

## **Protocol on Appropriate Technologies for Water and Sanitation** ***A definition of the basic characteristics***

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### **1. Introduction**

This document is meant to be a starting point in a process to which all people interested and involved in Appropriate Technologies for Water and Sanitation are invited to contribute and participate. As such, this first edition is a living discussion document on the meaning, function and use of a Protocol. With it, we hope to enhance and promote a collective understanding of what we mean by Appropriate Technologies on Water and Sanitation.

The six basic characteristics for a definition of Appropriate technology are result of a profound and intensive discussion with many delegates from various involved players in the field as innovators, business companies, authorities, financing institutes, NGO's en knowledge centre, representing the Dutch watersector.

### **2. Objectives of the Protocol AT for Water and Sanitation**

The Protocol on Appropriate Technologies for Water and Sanitation:

- Homogenizes the concept of Appropriate Technology in water and sanitation,
- Mobilizes knowledge on the theme of Appropriate Technologies for water and sanitation that can be tested in practice by concentration of expertise, socialization of experiences and facilitation of network building.
- Provides a framework of criteria for testing (potential) technologies and determination of their viability and suitability in a certain context in time.
- Provides tools that enable users to improve on the development and implementation of technologies for water and sanitation.
- Encourages the developers, manufacturers, distributors and outlet keepers (the so-called Supply Chain) to get involved in appropriate technology.

### **3. Basic assumptions on Appropriate Technology**

- When considering Appropriate Technologies, the central focus is on both technology itself, and its (potential) users within their natural environment. Specifically, Appropriate Technologies for water and sanitation should aim at creating opportunities for economic and social development, by means of providing access to (safe) water and adequate sanitation.
- The way a technology is designed, sets pre-conditions for its operation and management. Therefore, technology interrelates with its environment and influences larger social and ecological systems.
- Water is considered a social and an economic resource. The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal, domestic and productive use. Complying with that right, an economic value may be ascribed to the access to water and sanitation.

### **4. Definition of Appropriate Technology for Water and Sanitation**

#### **4.1. Definition of Technology for Water and Sanitation**

By technology for water and sanitation are meant all products, services, techniques, knowledge, know-how, methods and methodologies, that aim at facilitating and improving access to safe water for personal and productive use, by means of abstraction, collection, transport, purification, storage and distribution, and for sanitation of water. It may include latrine/toilet systems, sewage/waste collection, transport and treatment systems.

All technology abide national and international legislation and treaties.

#### **4.2. Definition of Appropriate Technology for Water and Sanitation**

Appropriate technology for water and sanitation is sustainable and suitable for its large scale use and management by people who lack sufficient access to (safe) water or sanitation services, It aims at the emancipation of poor people usually living in rural areas, small towns and the low-income urban areas; commonly these people live in the South and in countries of transition.

The suitability of a technology is defined by the interrelation between a technology and its context, that is, people in their social, cultural, economic, institutional, organisational and physical environment. Its sustainability is defined by its capacity for social, economic and environmental regeneration.

**Whether a technology will be considered appropriate depends on:**

- 1. Accessibility for the people using the technology**
- 2. Functionality of the technology**
- 3. Quality of the technology**
- 4. Sustainability**
- 5. Manageability**
- 6. Enabling environment**

##### **4.2.1. Accessibility**

A Technology will be considered Appropriate if it addresses the specific circumstances of its users by:

- Guaranteeing that the charges for products, procured facilities and services, the direct and indirect expenses for purchase, operation and maintenance are affordable for all.
- Guaranteeing that products, spare parts, procured facilities and services are locally available, autonomous in its operation and fit local knowledge and skills.
- Respecting the right of accessibility to information, the right to seek, receive and impart information concerning water and sanitation issues for all users.
- Addressing all the potential user groups that may make use of that technology, directly through the commercial market or through Civil Society Organisations including NGOs and CBOs.
- Improving the physical accessibility to water and sanitation, that is, adequate water and sanitation facilities and services within safe physical reach of all sections of the population, without discrimination on any of the prohibited grounds – race, colour, sex, language, religion, cultural, tribal, political or other opinion, national or social origin, property, income, birth or other status.

##### **4.2.2. Functionality**

Appropriate technology can demonstrate full compliance with the objective it has been designed for. It offers improved efficiency in technical performance when comparing with existing alternatives. Efficiency will be measured by the balance between required inputs in natural and human recourses, and the delivered outputs.

In size, complexity and used materials, appropriate technology can be assembled and operated autonomously. It therefore aims at making the optimal use of locally available materials, knowledge and skills. It offers technical options that encourage community and family involvement in management and operation

Manuals for the operation and maintenance of the technology are regarded an integrate part of intrinsic technical sustainability, and in its form are suitable and accessible for its users.

#### **4.2.3. Quality**

Appropriate Technology guarantees compliance in continuity in quality of the technology itself and the product it delivers. Durability and reliability without major replacements during its indicated lifetime has been verified in field setting and circumstances.

Appropriate Technology complies with WHO guidelines on quality and quantity of water and sanitation, that is, it guarantees that the water for personal or domestic use is safe and therefore free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health.

#### **4.2.4. Sustainability**

##### **4.2.4.1. Economic sustainability**

Appropriate technology guarantees economic sustainability by:

- Having a high potential for standardization and large scale use.
- Assuring that reliable distribution of technology and spare parts is in place, safeguarding local availability and affordability by end users.
- Providing suitable training and capacity building for safe, efficient and affordable use, operation, maintenance, reparation and management of the technology
- Including the monitoring of proper functioning, use and consumer satisfaction.
- Supporting the establishment of local production, wherever it improves the efficiency of investments, use of resources, costs for end users, and local economy. The potential for local production or use of the technology will not be hampered by any restrictions originated by patents, trade marks or author rights.

##### **4.2.4.2. Financial sustainability**

Appropriate technology guarantees financial sustainability by:

- offering a high return on investments and cost recovery for the family economy, and viability for local enterprises and financing parties. Investments include (social) promotion to achieve change of behaviour, market assessment, creation and development, and capacity building.
- For the assessment of financial sustainability the integrated production cycle is considered: development, production, distribution, marketing and monitoring of appropriate technology.

- Calculation of costs and cost recovery include non monetary costs, such as the effects on health and environment by not introducing the technology, assessment of the effects on family life standards and economy.

#### 4.2.4.3. Social sustainability

Appropriate technology is in accordance with social and religious values or local ethnicity, particularly of those deprived of the conventional services that may not reach them or are not affordable for them (the un- and under-served).

It reduces the task load in time and effort of those responsible for access to water and sanitation and promotes equity between men and women.

Appropriate technology gives fair treatment of those involved in its production and management, respecting the ILO principles on non discrimination, freedom of association, health and safety during work, child labour, working hours and wages.

#### 4.2.4.4. Ecological sustainability

Appropriate technology does not create depletion or additional contamination of the environment. In its use of energy and resources, the efficiency of the technology improves on existent alternatives. It promotes closed management cycles that solve issues of waste and rest products without recurring to its exportation outside the region.

#### 4.2.5. Manageability

Parties directly or indirectly involved in the supply chain of appropriate technology, adhere to principles of internal and external accountability and transparency. For monitoring and evaluation of these principles, the necessary organizational and administrative systems are in place to guarantee adequate control of quality and accountancy practices. Distribution of tasks, responsibilities and decision processes are clearly defined, throughout the supply chain.

Furthermore, involved parties strive at optimum generation, exchange and understanding of reliable information for decision making.

#### 4.2.6. Enabling environment

The creation of an enabling environment is a prerequisite for prolonged access to water and sanitation by means of appropriate technology.

Programs will be in place that focus on the development of local institutions and of organizational, commercial and management capacities, to maintain appropriate technology as an instrument for elevated local life standards.

Stakeholders will dedicate efforts to enhance national and international policies and regulations that favour the design and application of appropriate technology.