional level: have hygiene promotion and sanitation promotion and other consumer-oriented methods been adopted by the Ministry of Health and other departments?

Has the Ministry of Health, or other partner responsible for hygiene promotion and sanitation promotion, developed standard operating procedures for promotional projects and for checking the reliability of such approaches? Are these procedures used?

### 3.7 Stage 7: Programme and project extensions or next phase programme and project identification

#### 3.7.1 General

This stage in the cycle does not strictly follow Operation, but rather occurs at about the time of the Implementation/Operation transition, when possibilities for replication of the project are considered, taking account of lessons learned in the previous work. If the project has been successful, there are likely to be opportunities for building on the partnerships which have been established and expanding the successful approaches to wider areas as part of a continuing programme. With the partnership approach, this process may become expected as a normal part of the cycle and the long-term programme.

#### 3.7.2 Social development perspectives

It is often at the review stage of the programme cycle that a social development perspective, gender issues, or participatory approaches can be revisited. Renewed efforts can be made to introduce or extend these approaches in the process of reviewing the first phase of a programme or project and of identifying extensions or subsequent
phases. It may be that while DFID is wedded to gender awareness and participatory approaches, other stakeholders in water supply and sanitation may be less familiar with these agendas or hostile to them. In this case discussion is needed to build consensus and decide a mutually satisfactory approach.

**Have all stakeholders been identified and involved?**

At this stage it is valuable to do a further stakeholder analysis. On the one hand this can identify whether additional affected populations have emerged as a result of the project, and on the other, whether some stakeholders have changed their level of involvement in participatory processes. Even if the project was initially identified by donors or government institutions without any commitment to participation, it is possible at this point to rectify this by detailed consultations with users or affected groups.

**Is the project being informed by the priorities and views of user groups?**

The views of poor and marginalized people are important in ensuring that the visions and priorities of the public sector and of donors supporting the water supply and sanitation sector match those of user groups. At the level of policy, experience from first phases can be used to illustrate the benefits of participation or to show what can go wrong if user groups are not involved in decision-making from the outset.

**Have there been any changes in institutional roles and relationships affecting the project?**

Changes in institutional roles and relationships can be identified at this stage. For example, local organizations might be more robust and engaged, or those working in ministries or parastatals may have learned the value of wider consultation and participation by the end of the first phase of the project. There may be extraneous influences as well, such as the formation of a new women’s organization or the impact on a project area of other development projects and their structures.

**What changes affecting the policy framework have taken place?**

At this stage it is also useful to identify important changes relevant to social development issues since project inception or the last review. For example, have there been changes in government policy relevant to water supply and sanitation? This could include new legislation regarding land tenure which might improve access or rights to water sources, or community-based finance initiatives which could be used towards funding water supply or sanitation facilities.

**Has capacity building at the local level influenced sector policy?**

Where the capacity of primary stakeholders has been strengthened through participation in the design, implementation, and management of projects, this may be built on to strengthen their capacity in contributing to policy debate. It is at this stage in the programme cycle that the involvement of local representatives beyond the project and at policy and programme level can be considered.
3.7.3 Water, sanitation, and health

What has been learned during the project or programme about how to increase health benefits?

Do these lessons suggest further projects or programmes? If work to date has been successful, the task of identifying new projects is simplified, as effective project partners will be quick to point out bottlenecks that may be amenable to change. If work to date has been unsuccessful, this begs the question of ‘why has the work failed?’ which may (or may not) identify further work to be done.

3.7.4 Environmental issues

The process of setting up environmental monitoring practice will have raised capacities and expertise in the planning and implementing team. As environmental impact assessment and monitoring is a specialist process, it makes great sense to seek to take advantage of this raised level of capacity on other projects.

Environmental monitoring is not an exact science, as the ‘environment’ is a complex and diverse entity. Procedures and practices should be continually under review, and the implementers should not be afraid to act on the results — even if they are not as expected and even not popular. Environmental degradation may take a long time to reverse, and may be irreversible in some circumstances.

Replication of lessons learned may naturally lead to development of an integrated national or regional policy on some aspects of the environment, such as the development of Integrated Water Resource Management policies as discussed in Section 2.4.4 — if they are not already in place.

3.7.5 Economic perspectives

The same steps will need to be gone through as at the preparation and appraisal stage, but informed by the monitoring and evaluation stage.

3.7.6 Institutional perspectives

Is there willingness and capacity for replicating or scaling-up institutional arrangements for the next phase?

While institutional arrangements may not be totally established for the long-term management of the facilities on the current phase, a decision needs to be made concerning if and how it is advisable to move to the next phase. Factors to be considered include:

- The progress on the design and implementation of institutional and financial arrangements, assessing reasons for any delays;

- Are there sufficient key project stakeholders participating in the development of institutional arrangements on the current phase and advocating their use elsewhere?

- What are the lessons on the current phase for replication elsewhere, and are the lessons generally agreed? What changes are required for a more effective next phase?
• Are there signs of a willingness to replicate elsewhere regardless of whether the next phase will be supported by DFID?
• Are there viable plans for replication/scaling-up institutional arrangements for the next phase?
• Should project rules or conditions be amended for the next phase?

Institutional aspects are also discussed in Section 3.7.2.

3.7.7 Technical aspects

Is it appropriate to promote replication or expansion of the chosen technology to other project areas?

Even if the technology choice has proven to be popular and sustainable in a given project area, it may not be suitable for replication and standardization in other areas. This will depend on the physical characteristics of the new project area (topography, hydrology, distance from existing infrastructure, etc). However, as already discussed in Section 2.7.4 and 2.7.5, replication and standardization are desirable. If the technology is to be replicated it is essential to examine lessons learned and carry these forward. Particular lessons will be identified through monitoring (Section 3.6.7) and evaluation (Section 3.8.7).

3.7.8 Hygiene and sanitation promotion

One of the aims of social marketing is to develop an inbuilt impetus for communicating key messages within the target communities. In some cases, this may be transferred to neighbouring communities and contribute to the demand for further improvements. We must, though, be aware that the effects of social marketing may be transitory.

What are the main limitations of social marketing in hygiene promotion and sanitation promotion?

The main limitation to the success of consumer-oriented projects is the persistence of habit. There is some evidence that, with the right message positioning, new behaviours such as hand-washing with soap may be sustained for six months or more. Continuous reinforcement depends on how well established hygiene education becomes within the community concerned.

How long does it take to create demand?

It is a long process to transform a behaviour or establish a household good, which may at first be alien, into an integral part of everyday life. Even when this status has been achieved, it must be maintained by promotion and marketing. The curve representing the adoption of innovations has a long slow start (see Rogers, 1983 and the introduction to Section 2.8). If the message is appropriate and the intervention attractive it will rise steeply. Coca-Cola is an oft-quoted example of the continual need for reinforcement by promotion. After nearly a hundred years of promotion, the manufacturer continues to check message positioning and invest heavily in selling the brand.
What is the geographical scope of hygiene promotion and sanitation promotion?

As the project or programme increases in size there will be some trade-off in direct relevance to particular groups and communities. This can be compensated for by the degree of endorsement and support the messages received from other areas of society.

3.8 Stage 8: Evaluation

3.8.1 General

Evaluation is undertaken after several years of operation, and should make use of material in the previous sections to analyse project performance at the earlier stages. Additional issues arising at this stage concern the assessment of impact, the drawing of appropriate lessons, and feedback of these lessons into both DFID’s programme and project cycle management, and the country’s own sector planning processes. Evaluation focuses on the Outputs, Purpose, and Goal levels of the logical framework. Table 3.6.1 can be used as a guide to suitable indicators, and both Narayan (1993) and WHO (1983) are valuable references for the evaluation stage.

3.8.2 Social development perspectives

Evaluation is important for process projects and for a learning approach to water supply and sanitation provision. A key question for DFID staff looking to integrate social dimensions into water supply and sanitation provision, is whether the terms of reference for the evaluation clearly specify the social development issues and questions to be addressed in the evaluation, and whether they clearly identify what DFID and its partners want to know about the social impact of the project. As with other stages of the project cycle, clear and acceptable terms of reference can be formulated once there is agreement on what should be learned.

Evaluations provide the opportunity to assess whether the aims and objectives of DFID’s White Paper have been followed and the extent to which a project has contributed to the achievement of poverty reduction, gender equality, and partnership. However, evaluations frequently limit themselves to assessing the objectives stated in the project logframe, rather than broader issues of DFID policy. Thus it is important to specify that an evaluation should also review project design and implementation in terms of how it has contributed to the achievement of DFID’s broad development objectives.

Particular methodologies best provide information on social issues. It is important, therefore, to specify that the evaluation team includes a member with the requisite skills to undertake social analysis. Support should be provided to the people with responsibility for social development issues, who in turn should have clearly defined roles so that they can effectively carry out their responsibilities. This task cannot be relegated to a junior team member.
Finally, the terms of reference for the evaluation should include a section on ‘lessons learned’ and this should include lessons learned with respect to poverty reduction, equality issues including gender equity, participation, and partnership. This will avoid losing the opportunity to learn social development lessons from experience. There may also be scope for communicating and discussing the lessons learned through feedback seminars and other forms of meetings. To be consistent with information-sharing approaches in monitoring and review, the evaluation should be shared with primary stakeholders who may also be involved in the evaluation process.

What follows are some questions deriving from a social development perspective that might inform evaluation of water supply and sanitation projects. The list is indicative rather than exhaustive.

Questions on project design and implementation:

• Was the project concerned with poverty reduction through water supply and sanitation?

• Did the project consider issues of equity in design, including technological choices and cost-recovery mechanisms?

• Was the project based on an understanding of gender issues, particularly how women and men use water for productive and domestic uses?

• Was the data collected adequate and sufficiently disaggregated to allow an assessment of change or improvement as it affected different groups in the community?

• Was the project planned specifically to include community-level participation and to involve women and men equally?

• Did primary stakeholders participate in project design and planning, including siting of installations, technological choice, and decision-making regarding cost sharing? Did women participate to the same extent as men?

• Were project implementers able to respond to social issues that arose during implementation?

Questions on resources and activities:

• Were sufficient resources allocated to social impact and stakeholder analysis during the project cycle?

• Were resources allocated to local capacity building used appropriately?

• Were both women and men involved in community-based organization and structures and were their respective priorities included in final decision-making?

• Was the technical assistance provided supportive or undermining of a participatory approach?

• Were activities included to enhance the understanding of social development perspectives among secondary stakeholders?
• Do new technologies introduced by the project reflect the priorities of different groups at community level, associated with domestic and productive water use?

• Have the specific needs and priorities of women and men been taken into account in the design of water supply and sanitation facilities?

Questions on socio-economic impact:
• Has the intervention met the immediate needs of poor groups and has it recognized the different needs of women and men?

• Has the intervention affected patterns of land use, access to, and control over water resources and other productive assets?

• Are the benefits of the project reaching all the people targeted?

• Has the project provided income-generating opportunities for micro-entrepreneurs or local employment opportunities?

• Has the project improved the status of poor and marginal groups and of women?

• Has the project affected the ability of people at the local level to participate in the management of water resources and sanitation facilities?

• Are governments responding more effectively to the immediate needs and expressed priorities of communities?

3.8.3 Water, sanitation, and health

How have hygiene behaviour, water consumption, and use of sanitation changed over the course of the project/programme?
These three ‘indicator groups’ are critical to establishing health benefits. The most appropriate indicators will vary from project to project, and, in the case of hygiene, will themselves be a product of project preparation. These three areas, however, will be the key to health improvement in water and sanitation projects.

How have conditions changed at the household level?
This question is implicit in the above, but is restated to make clear that, for most projects, health benefit evaluation must focus on changes at the household level. Some project components may address system-wide problems (e.g. water treatment for urban water supply) but even these must be translated into changes at the household level. If, for example, drinking water leaving the waterworks is free of contamination, but most household samples remain significantly contaminated because of contamination due to the intermittent water supply, then few if any health benefits can be claimed.

3.8.4 Environmental perspectives
The environmental consequences of any action in a project may not become apparent until several years after the project is completed —
many environmental aspects are very long term in their nature. Therefore it is important that a long-term review is undertaken to gauge the lessons that can be learned. This is important for replication of projects, as discussed in Section 3.7.4.

At this stage, environmental monitoring at every stage of the project cycle should have revealed:

- how the project has performed against the environmental objectives;
- whether the objectives as set were realistic;
- what unexpected environmental implications have arisen, and how these have been dealt with; and
- what positive as well as negative environmental impacts have occurred as a result of the project implementation.

Long-term evaluation should consider such aspects as:

**Were all the environmental factors correctly identified and considered in the execution of the project?**

**Have the environmental effects of the project been essentially as predicted?**

**Have there been unexpected environmental consequences of the project which, with hindsight should have been foreseen?**

The responses to these questions should be fed back, so that the experience can be used for future projects. At this stage, implementation of the project will have developed environmental capabilities of project staff. All lessons can be used to feed directly into wider environmental policy making which is an integral part of any developmental strategy.

### 3.8.5 Economic perspectives

**Did benefits exceed costs?**

This requires quantification of benefits, as identified at project appraisal, or modified during subsequent stages of the project cycle, plus unforeseen benefits. Were benefits of the right magnitude forecast at appraisal, and if not, was this because demand was not adequately met? This will require fieldwork. Costs are relatively easy to obtain from engineering figures.

**Is the project financially sustainable?**

**Was the project cost-effective?**

This is best done by comparison with costs of similar projects in-country.

**Is the project financially sustainable?**

This requires a repeat of the approach adopted at the preparation and design stage, informed as necessary by work done at subsequent stages.
3.8.6 Institutional perspectives

How to evaluate institutional project components?
Participatory evaluations with project partners should be encouraged, with prior agreement on key indicators, particularly at the Project Purpose level. This requires early agreement on the scope of the evaluation at the project operation and monitoring stages. Institutional indicators can cover areas such as the reliability, adequacy, operation and use of the facilities, cost recovery, HRD, staffing, and management systems.

Much of the institutional evaluation information should hopefully come from on-going monitoring data gathered by the institutions concerned with O&M, cost recovery, regulation, and facilitation.

When assessing project management systems, it matters less whether the systems differ from those originally conceived, but more emphasis should be placed on the extent to which the stakeholder institutions are using systems that address the objectives relating to sustainability.

A key indicator of the effectiveness of institutional initiatives during a project is the extent of replication of those initiatives. This is particularly true with government implemented projects. This may entail moving outside the logical framework, exploring how project initiatives have been used elsewhere.

The social development, economic, and technical sections dealing with the Evaluation phase also address institutional issues.

3.8.7 Technical aspects

Are the design assumptions used to develop the project valid?
The technical data and design assumptions used to develop the project need to be assessed. Any impacts resulting from poor quality data or inaccurate assumptions should be identified to benefit future project development. The importance of baseline data may be crucial to the sustainability of a chosen technology.

Has coverage of water supply and sanitation increased?
If the purpose of the project as defined in the logframe is to increase coverage of water supply and sanitation, then the physical hardware element of this needs to be measured during evaluation. A number of indicators on outputs can be used, including: number of water points in use, per capita consumption of water, number of latrines in use, number of leaks reported, etc. (See also Table 3.6.1).

Was the choice of technology driven by the community?
The reactions and attitudes of all the end-users need to be assessed in order to evaluate the effectiveness of the demand approach. If a community is unhappy with an installed technology they will tend to customize or modify the facilities to suit their needs. Such changes should be noted and any feedback loops should be evaluated to ensure that stakeholders views are known.
Is there an adequate training programme for ongoing O&M?
The training of operators must continue throughout the life of a project in order to ensure sustainability. The systems in place to provide the appropriate level of training to the relevant stakeholders should be assessed.

Did changes to project budgets unduly constrain technology choices?

3.8.8 Hygiene and sanitation promotion

Was the output achieved?
The project must be evaluated by somebody who was involved in neither the preparation nor the implementation of the project.

What impact can be identified from hygiene promotion and behaviour change?
It takes skill and sensitivity, but these behaviours can be evaluated. A number of tools are available for evaluating hygiene behaviour, see Almedom et al. (1997).