Facilitators & Trainers

guideBook

Background | Concept | Overview

Human Values-based Water, Sanitation and Hygiene Classrooms

UN-HABITAT

SWD

VBEDI

ENPHO
Creating Eco Societies

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Acknowledgements

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The Guidebook was based on initial material developed by Swedish Water Development (SWD) on water classrooms, as part of Phase-1 of Human Values-based Water, Sanitation and Hygiene Education in African cities. VBEDI also collected and reviewed other resource/education material on water and sanitation education in classrooms with a specific focus on the needs of developing countries. The Guidebook is divided in two parts. Part - I gives the background and concept overview and Part - II includes teaching materials/lesson plans and sample exercises/experiments.

The concept for the Guidebook was prepared by Mr. Andre Dzikus of UN-HABITAT. The first draft and final versions of the Guidebook were prepared by and under the leadership of Ms. Silverani Padayachee of VBEDI with Mr. Perumal Padayachee, Mr. Subaya Naidoo, Ms. Kogielambal Moodley, Ms. Kashnie Padayachee, Mr. Jerome Francis as resource persons. Dr. Roshan Raj Shrestha, Ms. Anjali Manandhar Sherpa, Mr. Mingma Gyalzen Sherpa and Ms. Palpasa Tuladhar Rajkarnikar of ENPHO were resource persons on substantive issues related to water and sanitation and were supported by Mr. Prakash Amatya and Ms. Soni Shrestha of NGO Forum for Urban Water and Sanitation.

UN-HABITAT organised an Expert Group Meeting on 22 March, 2005, in New Delhi to discuss the first draft of the Guidebook. The Experts who attended the meeting included Ms. Lizette Burgers, UNICEF, New Delhi; Ms. Wilma van Esch, Royal Netherlands Embassy, New Delhi; Mr. Dilip Surkar, CEE, Ahmedabad; Dr. Bindeshwar Pathak and Prof. S. Tripathi, Sulabh International, New Delhi; Mr. Suresh C. Jain, NCERT, New Delhi; Mr. Suresh Babu, CSE, New Delhi and Prof. Amitabha Mukherjee, Delhi University. UN-HABITAT Resource Persons included Ms. Silverani Padayachee, South Africa; Dr. Roshan Raj Shrestha, Ms. Anjali Manandhar Sherpa, Nepal; Prof. Muttucumaru Sivakumar, Wollongong University, Australia; and Mr. Kalyan Ray, Mr. Andre Dzikus and Dr. Kulwant Singh, UN-HABITAT, New Delhi. The draft Guidebook was also circulated among other Experts that included Prof. D. Pal Dhall of Educare Community Services in Australia; and Ms. Sumita Ganguly of UNICEF, New Delhi; and benefited from their comments/suggestions.

Ms. Brita Forssberg of the Stockholm International Water Institute (SIWI) conducted a peer review of the draft document and made valuable contribution. Mr. P.S. Mathur facilitated the layout and conducted the final print editing of the Guidebook.

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About the Guidebook

About the Guidebook

a. Target Group

This Guidebook targets two sectors:

1. The Water and Sanitation Service Sector, such as public or private utilities in urban centres who wish to engage in water and sanitation education activities through dedicated classrooms.
2. The Education Sector, especially schools, who wish to engage with the water, sanitation and hygiene sector on joint education initiatives.

b. Users

The users of this Guidebook can be categorised into two groups:

1. Those who have no formal teacher's training education, such as water and sanitation professionals who wish to be facilitators in water, sanitation and hygiene education.
2. Those who have formal teacher's training; such as teachers employed by water and sanitation service providers or teachers working at schools who wish to conduct water and sanitation sector focused education.

c. What does this Guidebook offer?

- Background and concepts of Human Values-based Water, Sanitation and Hygiene Education (HVWSHE).
- Information on what a water, sanitation and hygiene classroom is, and how to establish and manage a Human Values-based Water, Sanitation and Hygiene Classroom.
- Overview of themes for HVWSHE in urban areas and how to develop a teaching programme for a HVWSHE Classroom.
- Samples of resource and lesson preparation materials for the following groups of learners*:
  (a) Children in lower primary (age 5 to 8 years)
  (b) Children in upper primary (age 9 to 13 years)
  (c) Children in secondary (14 to 18 years)
  (d) Adults and children from communities

* *This Section is given in Part-II of the Guidebook*

d. Importance of Human Values-based Water, Sanitation and Hygiene Education

Cross-cutting Issues

Human Values-based Water, Sanitation and Hygiene Education has various dimensions-environmental, social and economic. Being an innovative approach, the human values-based education not only seeks to impart information on water, sanitation and hygiene but also inspires and motivates learners to change their behaviour with a view to promoting wise and sustainable use thereof. It will have its impact on conservation of water and saving it from pollution, issues of prime importance. This apart, access to clean water has a direct impact on health of the people, particularly children, due to water-borne diseases.

Provision of water and toilet facilities also help reduce absenteeism and dropout rate in schools, particularly among girls. It also helps promote income generation programmes for the poor. In essence, water, sanitation and hygiene is central to socio-economic development and poverty alleviation.

The broad issues on water, sanitation and hygiene education include environmental, social and economic issues.

Environmental Issues

The environmental issues cover aspects pertaining to conservation, utilisation and pollution so as to have proper utilisation of water and prevent its wastage.

- Conserving water
- Reducing pollution
- Waste handling
- Efficient use of water

Social Issues

The social issues are based on gender equity including poverty reduction and human rights for safe water and sanitation facilities.

- Gender
- Equity
- Poverty
- Rights-based approach

Economic Issues

The economic issues have a bearing on financing for sustainability and affording the cost for water and sanitation services.

- Financing water and sanitation
- Paying for water and sanitation

Based on various issues, the programme priorities can be identified which include promoting urban water demand management, pro-poor governance, income generation for the poor linked to water supply,

sanitation and hygiene and integrated urban environmental sanitation. Water needs to be managed in a way that it reflects its economic, social, environmental and cultural values for all its users. In addition to this, several cross-cutting issues include human values-based education, sustainability of political will, capacity-building, environmental protection, management information system, equity issues, mainstreaming gender, monitoring and evaluation, documentation of best practices and dissemination. The other issues that need to be considered for the services include knowledge, skills, values, age group of children and adults. Through the process of this education, the individuals gain awareness of their living environment and are better equipped to solve present and future water, sanitation and related hygiene problems.

- Knowledge
- Skills/Life skills
- Values
- Age groups

Water, Sanitation and Hygiene Education and Sustainable Development

This Guidebook attempts to provide a pragmatic approach towards Human Values-based Water, Sanitation and Hygiene Education (HVWSHE) which is based on successful experiences in different countries and can be easily adopted for implementation.

Through the approach of Human Values-based Water, Sanitation and Hygiene Education, we can promote a better understanding and practice of these concepts as a key social, economic and environmental resource as well as facilitating the emergence of a new water management ethic. Experience has shown that human values-based education can be used as a strategic entry point for supporting positive attitudinal changes amongst students, teachers and all those involved in the educational process. The implementation of Human Values-based Water Sanitation and Hygiene Education will help achieve an all-round development of nations. Thus, education has direct relationship with sustainable development.

Why is water valuable and how it can be managed in a sustainable manner? How is drinking water produced? How can we avoid conflicts over water? By answering these questions, water, sanitation and hygiene-related environmental education has gained ground in both industrialised and developing countries.

In many countries, the broader concept of education for sustainable development is making headway. It aims to shape values, promote responsible behaviour and make children aware of their role in preserving the environment. Introducing water education in schools is a complex, long-term endeavour, curricula are all too often overheaded and plagued by an academic and exam-oriented focus. The task of mainstreaming water education, thus, calls for revising curriculums and textbooks, producing teacher's guides and providing adapted in-service training, particularly to promote an active pedagogy based on problem-solving.

A number of countries have introduced reforms in the spirit where the school curriculum includes water-related topics in all grades from understanding the sources and uses of water to conservation methods, hygiene and sanitation and the effects of pollution.

Formal schooling is not the only channel for conveying such information. On the contrary: An expanded vision of education advocated since the World Conference on Education for All in 1990 and reinforced by the Delors Commission on Education for the twenty-first century, recognises learning as a seamless process starting from early childhood and continuing through adult life. It necessarily entails a variety of learning methods and settings, both formal and non-formal: School equivalency programmes, adolescent and teenage literacy classes, skills training by local cooperatives and associations. In the context, the community-oriented environmental education has the potential to change behaviour and attitudes towards the environment and water management, provided it is geared to needs, for example, of the urban poor.

2

Background and Concept

Background and Concept

a. Background

Why Water, Sanitation and Hygiene Education?

There is a compelling case for creating a new water use and sanitation-friendly ethic in human settlements.

Ethical dilemmas present different life situations which could be solved by any number of different courses of actions. The application of the human values — love, right conduct, truth, peace and non-violence — with their attributes is specifically explored here.

Ethics in the water and sanitation sector is of growing importance, especially to ensure improved governance, and more equitable and efficient water and sanitation service. When we practice human values at work, they are internal motivators that help us do our best and reinforce good character, morality and ethics. Human values naturally foster important qualities in the workplace. Ethical behaviour is, in fact, a natural by-product of practicing human values in the workplace. Thus, programmes on ethics and human values at the workplace are very helpful. These, however, require development of resource materials and capacity-building.

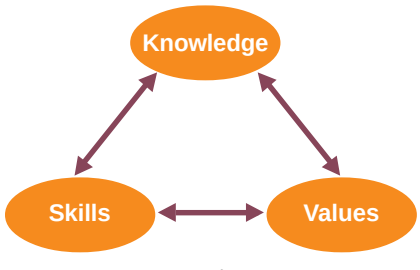
What is Water, Sanitation and Hygiene Education?

Building on definitions for Environmental Education this Guide has adopted the following definition for Water, Sanitation and Hygiene Education:

Water, Sanitation and Hygiene Education is a process in which individuals gain awareness of their living environment and acquire knowledge, skills, values and experiences, and also the determination, which will enable them to act — individually and collectively — to solve present and future water, sanitation and related hygiene problems.

Water, Sanitation and Hygiene Education is a learning process that increases people's knowledge and awareness about water, sanitation and hygiene, and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivation, and commitments to make informed decisions.

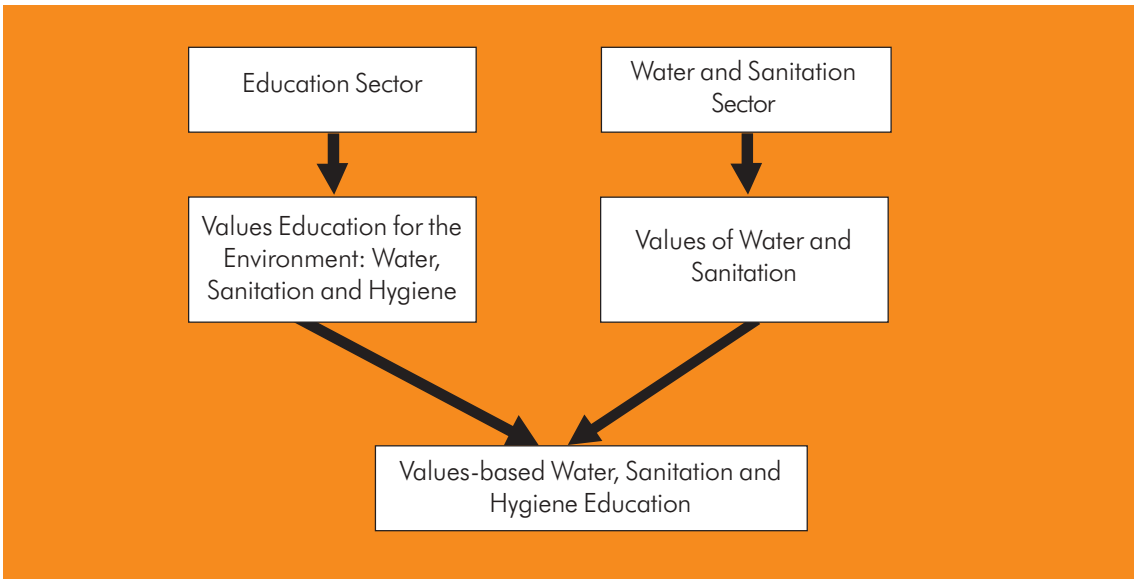
Water, Sanitation and Hygiene Education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through understanding of the major problems of the contemporary world vis-à-vis water, sanitation and hygiene, and the provision of skills and attitudes needed to play a productive role towards improving living conditions and protecting the living environment with due regard given to ethical values.



Practices

b. Values-based Water, Sanitation and Hygiene Education

Developing concepts for human values-based water, sanitation and hygiene education can be done from various perspectives: (i) from the perspective of values education, and (ii) from the perspectives related to values of water and sanitation



Source: http//www.gdre.org/uem/ce/1-1.html

The Education Sector: Values Education

An overview of various definitions of values as applied in values education (from GOWING B.S. 2003: Education to Educare: How?; Japan) provides the following:

- The term 'value' can be considered as a quality of anything that makes it desirable, held in respect, deemed worthy or esteemed. The dominant values that give meaning to a man's life motivate him to actions that determine the type of person he will be. (Cattle, 1965)
- Values are normative standards by which human beings are influenced in their choice among the alternative courses of actions, which they perceive. (Nicholas, 1969)
- A value is a principle, a standard or a quality that is considered worthwhile or desirable. It is a consciously preferred choice of the concept of desirable behavior, and is validated by social approval. (Kapani, 2000)
- By values we mean desirable qualities of character such as honesty, integrity, tolerance, diligence, responsibility, compassion, altruism, justice and respect. (Values Education and Democracy; Ministry of Education - South Africa).

These definitions are a fair representation of the school of thought of values-based education which lays emphasis on those qualities of a human being which are desirable, respected, worthy, esteemed, dominant and which, therefore, help us in making informed choices and which are sanctioned by a given society.

Many countries around the world have realised the importance of Values Education. For instance, Thailand has incorporated Values in the national curriculum. Australia has just published a National Framework for Values Education in Australian Schools (2005) and New Zealand has been promoting values education in the curriculum. South Africa has embarked on an initiative on Values, Education and Democracy. All these initiatives have developed sets of values for education derived out of their specific socio-cultural situations. The Table below provides examples of values derived for education.

Table: Values Derived for Education

Value Education for Australian Schooling	UNESCO / UNICEF Living Values Education	Cornerstone Values - New Zealand	Values in the United Nations Millennium Declaration	Constitutional Values in Education South Africa 2001	Values, Education and Democracy in South Africa 2000
Care and Compassion Doing your best Fair Go Freedom Honesty and Trustworthiness Integrity Respect Responsibility Understanding, Tolerance and Inclusion	Co-operation Freedom Happiness Honesty Humility Love Peace Respect Responsibility Simplicity Tolerance Unity	Honesty and truthfulness Kindness Consideration and concern for others Compassion Obedience Responsibility Respect Duty	Freedom Equality Solidarity Tolerance Respect for nature Shared Responsibility	Democracy Social Justice and Equity Non-Racism and Non-Sexism Ubuntu (Human Dignity) An Open Society Accountability (Responsibility) The Rule of Law Respect Reconciliation	Equity Tolerance Multilingualism Openness Accountability Honour
www.curriculum.edu.ourvalues	www.livingvalue.net/values/	http://cornerstonevalues.org/education.htm		http://education.pwv.gov.za/DoE_Sites/Curriculum/Values/section_one.htm http://education.pwv.gov.za/content/docs/90.pdf	http://education.pwv.gov.za/content/documents/81.pdf

Although various approaches have been identified in the attempt to 'teach values', it is important to understand the underlying principle by which it takes place and how to channel to achieve its purpose. The approaches could be likened to various electrical appliances. For instance, an iron, a kettle, light bulb, toaster, etc. All of these have different uses (purposes), however, the underlying principle for their functioning is dependent on the flow of electricity through them. Similarly, Values are like the electricity or potential energy; invisible, but inherent in every topic or situation.

Values education is an explicit attempt to teach about values and/or valuing. HUITT 2004 states that there are five basic approaches to values education. The Table below provides an overview of the typology of values education approaches.

Table: Overview of Typology of Values Education Approaches

Approach	Purpose	Methods
Inculcation	• To instil or internalise certain values in students; • To change the values of students so that they may closely reflect certain desired values	• Modelling; • Positive and negative reinforcement; • Manipulating alternatives; • Games and simulations; • Role playing
Moral Development	• To help students develop more complex moral reasoning patterns based on a higher set of values; • To urge students to discuss the reasons for their value choices and positions, not merely to share with others, but to foster change in the stages of reasoning of students	• Moral dilemma episodes with small-group discussion; • Relatively structured and argumentative without necessarily coming to a "right" answer
Analysis	• To help students use logical thinking and scientific investigation to decide value issues and questions; • To help students use rational, analytical processes in interrelating and conceptualising their values	• Structured rational discussion that demands application of reasons as well as evidence; • Testing principles; • Analysing analogous cases; • Research and debate
Values Clarification	• To help students become aware of and identify their own values and those of others; • To help students communicate openly and honestly with others about their values; • To help students use both rational thinking and emotional awareness to examine their personal feelings, values, and behaviour patterns	• Role-playing games; • Simulations; • Contrived or real value-laden situations; • In-depth self-analysis exercises; • Sensitivity activities; • Out-of-class activities; • Small group discussions
Action Learning	• Those purposes listed for analysis and values clarification; • To provide students with opportunities for personal and social action based on their values; • To encourage students to view themselves as personal-social interactive beings, not fully autonomous, but members of a community or social system	• Methods listed for analysis and values clarification; • Projects within school and community practice; • Skill practice in group organising and interpersonal relations

(Source: HUITT. W. 2004, http://chiron.valdosta.edu/whuitt/col/affsys/values.html)

The ability to surface inherent values and to channel it through any selected approach will enable one to observe the change/purpose unfold. In the case of values, a purpose of contributing to character development is achieved.

Respectful and responsible people, persons of integrity, practitioners of righteousness, considerate, and helpful and democratic behaviour are just to name a few purposes achieved through these approaches.

The process of tapping into and channelling these underlying values is achieved through a process of Values Elicitation or simply surfacing of inherent values. This skill is useful in the Values Education process and, hence, a useful implementation tool in Human Values-based Water, Sanitation and Hygiene Education. Further detail and application of this principle would be expanded upon in Part-II of the Guidebook.

The Water and Sanitation Sector: Values of Water and Sanitation

For the first time, the Second World Water Forum held in The Hague deliberated comprehensively on the values of water. The Ministerial Forum in The Hague proclaimed that water needs to be managed in a way that it reflects its economic, social, environmental and cultural values for all its users.

Life-giving Value

Water is Life! For this water may well be accepted as a basic human right. But, reliable water and sanitation services are far from universally available. As a result, millions of children die annually from preventable water and sanitation-related diseases in developing countries. These deaths are both indefensible and unnecessary, since many of the causes are preventable.

Social Value

In addition to the importance of water as a basic human right, water has other important roles in development. Water and sanitation is central to socio-economic development and poverty alleviation. It is widely accepted that sustainable water resources management and the establishment of sound water supply and sanitation systems in communities are key for growth and sustainable development. Today, it is widely accepted that the water and sanitation crisis in the world is not a crisis of financial or natural resources but, a crisis of governance, characterised by corruption, mismanagement and poor management.

Economic Value

Water has an economic value in some of its uses due to its contributions to economic activities. Water supports agriculture, energy generation and provides inputs to many industries. Water also receives and carries away waste. It is possible to estimate the economic value of water for all these uses, and also to determine the price the users, people, industries and governments are willing to pay for these services.

Values of Ecosystem

Ecosystems are essential to civilisation, and their services operate on a vast scale in little known ways that cannot be replicated by technology. It is only a few decades ago that people have started to explicitly recognise the enormous range of values provided by ecosystems. This includes their irreplaceable services and their role in sustaining human and other life on the planet. The services include producing food, decomposing organic waste, purifying water and air, storing and recycling nutrients, preventing floods and regulating run-off, absorbing human and industrial wastes and converting them to beneficial uses, and storing, recycling and distributing fresh water.

The Water Cycle*

Cultural and Spiritual Values

Inherent in all the cultures are values that weld a community together. Such values include sharing and caring for one another, hospitality, self-respect and integrity, among others. The role of culture in attitudes and values to water conservation and management is significant. Traditional societies had intimate relationship between culture and values biased to the conservation of nature and environment. Conservation and utilisation of natural resources such as water, forests, land and wildlife were controlled by traditional management systems. The erosion of traditional values has resulted in a more selfish approach to water usage in urban areas. Values-based approaches, in this context, are likely to reawaken and stimulate such traditional values in conservation and management of water resources. Human nature has a spiritual dimension too that finds expression in all spheres of life. Drawing on the spiritual dimensions and inclinations of individuals provides the motivational impetus that begets and sustain positive action.

The Missing Link: Human Values

Missing from this practical lists of water and sanitation values are so called human values. The Task Force on Water and Sanitation of the United Nations Millennium Project, in its final report, has identified Human Values and Human Rights the basis for meeting the internationally agreed targets on water and sanitation. The Report (page 15) states the following:

"Expanding access to water and sanitation is a moral and ethical imperative rooted in the cultural and religious traditions of societies around the world and enshrined in international human rights instruments. Success in bringing water and sanitation to poor communities in the most difficult circumstances is due as much to the qualities and personal motivations of the people concerned as it is to the technical ingenuity and the financial resources available, important as those may be. Many services run on a shoestring of hope by volunteers, religious groups, or dedicated, poorly paid officials succeed because they mobilise the enthusiasm and engagement of their communities, while other projects backed by extravagant budgets and massive expertise turn to dust in a bureaucratic desert that stifles individual and community spirit. Many of the most effective interventions at the community level meld economic and social development with spiritual growth and bonds of communal solidarity. They also clearly balance rights on the one hand with responsibilities on the other; indeed, experience has shown that the most sustainable community-level interventions are characterised by significant community investment of labor, other in-kind resources, and user fees in the design, construction, maintenance, and operation of facilities. The Millennium Development Goals themselves are built around a shared understanding of what we as human beings owe to one another and are informed by principles of fairness, justice, and the obligation of the individual to pursue the mutual good that characterises religious and ethical systems the world over." **

* *Source: The World of Water - African Adventures of a Water Drop: an educational material by UN-HABITAT & Partners*
** *Source: http://www.unmillenniumproject.org/documents/WaterPart1-lowres.pdf*

c. Human Values in Water, Sanitation and Hygiene Education

What are Human Values?

Human values are an essential element of our human nature and are positive qualities that are shared among people throughout the world. Human values are those qualities of a human being which are desirable, respected, worthy, esteemed, dominant and which are sanctioned by a given society. Human values-based water education also inspires and motivates learners to change their behaviour with a view to promoting/adapting wise and sustainable use of water, sanitation and hygiene.

Human Values-based Education is complimentary to Values-based Education. Human Values, on the other hand, are fundamental to human existence. They are universal and inherent in all human beings and are to be found in varying degrees in all societies, religious traditions and civilisations. Whilst everything that exists has its own value and value system, Human Values are more appropriately applied to humans who are capable of rationalising, conceptualising, analysing and applying these principles with accepted standard of approval. Bringing out and nurturing of the Human Values in the children during the formative years will result in caring and responsible adults in the future. They, in turn, will lay the groundwork for the character development of generations following after them.

Human Values and the Learning Process

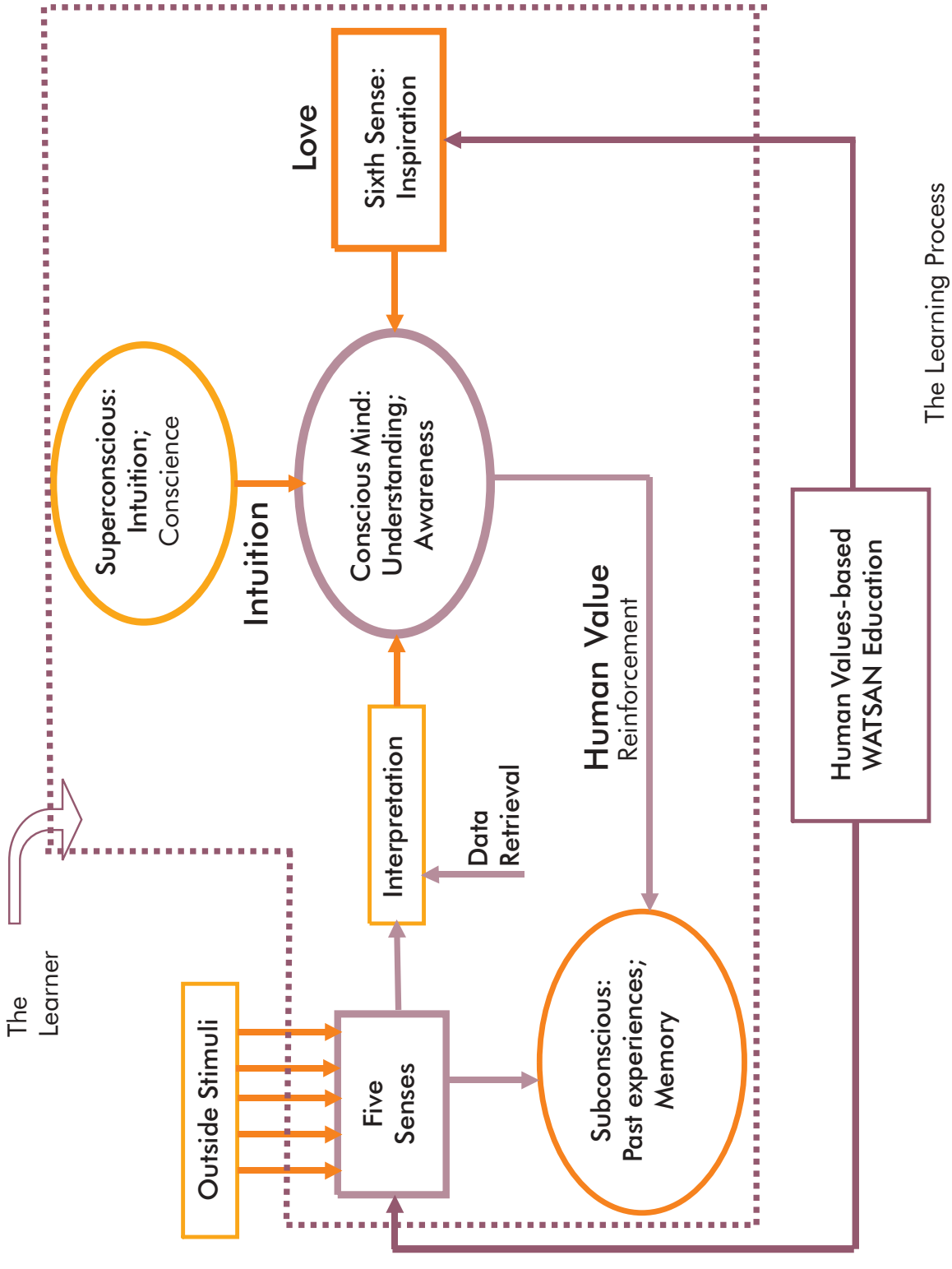
The vertical way of teaching human values focuses on the three Hs: Head (knowledge), Heart (values) and Hands (life skills)*

Head – Cognitive – Awareness
Heart – Values – Affective/Attitudes
Hands – Life skills – Actions/Psycho-motor

Continuum of Human Values Approaches

* *Source: UNEP: http://www.ens.gu.edu.au/ciree/LSE/mod6.htm#oht3*

The Following Flow Diagram Outlines how Human Values can Affect the Learning Process



Source: Dr. Art-Ong Jumsai 2003

There are five core Human Values: truth, right conduct, love, peace and non-violence. These values can be further subdivided into their practical applications as shown in the Table below.

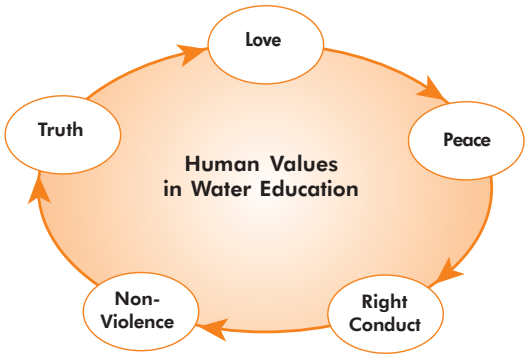


Table: Practical Applications of the Core Human Values

Truth	Right Conduct	Peace	Love	Non-violence
Curiosity Discrimination Equality Honesty Integrity Intuition Memory Quest for Knowledge Reason Self - Analysis Self - Awareness Self - Knowledge Spirit of Inquiry Synthesis Truthfulness Understanding	Cleanliness Courage Dependability Duty Endurance Ethics Gratitude Goal Setting Good Behaviour Good Manners Healthy Living Helpfulness Initiative Leadership Obedience Patience Perseverance Proper Use of Time Protection Resourcefulness Respect Responsibility Sacrifice Self - Confidence Self - Sufficient Serving Simplicity Team Work Will	Attention Calm Concentration Contentment Dignity Discipline Focus Happiness Humility Individualism Inner Silence Optimism Satisfaction Self - Acceptance Self - Confidence Self - Control Self - Discipline Self - Respect	Caring Compassion Dedication Devotion Friendship Forgiveness Generosity Helping Consideration Kindness Patience Sharing Sincerity Sympathy Tolerance	Appreciation Appreciation of Other Cultures and Religions Brotherhood Citizenship Concern for All Life Co-operation Equality Fellow Feeling Loyalty Minimum Natural Awareness Respect for Property Service Social Justice Unity Universal Love Unwillingness to Hurt

Source: VBWE TOT Sessions

Different societies have different socio-cultural and value orientations. The Water, Sanitation and Hygiene Education Initiative have taken these into account through active participation by countries involved. Participating countries have been encouraged to add local values relevant to their societies.

Some examples of how human values can be integrated in water and sanitation issues are shown below.

Table: Some Examples of the Relationship of Human Values to Key Issues in Water, Sanitation and Hygiene Education

Key Issues	Topics	Human Values
Environmental Sustainability	• Water and Living Things • Hydrological Cycle • Pollution • Health and Hygiene • Watershed Management	• Stimulate in learners an understanding of the interconnectedness of all living things and their dependence on water • Stimulate in learners values of conservation, respect for nature and discrimination between right and wrong conduct with regard to watershed management (upstream and downstream issues) • Promote in learners values of cleanliness and hygienic living
Social Equity	• Urbanisation and Water • Levels of Service Coverage • Per Capita Consumption Levels	• Surface values of caring and sharing in learners for water resources and sanitation facilities • Promote a sense of consideration for others and readiness to co-operate, and teamwork in community initiatives
Economic Efficiency	• Production and Distribution Costs • Waste water Treatment Costs • Content of a Water Bill	• Encourage in learners a sense of proper utilisation of resources and avoiding wastage • Promote in learners prudent and honest behaviour, such as prompt payment of water bills, abstaining from illegal water connections, etc.

d. A Concept for Human Values-based Water, Sanitation and Hygiene Education

When dealing with Human Values-based Water, Sanitation and Hygiene Education, there are two major sectors involved:

- The Education Sector
- The Water and Sanitation Sector

1. Education Sector Focus

A strategic entry point for promoting the education (HVWSHE) is to mainstream and incorporate it in the formal curriculum at times of curriculum review. Development of required resource materials and working closely with the national Curriculum Development Centres is essential. It is also beneficial to develop resource materials and conduct training of trainers for Teacher Training Colleges. Pilot demonstration in selected schools is also helpful as well as development of resource materials and training at school level.

The Ministries of Education also conduct non-formal education programmes for adults and children out of school. Development of resource materials for communities and conducting demonstration projects are very helpful. Here, community outreach through schools and partnerships with Non Governmental Organisations (NGOs) and Community Based Organisations (CBOs) have proven very beneficial.

In many cases, schools and communities targeted by HVWSHE initiatives have no or inadequate water supply and sanitation. Strategic partnerships between the education, water supply and sanitation sectors are encouraged.

2. Water/Waste Water/Sanitation Sector Focus

Many water and sanitation service providers around the world have engaged in water and sanitation education initiatives. There is, however, a need to raise awareness amongst utilities in the South about the benefits of engaging in HVWSHE. Globally, there are three models on how utilities have engaged in water, sanitation and hygiene education:

1. Establishing water, sanitation and hygiene classrooms at their water or waste water treatment works which are visited by schools and communities. These utility-based classrooms also support community outreach;
2. Supporting water, sanitation and hygiene classrooms at schools and community outreach; and
3. Providing financial support to school-based water, sanitation and hygiene classrooms and/or independent water, sanitation and hygiene resource centres.

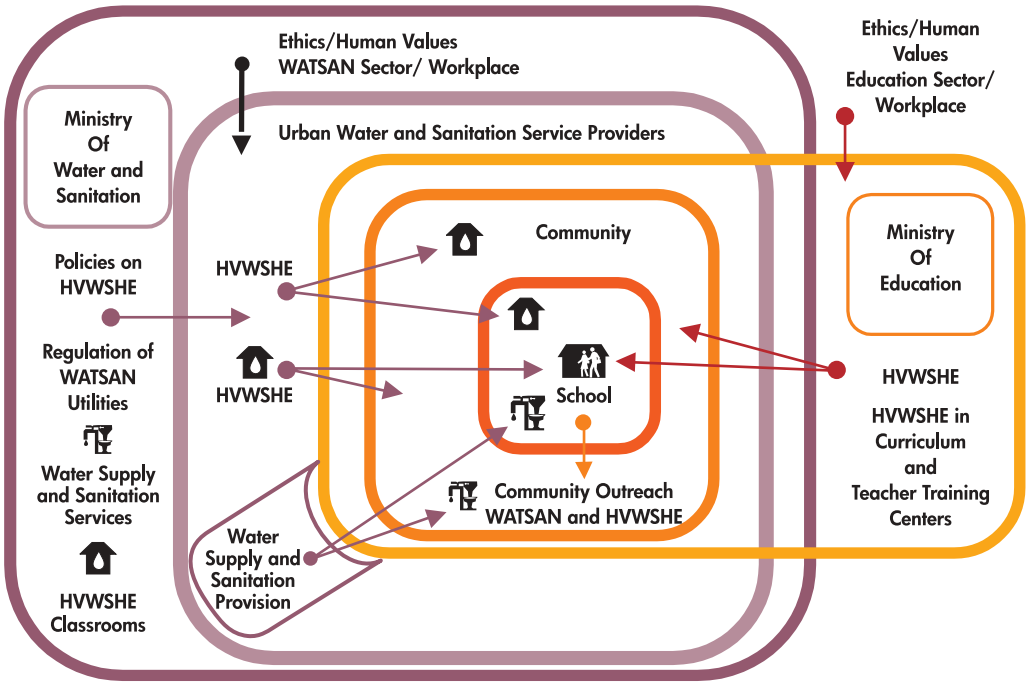
Development of requisite resource and guide materials, as well as capacity-building, training of trainers, is essential.

Next to promoting HVWSHE, utilities should also strive to increase water and sanitation coverage in schools and poor communities on a priority basis. Water and Sanitation (WATSAN) programmes for schools and low-income communities could commence with a diagnostic and followed by a strategy and action plan for increased and sustainable coverage. Partnership with the education sector is helpful, especially as parent-teacher associations can assist in this endeavour.

The following graph provides an overview of the concept for Human Values-based Water, Sanitation and Hygiene Education.

This Guide document focuses on how the water and sanitation sector can support Human Values-based Water, Sanitation and Hygiene Education through so called "Classrooms".

Concept for Human Values in Water, Sanitation and Hygiene Education (HVWSHE)



3

Establishing and Managing

Establishing and Managing

Human Values-based Water, Sanitation and Hygiene Classrooms by the Water and Sanitation Service Sector

Why should water and sanitation providers get involved in this education process (HVWSHE)?

The purpose of water and sanitation utilities is to provide cost-effective, reliable supply and delivery of adequate water and sanitation services. The basis for an efficient water resource management is to promote sustainable behaviour among the users of water. It is important that consumers become aware of conserving, preserving and managing water resources. Educating customers on how to reduce water usage can be an extremely cost-effective way of lowering demand and to manage water shortages. Water sustainability results in financial sustainability and both can be reached through the creation of water-related values.

Water utility has a distinctly public role as the water suppliers are providing a service which is essential to public health and well-being of the community they serve. Taking this into account and keeping in view various issues like social, economic and political, it is important that water utilities have greater interaction with the public.

In order to build up an efficient water resource management, it is essential that water and sanitation service providers:

1) improve the relations to customers
2) invest in the community they serve

through education in water, sanitation and hygiene related issues.

1) Improved Customer Relationships
When water and sanitation utilities promote greater knowledge and understanding for the role of a modern water company, they are able to create closer relations to their customers. Water users who are aware of the importance of natural resources and who do not take water services for granted are, for instance, much more willing to pay for their services. They learn to appreciate water supplies and will be more patient and tolerant in times of water shortages.

Utilities that keep their customers informed on water use information and are open to recommendations from the consumer-side can develop close links to their users. Involving citizens in the decision-making process results in much higher levels of satisfaction of the customers. Service, dialogue and reliability, thus, become important in the customer relationship.

Children are the most important target group for water, sanitation and hygiene education as they represent the customers of tomorrow and are more receptive towards new ideas and change in behaviour. When children are aware about the water issues, water quality will be improved.

2) Community Investment
Community-based approaches are known as the best ways to ensure reliable and sustainable water, sanitation and hygiene services. Most service providers view their engagement in water, sanitation and hygiene education as part of their wider community investment programmes. They have developed educational outreach plans targeting the residential and commercial consumers. The aim is to find a better way of managing water through co-operation with the inhabitants by educating the young and the old.

Clean water is vital for the survival of the community and contributes to the local economy. Public education and awareness rising are the keys to effective local water management and it is important to activate a strong sense of civic responsibility for group water management.

Experiences from Around the World

Globally, there are three models on how utilities have engaged in Human Values-based Water, Sanitation and Hygiene Education:

1. Establishing Human Values-based Water, Sanitation and Hygiene Classrooms at their water or waste water treatment works which are visited by schools and communities. These utility-based HVWSH classrooms also support community outreach;
2. Supporting Human Values-based Water, Sanitation and Hygiene Classrooms at schools and community outreach;
3. Providing financial support to school-based Human Values-based Water, Sanitation and Hygiene Classrooms and/or independent Human Values-based Water, Sanitation and Hygiene Resource Centres.

(i) Water and Sanitation Service Provider-based Classrooms
One model is where water and sanitation service providers establish dedicated classrooms or experience/ resource centres on their premises (like water or waste water treatment plants).

Visits can be booked by school children and community groups/adults. The utilities maintain a set of dedicated staff to serve the classroom/centre. This staff also develops educational resource materials such as books, lesson plans, videos, posters etc. and conducts school and community out-reach programmes. Some utilities also maintain mobile classrooms.

Table: Water and Sanitation Service Utilities-based Classrooms

Utility/Country	Location	Services	Reference
Rand Water/ South Africa	Vereeniging Purification Station Nature Centre at Head Office	• Learner workshops • Educator workshops • School projects	http://www.randwater.co .za/Education/wwec_ default.asp
Umgeni Water/ South Africa	Durban Heights Water Classroom Midmar Classroom	• School visits (65 000 children in 10 years) • Programme on sanitation practices and waste water works • Adult basic education and training	http://www.umgeni.co.za/ Community Interfacing 153.aspx

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Utility/Country	Location	Services	Reference
Severn Trent/ UK	5 Severn Trent Education Centres: Carsington Water Hayden Education Centre Cropston Education Centre Stoke Bardolph Education Centre Narston Education Centre	• All five centres reach some 2 million people and offer workshops and programmes for pupils and students of all age • Question/answer presentations on all aspects of the water curriculum: water and sewage treatment, water cycles, use of water, water conservation, water recycling and water in developing countries • Tours of water and sewage treatment works	http://www.stwater.co.uk/server.php?show=nav.5868
City of Vancouver/USA	Water Resources Education Centre	• Programmes and hands-on activities for schools, groups, walk-in visitors and teachers • Exhibition hall with videos on water • Topics change each year and range from issues like ground water, wetlands, water conservation to water pollution • Special programmes, e.g. a 3-day summer camp for educators on human impacts on the Columbia river	http://www.ci.vancouver.wa.us/watercenter/wrec/education.htm
Seattle Public Utilities/USA	Cedar River Watershed Education Centre	• Interactive exhibits on water control and the flora and fauna of the watershed • Learning laboratories for school groups and other visitors • School field programmes • Teacher workshops	http://www.seattle.gov/util/About_SPU/Water_System/Water_Sources_&_Treatment/Cedar_River_Education_Center/index.asp
NEWater/ Singapore	Visitor Centre	• "edutainment": multimedia presentations and computer interactives on water-related topics	http://www.pub.gov.sg/NEWater

(ii) Water and Sanitation Service Provider Supported Classrooms

Another model is that water and sanitation service providers maintain a set of dedicated staff to conduct water and sanitation education in school classes and communities. This staff also develops educational resource materials and organises visits to water or waste water treatment plants.

Table: Water and Sanitation Service Utilities Supported Classrooms

Company/Country	Service	Reference
Stockholm Water Company/Sweden	• Three school information officers and one school-co-ordinator teach children in interactive discussions on the water cycle and treatment processes • Resource materials like "The little water book" is given out after the lessons • Cartoons and videos • Trainings for school teachers in co-operation with the Stockholm Schools Educational Centre	http://www.stockholmvatten.se/indexEng.htm SWD and UN-Habitat 2004: Report on existing water classrooms in Africa and other parts of the world. p. 14-16
Agence de l'Eau Seine-Normandie /France	• Financing and sponsoring of water classes in local schools • 5-day programmes for six educational levels • Programmes include materials like teacher manuals, resource material and games	http://www.eau-seine-normandie.fr/index.php?id=673
Australian Water Association/ Australia	• Range of resource materials on the website • Assistance for school-teachers	http://www.awa.asn.au/AM/Template.cfm?Section=Education
Sydney Water/ Australia	• web-based resource material for students and teachers • online-games • bookings of school excursions to water or sewage treatment plants	http://www.sydneywater.com.au/EnsuringTheFuture/WaterSchool/
Public Utilities Board (PUB)/ Singapore	• Teacher's kit on the website containing resource materials as students worksheets, water saving devices etc. • Booking of talks on water-related issues for schools and public or private organisations	http://www.pub.gov.sg/info_center/lcEduTeachersKitMenu.php?l1=4&l2=22&l3=31
EcoWater/ New Zealand	• Provide a visiting speaker for school classes • Supply of student-friendly resource material • Assistance in the development of classroom activities on water issues for teachers	http://www.waitakere.govt.nz/AbtCit/ei/EcoWtr/index.asp

(iii) Water and Sanitation Service Provider Financed Classrooms/Resource Centres
In this model, water and sanitation service utilities provide financial support to dedicated project groups who conduct water and sanitation education in schools or in specialised water and sanitation resource centres.

Table: Water and Sanitation Service Utilities Financial Classrooms

Centre	Funder	Service	Reference
Delta Environmental Centre/South Africa	Rand Water, De Beers Fund Educational Trust, The Green Trust/ Nedbank etc.	• SWAP: Schools water action project • Resource material: teachers handbook, comic storybooks, training videos, water quality test kits, waterwise posters and leaflets • Programmes: puppet show and theatre production on water • Laboratory equipment for water quality testing • Educator workshops	http://www.deltaenviro.org.za/waterwise/swap.html http://www.deltaenviro.org.za/waterwise/index.html
Water Ambassadors Academy of Eco-care Trust/South Africa	Rand Water	• Awareness programmes on water cycle management and community development programmes • School education in form of "learning by doing", adventure activities, workshops, visual experiences and experiments	http://www.ecocare.org.za/eco1.htm

A review of water and sanitation service providers reveals that many utilities, mainly located in the North, have realised the importance of water and sanitation education programmes. There seems to be a need for more awareness amongst water and sanitation service providers in the South concerning the benefits of engaging in water and sanitation education initiatives.

The most prevailing model is that water and sanitation utilities either establish their own water and sanitation classrooms or support specialised water and sanitation resource centres/classrooms. The following Table provides a SWOT (Strengths, Weaknesses, Opportunities and Threats) of the three models.

Table: Water and Sanitation Utilities — SWOT Analysis by Classrooms

Location	Strengths	Weaknesses	Opportunities	Threats
WATSAN Classroom at utility with school/ community outreach	• Owned by utility • Specialists and experts in-house - Teaching content determined by utility - Better learning results through on-site interaction	• Cost of building and maintaining classrooms • Accessibility	• Increased customer relations • Higher likelihood of behaviour change	• Sustainability of classroom (cost of maintenance)
Utility supports WATSAN Classroom at Schools	• Teaching content determined by utility • Accessibility/ Reaching of a wider audience	• Less direct on-site interaction with schools and community	• Partnerships with education sector	• Lower impact for utility
Utility provides financial support to specialised WATSAN Centres	• Outsourcing of WATSAN education to specialists	• Less impact on teaching content and focus of centre	• Partnerships with education sector and other companies	• Less control and lower direct impact for utility

How to establish and run a HVWSHE Classroom

a. What is a Human Values-based Water, Sanitation and Hygiene Classroom?

A Human Values-based Water, Sanitation and Hygiene Classroom does not have to follow the conventional classroom approach. A Human Values-based Water, Sanitation and Hygiene Classroom can be described as a place where an awareness and understanding of the water and sanitation situation is learnt through a process of values elicitation in experiential and practical lessons. Furthermore, critical thinking and problem-solving skills are prompted in the learners to nurture positive behavioural changes towards water and its management.

We can mentally visualise a Human Values-based Water, Sanitation and Hygiene Classroom as having some of the basic things like desks, chairs, boards and water supply sources. We now realise that a Human Values-based Water, Sanitation and Hygiene Classroom can range from very simple to very extravagant and most importantly, could be the most comfortable learning environment. To give the Human Values-based Water, Sanitation and Hygiene Classroom some type of character and description we look at its possible locations.

Location of Human Values-based Water, Sanitation and Hygiene Classrooms

Water, sanitation and hygiene education can take place in a variety of different locations, depending on the most practical local solution. Experience shows that the most common place is a normal classroom at a school or water utility, since the physical structure is already in place.

Preferably, the human values-based water, sanitation and hygiene classroom holds at least about 30-35 children. It is also a great advantage if there is room for experiments and activities and if running water is installed. Also, it is advisable to make space available on walls for Water Bulletin Boards, Posters and/or Wall Paintings.

A staff office nearby the human values-based water, sanitation and hygiene classroom should also be considered.

Whether the human values-based water, sanitation and hygiene classroom is located at a school or water utility, the accessibility is the most important factor. It should be possible to reach the facilities within reasonable time at low costs (in some cases, therefore, a mobile classroom has advantages, since it may have the possibility to reach a wider audience).

One of the advantages of having the human values-based water, sanitation and hygiene classroom situated at a water utility is the nearness to water itself (whether it's production of drinking water or treatment of waste water). The students can work in a professional environment, which makes the learning process easier.

The option for a school-based human values-based water, sanitation and hygiene classroom should also be considered. When the water, sanitation and hygiene classroom is situated at a school, it is an advantage if the local water address (e.g. stream or river) is located. The local water address provides a variety of opportunities for the students to study the very resource.

A water, sanitation and hygiene classroom at a school allows children to be continuously involved, since the classroom is accessible.

Irrespective of the selected location, it is compulsory for a human values-based water, sanitation and hygiene classroom to have adequate sanitation facilities available.

b. Types of Human Values-based Water, Sanitation and Hygiene Classrooms

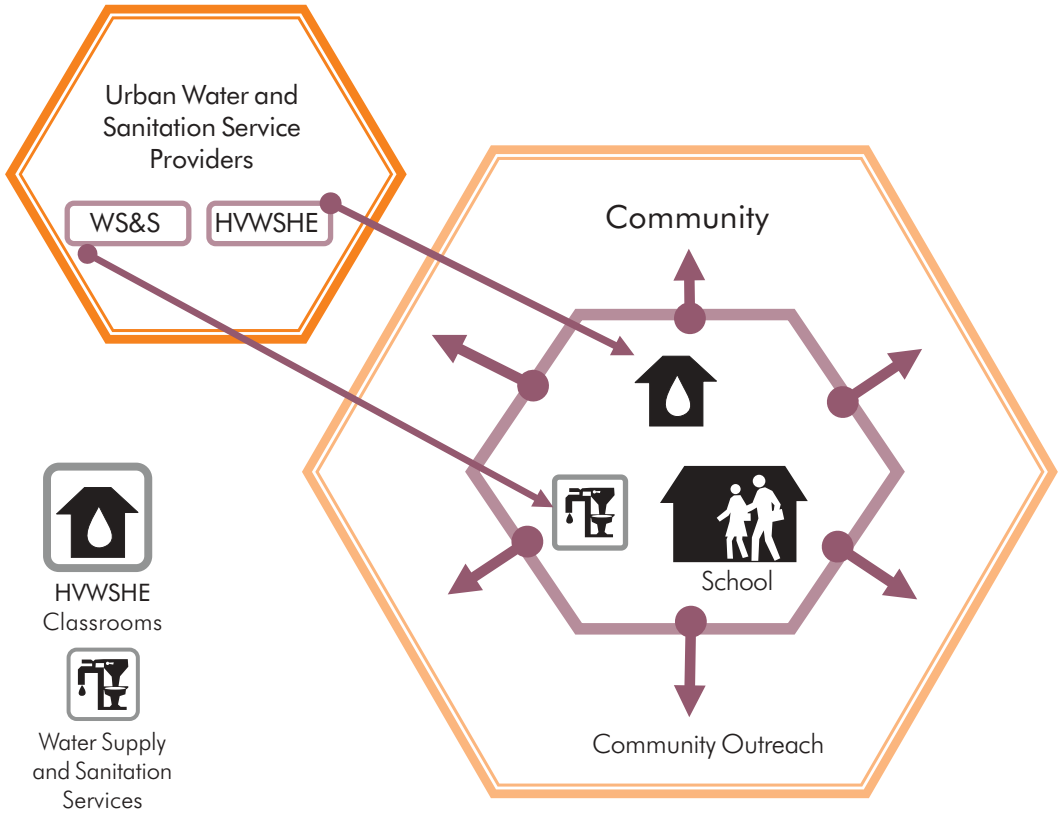
We further look into details of the various types of human values-based water, sanitation and hygiene classrooms based on their locations, outreaches and effectiveness.

There are three types of human values-based water, sanitation and hygiene classrooms:

1. Human Values-based Water, Sanitation and Hygiene Classrooms located on school premises
   - Stationary Classrooms
   - Rotating Classrooms
2. Human Values-based Water, Sanitation and Hygiene Classrooms located at utilities or at a specialised resource centre
3. Mobile Human Values-based Water, Sanitation and Hygiene Classrooms

Pilot-project Human Values-based Water, Sanitation and Hygiene classrooms located on school premises could serve as examples for Stationary Classrooms. This classroom would service the school and its immediate community through the school. Logistical support through personnel and resource materials are provided by or jointly developed with water and sanitation service providers.

School-based HVWSHE Education Classroom



Rotating Human Values-based Water, Sanitation and Hygiene Classroom at schools is the establishment of a water and sanitation classroom for a period of time in a particular school. The site is allocated for this activity for a certain time (e.g. three months in a year) and thereafter the training material and perhaps the facilitator is also moved to another school in the surrounding area. With this arrangement, schools are able to share the same materials, expertise and costs. A wider community can be reached through several schools.

In this case, logistical support through personnel and resource materials are also provided by or jointly developed with water and sanitation service providers.

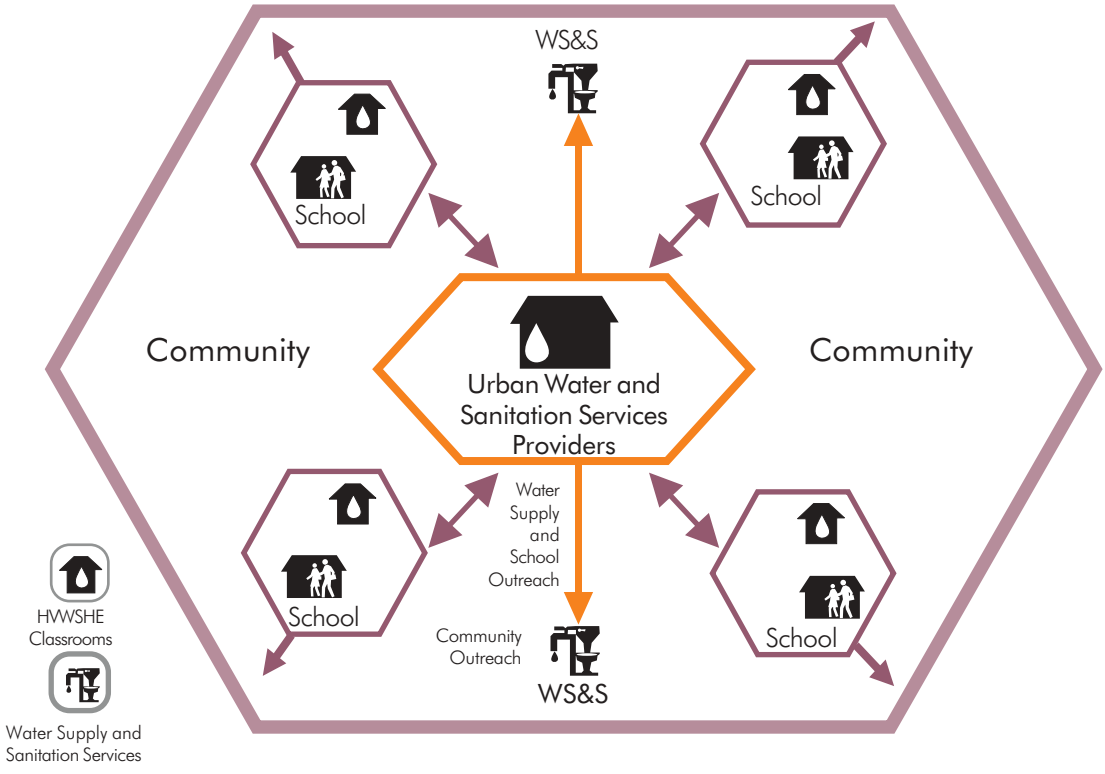
Another form of human values-based water, sanitation and hygiene classrooms are those that are located at the water and sanitation service providers premises or at dedicated water and sanitation resource centres. These classrooms may be built keeping this aspect in view and may accommodate more learners than school classrooms do. They may have various outreach programmes for different interest groups and would also include a tour of the waterworks. This enables the learners to get in touch with the work of water companies directly and contributes to the experiential account of the learning process. These human values-based water, sanitation and hygiene classrooms reach out directly to the community and school learners, and may emphasise problems that relate to the community the utility serves.

Rotating School-based HVWSHE Education Classroom

Human Values-based Water, Sanitation and Hygiene Classrooms can also be initiated by NGOs/CBOs with special interests in the field of community awareness and upliftment. The selected site for this classroom may be close to a natural water source or in areas where the need for water and sanitation awareness is necessary.

Some water and sanitation service providers and NGOs invest in mobile Human Values-based Water, Sanitation and Hygiene Classrooms. These are fully equipped vehicles, which serve the purpose of transporting the educator and materials to locations that are remote and have difficulties in establishing their own water, sanitation and hygiene classroom. Mobile classrooms like this are also able to visit schools and can accomplish a greater community outreach. If required, water can also be brought in PET-bottles or buckets. Lack of facilities must not deter or stop continuity of water, sanitation and hygiene education.

Human Values-based Water, Sanitation and Hygiene Classrooms at Utilities



c. Financing

Financing the Human Values-based Water, Sanitation and Hygiene Classroom involves two major items: capital for establishment and funds for operation and maintenance.

Establishing the HVWSHE Classroom involves items such as:

- Acquisition of the physical structure/refurbishment
- Installation of running water
- Acquisition of equipment
- Acquisition of accessories
- Acquisition of resource material

Therefore, there is a need to make an inventory list and budget for it.

Operating and maintaining the human values-based water, sanitation and hygiene classroom involves costs such as:

- Personnel costs (including security)
- Development of equipment, accessories and resource material
- Contacts with schools and communities etc.

Ownership and Sustainability of the Classrooms

Ownership and sustainability are two important components that have to be considered. The drive for ownership makes the classroom the responsibility of the body/ institution that will ensure the continuous commitment to maintaining and running the classroom, which in effect ensures sustainability to an extent.

The running of a human values-based water, sanitation and hygiene classroom requires costs as mentioned above and these costs should not be based entirely on internal ability. It might be necessary to find support for these activities. Therefore, it's advisable to make a list of potential sponsors or partners — local businesses or individuals in the community — with an interest in promoting water, sanitation and hygiene education and, thus, conservation and efficient use of water.

The involvement of credible and trustworthy community leaders such as politicians or religious leaders can increase the attention of the human values-based water, sanitation and hygiene classroom and will also influence social norms directly.

For the private sector, there may be opportunities involved in being engaged in water initiatives. Private sector partnership is for the benefit of schools, water utilities, the natural environment and the public. Partnership with the private sector is, therefore, advisable.

d. Organising the Human Values-based Water, Sanitation and Hygiene Classroom

The Team

The classroom, initially, can have a steering committee, which may consist of representatives of the city, the ministry of education, the water utility and of schools. This may vary depending on the ownership and location of the human values-based water, sanitation and hygiene classroom, e.g. the principal of the school, a member of the school's governing body, financier of the project, a member of the water utility company for that province, state etc.

Two or three teachers should be identified for running the classroom which will be based on the curriculum and resource material developed. These teachers must then get relevant education. It is also preferable or even a prerequisite that the teachers have a commitment in educating children in water issues.

Programme

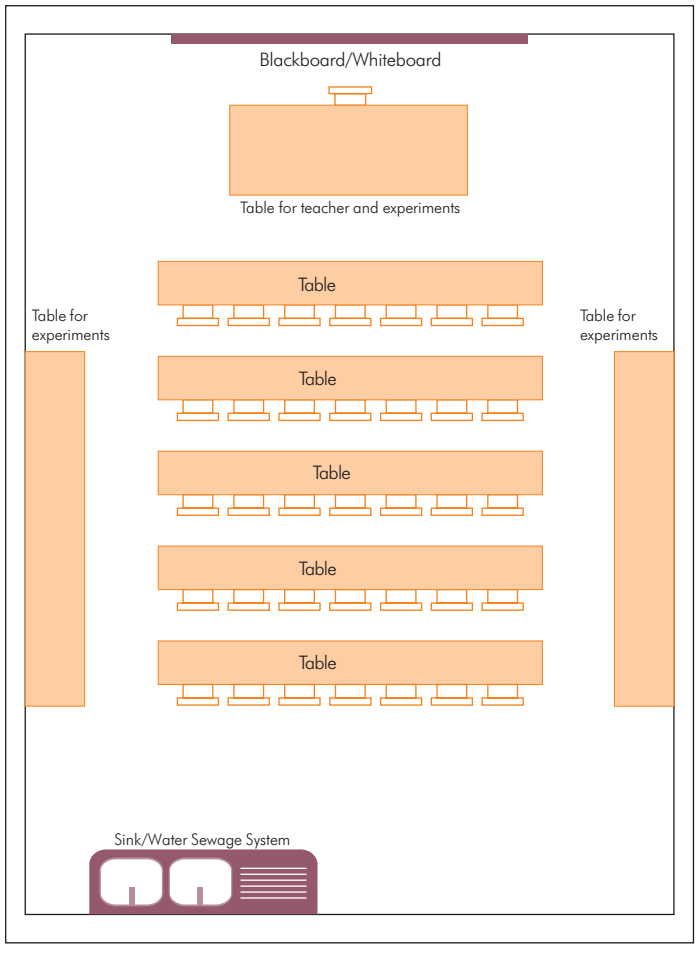
The steering committee together with the relevant water, environment and education sector representatives (Programme Developers) would together develop a programme for the Human Values-based Water, Sanitation and Hygiene Classrooms. This is obviously dependant on the regulating policies for each country and the respective institutes where the Human Values-based Water, Sanitation and Hygiene Classroom is to be established. Teachers or facilitators can also put a programme together and get input and evaluation from the stakeholders.

Themes used in this Guide can be used when establishing a programme.

Layout, Design, Equipment and Accessories

The picture below gives an overview of the layout of a Human Values-based Water, Sanitation and Hygiene Classroom. The most important thing is to arrange a creative environment where the students can listen and learn from lectures but are also able to experience activities, which follow the principle "learning by doing". It is, therefore, crucial to have room or space available for experiments, preferably in the same room, but if that is not possible, make space in another room or outdoors.

Picture 1: Draft Layout Design of a Human Values-based Water, Sanitation and Hygiene Classroom



Inventory List

This chapter is divided into two parts. One part deals with the most necessary things needed to establish and run a Human Values-based Water, Sanitation and Hygiene classroom and the other part is about the use of more advanced equipment depending on resources available.

Further Development of the Programme

It is important, though, to be keen and evaluate and develop the programme. There is an abundance of material that can be used. UN-HABITAT has, for example, developed almost 200 human values-based

Table: Examples of Basic Equipment, Accessories and Resource Material

Equipment	Accessories	Resource Material[1]
Blackboard/Whiteboard Chairs Cupboards Shelves Table for teacher Tables for experiments Tables for learners	Bowls (plastic) Cardboard Chalks Charcoal Cling wrap/film Containers (plastic) Crayons Dish washing liquid Drinking glass Fine sand and gravel, pebbles and soil Graph paper Magnifying glass Marking pen (permanent) Measuring cup Mirror Needle Paper Paper clip Pens and/or Pencils PET-bottles (1,5 and 2 litres) Pipette Plastic bags Plates Rubber bands Ruler Scissors Seedling Spoons Stick (for measuring) String (for measuring) Tape (regular and plastic) Transparent plastic bowls Watercolours and brushes	The Water Cycle (Poster) The World of Water – African Adventures of a Water Drop (Handbook) Water Audit – Quality and Quantity (Audit)

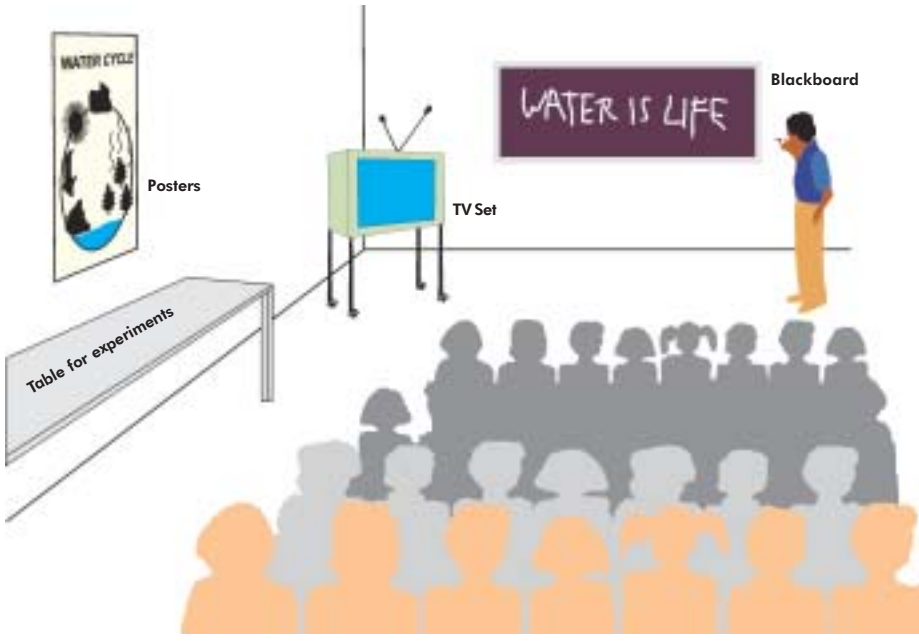
[1] *It is important to recognise that this material needs to be tailored to meet the requirements of the national curriculum in the respective country and the countries specific situation. The learner's specific needs should also be considered.*

Table: Examples of more Advanced Equipment, Accessories and Resource Material

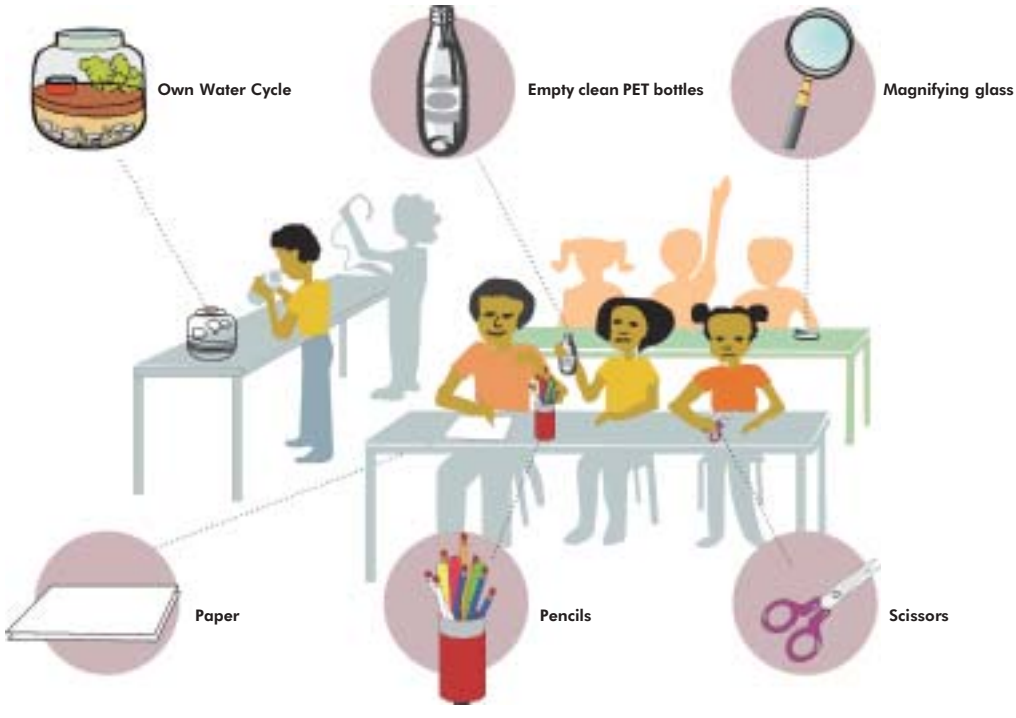
Equipment	Accessories	Resource Material[2]
Camera Camera-tripod Computer Fax Notepad OH-projector Player (radio cassette) Printer Radio Screen Sink TV/Video Video camera Videotape Water sewage system	Alcohol thermometer Cover glass Hydrological maps Litmus paper Magnifying glass Maps Micro slides Microscope Test tubes - graded	Audits Educational video film Handbooks Internet (web-connection) Posters Water Test Kits

[2] *It is important to recognise that this material needs to be tailored to meet the requirements of the national curriculum in the respective country and the countries specific situation. The learner's specific needs should also be considered.*

Picture 2: Examples of equipment that the teacher can use for lecturing: blackboard, TV and video



Picture 3: Resource material that can be used for experiments. A lot of experiments that can be carried out just by reusing resources that otherwise would be considered as waste e.g. PET-bottles.



lesson plans that can be either fully integrated into the local curricula or used as educational resource material, when involving children in changing attitudes and values of the communities where they live. There are also a lot of other water and sanitation educational initiatives going on in the world where inspiration could be found.

e. Useful hints on how to run a Human Values-based Water, Sanitation and Hygiene Classroom

These guidelines and the material developed are not meant to be solid or static. On the contrary, the structure is very elaborate and meant to work as a general framework. In that general framework it is advisable to integrate local examples, to ask questions and to make activities relevant to different issues. Below, you will find some useful hints on how to run a human values-based water, sanitation and hygiene classroom:

- Adapt a holistic approach. The water issue involves ecological, economical and societal issues.
- Without a wholehearted engagement from everyone involved in water education (steering committees, teachers, students etc.) it is impossible to be successful.
- Consequent pedagogy: allow plenty of lead-time for planning. It is very important to be consequent in order to be trustworthy. You must set good examples.
- Continuity: establishing and running a Human Values-based Water, Sanitation and Hygiene classroom takes time and involves careful planning. Have patience and be consequent over time.
- Be creative: don't let budget requirements stop you.
- Add local examples: there is a need from both, teachers and learners, to add local examples and practices, for example about habits, rules and culture around water, sanitation and hygiene.
- Ask questions: if the text inspires to ask questions, please feel free to do so. Also encourage the learners to ask their own questions. Help them to find the right answers.
- Network: it is encouraged to network with other teachers in other Human Values-based Water, Sanitation and Hygiene classrooms and exchange ideas and inspiration. Also, the idea is to enable classes to share their water, sanitation and hygiene issues and solutions with other regions, and perhaps even countries.
- Add own activities: there is a wide array of experiments and activities that can be found "out there". Here your creativity can explode in adding activities, your own experiments as well as excursions to, for example, your local waste water and water works. Excursions could also be made to look at your nearest river, a lake, the sea, the streams in the mountains etc. You could also draw a map of your local watershed and include all issues you and your learners find important after going through the book step by step. Let the drawing expand and grow for a long time, perhaps filling up a whole wall!

f. Programme Planning for Human Values-based Water, Sanitation and Hygiene Classroom

The Programme planning for HVWSHE classroom is mainly meant to assist teachers/facilitators who are currently managing or is challenged with the task of establishing a Human Values-based Water, Sanitation and Hygiene Classroom. Without proper planning, a programme can easily become an incoherent waste of valuable time. Thus, Programme planning models are helpful in this regard as they give one direction, for instance in this case, it intends to serve the interest of the trainer or facilitator on aspects pertaining to why and what an HVWSHE classroom is, its objectives, how to establish an

HVWSHE classroom, the methodology employed in Values elicitation, the role of the facilitator and so forth. In fact there exist numerous different Programme planning models which are useful for at least five reasons, namely:

- Resources can be used more effectively
- Daily work can be made easier
- Teamwork is fostered
- They provide a basis for control
- And better programmes are developed

The Interactive Model of Programme Planning for HVWSHE Classroom

The interactive model for programme planning is one among few models that accommodates changes because it is interactive and flexible. Moreover, it is also comprehensive, it is one in which people and place are acknowledged as important in the planning process and where differences among cultures are taken into account in the planning process. These are very important aspects, to be considered when dealing with HVWSHE Classrooms. Furthermore, the Interactive model, a 12-component model, is presented as a guide and provides a map of the terrain of the planning process.

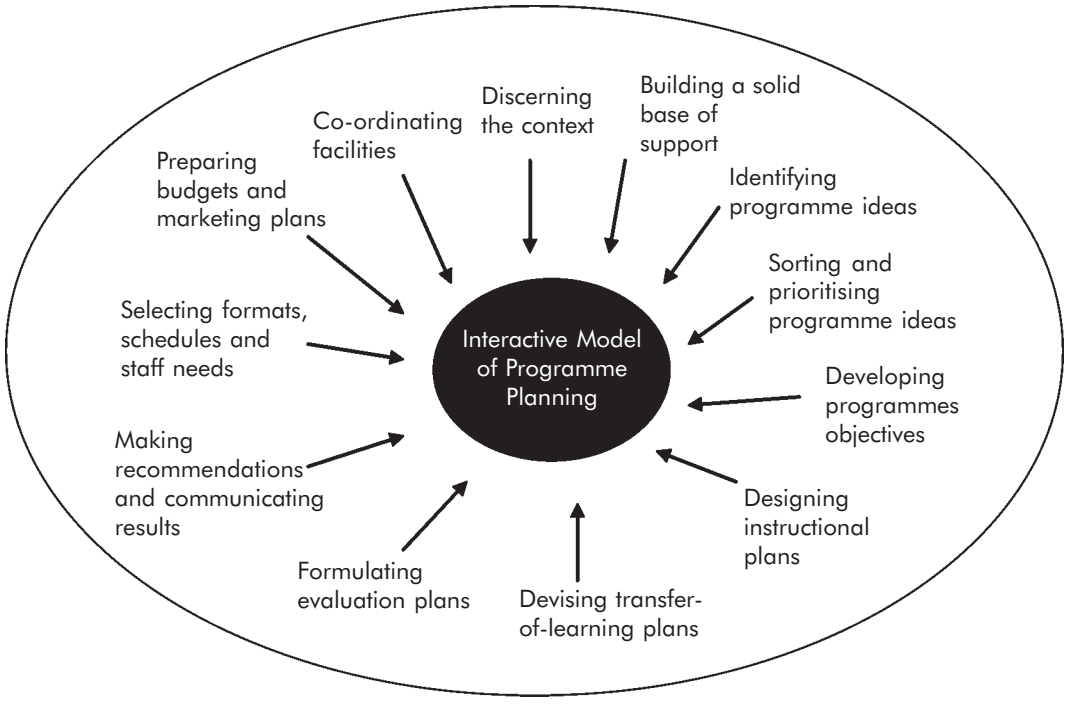
What makes this model interactive is that first it has no real beginnings or endings and thus, people responsible for planning programmes for HVWSHE Classrooms are encouraged to use the relevant parts of the model in any order and combination based on the planning situation. The key to using the interactive model of programme planning is flexibility. The12 components of this model include:

- Discerning the context
- Building a solid base of support
- Identifying programme ideas
- Sorting and prioritising programme ideas
- Developing programme objectives
- Designing instructional plans
- Devising transfer-of-learning plans
- Formulating evaluation plans
- Making recommendations and communicating results
- Selecting formats, schedules and staff needs
- Preparing budgets and marketing plans
- Co-ordinating facilities and on-site events

1. Discerning the Context

A Human Values-based Water, Sanitation and Hygiene Classroom is a place where water education takes place whether it is a school classroom, a water utility, an experience centre, an open air, or a mobile classroom. The purpose of establishing a HVWSHE Classroom is mainly to create awareness among students and the community at large on the state of fresh water on earth, as we all know water is life and every single drop counts. HVWSHE Classrooms should be organised and set in such a way that it allows learners to identify themselves in their environment and, thus, they can put into practice what was taught to them. In other words, HVWSHE Classrooms help in bringing about positive attitudinal changes in the behaviour of the learner.

Interactive Model of Programme Planning



Source: Rosemary S. Caffarella, Planning Programmes for Adult learners, 2nd edition.

2. Building a Solid Base of Support

The different role-players or stakeholders for HVWSHE Classroom namely: ministry of education, water utility, community representatives and school teachers could be actively involved in planning and conducting programmes. A continuous organisational support should be maintained, thus, ensuring the success of HVWSHE Classroom. Moreover, the success of a programme also depends on the support of people. It is the people who will attend the programme and who will have to approve, sponsor and present the programme. By taking active steps in involving people in the planning process, one can be more assured of the success of the programme.

3. Identifying Programme Ideas

It is ideas, which become the actual content of the programme. Therefore, good ideas are necessary if the programme is to be successful. Identifying ideas is generally referred to as a needs analysis. The programme planner needs to do an analysis of the needs of the people for whom the programme is planned, the needs of the organisation concerned as well as the community in relation to HVWSH Education and HVWSHE classroom. The teachers should identify ideas, methods and steps that will be useful for their lesson.

4. Sorting and Prioritising Programme Ideas

It is not always easy to decide between useful and irrelevant ideas. Therefore, a practical way to start is to sort the ideas into three groups, namely ideas that will definitely be important to consider further, ideas that will definitely not be used in the programme and ideas that may or may not be used.

It is also important to involve other persons in the process of arranging ideas, a second opinion may be useful. Moreover, priorities should also be determined and the different stakeholders of HVWSHE classroom should be involved. This should be a systematic process.

5. Developing Programme Objectives

Programmes are planned to achieve certain goals, thus developing clear, achievable goals may be seen as the most important component of a programme. So the main objectives of establishing a HVWSHE Classroom are mainly to create awareness and understanding of the water, sanitation and hygiene situation, learnt through a process of values elicitation in experiential and practical lessons. Critical thinking and problem solving skills are prompted in the learners so as to nurture positive behavioural changes towards water and its management.

6. Designing Instructional Plans

The instructional plans contain the actual learning objectives, content, instructional techniques, materials and equipment as well as evaluation procedures. These plans are, therefore, the key elements specifying the interaction between learners and instructors or learners and materials. It is very important that the teacher concerned plans his or her lesson before conducting a class on any topic so that the students can maximise benefit from the session and be in a better position to apply what has been taught.

Lesson objectives have to be clear and unambiguous. If the lesson deals with too many things, it can become difficult for the student to grasp the essence.

7. Devising Transfer-of-learning Plans

It is the goal of all programmes that participants should learn something whether it is knowledge or a skill. Transfer of learning does not just happen, it has to be deliberately and carefully planned. Therefore, the teacher(s) or instructors have to devise their lessons in such a way that the students find it interesting. For this, the teachers can make use of different teaching aids like, projections, radio, charts or by conducting experiments and so forth.

The Transfer of learning process can be done by applying the Techniques for Teaching HVWSH Education through the 'Direct Method' which inter-alia, includes:

- Integrated Method for the Curriculum
- Integrated Method for Co-Curricular

The components of the direct method are:

- Silent Sitting
- Prayers and Quotations
- Story Telling
- Group Singing
- Group Activities

8. Formulating Evaluation Plans

Programme evaluation is defined as a process used to determine whether the design and delivery of the lessons were effective and whether the students were able to understand what was being taught. In other words, were the objectives set for the lesson being met?

The main purpose of evaluation is to judge whether the programme was worthwhile and useful. Therefore, the teacher(s) can carry out evaluation exercises in terms of portfolios; assignment or project on water, sanitation and hygiene-related topics in order to ensure that they have understood what was taught to them.

9. Making Recommendations and Communicating Results

It is during this stage that one can examine programme success and failure and thus formulate programme recommendations. Each recommendation should include clearly described strategies to be adopted for addressing the recommendations. These will, eventually, be of help for the planning of future programmes.

Therefore, after conducting a number of classes in the Human Values-based Water, Sanitation and Hygiene Classroom, the tutor will be able to identify the strengths and weaknesses from which he can improve and bring about useful suggestions.

10. Selecting Formats, Schedules and Staff Needs

When preparing a programme or "curriculum" for a HVWSHE classroom the following information should be considered:

- Age group of children
- Subject to be taught/water-related topics to be covered
- Objectives to be achieved
- Teaching aids/resources

The lessons need to be presented in such a way so as to provide optimal benefits to the participants. The lesson plans have the layout which include theme, topic focus, applicable grade, time duration of lesson, objectives of lesson, content development of lesson, notes on values elicitation and activity or real life application.

The time allocation for the lesson plans acts as an indicator for the time that should be spent on that lesson especially if a programme for a day is prepared for school learners at a Human Values-based Water, Sanitation and Hygiene Classroom outside their school. It is also useful in school if a specific amount of time is allocated for water, sanitation and hygiene activities for various grades.

Moreover, the classroom will have to be properly equipped with all teaching materials and equipment to carry out the lesson. The seating accommodation of the students has to be looked at.
It is of prime importance that students feel at ease in the classroom, thus, ensuring his or her full participation during the session. Above all, fulfilling the staff needs should also be ensured for the success of the programme.

11. Preparing Budgets and Marketing Plans

Preparing a budget actually means that the intended programme activities must be translated into monetary terms. Irrespective of how the programme is funded, accountability is always required to explain how the money was spent. Financing the HVWSHE Classroom involves two major items; capital for establishment and funds for operation and maintenance. It has to be pointed out that attempts should be made to ensure that the programme will not run at a loss. There is, therefore, a need to find sponsorship in order to support and assist human values-based water, sanitation and hygiene classrooms in the long run.

In order to draw positive attention to human values-based water, sanitation and hygiene classroom and to make different stakeholders aware of its purpose, there is a need for planned communication activities. Communicating with different stakeholders is an effective way of creating an understanding of why it is important to have human values-based water, sanitation and hygiene classroom. In this way the more people understand that, the more likely it is to run the HVWSHE classroom in a sustainable manner over a long period of time. Thus, communication activities must be continuous and not a one-time event. Common communication activities are:

Public events – provide good opportunity to directly involve the public and receive feedback from them. Examples of public events are festivals, conferences, river clean-ups, music events and so forth.

Community action – organise a study visit in the classroom or a forum with invited speakers talking on water, sanitation and hygiene issues and the purpose of the human values-based water, sanitation and hygiene classroom. Invite parents, community leaders, representatives from local businesses, neighbouring schools and so on.

Promotional material – such as flyers and brochures are easy way to get attention. It is important to ensure that the material is distributed to the public that it is intended for.

Media relations – marketing techniques often focus on paid broadcasting and the use of promotional material. Public relations (PR) is relatively cheap in comparison as well as efficient. Thus, through PR approaches the general public can be reached, via the media. Moreover, it is good opportunity to get media attention and coverage on activities related to the human values-based water, sanitation and hygiene classroom. It can be in terms of newspaper articles on human values-based water, sanitation and hygiene classroom and related activities or interviews on television or radio, thus, reaching a wider range of people.

12. Co-ordinating Facilities and On-site Events

As the environment has a direct effect on the participants' learning process, special care should be taken to find an appropriate location to set up the Human Values-based Water, Sanitation and Hygiene classroom. It has been seen from existing Human Values-based Water, Sanitation and Hygiene classrooms that the most appropriate location would be either a classroom in the school premises fully equipped with water, sanitation and hygiene facilities, or at water utility or it can also be mobile classroom. The classroom should be fully equipped with appropriate equipment, instructional materials and other facilities for conducting water, sanitation and hygiene education sessions.

There are various aspects that need to be considered when establishing a Human Values-based Water, Sanitation and Hygiene classroom for instance access to the classroom, the size of the room, room structure, black or white board, proper ventilation, lighting, furnishing, electrical outlets, plugs for computers, television, radio, water sewage system and so forth. Moreover, the classroom should be properly equipped with informative posters dealing with various aspects of water, sanitation and hygiene to assist in teaching and learning.

Before conducting a session on Human Values-based Water, Sanitation and Hygiene education all arrangements should be made, thus a checklist might be very useful in this regard. It is also very important to create a positive climate for learning at the beginning of the class as well as ensure students interact during the session.

A good programme can become disappointing if the facilities are inappropriate and the equipment is not in good working order. The co-ordinator (teacher, utility officer) should monitor the whole process from the beginning to the end.

g. Some useful points to consider when developing a programme for a HVWSHE Classroom

1. Group: Who are the visitors? These could be students from University, School children, and members of the public or even visitors from industries that consume much water for their processes. This is important as many factors such as venue, content of programme, staff, equipment and materials are reliant on this data.
2. Size of Group: This is critical in establishing whether the premises and facilities can adequately accommodate the number of participants. The size of the group is also important if the participants are to engage in experiments etc. The availability of equipment and materials for optimal learning is to be ensured according to the number required. Size of the group is relevant when meals are also provided. This aspect is also critical in deciding if the activities of the group should be divided, rotated etc. The size of the group also dictates if additional staff is required.
3. Average Age: (Relevant for school visitors). From this information the programme developer would be able to assess the level and depth of the information that is to be delivered. In the case of school children the age group or the grades that the learners belong to would be essential as the programme would be devised so as to accommodate their level of cognitive development or understanding. For more information you could look up Piaget's theory* of cognitive development to guide in the selection of content; materials, type of lesson delivery and activities for the various ages/grades of learners.
4. Time or Duration of the Visit: The programme has to be tailored to include all the relevant topics in the given time.
5. Relevant Previous Knowledge: It is important to have an idea of how much the participants already know so as to develop the programme content to take into account relevant previous knowledge. This information can be obtained if, for example, the group are school children; then you could communicate with the teacher to establish the relevant previous knowledge. Asking applicants to either complete questionnaires or ask questions prior to presentation to establish the relevant previous knowledge can establish this.
6. Staff and Trainers: The programme designer's awareness of the trainer's knowledge and understanding of current issues and the problem areas in water, sanitation and hygiene (relevant to the audiences/ learners living conditions) is important in programme designing and the capacity to deliver the expected. Hence the importance of knowing what is available in terms of human resources is also important for designing a suitable programme. Large groups may necessitate several trainers in order to effectively deliver the programme.
7. Content: Usually the content is established from the objectives of the programme. Content must be suitable/ applicable to the audience and the country. Specific water, sanitation and hygiene issues may be unique to certain countries, population groups or areas of residence. Content should always be very well researched. Transfer of content or instruction should be effective and well planned.
8. Equipment and Fittings: The presenters should be aware of the equipment and the facilities available for use. It is important to ensure that the power fittings and equipment are all functional for the presentations.

http://www.piaget.org, http://chiron.valdasta.edu/whuitt/col/cogsys/piaget.html

9. Safety Concerns: It is important to ensure that the site chosen to do the programme is safe, especially for visitors that are scholars who are visiting a human values-based water, sanitation and hygiene classroom at a water utility. Adequate safety gear should be available to visitors that would be visiting areas of the plant that may present a safety risk. Guides and trainers are to ensure that adequate safety measures have been put in place to avoid any accidents.
10. Sanitation facilities: Ensure that there are adequate water and sanitation facilities for the visitors.
11. Literature and materials distributed: The materials to be distributed should be available, sufficient and relevant.
12. Co-ordination: The programme developer has to take into account all of the above facts and ensure that an agenda or timetable has been drafted so as to ensure that the correct equipment, and trainers would be at the correct venues at the correct time. Participants should also be informed of the programme agenda.
13. Location: The location of the human values-based water, sanitation and hygiene classroom may inevitably dictate some of the items on the programme agenda. For instance if the human values-based water, sanitation and hygiene classroom were at a Water Utility, a tour of the water works would become an inevitable part of the agenda whether it is co-co-ordinated to re-inforce one or more presentations/lessons or just as an activity.
    - When the location of the HVWSHE Classroom is located at schools it would involve the collaboration of curriculum developers; water utility consultants and representatives from various environmental and health agencies that would be able to contribute to the issues that need to be addressed in these learning sessions.
    - Schools often integrate contents of existing curriculum into their HVWSHE classrooms thereby reinforcing on the learners prior knowledge and also at the same time ensuring that the learners' level of understanding and interpretation of activities are consistent with their cognitive development stages.
    - Thus, all the resources and programme content for HVWSHE classrooms at schools would be localised and aligned to the curriculum The time allocated to various topics in HVWSHE classroom at schools would be timetabled and can be continuous as opposed to excursional visits to classrooms at utilities or NGO's.
14. Learning from Previous Programmes: It is inevitable that each programme organised do not always go as planned and that the checklists vary from programme to programme. Thus make notes of things that should be considered for the next programme, hence the planning becomes easier over time.

4

Educational Themes and Lesson Plans

Educational Themes and Lesson Plans

a. Environmental Health Aspects of Urban Areas (Water, Sanitation and Waste) (People's health, water and sanitation)

- Water is life, sanitation is dignity
- Water and culture/religions
- Water and diseases
- Sanitation and diseases
- Water and culture

This theme deals with environmental health issues in urban areas. According to Agenda 21, environmental health includes water, sanitation and waste management. Important topics are that water is life, and how different cultures and religions view water. Another important topic is that sanitation is dignity and life. Other important topics are on the interrelationship between water, sanitation and waste management and health in communities, especially in slums.

Theme: Environmental Health in Urban Areas

Water is Life/ Sanitation is Dignity		
Required Knowledge	**Required Attitude**	**Required Skills**
Lower Primary: • Know how we use water in our day to day activities • Know that water is an essential requirement to sustain all forms of life • Know that water is used to keep ourselves clean and healthy	**Lower Primary:** • Appreciate that water is precious and is necessary to sustain all forms of life • Are aware that water serves various forms of life • Are aware that without water we cannot keep ourselves clean and healthy	**Lower Primary:** • Are able to explain why water is important in our daily life with various examples • Are able to explain how we use water to keep ourselves clean and healthy
Upper Primary: • Know the uses and importance of water for all forms of life • Know that lack of sanitation facilities posses difficulty especially to the women in developing countries due to absence of privacy • Know that having and practising proper sanitation is a dignity	**Upper Primary:** • Are aware about the different uses and importance of water in our daily life • Appreciate the number of ways in which water is useful to us in our daily life • Are aware that it is necessary to practice proper sanitation habits	**Upper Primary:** • Are able to explain the different uses of water in our life • Are able to explain the meaning of the terms "life" and "dignity" and relate them with water and sanitation
Secondary: • Know the importance of water to various life forms on earth and its uses in our daily life • Know that proper sanitary habits should be practiced and that sanitation is associated with dignity	**Secondary:** • Are aware of the importance of water to various life forms on earth and its different usage • Are willing to adopt proper sanitary habits since practicing good sanitary habits is a dignity	**Secondary:** • Are able to explain the importance of water to various forms of life by citing various examples • Are able to explain why practicing proper sanitation is a dignity by citing examples of the problems faced by women and girls in developing countries in the absence of such facilities

Water and Culture/Religions

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Understand the importance of water in cultural/religious perspectives	**Upper Primary:** • Are aware about the cultural significance of water under different cultures • Are aware about the religious value of water under different religions	**Upper Primary:** • Are able to explain how water is valued in different cultures • Are able to explain the significance of water under different religions
Secondary: • Know the significance of water in different cultures • Know the importance and values of water in different religions • Know the similarity or difference of the roles of water in different religion and cultures	**Secondary:** • Are aware and willing to appreciate the significance of water under different cultures • Are aware and willing to respect and appreciate the importance and values of water in different religions • Are aware about the similarity or difference of the roles of water in different religion and cultures	**Secondary:** • Are able to explain the cultural significance of water by citing examples under different cultures • Are able to explain about the importance and values of water in their own religion as well as in other religious beliefs • Are able to appreciate and respect the similarity or difference of the roles of water in different religions and cultures

Personal hygiene

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know the benefits of good hygiene behaviour for health • Know why it is important to wash hands after using toilet	**Lower Primary:** • Are convinced that they need to wash their hands after defecation, before eating food and after playing • Appreciate the correct use of items such as soap and water for hand washing • Are aware of the importance of washing hands and face correctly • Feel responsible for the cleanliness of their own body, hair, teeth and nails	**Lower Primary:** • Are able to wash their hands correctly before eating food, after defecation and after playing • Are able to wash hands with soap and water, if soap is not available than with ash or just water • Are able to frequently bathe, wash their hair, clean their teeth and cut the fingernails

School hygiene

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know the state of the school toilet and drinking water facilities • Know how garbage is managed at school • Know how they can help to keep their classrooms and school premises clean	**Lower Primary:** • Are interested in finding out the situation of the school water supply and toilet facilities • Dislike to see dirty classrooms, dirty toilet facilities, rubbish in unspecified places in the school • Are motivated to keep the classrooms and school toilet clean • Are aware that clean school environment (proper waste disposal method, clean drinking water and clean toilet facilities) is important for their health	**Lower Primary:** • Are able to distinguish between what is clean and what is dirty in their school compound • Have the skills to assist the cleaners or teachers in the school to keep the classroom and school premises clean • Are able to mention the health risk associated with disposal of rubbish and excreta in unspecified areas • Have the skills to dispose garbage in specified location and use toilet facilities in a proper manner

Health and Hygiene

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know how to take care of their body concerning water and sanitation related risks • Know in particular why washing hands and face is important • Know the different health and social reasons on the importance of bathing; washing hair frequently; cleaning teeth at least once a day; cleaning finger nails frequently and washing clothes frequently • Know the different hygienic practices for healthy living	**Upper Primary:** • Are willing to protect their body against water and sanitation related diseases • Are willing to wash hands and face correctly and at critical times • Are aware about the health and social reasons why it is important to bathe, to wash hair frequently; to clean teeth at least once a day, to clean finger nails frequently and to wash clothes frequently • Are willing to adopt different hygienic practices at home and in the day to day activities	**Upper Primary:** • Are able to take care of the cleanliness of their body • Are able to wash hands and face correctly and at critical times • Are able to explain the reasons why it is necessary to bathe frequently, wash hair, brush teeth and clean clothes everyday • Are able to adopt different hygienic practices at home and in the day to day activities
Secondary: • Know about the route of transmission of diseases • Know about some of the diseases associated with unsafe hygiene practices • Know that potable water, good sanitary facilities and appropriate hygiene behaviour should all go hand in hand to ensure good health • Know the different hygienic practices for healthy living	**Secondary:** • Are aware about the route of transmission of diseases • Are aware about some of the diseases associated with unsafe hygiene practices • Are willing to adopt all three aspects potable water, good sanitary facilities and appropriate hygiene behaviour to ensure good health • Are aware about the different hygienic practices for healthy living	**Secondary:** • Are able to explain about the route of transmission of diseases • Are able to understand and tell about some of the diseases associated with unsafe hygiene practices • Are able to explain and adopt the essential aspects related to good health • Are able to perform different hygienic practices in their day to day activities

Water, Sanitation and Diseases

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know the most common water borne diseases like diarrhoea • Know how diseases are transmitted through contaminated water	**Lower Primary:** • Accept that everybody can get sick • Are aware about the most prevalent and common disease in their community like diarrhoea • Are aware about the ways of transmission of diseases • Are willing to take preventive measures to avoid diseases	**Lower Primary:** • Are able to make out if he/she is sick • Are able to define the symptoms when a person is suffering from diarrhoea • Are able to explain how diseases are transmitted • Are able to explain which preventive measures can be taken to prevent diseases
Upper Primary: • Know how diseases are caused due to lack of sanitation and safe drinking water • Know some of the social burdens resulting from lack of safe water and sanitation • Know about diarrhoeal disease and its prevention	**Upper Primary:** • Are aware about how lack of safe water and sanitation causes water borne diseases • Are aware about some of the social burdens as a result of lack of drinking water and sanitation • Are aware on how to prevent diarrhoea	**Upper Primary:** • Are able to explain the causes of water borne diseases • Are able to explain some of the social burden/hardship faced specially by women and children as a result of lack of safe water and sanitation • Are able to prevent from diarrhoea and other water borne diseases

Water and Diseases		
Required Knowledge	**Required Attitude**	**Required Skills**
Secondary: • Know about some of the naturally occurring chemicals in water and their impact upon human health	**Secondary:** • Are aware about the naturally occurring chemicals in water and their health impacts	**Secondary:** • Are able to explain the different type of diseases caused by naturally occurring chemicals in water and their health impacts
Sanitation and Diseases		
Required Knowledge	**Required Attitude**	**Required Skills**
Secondary: • Know how sanitation and diseases are related and how diseases are caused • Know that lack of sanitation can pose economic and social burden to people • Know that diseases such as Cholera are caused due to absence of proper sanitation	**Secondary:** • Are aware about how sanitation and diseases are related and how diseases are caused • Are willing to adopt proper sanitary practices to reduce economic an social burden to people • Are aware of some of the water borne disease like Cholera	**Secondary:** • Are able to explain how sanitation and diseases are related and how diseases are caused • Are able to prevent from water borne disease to reduce economic and social burden to people • Are able to identify the symptoms related to Cholera

b. Water Resources Management for Urban Areas

- Water Cycle
- Water Pollution/Conservation/ecologic foot prints of cities
- Water Uses in Cities

This theme deals with water resource management for urban areas (people and water) and covers topics such as the water cycle and urban areas, water pollution and conservation, cities as competing users of water, water uses within cities.

Theme: Water Resource Management for Urban Areas

Water Cycle/Water Sources

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know the different type of water sources on earth • Know the water sources around them • Know that water is recycled in nature	**Lower Primary:** • Are willing to appreciate that water is a limited resource and the same water is recycled back again and again. • Are willing to understand that it is important to conserve the precious resource. • Are aware about the different water sources and know that all water sources cannot be used for drinking	**Lower Primary:** • Are able to appreciate that water is a limited resource and the same water is recycled back again and again. • Are able to explain the water cycle • Are able to identify the different water sources
Upper Primary: • Know the water cycle • Know that only limited fresh water resource is available • Know the various sources of water	**Upper Primary:** • Are aware about how water cycle occurs • Are aware that there is only limited fresh water resource available • Are aware about the different water sources	**Upper Primary:** • Are able to explain how water cycle takes place on earth • Are able to distinguish between the different type of water source and judge that only limited amount of fresh water is available on earth
Secondary: • Know that water is a limited resource and the same water has been recycled over million of years in nature • Know the various type of water sources in the urban areas • Know how urban areas have caused imbalance in the hydrological cycle	**Secondary:** • Are aware that water is a limited resource and the same water is recycle in nature • Are aware about the various types of water sources • Are willing to understand how urban areas have caused imbalance in the hydrological cycle and how they can help to solve the problem	**Secondary:** • Are able to explain the limited availability of water and the hydrological cycle • Are able to identify the various type of water sources in the city • Are able to identify the impacts of urbanisation on the hydrological cycle and think about methods how they can help to solve it

Water Quality and Water Pollution

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know how we pollute our rivers and water bodies • Know that water pollution affects the health of people and also the plants and animals living in the water bodies • Know the ways how they can help to stop water pollution	**Lower Primary:** • Are aware about the causes and impacts of water pollution • Are aware that polluted water is not drinkable and makes us sick • Know that water pollution degrades the water quality and thus it is important to save water from pollution • Are willing to help to stop water pollution	**Lower Primary:** • Are able to distinguish polluted water and clean water • Are able to resist the temptation to drink polluted water • Develop the skills to reduce water pollution

Water Quality

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know how different water sources varies in quality • Know how to conduct water quality audit using some simple water quality parameters	**Upper Primary:** • Are aware about the water quality of different water sources • Are willing to carry out water quality audits	**Upper Primary:** • Are able to identify the water quality of different water sources • Are able to carry out water quality audits by using simple parameters
Secondary: • Know that water quality is affected by natural and human interferences • Know about some of the important water quality parameters • Know how to carry out a water quality auditing	**Secondary:** • Are aware of how water quality is affected by natural and human interferences • Are aware about some of the water quality parameters • Are aware on how to carry out a water quality audit	**Secondary:** • Are able to identify the different ways how water quality is affected • Are able to test the quality of water using water quality parameters • Are able to perform water quality audits

Water Pollution

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know how our water gets polluted • Know that there are two main sources of pollution viz. natural and human • Know why it is important to control water pollution	**Upper Primary:** • Are aware how water bodies gets polluted due to natural and human influences • Are willing to control water pollution realising that environmental degradation affects all life forms	**Upper Primary:** • Are able to explain how water pollution takes place in the water bodies such as rivers, streams around them • Are able to adopt water pollution control measures and also influence people in the community to stop water pollution
Secondary: • Know that there are mainly two types of water pollution i.e. chemical and biological • Know how water pollution possess stress on health, environment and to the society	**Secondary:** • Are aware about the types water pollution • Find ways by which they can reduce water pollution and reduce stress on health environment and to the society	**Secondary:** • Are able to explain the various types of water pollution citing examples • Are able to explain the different impacts of water pollution and able to motivate other people to reduce pollution

Conservation and use of water

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know how to use water wisely at home, school and in their day-to-day activities	**Lower Primary:** • Are willing to save water at home, school and in their daily lives • Are aware about the different methods to save water	**Lower Primary:** • Are able to explain how water can be conserved at home, school and in their daily lives • Are able demonstrate simple water conservation techniques

Water Uses in Cities

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know that water is used in out day to day activities • Know that there are many indirect ways by which we consume water	**Upper Primary:** • Are willing to respect the value of water realising the number of ways in which we use it	**Upper Primary:** • Are able to explain the various domains how we use water and are able to develop respect for it.
Secondary: • Know the uses of water in different sectors • Know that there is an increasing trend of water demand in the cities	**Secondary:** • Are aware about the various uses of water in cities • Realise that the demand for water use is increasing everyday	**Secondary:** • Are able to explain the use of water in cities in different sectors • Are able to explain that there is an increasing demand for water everyday in the urban areas

Water Conservation

Required Knowledge	Required Attitude	Required Skills
Secondary: • Reinforce the fact that water is limited on earth • Learn about rainwater harvesting as a water conservation system	**Secondary:** • Realise the fact that we need to conserve water on earth • Are willing to adopt rainwater harvesting technique at home and in the community	**Secondary:** • Are able to explain the why we need to conserve water citing reasons • Are able to adopt the rain water harvesting technique and also able to sensitise other people on the same

c. Urban Water Supply and Sanitation for People

(i) Supply perspective (city, water and sanitation utility, service provider, community etc)

- Water abstraction/sources
- Water treatment and storage
- Distribution
- Consumption and use
- Waste water discharge and drainage
- Waste water treatment and reuse

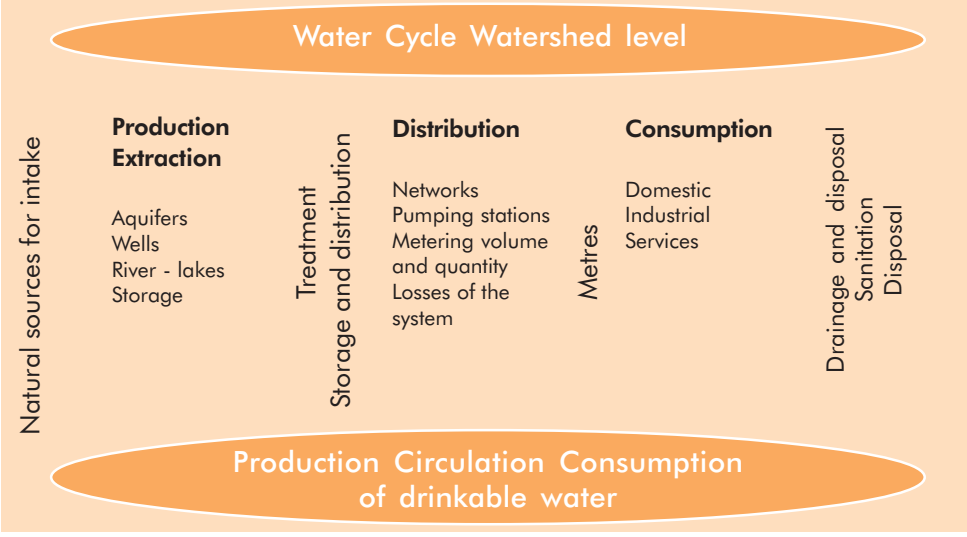
(ii) Demand perspective (individual, consumer or household industry and agriculture)

- Collection and storage for consumption and use of water
- Sanitation and hygiene
- Waste and waste water disposal-treatment, reuse and recycling
- Demand management

This theme can be split into two sub-themes:

The first sub-theme provides a supply perspective of water and sanitation for people, topics cover the types of water resources, water treatment and storage, distribution, as well as waste water discharge and treatment or reuse.

The second sub-theme provides a consumer or demand perspective where topic can look at collection, treatment, storage, and consumption of water, including demand management. Other topics focus on sanitation and hygiene, as well as household based waste and waste water reuse and recycling.



Source: Pelaez F.S. (2004) http://users.ox.ac.uk/~prinwass/PDFs/Saavedra04OW.PDF

Theme: Urban Water Supply and Sanitation for People

Water Abstraction/Sources

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know the different water sources for cities • Know how overabstraction of water causes negative impacts	**Upper Primary:** • Are aware about the different types of water sources in the cities • Realise that overabstraction of water should be controlled and water minimisation techniques should be adopted	**Upper Primary:** • Are able to explain the different type of water sources in the cities • Are able to explain what are the impacts of overabstraction and why it should be controlled
Secondary: • Know the major source of water and their abstractions for supply to the cities. • Know about the negative impacts of over-abstraction of water for uses in cities	**Secondary:** • Are aware about major source of water and their abstractions for supply to the cities • Are aware about the negative impacts of overabstraction of water in cities	**Secondary:** • Are able to identify the major water sources and their abstraction for supply in the cities • Are able to analyse the negative effects of overabstraction of water from sources and discuss on ways how they can solve it

Water Treatment and Distribution

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know how drinking water is supplied to homes in their area • Know how drinking water is treated and distributed into pipe lines • Know that water supplied through pipe is used for drinking as well as for bathing, flushing and other uses	**Upper Primary:** • Are aware of the process how water is supplied into their homes • Are aware of process how water is treated and distributed • Are aware that the water supplied in the city is used for all purposes including drinking	**Upper Primary:** • Are able to explain how water is supplied in their homes by the municipality or city water suppliers • Are able to explain how water is treated before being supplied into the distribution system
Secondary: • Know how water is treated and distributed in the taps by the water supply authority • Know that the water supplied in the taps are not free of costs	**Secondary:** • Are aware of different steps involved in drinking water treatment and how water is distributed • Accept that the water coming in the tap at home is not free of charge and are willing to pay a price for it	**Secondary:** • Are able to explain the different steps involved in water treatment and • Are able to convince others that water supplied in taps is not free of charge

Waste water Treatment and Reuse

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know that waste water should not be discharged directly to water bodies since it causes water pollution • Know some of the waste water treatment systems and how waste water is treated in waste water treatment plants • Know the ways how waste water can be reused	**Upper Primary:** • Are willing to prevent waste water pollution by treating it before discharging into water bodies • Are aware about some of the waste water treatment systems and the different steps of waste water treatment process	**Upper Primary:** • Are able to influence others not to discharge waste water into river and water bodies without treatment • Are able to explain at least two types of waste water treatment systems and some of the basic steps of waste water treatment
Secondary: • Know how domestic waste water is treated in a constructed wetland • Know that waste water can be reused after adequate treatment	**Secondary:** • Are aware that waste water can be treated using simple technology such as constructed wetland • Are aware that waste water can be reused after adequate treatment for secondary purposes such as gardening, irrigating land, etc	**Secondary:** • Are able to explain how a constructed wetland functions • Are able to explain and convince others that waste water can be reused after adequate treatment for various purposes

Water Scarcity

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know that urban areas specially in developing countries face huge water scarcity problems • Know that water shortages poses social burden specially on women and children	**Upper Primary:** • Are willing to conserve water since it is scarce • Are aware that water scarcity poses burden specially to women because it may consume a lot of time to fetch water from long distances	**Upper Primary:** • Are able to explain the reasons for water scarcity in urban areas and realise not to waste water • Are able to explain why specially women in developing countries face social burden due to water scarcity problems

Consumption and Uses of Water

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know that water consumption varies according to its usage and not all types of work require drinking quality water • Know how we can conserve water at an individual level by following water conservation techniques	**Upper Primary:** • Are aware that not all types of work requires water of drinking water quality standards and thus water wastage can be minimised • Are willing to conserve water at an individual level using different techniques	**Upper Primary:** • Are able to distinguish between which work requires high quality water and which does not and how water consumption can be minimised • Are able to demonstrate water conservation techniques at home and in school • Are able to perform simple water quantity audits at home
Secondary: • Know about water demand for daily activities and understand that high quality water is not needed for all activities	**Secondary:** • Are aware about the water demand for daily activities and understand that high quality water is not needed for all activities	**Secondary:** • Are able to identify the water demand for various activities and adopt water management practices by using it on a quality basis

Household Water Treatment

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Know some of the household drinking water treatment options	**Upper Primary:** • Are aware about some of the simple households drinking water treatment options	**Upper Primary:** • Are able to demonstrate the use of simple household drinking water treatment options
Secondary: • Know about the various types of point of use drinking water treatment options	**Secondary:** • Are aware about the various types of point of use drinking water treatment options	**Secondary:** • Are able to adopt the various types of point of use drinking water treatment options at home and in community

Sanitation

Required Knowledge	Required Attitude	Required Skills
Lower Primary: • Know about different types of toilet existing in urban communities • Know about the excreta disposal techniques	**Lower Primary:** • Are aware that open defecation should not be practiced and toilet should be used for defecation • Are aware that there are different types of toilets used in the urban areas. • Are aware that excreta from toilets is either disposed in septic tanks or into drains.	**Lower Primary:** • Are able to use toilet properly • Are able to use the right amount of water to flush the excreta • Are able to distinguish the different types of toilets that are used in the urban areas • Are able understand the link between toilet use and its disposal into septic tanks or drains

Upper Primary: • Know the various types of sanitation facilities • Know the cost effective and water saving toilet type **Secondary:** • Know about the different types of sanitation facilities • Know the positive and negative aspects of the present sanitation facilities which are being used in the city • Know the new ecological approach to sanitation, how it works and its benefits	**Upper Primary:** • Are aware about the different types of toilet facilities • Are aware about the less expensive and effective toilet system **Secondary:** • Are aware about the different types of sanitation facilities • Are willing to adopt the best approaches among the sanitation systems • Are aware about the ecological approach to sanitation	**Upper Primary:** • Are able explain and distinguish the different types of sanitation facilities • Are able to compare the cost and water consumption among different sanitation systems and decide which could be suitable for their areas **Secondary:** • Are able to distinguish between the various types of sanitation facilities • Are able to analyse the positive and negative aspects of the sanitation systems and are able to recommend the best system • Are able explain the ecological approach to sanitation

Solid Waste Management

Required Knowledge	Required Attitude	Required Skills
Upper Primary: • Understand the importance of managing waste • Learn ways to reduce waste and manage waste produced in school and at home **Secondary:** • Know the importance of managing waste • Know ways to reduce, reuse and recycle waste • Know how to manage waste produced in school and at home • Know about bin composting	**Upper Primary:** • Are willing to manage waste • Are willing to adopt the three R principle (reduce, reuse and recycle) for waste management at home and in the community **Secondary:** • Are aware about the importance of managing household waste • Are aware about the three R's to manage waste • Are aware on how waste can be managed at school and at home • Are aware about the bin composting method to manage organic waste	**Upper Primary:** • Are able to explain how waste can be managed • Are able to demonstrate the techniques for waste management using 3R principle and other technology like household composting **Secondary:** • Are able to explain the importance of solid waste management • Are able to practice the three R's of waste management in every day life • Are able to adopt waste management techniques at school and home • Are able to adopt bin composting for organic waste management and teach others the same

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