HUMAN VALUES IN WATER EDUCATION

Creating a New Water-use Ethic in African Cities

United Nations Human Settlements Programme

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UN-HABITAT

Water Education Initiative in African Cities is funded by the Swedish International Development Cooperation Agency (Sida) and is implemented by UN-HABITAT in collaboration with UNEP and other partners as part of the Water for African Cities Programme.

Foreword

Since its inception two years ago, the Value-based Water Education component of the Water for African Cities Programme has proved itself as a truly path-breaking and innovative education initiative in Africa. The initiative is part of UN-HABITAT's support to African countries in the development of a new ethic for water governance in cities. It is unfortunate that a large volume of water abstracted and treated at a high cost is wasted due to leakage and profligate use in our cities. By complementing the technical and regulatory measures put in place to address this avoidable wastage, Value-based Water Education is a promising strategy in the transformation of the behaviour and personal attitudes of key actors in the urban scene, particularly in dealing with issues that affect everyday life in our cities.

It is worth noting that the Human Values approach was recommended as a water education tool for African children and communities by the Expert Group Meeting held in Johannesburg, South Africa from 30 April to 2 May 2001. The Expert Group, composed of international and regional experts on water education, curriculum development, and urban water resources management, observed that the introduction and implementation of the Human Values approach to water education through formal, non-formal and informal channels of learning, is a promising strategy to bring about a positive and lasting change in attitude and behaviour towards water at all levels of society, especially through the use of the curriculum. The relevance of the Approach to the education needs of African countries has been demonstrated by the overwhelming positive response and declaration of commitment to project implementation expressed by educational experts in the six pilot countries during the recently concluded training of trainers sessions.

This book is part of a series of water education publications to be released by UN-HABITAT. It contains regional and country reflections on the contribution of the Human Value-based Water Education initiative in meeting the national educational goals and objectives of the six pilot countries, and in creating a new water-use ethic in cities. The book also presents a summary of the process and experiences gained in the implementation of the water education initiative in African cities.

I am grateful for the valuable support provided by the Swedish International Cooperation Agency (Sida) in making this path-breaking regional initiative possible.

I hope the publication will inspire water education specialists and sector practitioners in Africa and in Asia where UN-HABITAT is initiating a similar programme.

Anna Kajumulo Tibaijuka
Executive Director
UN-HABITAT

Water supply does not run dry when it is drawn from
the well of human values

Contents

CHAPTER 1

Value-based Water Education: Project Overview

by Andre Dzikus[1]

Introduction

Value-based Water Education (VBWE) is part of UN-HABITAT's Water for African Cities Programme. At its second meeting held in the Hague in March 2000, a High-level (Ministerial) Advisory Group, comprising responsible Ministers from the six participating countries[2], adopted a resolution requesting the implementing agency to widen the scope of the Programme and introduce water education in the participating cities with a view to develop a new water-use ethic in African cities. The Advisory Group considered that the current water wastages in cities could be minimised by promoting water education in schools and communities within the urban context.

Extensive consultations were conducted by UN-HABITAT with education, water and urban authorities in the six participating countries with a view to developing a proposal for introducing water education in African cities. The resulting project proposal was submitted to the Swedish International Development Cooperation Agency (Sida) for funding support. An agreement between UN-HABITAT and Sida was concluded in March 2001 for the implementation of a water-related Environmental Education Project in six African cities over a period of 18 months.

The water education initiative in African cities has brought together for the first time, professionals from education, urban, and water and environment sectors to bring about a positive and lasting change in attitude and behaviour towards water at all levels of society. The broad aim of water education is to facilitate changes in behaviour and personal attitudes among water consumers and to promote better understanding of the environment in a water context. To achieve this, it is important to develop capacity in schools and communities in order to optimise human potential, thereby empowering individuals to:

- Develop an awareness amongst boys and girls of water related environmental issues;
- Gain knowledge, insight, and skills necessary to analyse the issues and understand why men and women, boys and girls view and use water in the environment in particular ways;
- Examine attitudes, values, and behaviour in a gender sensitive manner regarding consumption of water in communities found within each city;
- Identify the underlying causes of current water related problems in the city;
- Support informed decision-making by the community that could affect the quality of their lives with respect to water;
- Participate actively in the sustainable management of their environment in a water context; and
- Evaluate and propose actions that will achieve effective water related solutions in support of water conservation.

Programme Activities

The main activities under the programme include:

- Development of a Water-related Environmental Education Strategy for African Cities
- Establishment of Water Classrooms
- Schools Water Audit

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[2] *Abidjan (Cote d'Ivoire), Accra (Ghana), Addis Ababa (Ethiopia), Dakar (Senegal), Lusaka (Zambia) and Nairobi (Kenya)*

- Water Quality Education
- Curriculum Development & Introducing Water Education in Pilot Schools
- Non-formal Education with Community Initiatives
- Water Health Care Education
- Information Exchange & North-South Twinning Arrangements

Why Water Education?

There is a compelling case for creating a new water-use ethic in African cities. The African continent, with the lowest water and sanitation coverage of any region in the world, is experiencing an unprecedented pace of urbanisation. This has put enormous pressure on the continent's water resources. The growing numbers of urban residents, especially the urban poor, pay an increasingly high price for water and for the lack of this vital resource. They suffer more in impaired health from contaminated or insufficient water, and also lose more in diminished livelihoods and even lost lives.

Paradoxically, while the urban poor struggle for water, more than half the water abstracted and treated at a high cost is wasted due to leakage and profligate use. There is a growing understanding that regulation of much of this wastage cannot be accomplished by technical and regulatory measures alone. These measures are necessary, and must be pursued with full vigour by water managers, but these are not sufficient by themselves. For these measures to be effective, they would have to be complemented by advocacy, awareness-raising and education initiatives.

In response to this, UN-HABITAT initiated the Water Education Programme in African cities[3]. The water education initiative is a strategic entry point to bringing about positive attitudinal changes among both water consumers and providers, and in the longer term, can help develop a new water-use ethic in society. Children and youth are the best ambassadors to bring about these attitudinal changes. Water education in schools and communities can therefore play an important role in bringing about a new water-use ethic in cities.

Human Values Approach to Water Education

The introduction of the water education initiative was preceded by an Expert Group Meeting (EGM) convened by UN-HABITAT in collaboration with UNEP and the Stockholm International Water Institute (SIWI) in Johannesburg, South Africa from 30 April to 2 May 2001. The meeting, hosted and chaired by the Minister for Education of South Africa, Hon. Prof. Kader Asmal, brought together international and regional experts on education/curriculum development, urban development, water resources management and NGOs active in water education. The objectives of the meeting were to share information on ongoing water education in Africa; develop a broad consensus among all stakeholders with regard to the most effective strategy for introducing water education in African cities; agree on sharing of

Children and youth are the best ambassadors to bring about attitudinal changes in water use and hygiene practices

[3] The Water Education Initiative is being implemented in six cities, namely Abidjan (Cote d' Ivoire), Accra (Ghana), Addis Ababa (Ethiopia), Dakar (Senegal), Lusaka (Zambia) and Nairobi (Kenya).

Prof. Kader Asmal, Minister of Education, Republic of South Africa, presenting a keynote address during the inaugural session of the Expert Group Meeting

responsibility for project implementation by different partners; and develop an action plan for project implementation.

An important outcome of the Expert Group Meeting was the consensus recommendation to pursue a value-based approach to introducing water education for African children and communities.

The Expert Group noted that water education should aim at promoting a better understanding of water as a key social, economic and environmental resource and should facilitate the emergence of a new water management ethic on the continent. It observed that the introduction and implementation of VBWE through formal, non-formal and informal channels of learning, especially through the use of the curriculum, is a promising strategy to bring about a positive and lasting change in attitude and behaviour towards water, at all levels of society.

Value-based Water Education is an innovative approach that not only seeks to impart information on water, sanitation and hygiene but also inspires and motivates learners to change their behaviour and adopt attitudes that promote wise and sustainable use of water. The value-based approach to water education seeks to bring out, emphasise and stress desirable human qualities, which therefore help us in making informed choices in water resources management. Nurturing values such as honesty, integrity, tolerance, responsibility, sharing and caring, etc., particularly in children during their formative years, will result in caring and responsible adults in the future. They, in turn, will lay the groundwork for character development of generations following after them.

Nurturing of values such, as honesty, integrity, tolerance, responsibility, sharing and caring, etc., in school children, during the formative years, will result in caring and responsible adults in the future

What are Human Values?

Human values are those qualities of a human being which are desirable, respected, worthy, esteemed, dominant and which are sanctioned by a given society. They are universal and are the essential foundation for good character, which alone can foster the development of caring and responsible adults in the future. There are five core human values: truth, right conduct, love, peace and non-violence. These values can be further sub-divided into their practical applications as shown in the table on page 4.

Different societies have different socio-cultural and value systems. The water education initiative has taken these into account through active participation by the countries involved. Participating countries have been encouraged to add local values relevant to their societies.

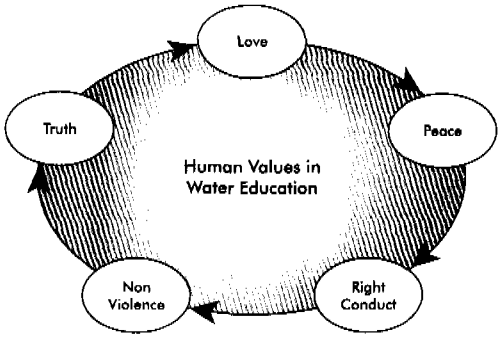
Practical Applications of the Core Values

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

Source: VBWE TOT Sessions

Universal Human Values

These values mirror the fundamental values enshrined in the Millennium Declaration: Freedom, Equality, Solidarity, Tolerance, Respect for nature and Shared responsibility



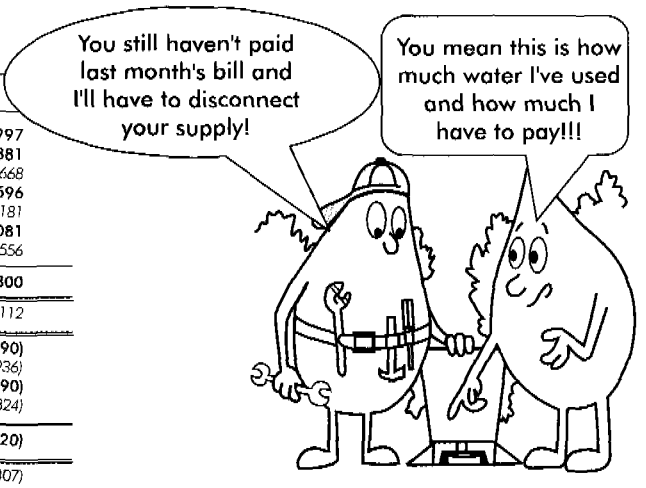
Examples of the Application of Value-based Approach in Schools

Lessons in book-keeping in Grade 9 inform children about the consequences of non-payment of water bills on the solvency of a water company.

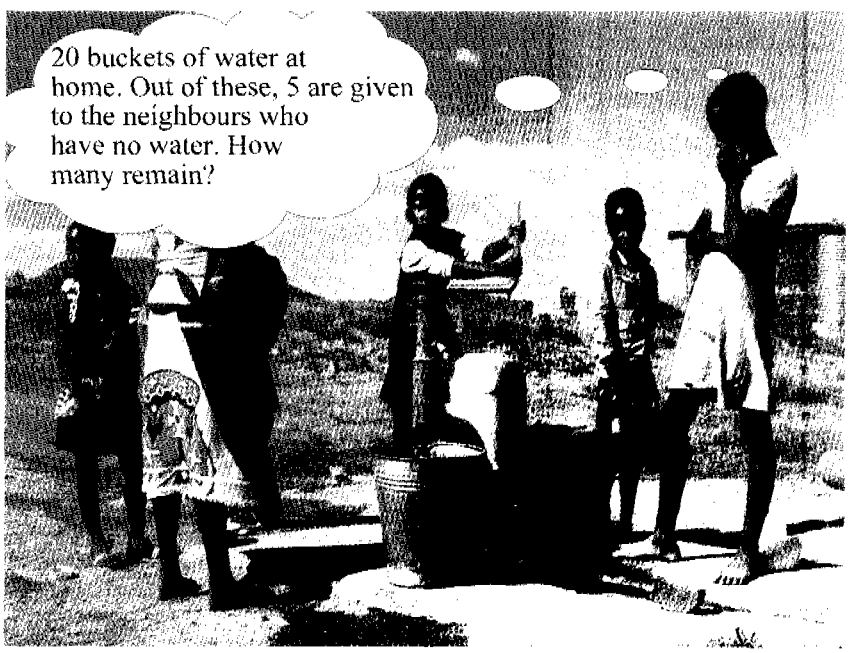
3.9 SUMMARY DATA 2 (Operating account)

Table 1 Operating account: income, expenditure and cash flow

(R'000)	1995	1996	1997
Income (billed) Nominal		**R 412,453**	**R 488,881**
Income (billed) real		*R412,453*	*R452,668*
of which Govt. subsidy		**R 32,596**	**R 32,596**
of which Govt. subsidy		*R32,596*	*R30,181*
Expenditure		**R 419,534**	**R 466,081**
Expenditure		*R419,534*	*R431,556*
Surplus (deficit)		**(R 7,081)**	**R 22,800**
Surplus (deficit)		*(R7,081)*	*R21,112*
Bad debts (non-payment)		**(R 28,610)**	**(R 34,490)**
Bad debts (non-payment)		*(R28,610)*	*(R31,936)*
Net annual cash flow		**(R 35,691)**	**(R 11,690)**
Net annual cash flow		*(R35,691)*	*(R10,824)*
Cumulative net cash flow	-13,539	**(R 49,230)**	**(R 60,920)**
Cumulative net cash flow		*(R49,230)*	*(R56,407)*



Simple arithmetic problems are introduced in the curriculum of Grade 3 to inculcate values of conservation, caring and sharing within a community.



Some examples of how human values can be integrated in school subjects are shown below:

Key Issues	Some 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 • Instil 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	• Inculcate in learners values of **caring and sharing** for water resources and sanitation facilities • Promote **a sense of consideration for others** and readiness to cooperate, and teamwork in community initiatives
Economic Efficiency	• Production and Distribution Costs • Wastewater 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.

Programme Implementation

The Water Education Programme was implemented in the following stages:

Sub-regional Workshops

To commence the implementation of recommendations of the Expert Group Meeting, two sub-regional workshops were convened. The first sub-regional workshop was held in Ndola, Zambia, from 26 to 28 July 2001. It was attended by senior professionals from the education and water sectors from Ethiopia, Kenya, Tanzania, South Africa and Zambia. The second sub-regional workshop was held in Accra, Ghana, from 17 to 18 August 2001. It brought together senior professionals from the education and water sectors from Cote d'Iviore, Ghana and Senegal.

The objectives of the Ndola and Accra sub-regional workshops were to share the outcome of the Expert Group Meeting held in Johannesburg; conduct training of trainers by exposing educators and those involved in the implementation of the project to the concept of Value-based Water Education and its possible use through formal, non-formal and informal channels; and to develop country-level action plans for project implementation in the participating countries.

The two sub-regional workshops were structured to provide the participants with an overview of the process that led to the adoption of a Human Values Approach to Water Education and to expose them to the tools, techniques and strategies of introducing it in their

respective countries. Participants developed country-level action plans for implementation in the participating countries. Among the key activities outlined in the national action plans is the Training of Trainers (TOT) to create of a pool of educators trained in techniques and strategies of incorporating VBWE in the existing school curriculum and in non-formal education.

Development of Resource Material

Resource material for Value-based Water Education and a pedagogic guide for teachers were developed by UN-HABITAT with the assistance of an expert on VBWE and in close consultation and active participation of participating countries. The expert collected and reviewed current school curriculum and teacher training and learning resources from the participating countries and other parts of the world. The first draft report was then sent out to participating countries for review and comments. It is only after receiving feedback from the countries on relevance of the learning resources to their national education needs that UN-HABITAT launched the TOT.

Training of Trainers (TOT)

UN-HABITAT, in collaboration with respective ministries of education in each of the six participating countries in the Water Education Project, conducted Training of Trainers (TOT) workshops on Value-based Water Education. The five-day TOT workshops were held in Abidjan (15-19 July 2002), Accra (22-26 July 2002), Dakar (29 July-2 August 2002), Addis Ababa (19-23 August 2002), Lusaka (9-13 September 2002) and Nairobi (14-17 October 2002). The workshops were officially opened by the ministers of education or their representatives and attended by high-ranking educationists, including directors of education, curriculum development specialists, inspectors of schools, subject specialists, and non-formal education (NFE) practitioners.

The objective of the TOT workshops was to train curriculum development specialists, inspectors of schools, subject specialists, and non-formal education (NFE) practitioners in Value-based Water Education (VBWE) and techniques of mainstreaming it in national education. The trainees would, in turn, impart training of VBWE to primary and secondary-level teachers and community groups in their respective countries. The training programme catered to pre-school, primary and secondary levels of education. Non-formal water education was also included in the programme.

Participants at theTraining of Trainers (TOT) Workshop on Value-based Water Education held in Dakar, 29 July - 2 August 2002

The specific objectives of the training included:

- To help trainees understand what human values are in relation to water education and how these values could contribute to a new water-use ethic in society;
- To help trainees integrate these values into school curriculum with special reference to water-related topics extracted from school syllabi of the six participating countries;

The number of participants per city were as follows:

City	Abidjan	Accra	Dakar	Addis Ababa	Lusaka	Nairobi
Number of Participants	36	44	25	57	25	37

- To equip trainees with knowledge, skills and positive attitudes towards water education in schools and through community channels;
- To inspire trainees to develop attitudinal changes towards water use; and
- To help trainees become Value-based Water Education trainers in their respective countries.

Workshop Proceedings

The trainings sessions were structured to provide participants with opportunities for active participation throughout the training process. The workshops began with an inaugural session in which key speakers delivered opening remarks and keynote addresses.

After the inaugural session, the training team from The African Institute of Sathya Sai Education (TAISSE) took the participants through the techniques and methodologies of integrating human values in water-related lesson plans. The lesson plans used during the training were developed by UN-HABITAT with the assistance of an expert on VBWE, and in close consultation and active participation of the six participating countries. The expert collected and reviewed current school curriculum and teacher training and learning resources from the participating countries and other parts of the world. The first draft report was then sent out to participating countries for review and comments. It is only after receiving feedback from the countries on relevance of the learning resources to their national education that UN-HABITAT launched the TOT.

After going through the techniques and methodologies of integrating human values in water-related lesson plans, the participants embarked on the development of their own VBWE lesson plans, based on their respective country formats. During the exercise, participants from the respective ministries of education developed lesson plans incorporating their local values. The lesson plans were then discussed and endorsed at the plenary session.

This was followed by preparation of action plans detailing next steps to be taken by the countries after the TOT. The participants also expressed their commitment to mainstream VBWE in their national education in a workshop declaration, which was endorsed by all participants at the end of the training.

The TOT also provided the participants with the opportunity to develop their own VBWE lesson plans, which were discussed and endorsed at the plenary session. The plenary was also characterised by lively exchange of ideas on modalities of mainstreaming VBWE in national education.

Output

The main outcomes of the TOT workshops include:

Creation of National Teams of VBWE Trainers

The main outcome of TOT was the creation of national teams of VBWE trainers, who will, in turn, impart training of VBWE to primary and secondary-level teachers and community groups in their respective countries.

Declaration of National Commitment to Implement VBWE

The TOT workshops demonstrated a high level of national commitment to mainstream VBWE in the participating cities. In a declaration, adopted at the end of each TOT workshop, the participants unanimously endorsed the mainstreaming of the value-based approach to water education in their respective schools and communities. They recognised the role that VBWE could play in creating positive attitudinal and behavioural changes in water use and expressed their commitment to mainstreaming it in their national education by June 2003, when the Water Education Project is scheduled to end.

National Consensus on Next Steps

Participants developed time-bound action plans detailing how they wish to proceed with implementation of VBWE after the TOT. The main post-TOT activities include training of teachers in pilot schools, pilot testing in pilot schools, and continuous monitoring, evaluation and mainstreaming of VBWE in the entire school curriculum by June 2003.

Country-level Activities

After the TOTs, the six participating countries embarked on the implementation of the above activities outlined in their action plans.

Results Achieved So Far

The following results have been achieved:

- **Consensus on water-related environmental education strategy for African cities.** The EGM recommendation of using a value-based approach to introduce water education in African schools and communities was inspired by a number of reasons. From a purely practical point of view, the approach is particularly suited to Africa, as it does not require heavy investments in infrastructure, which few African countries can afford; it reinforces the rich cultural heritage of Africa where traditional knowledge and values on water conservation and equitable use have been passed down the generations; and it is also a proven approach that is already in practice in many countries around the world. The two sub-regional workshops also helped entrench the approach at both regional and national levels.
- **The interest the project has generated in the participating cities.** Water utilities, in particular, have realised that water education is a valuable tool in improving both their service delivery and customer/public relations. For example, in July 2001, Addis Ababa Water and Sewerage Authority (AAWSA) organised a water week for the first time with one segment dedicated to water education.
- **The project has also generated immense interest in cities currently not covered by the programme.** The strongest interest has been expressed by the cities of Johannesburg and Dar es Salaam which requested to join the programme. The requests were processed by UN-HABITAT and the Dar es Salaam Project is due to commence soon.
- **Enhanced network of education officials.** The programme has enhanced the network of education officials from the six participating cities. The network is useful in the exchange of ideas and experiences between the countries with regard to the implementation of the water education programme.
- **Better collaboration between education and water sector officials.** The programme has strengthened the collaboration between education and water sector officials, and created the required synergy and cooperation in the implementation of the various components of the Water for African Cities Programme.
- **Impact of water education programme in the Asian cities programme.** Experiences gained from the implementation of the Water Education Programme in African cities has had a significant impact in the Water for Asian Cities Programme that was launched during the WSSD in Johannesburg, South Africa.

Lessons Learnt

The following lessons have been learnt:

- Water education has been embraced by water utilities as a viable tool for improving service delivery and customer / public relations.
- Value-based Water Education is easily internalised in African cities due to the inherent nature of the values in African societies. The challenge is to reawaken these inherent values and apply this in the use and management of water resources.
- Project ownership in the participating cities has been self-motivated as demonstrated by their demands and interest in the project.
- Networking of children and North-South twinning has been extremely beneficial in exchanging information and ideas on the project.
- Collaboration and partnership between various project implementation partners, such as government agencies, international and regional

professionals, NGOs/CBOs, and the private sector has been instrumental in introducing water education in African cities.

- Networking of education officials from the participating countries is vital in ensuring exchange of ideas and experiences between countries. This will be enhanced through periodic consultations and reviews of progress in implementation of the Water Education Programme.
- Synergy and collaboration in the implementation of the various components of the Water for African Cities Programme is enhanced by joint consultations between education and water sector officials from the participating cities.
- Effective consultations and involvement of participating countries in the development of resource material for VBWE enhance their sense of ownership of the materials. This will ensure the effective use of material by the countries in implementation of the VBWE programme.

CHAPTER 2

Mainstreaming Value-based Water Education (VBWE) in National Education: Tools and Techniques

I. The Direct Method in Water Education

The main objectives of the Direct Method in relation to water education are:

- To raise the consciousness of students so that they acquire a heightened, integrated awareness of our dependence on nature – water in particular.
- To bring enjoyment, fun and laughter into learning about water management.

In this way, they would see the role that water plays in their lives and therefore come to value it more, and learn to appreciate water in terms of its uses and conservation.

The Direct Method appeals more to the heart than to the head and is, therefore, ideal for children in basic school. The Direct Method and its components have been used throughout the ages by humanity to teach, to inspire, to advise, to warn and elicit human values, which have been and are considered the rock on which all societies are built. For example, in the Christian Bible, the Moslem Koran, the Hindu Gita, the Buddhist Scriptures, the Jewish Torah, and the African Cultures and Traditions, the Direct Method has been effectively employed as an educational tool.

The Direct Method and its Components

This method consists of the following components:

- Silent Sitting and Guided Visualisation – which leads to concentration
- Prayers and Quotations (also proverbs, verses and poems)
- Story Telling
- Group Singing
- Group Activities

Silent Sitting

What is Silent Sitting?

It is teaching students to sit silently, quietly or still in a good posture so as to help them to concentrate and to focus their minds on a particular thing, which may be the lesson or an object.

It is in silence that intuition works, that wisdom flows and that truth is unfolded as we see in churches, mosques, courts of law, examination halls and in research laboratories.

What are some of the effects of Silent Sitting?

- It affects its practitioners in several ways which bring about peace and truth. It promotes harmony and contentment.
- It increases attention and appreciation for elements, especially water.
- It encourages introspective enquiry, for example why should they save water, how and when!
- It develops mental tranquillity, caring, sharing, peace and tolerance in water activities.
- It sharpens the intellect and helps examine the importance of, and to investigate into, purification and conservation of water techniques.

So in this component of Silent Sitting values of love, truth, curiosity, intuition, honesty, understanding, peace and non-violence are brought out.

Prayers – Quotations (Proverbs/Verses/Poems)

"Water is so common in our environment that we tend to take it for granted; yet of all the natural resources available to human beings, water is perhaps the most essential for virtually every human activity."

– Mrs Anna Kajumulo Tibaijuka, Executive Director, UN-HABITAT

Teach children to pray and give thanks for the gift of water first thing in the morning and last thing at night. This gift enables them to wash first thing in the morning; to drink; to cook; to fish; to swim; to drive machines; to water their crops and environment and to use toilets – because water is life ... protect it ... love it ... respect it.

Teach children to recite poems, prayers, quotations and affirmations that have elevated ideas about water, for example:

"Water wasted is life wasted"

"Every drop counts"

"Water is life, don't waste it"

"Water wasted is life wasted"

"Every drop counts"

In this way, the good thoughts are recorded in the sub-conscious mind and are retrieved by the conscious mind, which then result in good water actions and habits.

The noble emotions, which are released in prayers for and about water, are antidotes for the abuse, wastage, disrespect and irreverence for water.

What are the Effects?

Prayers and quotations have the following effects on their practitioners:

- They instil unity and harmony among water suppliers and users and bring about right conduct, co-operation, civic responsibility and non-violence.
- They establish true human ideals in water management in African cities.
- They promote love and respect for water.
- They develop the memories of students in all aspects of this important element - water.
- They improve concentration. Students develop curiosity, a quest for knowledge and enquiry about water.

The values brought out in this component of Prayers and Quotations are truth, tolerance, right conduct, peace and respect.

Story Telling

As a teaching medium for illustrating the importance of water in creation, a story can elicit powerful emotions and inspire a desire in students to imbibe lessons on water. For example, there are 87 units relating to water in the Zambian school syllabi.

Stories about the magnificence, usefulness, sanctity and sacredness of water abound in African folklore. These stories pass on the wisdom of proper water utilisation and conservation. Stories also strengthen the hearts and minds of listeners. So we have to select, write and tell stories which help the students to practice the lessons they have learnt on water management.

What are the Effects?

Story telling has the following effects:

- It kindles a passion for helping schools, houses and communities in water management. This develops right conduct, love and non-violence.
- It encourages a feeling of oneness with water since each of them is 75% water.
- It promotes patience and tolerance during water shortages. The UNFPA (State of World Population) states that by 2025 two out of three people in the world will face water shortages; and the World Health Organization (WHO) states that 5 million people in Africa die of unsafe drinking water per annum. Of these 3 million are children.
- It widens horizons of knowledge for research into the uses and conservation of water.

- It encourages an interest in water-related stories and brings out right conduct and truth.

In story telling we bring out truth, respect for others, love, peace and right conduct.

Group Singing

Life is a song. Let part of the students' lives be filled with uplifting water songs in different languages. Let them derive joy, happiness and awareness of the importance and uses of this vital element in their lives.

The power of music is well documented. It is easier for children to remember poems and verses about water if they are made into songs.

Water, Water, Water – Water fell on me (x 2)
On the day of Baptism – Water fell on me.

Start the day with a water song
Fill the day with a water song
End the day with a water song
That is the way to live.

Love is flowing like a river
Flowing out from me and you
Flowing out across the river
Making all the water pure.

The Effects of Group Singing

- It promotes harmony and joy. By singing about water the students bring out the values of love, peace, truth and right conduct.
- It removes social barriers. If students sing different water songs in different languages they promote unity in the midst of multi-racial and ethnic diversity and cultivate truth, love, peace and right conduct.
- It develops love and devotion. Students develop love and respect for water.

Group Activities

The essence of all human values is love and love ushers in a sense of unity, co-operation and shared joy.

In order to foster growth of love in students, water activities, which entail interacting with others in water projects, are vital.

Effective learning takes place only after a period of practice or involvement has been added to theoretical presentation.

Those activities that involve 'mutual help' in water projects will lead students to a shared experience to practice them.

The Effects of Group Activities

- They give a better understanding of group water activities.
- They awaken a stronger sense of civic responsibility in group water management.
- They promote powers of discrimination between proper and improper management of water.
- They develop discipline in so far as they minimise wastage or other forms of water vandalism and encourage right conduct and non-violence.
- They encourage co-operation and team spirit in shared water projects.

So right conduct, love and peace are brought out.

Human Values Elicited in the Direct Method in Water Education

We have seen that several values are brought out in the direct approach because of its five (5) components of:

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

Group Activities should be made relevant to local conditions such as capacity, availability of resources and constraints of the time-table.

This approach is C-C ('Child-Centred'). This involvement gives them a feeling of togetherness; of

belonging; of being part of the group or team, and, therefore, brings out the best in them, helping them develop good qualities and hopefully become good human beings.

Suggested Projects for Students Participating in Water Education

- Water Posters
- Water Day
- Water Badges e.g.
  - 'I Love Water'
  - 'Save Water – Save Life'
  - 'Water Wasted Is Life Wasted'
  - 'Every Drop Counts'
- WTF-Water Task Force
- Water Clubs
- Water Brigade

Group activities should be made relevant to local conditions, such as capacity, availability of resources and constraints of the time-table.

II. Integration Method

In the integrated method, the content and knowledge of the subject are intertwined with values. Values are inherent in all subjects. When the teacher is planning lessons, he / she has to apply his / her mind and find out which are those values and how they can be naturally interwoven in teaching. The teacher highlights the values inherent in the lesson. The teacher can also discover values with the class; and highlight, emphasise and reinforce these values through a variety of teaching methods and activities.

For example:

Mathematics – The mathematics teacher aims at improving memory, logical thinking, precision and accuracy. Some of the values inherent in the subject are truthfulness, consistency, reliability, curiosity, a spirit of inquiry and discipline. The teacher can help in drawing out values if problems are centred on real-life situations. The teacher can integrate values into the wording of mathematical problems and develop short stories in the problems. Telling children about the qualities of great mathematicians would also be useful.

For example, in water education a problem can be worded as follows:

"Mr. Malinga's family draws 20 buckets of water from the well daily. If 7 buckets are given to the sick old lady next door everyday, how many buckets will remain?"

Values such as caring, sharing, compassion, love and consideration for others can be emphasised.

Science – The study of science promotes the values of reverence and love for nature. This enables the student to respect the laws of nature and the Creator. Values, such as curiosity, spirit of inquiry, kindness to animals, patience, responsibility and endurance, can be emphasised. Children will develop a love for nature and gain an understanding of our absolute dependence on nature, so that any disregard for this dependence will lead to disease and death. For example, in water education, our dependence on water can be stressed. Disregard for our dependence on water has caused many diseases, such as cholera and diarrhoea. Millions of people, especially children are dying from these diseases.

CHAPTER 3

Contribution of Value-based Water Education to the National Educational Goals and Objectives in Africa: A Regional Perspective

by Victor Kanu[1]

This chapter has four primary objectives:

- Clarification of two concepts: human values; water education.
- Identification of national goals and objectives, and their associated problems.
- Demonstration of how human values can be integrated into water education (VBWE).
- The contribution, if any, of such an approach (VBWE) in meeting the national goals and objectives (pertaining to water) of the six participating countries in Water for African Cities Project.

Human Values

It is best to start with three reasonable assumptions:

- Human beings, consciously or unconsciously, strive towards their well being – human excellence. This is their cherished goal.
- Human beings possess certain innate or acquired qualities (from their cultures and traditions, religions and constitutions, and their social and political organisations), which are desirable and worthwhile and which have been accepted as important and necessary in the pursuit of their goal. However, it should be borne in mind that the practical application of these qualities varies within cultures and from culture to culture.
- Because they pertain more specifically to humans, who have the capacity to rationalise, conceptualise, analyse, adapt and enforce them with accepted standards of approval and, also, because of the critical role that these qualities play in sustainable human development, we call them human values.

There are five core human values: **truth, right conduct, love, peace** and **non-violence**.

From the sum total of practical applications of the core values, experts from the six participating countries, namely Abidjan (Ivory Coast), Addis Ababa (Ethiopia), Accra (Ghana), Dakar (Senegal), Nairobi (Kenya) and Lusaka (Zambia), have identified and accepted as indigenous to their cultures and traditions and relevant to water education the following:

- Sharing and caring for the environment (e.g., avoiding water pollution).
- Sharing of information with others to widen and improve choices.
- Consideration for others, particularly those needing help.
- Discrimination between right and wrong conduct.
- Cleanliness and hygienic living.
- Respect for others' needs, for both men and women.
- Compassion and helpfulness for the needy, particularly for the vulnerable groups.

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- Responsibility of citizenship, importance for civic engagement.
- Readiness to co-operate, teamwork, community action.
- Self-reliance and resourcefulness (without being dependent on other's help).
- Proper utilisation of resources through efficiency improvements (e.g., by avoiding wastage).
- Prudent and honest behaviour (e.g., paying water bills, abstaining from illegal water connections, etc).

Water Education

Water education is not just about water literacy (knowledge of the science of water, types, sources, uses, treatment, management and its associated problems, etc). These are, of course, important tangibles. However, water education is also about intangible things that are equally important. These include peoples' perceptions of water, the level of their consciousness towards water usage, awareness of their civic responsibilities towards water, cultural beliefs and practices. In short, it is about human values about the community's sense of duty, the obligations members have to each other, to the use of water itself and to future generations.

The community's sense of duty ought to be strengthened towards the management of water and other resources, which took billions of years to develop and, yet, which could be diminished or exhausted within a relatively short period of time.

There is, thus, a compelling need for the introduction of human values in water education as complementary to the existing technical and regulatory measures in water demand management. In this manner, water education will stand firmly on the twin towers of water literacy and human values.

National Goals and Objectives

There exist many dissimilarities in the six participating countries in terms of size, water resources, water management styles, economic differentials, social and environmental norms related to water, etc. Yet their national goals and objectives are basically similar. They all have, as their main goal, the provision of adequate cost-effective and good water supply for all (the economic and social dimensions of water). In cognisance of the fact that these goals cannot be achieved in isolation, they have, as complimentary goals, maintenance of a good environment; avoidance of water wastage and pollution; prevention of vandalism and illegal connections; discouraging late or non-payment of water bills; non-tampering of water meters; prevention of water riots; eradication of corruption; and the enhancement of adequate sanitation and better hygiene practices.

Water and hygiene education is embedded in African traditional values of solidarity, respect for nature and shared responsibility

In pursuit of their goals and objectives, the six cities have been using different strategies as leverages towards the realisation of their national goals. Water utility companies and NGO agencies, for instance, have been relying on water demand management strategies. In the formal channels of education, the curriculum of each

country contains water-related topics that are, in the main, information-centred. Overall, these measures have not produced the desired results of reaching national goals and objectives. This is because of the absence of second tower that lays emphasis on the transformation of attitudes and behavioural patterns of water users and providers.

Demonstration of Human Values in Water Education

The human values approach to water education uses two main methods:

1. **The Direct Method:** which consists of five components:
   - Silent Sitting / Concentration / Guided Visualisation.
   - Quotations, Proverbs, Poetry Related to Water.
   - Stories About Water.
   - Songs (Local / International) About Water.
   - Group Activities Relating to Water (This method can be used in formal and non-formal channels of education).
2. **Integration Method:** This method is more suitable in dealing with academic subjects in the school curriculum.

Examples:

Subject	Integration Of Values
MATHEMATICS (Percentages)	Consideration for the scarcity of water; sense of economic use and caring.
ENVIRONMENTAL SCIENCE (Acid Rain)	Sense of curiosity and quest for knowledge; sharing and caring for the environment; and co-operation and service.
BIOLOGY (Transpiration)	Sense of giving and sharing; co-operation/teamwork and conservation.
CHEMISTRY (Chemistry and Water)	Sense of civic responsibility; duty and consideration for others; discrimination between good and bad.
GEOGRAPHY (Major World Physical Features)	Respect for nature; caring and sharing; co-operation; observation of rules and regulations.
RELIGIOUS EDUCATION (Rites of Passage and Change)	Self-reliance; appreciation of one's culture; purity and cleanliness.
PHYSICS (Bodies in Water)	Sense of discrimination and responsibility; concern for others; care, respect and reverence.

Value-based Water Education (VBWE) can also be extended to water management issues.

Value-based Management Approaches, Underlying Human Values and Teaching Techniques

Some Key Water Management Issues	Value-based Dilemma	Value-based Solution	Underlying Human Values	Suggested Teaching Techniques
1. **A social issue** Lack of safe water and basic sanitation facilities could be life-threatening to all – poor and rich alike. How could water and sanitation be made accessible and affordable to the poor in the cities?	Am I willing to share the cost of providing water to the poor in the slums? This may mean that I will have to pay a higher price for water than I pay today.	Yes, I care for my poor neighbour. I am ready to pay a higher price for water when I am convinced this will help extend water supply to poor neighbourhoods. I will afford it by cutting down my entertainment expenses.	• LOVE: Caring for and sharing with others. • RIGHT CONDUCT: Self-sacrifice; respect for others; service to others	• Story telling • Group activities • Prayer / quotation
2. **Another social issue** How to deal with corruption in daily life which ultimately affects sustainability of services in cities?	Should I pay the high water bill every month or make a deal with the meter-reader, who offers to under-read it or tamper with it so that I can pay a flat rate which will be less costly to me?	Yes I will pay for the actual cost of water I consume. If I follow unscrupulous means, this will set a bad example for my children, whom I want to see growing up as responsible citizens.	• TRUTH: Truthfulness • RIGHT CONDUCT: Honesty • PEACE: Integrity & self-respect	• Group discussion • Role playing • Group singing • Prayer / quotation
3. **A conservation issue** How to deal with profligate wastage of water in households?	Should I stop watering my gardens and washing my cars during summer months when scarcity of water affects the city? I can afford the water bill and I want my garden to be green and my car to shine even if it may mean less water available to others.	Yes, I should take every opportunity to conserve water, even if it means a little inconvenience to me and even if I can afford a higher water bill. Water is a gift of God, but it is given in trust to us. While we enjoy this gift, we have no right to waste this precious resource.	• RIGHT CONDUCT: Proper utilisation of resources. • PEACE: Self-discipline • NON-VIOLENCE: Consideration of others	• Quotation • Story telling • Group discussion • Role playing
4. **An economic governance issue** How to promote the concept of water as a social and economic good?	We are told that water is a gift of God. Then why are we asked to pay for water? Water in the river and in the wells, after all, belongs to everybody and should be freely available to all.	Yes, I have an obligation to pay for water I consume. Water is a limited resource, to be shared by many users. Each must pay according to his need and ability, to cover the cost of supply. Nothing is absolutely free in nature.	• RIGHT CONDUCT: Respect for others' needs • NON-VIOLENCE: Awareness of responsibility towards common good • Readiness to co-operate • Fellow feeling • Sense of social justice	• Group discussion • Group singing • Prayer / quotation

Contribution of VBWE to Meeting National Goals and Objectives

That VBWE can, and will, make a contribution towards meeting the national goals and objectives in the six participating countries in the Water for African Cities is evidenced by the unanimous acceptance of the approach by:

(1) The Expert Group Meeting that took place in Johannesburg from 30 April to 2 May 2001.

> *"I hope that the recommendations of the Expert Group, contained in this report, will provide a practical framework for introducing Water Education in African countries."*
> – Anne Kajumulo Tibaijuka, Executive Director, UN-HABITAT

(2) The sub-regional workshops that were held in Ndola (Zambia), from 26 – 28 July 2001 and Accra, on 17 & 18 August 2001.

(3) The Training of Trainers (TOT) workshops that were held in:

- Abidjan (Ivory Coast), from 15 – 19 July 2002
- Accra (Ghana), from 22 – 26 July 2002
- Dakar (Senegal), from 29 July – 2 August 2002
- Addis Ababa (Ethiopia), from 19 – 23 August 2002
- Lusaka (Zambia), from 9 – 13 September 2002
- Nairobi (Kenya), from 14 – 17 October 2002

VBWE has brought about a re-awakening of African cultural and traditional values pertaining to water as a scarce and sacred commodity. This ancient wisdom is now being blended with modern developments in Africa, so as to produce a harmonious synthesis of the traditional and the modern. Consequently, the participating countries were able to easily relate to VBWE because it is theirs and not something that is imposed. That VBWE is a major contribution to African educational thought and practice in the achievement of national goals and objectives is seen in the speed and readiness of the participating countries in adopting pilot schools for the training of teachers and, subsequently, the mainstreaming of VBWE into the national curriculum by June 2003 and June 2004, respectively.

There is abundant empirical evidence of valuing water in the schools that have been using the Value-based Water Education approach and in the public sector, where magnificent awareness campaigns, orchestrated by water utility companies and NGOs, have been making steady progress towards the realisation of national goals and objectives. For instance, the wise use of water and execution of civic responsibilities have taken an upward turn.

Conclusion

This highlights the fact that it is people who use water! People waste and pollute water; industry owners contaminate water; the wealthy monopolise available water at the expense of the poor and the less powerful; ignorance and misconceptions of the value of water – on the part of the poor – lead to wastage and result in unnecessary hardships. At the same time, institutional policing of water usage, to promote its efficient exploitation, has, on the whole, been costly and ineffective.

It is obvious, therefore, that the young, the adults, the rich and the poor alike, all need to be educated in the management of water. It is also obvious that imparting only formal knowledge on the physics and economics of water is unlikely to encourage a caring, sharing society with such responsible attitude to water usage as can be achieved through the incorporation of a human values-based component in the education curriculum.

VBWE is clearly an effective and indispensable tool in meeting the national educational goals and objectives in water management. There is a growing and heightened consciousness of shared values and shared commitment to VBWE.

CHAPTER 4: COUNTRY PERSPECTIVES

Ethiopia

by Hailu Dinka[1]

Of all the men we meet with, nine parts of ten are what they are, good or evil, useful or not, by their education (Locke, 1695)

That the process of education is concerned generally with the passing on of beliefs and moral standards, accumulated knowledge and skills to the future generation is a well established fact. This can be stated briefly as the nurturing of human personality and an investment in human capital. In essence, it is a recognition of the fact that society's cultural values and modes of life should be taught and must be learned, as only their understanding can lead individuals to truly inherit them. The process of assimilation of the experiences of earlier generations, whether useful or not, is at the basis of this task, and thus, the younger generation should be assisted by family, social environment and, more specifically, by the educational institutions that it attends. The formulation and attainment of any national educational objectives of the present society seem to conform to this statement. At the outset, the end of education is human growth, elements of which include new insights, flexibility, openness, hospitality to novelty, truthfulness, imaginative, creative, etc., which cumulatively constitute value development.

The subject of values entails ethical principles and this involves the concept of right and wrong, good or bad, true or false etc. The problem is that there cannot be universal agreement on these. Ethical principles generally include what in most societies are accepted as good or bad: Good, if actions involved coincide with what we consider within our moral values; bad, if we think the actions involved are contrary to our accepted moral principles (values). Most of what in Christianity are called the Ten Commandments seem to be acceptable to most followers of other religions. Many people seem to agree on such simple concepts, as "do not kill, do not steal, do not lie". But when it comes to issues of sustainable development and what it involves, most people seem to disagree. This could be due to opposing interests, which hinder arriving at a universal definition of moral principles (values). Therefore, through debate and dialogue acceptable definition should be reached. Although this could be difficult to achieve, a compromise can be reached about what moral principles involve. Here a compromise does not mean much by itself, but abiding by the responsibility of accepting the compromise is important. For example, unsustainable consumption patterns of water involve ethical principles, but stopping unsustainable consumption of water implies sacrifices. Such compromises would involve commitment to present and future generations as well as sacrifices of material and financial nature.

At the outset, the end of education is human growth – the elements of which include new insights, flexibility, openness, hospitality to novelty, truthfulness, imaginative, creative, etc., which cumulatively constitute value development

It is a well-established fact that the planet earth, as the only home of mankind and in which all men are common citizens, has limited resources. Earlier generations everywhere, and specially those in the developed world, had been acting as though the earth's resources were limitless. But as time went on, with the subsequent population explosion, nuclear warfare, the pollution of the atmosphere, the poisoning of the earth's food chains and the increasing depletion of the earth's vital resources, like water, many people became aware that the injudicious exploitation of the resources of the earth would pose dire consequences for mankind everywhere. Among the responses of such awareness include intensified population control programmes as well as the creation of an office in Nairobi, designated to work around environmental protection programmes,

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a component of which is the conservation of water. Although one could conceive other possible water conservation schemes, the recent approach became change the attitude and the moral principles of all men and women, young or old, through a human values-based water education. This will address the issues facing, humanity now and in the future resulting in the sustainable consumption of water.

What are Human Values?

Various definitions of values are given in different literatures. Although an agreement may not be reached on one single definition, as discussed earlier, a common consensus can be reached. In general terms, values are desirable qualities in humans, of humans. They are the qualities humans exhibit and cherish. They are the qualities binding the society, the qualities that make civilisation, the qualities that distinguish human beings from other species. They are always in us, they are with us and around us in all situations. One could probably say they are universal; in other words, they are found everywhere. They go beyond political and cultural boundaries and civilisations. They are desirable qualities of character, such as honesty, peace, tolerance, diligence, responsibility, compassion, justice and respect, etc. Moreover, values are qualities and regulations that govern the existence of humans and civilisations.

Why Human Values In Water Education?

Today, in the world in general and developing countries like Africa in particular, the population is growing at an alarming rate. As a report by UNFP indicates, the population of Eastern Africa will grow from 240.9 million (1999) to 426.2 million (57% increase), 170 million to 249.1 million in Northern Africa (69% increase) and 216.3 million to 382.5 million in Western Africa (57% increase) by the year, 2025. This means the increase in population for these three geographic areas of Africa is assumed to be 61% by the year, 2025. On the other hand, resources are limited and they cannot be increased to keep pace with this population increase. When it comes to water, the situation is debilitating. It is even depleting faster than any other natural resource. Many developing countries are today suffering from drought, and are migrating from their home places in search of water / cultivable land. For example, there is a severe drought in rural Ethiopia today. More than 10 million people are starving, and there is a fear that the number could scale up to 15 million in the months to come if quick interventions are not made. This, as anyone could guess, has been caused by a shortfall of rain, traditional farming techniques and lack of conventional and technical knowledge in using irrigation schemes for farming in rural areas, as is the case with many developing countries elsewhere.

Scarcity of water is not only a phenomenon in rural areas, it also pertains to urban settings. Urban areas are, on the whole, better served with water supply while water needs of slum areas and poorer sections may not be met. Irrespective of the differences in access to water supply, lack of attention to water conservation has become a major problem in urban areas. Although many people may have technical and conventional knowledge to meet their demands for water, the misuse and wastage of water due to profligate use, unnecessary leakages, evaporation, etc., have not been overcome. Because of this, there is a need to change the attitudes and values of the individual water user through education, more specifically Value-based Water Education. Through Value-based Water Education people can exercise right conduct (abstain from illegal water connection), be honest and transparent, provide good leadership (exercise legitimate authority), avoid partiality in providing water services to the needy and be examples to others in managing water, be accountable (keep canals, rivers, streams etc. from pollution), etc. Moreover, Value-based Water Education can help in setting moral standards to alleviate unsustainable consumption of water. Such ethical standards and principles involve the acceptance of slogans, such as "water nowhere is a threat to water everywhere", or "drought anywhere is a threat to affluence everywhere". This is similar to such slogans, as "instability and terrorism anywhere is a threat to stability everywhere". These slogans are significant for the sustainable survival of humankind. Among other things, lack of potable water and repeated drought would threaten the survival of humanity in the long run and, therefore, it has become inevitable to change the attitudes of water consumers, through value-based approaches taking water as an entry point.

Eventually Value-based Water Education approaches would help the individual consumer to:

- Develop a sense of duty and responsibility for the economic use of water.
- Develop a sense of accountability for the misuse and unsustainable consumption of water.
- To be aware that all human beings cause and contribute a lot to the scarcity and depletion of water and also to conserve it.
- Adjust the way he / she uses water in the family, in the surroundings and in the community he / she belong to.
- Understand the important statement that "water is life" and act accordingly.
- Enhance character development and promote self-governance in using water at any time.

Future Possibilities and Options

The issue of the most invaluable natural resource, "water", concerns all men and women alike, irrespective of spatial settlements, whether urban or rural, east or west, north or south. The conservation and management of water should, therefore, be seen as a joint venture and a partnership activity. Although this can be taken as a general consensus globally, it is at the national level that the bulk of the work should be done in terms of recognition of the impact of water-related problems, in terms of setting priority areas, to address the issue to the general public and citizens to enhance their water consuming values. National governments can use education as the best means for this purpose. The formal and non-formal education channels can be taken as the most possible ways of addressing water management practices and experiences. In the formal education, the curriculum can be taken as an option to introduce Value-based Water Education to the young generation by integrating contents and concepts relating to water consumption practices. For example, in the natural sciences, social sciences, and languages water can be treated as a topic and value-based approaches applied. In mathematics, value-based approaches can be applied in exercises and problems. The same can be done in other non-academic subjects, like book-keeping, music and the arts. Besides, the non-formal education channel can be another potential means to introduce value-based approaches to adults and out-of-school children through basic education. The problems relating to water can be addressed to adults, as they are always concerned with their present situations and interested in solving problems they experience on a daily basis.

The civil societies can also play a pivotal role in water related issues. Civil societies, especially NGOs, can serve not only as stimulators and advocates but also in the actual implementation of decisions relating to water conservation. They run workshops, educational institutions and can address issues like lack of fresh water, water harvesting techniques, causes of contamination of water, etc., to the disadvantaged and the vulnerable groups. Civil societies can ensure the participation of people at all levels to complement the work of government departments. They can advocate the needs of the drought stricken and the voiceless majority. In general, civil society groups can contribute effectively to enhance moral standards in sustainable supply and consumption of water. NGO's can do effective work by strengthening partnership with government departments, professional associations, teacher associations and labour unions that can also have vital roles in enhancing the development of ethical principles in water management.

Teachers, through their associations and clubs, can act with commitment and mobilise students. Moreover, all religions have to be defining forces in ensuring moral values in sustainable consumption of water. The private sector – though profit being its moving motive – has to be socially conscious by undertaking water friendly activities without sacrificing profit. Such social consciousness, whether in children or adults, can occur through education – the ultimate end of which is the development of a socially useful and ethically principled personality. In conclusion, human values-based water education is the best means, which puts an impetus on the attainment of national educational goals for developing an individual with accepted moral standards.

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CHAPTER 4: COUNTRY PERSPECTIVES

Ghana

by Ebenezer Charles Otu[1] and Faustine K. Klaye[2]

Introduction

There are undisputed facts that water is very essential to life. No form of life can survive without water. In short water is life, yet water is scarce!

The quality and availability of drinking water can affect our lives everyday, but most people take drinking water for granted, assuming that there will always be a safe and abundant supply of water. All parts of the country have water problems of some sort. Whilst some places have problems of contamination, others have problems of shortages.

Traditional Value of Water

Traditionally when a visitor comes to our home, he / she is first given water to drink. This means the visitor is welcomed in peace. Thus water symbolises peace in our society. When a child is being outdoored, the head of the family dips his forefinger into water and drops it on the tongue of the child. The family head does the same thing with alcoholic drink and then makes these pronouncements: "If it is water, it is water, if it is alcohol, it is alcohol." The child, from that time on, is being taught to distinguish between water and alcohol. At the same time he / she is being asked to tell the truth all the time. In other words: "Let your yes be yes and your no be no."

Sources of Our Water

In the rural set-up, water is drawn mainly from rivers, streams, ponds, wells and lakes. The fetching of the water is done with any container the person can lay hands on, thereby contaminating the water.

In our cities and towns, the main source of water is pipe-borne, which is supplied at great cost. But unfortunately some people misuse this facility. This has resulted in the wastage of millions of gallons of water. For example, taps are left running when the water is most needed; burst pipelines are ignored for hours before action is taken to remedy the situation; water hoses are used to wash cars and in the process they are left on the ground to go to waste; gardens are flooded with treated water because the hoses are left to run freely on the ground. Because of these, there is no continuous supply of water to all parts of the cities at the same time. For example, currently the people of Adenta, a suburb of Accra, get their water supply once a week whilst Ashalley-Botwe, another suburb of Accra, may be lucky if it gets water once a month.

It is in the light of the above that the Ministry of Education welcomes the UN-HABITAT's Value-based Water Education Programme, which will give a great support to the attempt being made to educate the nation against the wastage of water. The fact that the target groups for the programme are mainly the pupils and students in our first and second cycle institutions is gratifying, since they are the future leaders who will champion the welfare of the nation. If they are transformed then half the battle is won.

Value-based Water Education

In broad terms, Value-based Water Education is teaching children to be wise water users. It involves inculcating in children good values in relation to the use of water. It is providing a foundation and a guide on which the child can develop acceptable societal values and norms towards the use of water. Value-based Water Education is an area of study, which fits naturally into most subject areas and topics.

It is in response to these facts (water is very essential, no form of life can exist without water, water is scarce)

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[2] Member of the National Steering Committee, VBWE Programme, Ghana.

that UN-HABITAT recently instituted a strategy, known as Value-based Water Education, which will lead to the wise use of water with the hope that people's conscience will be appealed to, so that there is positive change in their attitudes towards the use of water.

Whatever cultural differences exist between different societies, the fundamental principles of Value-based Water Education underline good practices. The common values, which include truth, love, peace, right conduct and non-violence, are universal.

The concept of Value-based Water Education cannot be said to be entirely alien to the Ghanaian Educational System, in that much emphasis is already being laid on religious and moral education in our schools. Water-related topics are also found in our syllabuses. It is the integration of values into these topics that is yet to be emphasised. This integration of values into the various subjects is going to reinforce the efforts of the education system in inculcating in pupils the right attitudes and values.

The concept of Value-based Water Education cannot be said to be entirely alien to the Ghanaian Educational System, in that much emphasis is already being laid on religious and moral education in our schools.

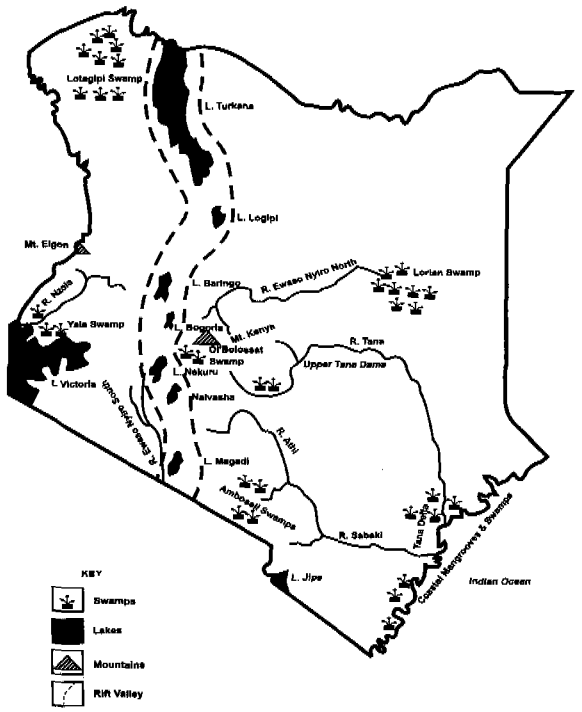
This is the reason why the Ministry of Education warmly embraces the introduction of Value-based Water Education Programme by UN-HABITAT. It is our fervent desire that this new concept, with regards to water education, will be pursued vigorously to its logical conclusion to the benefit of human kind.

CHAPTER 4: COUNTRY PERSPECTIVES

Kenya

By Gabriel Muita[1]

In Kenya the distribution of water varies from place to place. For example the lake Victoria basin and the highlands are wet and, therefore, have more water resources. However, north-eastern and eastern parts of the country are dry and, therefore, less endowed with water resources.



Syombua is 12 years old. She comes from the Iveti hills of Machakos in Eastern province of Kenya. She is in primary seven at Muthini Primary School, which is 5 kilometres from her home. She is supposed to be in school by 7.30 a.m. every morning.

Before she gets to school she has to attend to several domestic chores, one of which is to fetch water from a dry river bed two kilometres away. To reach the water table, she has to scoop some sand from the riverbed. Once the water table is reached, some little dirty water starts to seep to the surface. She has to wait for sometime for the water to collect and clear up. Then she patiently draws water in little amounts using a calabash to fill her container.

Syombua then takes the water home. At home, the water has to be used for cooking, washing utensils, washing clothes, drinking and watering livestock. Syombua feels weary because of the tedious routine of fetching water daily. She also always gets late for school. As a result of what Syombua goes through, she values water so much. Although she loves to share it with her family members, she cautions them to use the water sparingly.

Kimutai is 12 years old. He comes from the slopes of Mount Elgon in Western Kenya. Kimutai's parents have constructed a tank for harvesting rainwater. His family also has access to water from the nearby river and spring. The members of his family use water for cooking, drinking, showering, cleaning the house and sometimes irrigating the vegetable garden.

Kimutai's family members view water as a God-given resource, which does not get exhausted. When Kimutai visited his aunt, who works in Machakos, he noted that the aunt bought 40 litres of water, which they would use for two or three days. His aunt's family uses the water sparingly. Kimutai is, therefore, expected to reduce the amount of water he uses for various purposes. Having

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had an experience with scarcity of water, Kimutai returned home with a changed attitude to water.

Although Syombua and Kimutai come from different parts of the country, they are exposed to the same education curriculum in which water education is taught. In addressing the issues of water, the UN HABITAT organised a contest on Value-based Water Education. The schools were invited to send in their entries. The submissions were to originate from value-based experiences on water in real life situations.

Kimutai and Syombua wrote essays. The messages in their articles addressed the following human values related to water:

- **Love** - Syombua showed love to her family by sharing with them the water obtained through hardship.
- **Non-violence** - Kimutai co-operated with the aunt's family through careful use of the scarce water.
- **Peace** - Syombua showed patience while collecting water from the dry river bed.

Apart from the essay, Kimutai wrote the following poem:

Along the slopes of Mt. Elgon
I flow freely
Down on the Kano plains
I flood and cover houses
I am water, I am life
On the Athi plains of Machakos
I hide myself
They seek for me all over
Women go to low lying areas
I am not there
They dig the soil to reach me
I am scarce
I am water, I am life
If you build a house for me
I will be available for your use
If you use me properly I will continually be available for you
I am water, I am life.

Water is a life-sustaining resource. It must be used sustainably for now and for the future.

CHAPTER 4: COUNTRY PERSPECTIVES

Senegal

by Abdourahim Gaye[1] and Kaba Diakhate[2]

Introduction

The current school curricula in Senegal do not include water education. Topics proposed in the curricula only take into account the cognitive aspects, even if needs and representations call for new approaches for what has been described as "life principle". This paradox can hardly be justified since the Senegalese current living preoccupations with regard to water are crucial and multidimensional. It is, therefore, time to consider a change of paradigm that could be based on values.

A Dangerous Consumption, at Times...

First of All, a River: Symbol and Life

The river that gives its name to the country, Senegal, draws its waters from the Fouta Djallon Mountains and flows toward the Atlantic Ocean, over a distance of 1,700 km. From Saint-Louis, the first capital of French-speaking country in West Africa, to Bakel, another Senegalese city, its waters flow through cities and villages, including two regional capitals (Saint-Louis and Matam) and two sub-regional capitals (Podor and Bakel).

Thus, thousands of Senegalese maintain some multiform relationship with this river: transportation, agricultural activities, drinking water and other relevant uses. The dams, recently built on the Senegal river, favour the irrigation of many hectares of farmlands and generate important production of rice and vegetables. The river plays a central role in the daily life of thousands of the riparian population, and this explains why it should be included in school curricula; realising its relevance countrywide and helping raise awareness is a very legitimate goal. Moreover, some riparian drink the water directly fetched from the river, without any treatment while, at the same time, lacking sanitation facilities. In doing so, they face a serious hazard, for it is well known that the river is used for the dumping of refuse; some use it for their laundry, for their bath, to ease themselves and ... to quench their thirst! There is an imperative for adequate education.

The majority of the Senegalese population fetches water from wells. The problem of providing safe drinking water is so crucial that a candidate to the presidential elections adopted it as a main theme for his campaign to the extent of being nicknamed "Mister Borehole". Most wells do not have suitable covers, and the tools used to draw water are left on the ground all day long. The numerous users of wells are, thus, exposed

Water is the principle of life. It is fundamental for all living organisms and nothing can replace it

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[2] Inspector of Elementary Schools, Member of the National Committee for Curriculum Development, Inspectorate Department of Mbour, Senegal

to waterborne diseases. What about consumers who draw water from "seane"[3]?

Eventually, the common canary. Most Senegalese families have at home a canary from which the whole household drinks water. The hospitality requires serving a cup of water to any visitor as soon as he is offered a seat. The person bringing the cup must kneel down when presenting the water to the visitor, in sign of respect to both the water and the visitor. The whole family drinks water with the same cup, which is thrown several times into the canary all day long. If this is a sign of sharing, it can also be a tragic sharing of diseases.

Senegalese Traditional Representations of Water ...

In a hymn magnifying his mother's concern, Youssou Ndour[4] sings: *Bu may tukki, nga tuur ndox* [5]. These words highly portray Senegalese representations of water. Indeed many Senegalese think that water can only be a source of blessing. In pouring water onto the doorstep of the house or the bedroom, one tries to protect the traveller against dangers and other difficulties awaiting him. This practice is systematised in some families, whether or not there is a traveller. It is this widely practised representation that leads women to pour water on the spot, where a child has fallen badly when he is making his first walking steps. They are convinced that pouring water (the blue gold) is a magic act to cast out any forthcoming evil.

Many examples like this can be found to illustrate representations of the Senegalese traditional attitudes toward water. In Senegal, people see water as one face of paradise and there is a belief that any person, who dies in water, goes straight to heaven. More important for us is the fact that water is given an idyllic picture, sometimes fantastic, and so it becomes a bit difficult to explore more venues. Water is "a source of life", but it can also be a source of conflicts and misfortunes. "The problematic (sic) of water takes a cornerstone place in principal debates on mankind's future and rightly so: as a universal heritage, a common belonging to people all around the world, source of life, the blue gold is more than never before in danger..."[6] Is it not surprising that a water education programme is not implemented?

For A Value-based Water Education ...

In a world of globalisation and competition, marked by an alteration of our social values where we are all losing our reference points, the value-based education has become a priority. It may be the only way we can achieve Socrates' ambition "to stimulate what is best in man: his heart better than his mind or his physical aspect". The value-based aspects we should adopt are those, which make them "ideal-type". As Alquie once said: "Value does not appear as the object of our desire, but as what should be the object of mankind's desire."

But what does the word, value, mean?

The meaning, generally accepted, represents value as an absolute ideal, what mobilises us, calls us, and makes us commit ourselves. According to Kerlinger, value is "an organisation of beliefs, of relative options to abstract references or principles, to behavioural norms or living models. They (sic) express moral judgements, imperatives and preferences for norms and behavioural models ..." A Value-based Water Education cannot be summed up in titles or topics padded out in others and cannot be taught as something anonymous like "earth rotation ... roads and trails ... the weather ... "[7]. Water, as highly praised by Saint-Exupéry: "you are not a source of life, you are life", deserves a special attention. The development of water-related modules could initially be based on the identification of core human values and

[3] *"Seane" is a word in Wolof (the national language in Senegal) that means a shallow well, where you can draw water like from a pool*
[4] *Youssou Ndour is the most famous Senegalese singer*
[5] *From Wolof: "When I travel, you always pour some water..."*
[6] *From article written by Amady Aly Dieng on "Water, common patrimony of humanity", from Alternatives for the South, vol. 3 (2001), Walfadjri No. 3116, 4 August 2002*
[7] *From official curriculum of Senegal, Decree 791165*

related values likely to structure the prototype desired for our students. Core values (truth, love, peace, right conduct, and non-violence) and / or their related values should be the foundations on which objectives can be built. Given the present alternatives of defining the profile of our learners according to their future role in society, our objectives should include, in addition to " knowledge" and "how to", "behaving and acting in a special way". Schools must dare to transmit values, in spite of difficulties and divergent philosophical considerations. We believe, as Theodore Ndiaye (former member of the Executive Council of UNESCO) that "the strong demand on meaning, the strong search for identity and roots can only be equalled by the difficulties arising from a Value-based Water Education: knowing how to discard them, to mark them, knowing how to utter them, daring to transmit and communicate them to others, learning how to receive and put them into practice everyday."

Senegalese current curricula can easily include the following topics related to water:

- In a first step:
  - I wash my hands after a meal; the collective washer
  - Safe water: the well, the creek
- In a second step:
  - *water in the environment*
  - nature needs water
  - water in my region
- In a third step
  - Flowing water: rivers and streams
  - The water cycle

The list is not a comprehensive one. While waiting for the introduction of Value-based Water Education in our curricula, these themes could be refined to meet the expertise to install in learners the respect for water, on a value teaching basis.

CHAPTER 5

Contribution of Education in Human Values to Non-formal Water Education

by Amin Gwaderi[1] and Pireh Otieno[2]

Through the efforts of organisations, such as UN-HABITAT, the world is increasingly becoming aware of the value of water in everyday life. This is particularly so in Africa, where the importance of water for survival is evident to a large section of the population, not only in the rural areas but in many large towns as well. Informal settlements, shantytowns and slums, which are an increasing percentage of the African urban scene, are especially vulnerable to the vagaries of water supply and usage. The problems of supply are organisational at the national level while usage is a personal and community issue. This does not however exclude the well-off members of urban society, who very often are far less tolerant of water deprivation but nonetheless can still be profligate in water usage.

The supply issues are generally engineering and economic concerns, which can be dealt with at the national policy level. Once supply in any form is assured, wastage and pollution can still confound healthy usage by the individual consumer. The quality of life in African society may well be directly measured by the availability of water and the effectiveness of its use. Community use of water, especially in the less industrialised parts of the world, is a good indicator of the existence, or lack of harmony, amongst the people comprising the community. Water scarcity is invariably associated with communal tensions.

The significance of water is that it is the single most important natural resource necessary for the survival of the individual human being and transcends boundaries of nationality, race, class, culture, economics and gender. This leads to an interesting comparison with universal human values, which also transcend all these factors. Furthermore, the pursuit for enhancement of the quality of life goes hand in hand with the goal of adequate supply and equitable use of water by human beings.

If these factors are coupled with global concerns about the future of water as a finite resource to be husbanded through proper use, the need for water education is apparent, and concerns are rightly being directed towards appropriate methods of water education.

In this context, the United Nations' "Managing Water for African Cities Programme" is timely in so much as that for too long the question of water as a valuable resource, although frequently discussed, had not been on any global agenda for action. The initiative now being undertaken, with water education as its key plank, is a laudable approach of laying the foundations of a preventive rather than a curative solution to the problem.

The objective of water education through the formal education system will undoubtedly greatly encourage a sensible view of water amongst the educated population in the future. However, outside this segment of society is a large section, which is not accessible to formal methods of education. This section is not necessarily limited to the poor, although the poor are probably the majority affected. It also includes industrial, institutional and domestic users of water. For an entry point to this section of society, which—for the purpose of educational method—is the non-formal sector, one could return to consideration of the relationship between quality of life and values of people.

People may be said to enjoy a high quality of life if living is in harmony with the set of universal human values. Observance of these values in a society further leads to respect of the rights of individuals and concern

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[2] Project Officer, VBWE Programme, UN-HABITAT

for community welfare based on right conduct of the individual. Obviously any step that promotes the quality of life through the practice of positive human values is to be encouraged, particularly if, as observed earlier, the quality of life is directly related to the supply, and practice of the use, of water. Any such step requires a significant change in attitude by individuals to their personal lives, to that of their neighbours, and to their community. Only then will the concept of living in harmony to enjoy the use of the water available to them to the optimum reveal itself for the benefit of the whole community.

Non-formal water education is people related rather than being formally structured, and is often preceded by a change in attitude of the self, to life, and to the prevailing living conditions. The principles of this education, to be applied to achieve the behavioural change, are based on the universal human values of love, truth, right conduct, peace and non-violence. These are the principles that are particularly relevant to the community and can lead to harmony, sharing of whatever resources are available, and a willingness to care for other members of the community. Specifically, regard for truth and honesty, founded on love for peace and non-violence, are the cornerstones of right conduct. The successful observance of these values leads also to the enhancement of the quality of personal life, which includes more conducive interpersonal relationships, a stable neighbourhood and a reduction in physical insecurity.

This then encapsulates the purpose of Value-based Non-formal Water Education—it is the process of behavioural change through self-transformation which leads to an equitable and sensible use of water resources in a community.

There are well established learning tools which can be used to impart the practice and awareness of value-based education, such as are available at "The African Institute of Sathya Sai Education", which is well versed in the methods of education in human values. Traditional tribal cultures frequently harbour all the virtues of the value-based system described, including respect for nature and shared responsibility. Unfortunately many of these, based on custom, have been eroded through economic migration and the break-up of tribal community life. The process of reinstating these norms is a challenge facing many religious and educational organisations. Many have to relearn the principles themselves before attempting to communicate them to others. The process most often involves non-governmental and development organisations engaged with community based groups. However, organising for the implementation of what is often a major behavioural change requires further thought on the nature of the organisational methods applicable.

In the same way that the non-formal sector is outside the bounds of a formal education system, it is also outside the bounds of a conventional organisational method of transference of learning. 'Conventional organisational method' in this sense means the one based on the conventional 'command and control', 'intervention and outcome' structures of implementation. While a framework for implementation is obviously necessary, it must be integrated with the freedom of individuals participating in the process to exercise their creativity and contribute their individual talents and resources in a spirit of service to transform their attitude to each other, to the community, and to water in particular.

An effective way of initiating the process is through an assemblage of like-minded individuals coming together in an atmosphere of mutual trust to agree on the common purpose of determining a solution to the problems of usage of water in their community. The people engaged in implementation are primarily the individuals within a community, who benefit directly from this process but also include the authorities for supplying the water, non-governmental organisations, which facilitate the learning process, and health and sanitation organisations concerned with these aspects of water education. Each is allowed to contribute according to his or her perception of the issues involved and the group decides on the priorities to be included to achieve the agreed purpose.

In order for the education to be effective, all these disparate participants must recognise and accept the purpose of the process and the value-based principles, which will be observed in the course of the education. They must also acknowledge the value

of each participant to the overall purpose and accept a position of equity and trust, whereby no individual is higher in status to any other in pursuit of the overall goal. Once all the participants have embraced the values' principles, this will come naturally (although perhaps not without effort).

In other words, the principles of universal human values are applied to organise a value-based approach to water education! This approach ensures there is consistency in both the message and the manner in which it is delivered. It also clearly differentiates between the form and the function of an organisation. The concept is similar to the *chaordic* 'space free' organisational method so successfully used in the development of the international VISA credit card network and is particularly appropriate for a Value-based Water Education method requiring the harmonious co-operation of a group of participants, often with different backgrounds, and like the VISA system, is applicable globally.

That said, any organisation requires a clear understanding of the role of each of the participants in the overall movement, except these roles are predicated on function, based on competence to exercise that role rather than on status. It may be necessary to capture the description of individual roles in a written statement for clarity of purpose. This is also necessary to develop the next step, which is that of agreeing to the guidelines for the practice, that is, the activities required to be undertaken for implementation.

This precept has become rapidly evident wherever non-formal education has been attempted. The most successful examples have been realised whenever the differences of 'them and us', 'teachers and the taught', 'experts and the masses' are dissolved in an atmosphere of mutual learning and caring for the results that emerge. It is particularly evident amongst the poor and socially deprived. It engenders respect and self-development in all participants, which has a lasting effect on individuals, their communities, and eventually the nation.

In summary it will be seen that the observance of universal human values can make a major contribution to water education through behavioural change and personal development of all participants involved leading to an effective people-centred education approach in a non-formal setting. This results in a lasting benefit for individuals and communities far beyond immediate concerns while at the same time constructively addressing the issues of non-formal water education.

CHAPTER 6

Human Values in Water Education: Application in Water Classrooms

by Åse Johannessen[1]

Here I will elaborate on conceptual issues and approaches in water education, including water classrooms, the principles of the teachings and the role of teachers in such classrooms. I will also elaborate on some future possibilities related to water education. The text is aimed to inspire educators in other countries and contains personal views of my colleagues in the SWD team and myself.

Swedish Water Development AB (SWD) has produced background material in the UN-HABITAT project, "Water Education in African Cities", including a handbook for teachers and guiding material for organisers in establishing water classrooms. The Swedish team includes Sven-Erik Skogsfors (Project Manager, SWD), Brita Forssberg (Stockholm Water Company AB), Mats Kullberg (Ekosofia AB), Åse Johannessen (Stockholm University) and Åsa Axelsson (Stockholm Water Company AB).

Water has a Hidden Role

Today, the need for clean water for drinking and sanitation has never been more pressing, and sustainable development is on everybody's lips. But do most people really know what it is all about? What is needed to provide for clean water and sanitation while at the same time to walk the path of sustainable development for the benefit of coming generations?

Sustainable development is, in general, about not taking more from the earth than you can give back. Taking too much will undermine the earth's "life-support system" that provides us with our basic needs, such as food to eat and clean water to drink (Costanza et al, 1998). In the life support system, water has an extremely important role to play (Daily et al, 1999). Water is not only a commodity, such as drinking water and water for industry and irrigation, but also plays a hidden role, such as in ecological services, wetting of the land and being the bloodstream of the biosphere (Folke and Falkenmark, 1998). This is not the conventional view of water but an expanded one, showing the interconnectedness of people and the environment in an entire watershed. This understanding is crucial to achieve sustainable development.

Teaching About Water and Life

In our work the expression, "water is life", has been the guiding theme. It means that if we want to teach about 'water issues' then we must encompass all things related to 'life' as well. Therefore our work is firmly based on real-life situations, where economic and social considerations are made as well as environmental. This involves the whole spectrum from the smallest everyday situation to the biggest issues for several nations or even the whole of earth itself—plants, animals, and humans all interconnected.

A Free Ride on a Scarce Resource

Water resources can sometimes be described as a "common-pool resource", which opens up the possibility and temptation to free ride on that resource (Ostrom 1990). The challenge is to create incentives in people to share human values of common responsibility in order not to pollute or overuse the water resource. We want to change the behaviour of people so that they will be stewards of their own natural resources. In order to be

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stewards of the water resource, something more than just pure knowledge about the water cycle and related water issues is needed (Gunderson 2002). We believe that if you want to change the behaviour of people you have to integrate human values in water education.

Using basic human values, such as caring, sharing and respect as components in water education, provides an incredibly powerful tool for creating a holistic worldview of water. This will hopefully create incentives for water conserving activities in whole communities, perhaps even in the whole watershed, making people aware that they should care for, share and respect their water resource. If these values become the foundation for managing the watershed, then there is a considerably greater chance of achieving sustainable development.

Understanding Interaction

As we see it, water education is not about learning scientific names, rather it is about understanding the interactions of people and nature and the mutual love and respect that has to be a guiding principle in such a system. That is also how we will transmit the importance of water issues, striking a chord in the beings and hearts of people, not only in their minds. Here the traditional knowledge has an important role to play, being part of the memory of a community, embedding long-term historical and cultural observations (McIntosh, 2000).

Meet New Challenges

Apart from in some way creating a mutual love and respect for the environment, training learners in certain abilities will enable them to meet new challenges with flexibility, creativity and imagination and an ability to adapt to changing conditions with an open mind. This is needed in an environment that is non-linear, complex and unpredictable (Holling, 1978). There are no set recipes for this method, and I will give examples from the training planned for the water classrooms.

What is a Water Classroom?

Today, we need to gain an understanding of the water resource and the human values connected to it. Water classrooms are physical places, where such an education can be developed and elaborated. A local organiser runs them, and they consist mostly of representatives from the water works and educational ministries working in co-operation.

Water classrooms are situated in a city and look like typical classrooms, with equipment that make simple experiments possible—the basic tools being a few plastic bottles and water. The idea is simplicity and thus it is better to start off in a simple manner using basic means.

Water Classrooms are for Everybody

Water classrooms are basically for everybody. They are mainly designed for children in the formal or informal curriculum, but can also be used according to what the organisers intend for adults of the general public, politicians, entrepreneurs, etc. Everybody could learn about water! The timeframe of the teaching is flexible; it is possible to have one-day courses as well as full year courses where water is a theme running through several subjects of the normal curriculum.

Visitors being shown around the Water Classroom at Delta Park, South Africa

Principles of the Water Classroom Teaching

The idea is to start in the learner's own reality, creating an understanding of the issue being taught. From that point onwards, larger issues can be explained, still with a firm connection to local examples that the learners know about already. Understanding is also created through experiments and activities. We firmly believe that if you want to remember something you have to experience it through hands-on activities in the real world. Understanding is also created through asking questions— learning how to ask questions is often as important as answering them.

Afterwards, it is important to summarise the applicability of the lecture, explaining why the subject is being taught and how they can apply it in their everyday lives. The whole experience will hopefully be an inspiration for local peoples' own initiatives in their communities.

The Role of the Teacher

The role of the teacher in water classrooms is very important. We encourage teachers to take their own initiatives and be creative. It is preferred that the teachers feel free to draw upon many different educational materials, improvising and elaborating them to suit their local situation and purpose of teaching. We also encourage teachers to be active, using their own intuition to develop creative educational methods, for example using drawing, drama and puppetry. The teachers are encouraged to network with other teachers in other water classrooms and exchange ideas and inspiration. Also, the idea is to enable classes to share their water issues and solutions with other regions, and perhaps even countries.

Inspiration as a Key

We believe that inspiration through play and imagination is the key to the minds of children as well as adults. First we want to inspire teachers in teaching the material with creativity, something which children have an intuitive ability for. We also would like to inspire teachers to use fantasy, spirituality and joy. The purpose of teaching with joy is to create in the learners a sense of understanding of the surrounding world, while still maintaining the child's ability of feeling joy in making discoveries.

Inspiring curiosity in children is inspiring them to learn, and this fact has been an important part of traditional education. Education has long been based in the oral tradition, expressed as myths, stories and songs, fascinating its listeners; and who would forget such fantastic stories? This opens up the possibility of using myths and legends from all over the world, indeed a rich resource to draw upon, especially those of local origin. Drawing on imagination and fantasy, symbols of natural phenomena become a powerful educational tool allowing us to relate to them on a 'human' basis. For example, thunder becomes the 'voice' of rain; the river has feelings and 'spirit', and animals and plants 'talk' to us, explaining how to be good stewards of the natural environment.

Local Initiatives - Across the World

In the future, there is a need to maintain and further develop water education with the help of local initiatives. In the best scenario, local examples and experiments can be elaborated and made into a uniquely designed water educational material for that region. Water education could, then, act as a base for community activities in a village or even in a whole watershed, inspiring a constructive dialogue between different stakeholders. There is also the possibility of connecting teachers and learners across the world, creating an understanding of the similarities and differences in water issues across different regions.

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APPENDIX I

Recommendations of Expert Group Meeting (EGM) on Water Education in African Cities, Johannesburg, 30 April to 2 May 2001

Objectives of EGM

- Sharing of information on water education in African cities
- Developing a broad consensus among stakeholders with regard to most effective strategy for water education
- Developing an action plan for project implementation and sharing of responsibilities

Focus of EGM

- Value-based approach to water education
- Introducing water education in the curriculum and service provider-based water education
- Introducing water education through non-formal channels

Structure of EGM

- Issue papers
- Country papers
- Working groups
- Recommendations
- 54 participants, water and education specialists

Recommendations: Preamble

- Water is life. Water education is a fundamental prerequisite for sustainable human development.
- Water education should aim at promoting a better understanding of water as a key social, economic and environmental resource and should facilitate the emergence of a new water management ethic in the continent. The Water for African Cities Programme provides an excellent opportunity to promote this process.
- The introduction and implementation of values-based water education through formal, non-formal and informal channels of learning, especially the use of the curriculum, is a promising strategy to bring about a positive and lasting change in attitude and behaviour towards water, at all levels of society.
- Promoting water education will require a coordinated and collaborative effort of all key actors in the education, water and urban sectors, specifically partnerships among government, civil society and international agencies.
- The water education initiative should give special emphasis to capacity building, particularly to training of teachers and facilitators and the development of learning materials.

Values-based Education

- Consolidation of human / living values to be integrated into water education in a holistic manner
- National EGM and workshops

Values-based Education Strategy

- Conceptual clarification of universally accepted values and sensitisation of stakeholders to create awareness on the important role of Value-based Water Education.
- Introduction of extra-curricular activities to facilitate and promote Value-based Water Education.
- Collaborative adaptation of existing education material (curriculum) to incorporate Value-based Water Education.
- Training of formal and non-formal educators to form a core of trainers in Value-based Water Education.

- Recognition and incorporation of existing cultural values in water education.
- Collaborative policy development with relevant government authorities on Value-based Water Education.
- Consideration of the role of women in the introduction of Value-based Water Education.
- Integration of universal values with those of early childhood and peer group values.

Water Education & Curriculum

- Water education be value-based and integrated in subjects creatively
- Holistic, interactive and participatory approach coordinating body at local level for education / school authorities and water utilities
- Information gaps and capacity of teachers
- School-governing bodies

Water Education and Curriculum: Strategy

- Teacher training and development to build capacity
- Water classrooms and water quality and quantity audits
- Logistical support to schools, e.g., IT for information exchange, water for schools, schools for water
- Partnerships with non-formal education and NGOs
- Involve school-governing bodies

Water Education and Non-formal Channels

- NFE is outside the framework of formal channels. Targets children and adults, can be done in clubs and association, and is tailor made to needs of target group.
- Community empowerment.
- NFE education systems exist and should be supported.
- NGOs and CBOs for non-formal water education.
- Value-based Water Education in NFE: work with NGOs and CBOs.
- Integrative & participatory approach.
- National action plans and workshops, and establish a coordinating mechanism.
- Training of non-formal education practitioners.
- Good practices, collaboration and networking.

Plan of Action

- Establish project steering committee
- Draw-up national implementation strategies for introducing integrated Value-based Water Education
- Develop integrated VBWE curriculum
- Provide logistical support to schools / water classrooms
- Integrate VBWE into ongoing NFE

APPENDIX II

VBWE Lesson Plans: Samples of Country Models

1. Sample Lesson Plans - Ethiopia

NAME OF SCHOOL: _____
GRADE: **7**
DATE: **22 AUGUST 2002**
UNIT: **RATIO AND PROPORTION**
PERIOD: **40 MINUTES**

NAME OF TEACHER: _____
SECTION: **A, B, C, D**
SUBJECT: **MATHEMATICS**
TOPIC: **CONCEPT OF PERCENT**

OBJECTIVES

1. Define percentage.
2. Convert any given fraction to percent.
3. Integrate values in the lesson.

TEACHING AIDS

1. Map
2. Graphs
3. Part of a whole

TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	INTEGRATION OF VALUES
INTRODUCTION A large portion of the earth is covered with water. Human beings need water to live. However, only a very small portion of the water on earth is fresh water. Q. Where do we find water?	The students are expected to give their own opinion.	Students should be aware and develop sense of consideration for the scarcity of fresh water.
PRESENTATION *Definition: Percent is a fraction with a* denominator 100. It is possible to *change any fraction to percent and vice-versa.* For example, convert the fractions *given on next page to percentage:*	1. ¾ of the earth's surface is covered with water. What percentage is it? 2. 97% of the water on earth is salty and 2% is ice. If the remaining is fresh, what percentage is it? The average daily water consumption of a family is 500 litres out of which 100	1. They will develop sense of economic use of water. 2. They will be able to analyse the amount of water wasted in a family. 3. They will develop the knowledge of scarcity of fresh water.

TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	INTEGRATION OF VALUES
(a) $1/2 = \frac{1 \times 50}{2 \times 50} = \frac{50}{100} = 50\%$ (b) $1/5 = \frac{1 \times 20}{5 \times 20} = \frac{20}{100} = 20\%$ (c) $3/4 = \frac{3 \times 25}{4 \times 25} = \frac{75}{100} = 75\%$	litres is used for cooking and drinking, 100 litres for watering the garden and 200 litres for sanitation and washing purposes and the rest is wasted. What percentage of daily consumption of water is used: (a) for sanitation and washing (b) wasted?	
STABILIZATION For any fraction a, b, c # 0 if bc = 100 then $\frac{a}{b} = ac\%$	Copy the notes. They will respond to the given problem.	
EVALUATION 7/10 of the brain is water. What percentage is it?	They will respond to the given problem.	They will realise the importance of water.

NAME: _____ **SIGNATURE:** _____ DATE: 22ND AUGUST 2002

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SIGNATURE: _____ DATE: _____

NAME OF SCHOOL: **YEKATIT**
GRADE: **10**
DATE: **22 AUGUST 2002**
UNIT: **SEVEN**
PERIOD: **40 MINUTES**

NAME OF TEACHER: **LEALEM FIKRU**
SECTION: **C**
SUBJECT: **BIOLOGY**
TOPIC: **CONSERVATION OF WATER**

OBJECTIVES

1. Define conservation.
2. Explain some methods of water conservation.
3. Integrate values in the lesson.

VALUES

1. Instil in students the importance of water conservation.
2. Encourage pupils to respect nature.
3. Help pupils appreciate the importance of teamwork in doing activities.

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
1. Vegetation cover 2. Terracing methods 3. Ridge tie-method	**INTRODUCTION** Water is the most substance required by all living things to sustain life. The primary source of fresh water is rainfall, thus we have to work hard to take appropriate measures to prevent its loss. **PRESENTATION** ■ Definition: Conservation is the wise use of natural resources. ■ To give explanation how vegetation cover, terracing and ridge-tie method prevent loss of rainwater. ■ To give short notes. **STABILIZATION** Water is an important natural resource. Without it, there can be no life. We should thus try to conserve wherever it is available. **EVALUATION – QUESTIONS** To give written exercise to students in groups. (See students' activity)	**WRITTEN EXERCISE** Pupils in groups to discuss the following questions: 1. Define the term 'conservation'. 2. Explain the need for water conservation. 3 How does vegetation cover prevent loss of rainfall?	■ Text books ■ Wall charts of ridge tie-method and terracing method Quotation of the day: *"Water is life -- prevent its loss"*

NAME: LEALEM FIKRU **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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DEPARTMENT HEAD

NAME: _____

SIGNATURE: _____ DATE: _____

NAME OF SCHOOL: **KETHENE D SELAM (J S SCH)**
GRADE: _____
DATE: **22 AUGUST 2002**
UNIT: **NINE**
PERIOD: **40 MINUTES**

NAME OF TEACHER: **TESFAYE NEGEYA**
SECTION: **B**
SUBJECT: **SCIENCE**
TOPIC: **HEALTH & HYGIENE**

OBJECTIVES

1. Read and understand a passage.
2. Explain diseases resulting from unclean water and polluted environment.
3. State hygiene and health maintenance.
4. Integration of values.

VALUES

1. Develop self-knowledge.
2. Self-awareness about water-borne diseases.
3. Cleanliness to oneself and to community.
4. Pupils understand teamwork and develop the spirit of sharing and caring.
5. Concern for all by keeping surroundings clean.

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
Listen and speak Read and write The new vocabulary	**INTRODUCTION** Recapitulation of the previous lesson and story telling to motivate the students. ■ Asking pre-reading questions to elicit from the students as much as possible. ■ Why do we wash our hands before and after we eat food and after toilet? ■ What causes amoebic dysentery and the likes? **PRESENTATION** ■ Reading ■ Water-borne diseases, amoebic dysentery, diseases coming from poor sanitation like cholera, causing diarrhoea, vomiting, etc. ■ Help them gain knowledge and self-awareness about water borne-diseases. ■ Promote in students a sense of caring and responsibility in controlling pollution of fresh water sources. ■ Elaborating new words dealing with water-borne diseases, typhoid, typhus, cholera, hygiene contaminate, infect diarrhoea, etc.	Students develop curiosity and sense of inquiry, to know more about water-borne diseases. Show concern for all life by understanding the advantage of cleanliness. Participating in the teacher-led discussion, understand teamwork and hence developing the sense of self-confidence.	■ Lesson Plan ■ G 7 student Textbook ■ Blackboard ■ Chalk ■ Picture showing the cycle of water-borne diseases ■ Teacher's book

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
	STABILIZATION ■ Summarizing the lesson taught. ■ Water-borne diseases: causes and effect. ■ Drinking infected water, eating contaminated food, poor sanitation, all cause ill health. ■ Help students eternalise the need for purification of water for healthy living. **EVALUATION** ■ Follow up, checking of written exercises. ■ Asking questions in order to identify the items that need reasoning, i.e. (a) How can we protect ourselves from water-borne diseases, Amoeba? (b) What measures should people take at home and in their surrounding areas to live healthy? ■ This will enable the students to develop a sense of healthy living and concern for life.		

NAME: **SIGNATURE:** _____ DATE: 22ND AUGUST 2002

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DEPARTMENT HEAD

NAME: _____

SIGNATURE: _____ DATE: _____

SUBJECT: **BIOLOGY**
GRADE: **8**
PERIOD: **40 MINUTES**

TOPIC: **OUR ENVIRONMENT**
SECTION: **A**

OBJECTIVES:

1. Discuss the importance of water for life.
2. Explain the water cycle.
3. Realise that if there is rain, there is always plenty of food to eat.
4. Integrate values in the lesson.

VALUES:

1. Awareness to natural processes.
2. Be friendly (harmony) with the environment conservation.
3. Responsibility and citizenship.

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
Physical factors of the environment Water	**INTRODUCTION: A cultural song about rain.** "THERE IS CLOUD IN SHEWA AND RAIN IN GOJAM" SHEWA LYE DAMENE GOJAM LYE ZENBE MELAW TIGAB HONNE ..... TIG RAY LYE DAMEN ..... GONDER LYE .... HARAR LYE ..... WOLLEGA DAMENE ..... MELAW TIGAB HONNE. ETC. (THERE IS PLENTY OF FOOD) **PRESENTATION** 1. Importance of water (a) Absorbs and releases heat energy (b) Medium for metabolic reaction (c) Excellent solvent (d) 60% cells mass (e) Cooling (f) Drinking (g) Transport 2. The Water Cycle (Hydrological Cycle) (a) Evaporation (seas, rivers, lakes, etc) (b) Transpiration (plants .....) (c) Respiration (animals .....) Liquid ? Gas ? Solid ?	Group singing with clapping hands and dancing.	■ Wall chart about water cycle ■ Drum for rhythm singing

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
	STABILIZATION Summarize the main points of the lesson. 1. The importance of water for life – Conservation 2. The Water Cycle – Keep in touch with the environment harmoniously – Afforestation **EVALUATION (DILEMMA)** Abebe lives in a small local town called ENSIBARA-GOJAM. He earns his livelihood by selling wood charcoal to town. He continued to chop and cut-wood logs for a long time. There is no energy source other than wood and its products like charcoal in that town. What should you do if you were Abebe's neighbour? 1. Advise him to replace cut/lost trees by planting trees . 2. Will leave my neighbour to do his own business – depend on his income. 3. Report to the local Forest Inspector.	Pupils would likely react deforestation is a violation against the water cycle.	

NAME: **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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NAME: _____

SIGNATURE: _____ DATE: _____

NAME OF SCHOOL: **MINILIK II**
GRADE: **2**
DATE: **22 AUGUST 2002**
UNIT: **TWO**
PERIOD: **40 MINUTES**

NAME OF TEACHER: **T/GIORGIS HAILU**
SECTION: **A**
SUBJECT: **ENVIRONMENT SCIENCE**
TOPIC: **USES OF WATER**

OBJECTIVES:

1. Can identify three states of water.
2. To explain the importance of water for all living things.
3. Integration of values.

VALUES:

1. Caring and self-discipline.
2. Sharing of water in daily life and respect others' needs.
3. A sense of cleanliness.

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
Three states of water: ■ Solid ■ Liquid ■ Vapour ■ Transformation ■ Fishing ■ Irrigation	**INTRODUCTION** Introducing the lesson by singing 'Water Song". Asking questions related to the topic: (a) Why do you drink water? (b) When you become thirsty, what do you want to drink? **PRESENTATION** (a) Explaining the main uses of water by using pictures, photographs, charts, etc, by motivation. (b) Asking and answering different questions. **STABILIZATION** Repeating the main points from the daily lesson such as, *"All livings things cannot exist without water."* "The three states of water."	■ Listening ■ Singing ■ Answering ■ Listening ■ Asking questions	Tape recorder 1. Pictures 2. Photographs 3. Chart 4. Students' textbook 5. Overhead projector

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
	EVALUATION Oral questions from the given lesson. Example: Say TRUE or FALSE 1. Man can exist without water 2. Plants need water to grow 3. Fish can live without water **Homework** Write at least three uses of water	■ Answering ■ Doing the homework at home	As above

NAME: **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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DEPARTMENT HEAD

NAME: _____

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DATE: **22 AUGUST 2002**
GRADE: **5**
TOPIC: **WATER RESOURCE AND ITS ENVIRONMENT**
PERIOD: **40 MINUTES**

SUBJECT: **SCIENCE**
UNIT: **SIX**

OBJECTIVES:

1. Explain the uses of damp building.
2. Discuss the importance of irrigation.
3. Describe the use of reservoirs.
4. Integration of values.

VALUES:

1. Care for water
2. Co-operation
3. Compassion or helpfulness
4. Citizenship
5. Appreciation

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
Water as a resource and its conservation	**INTRODUCTION** ***Start with a story, "The 1974 Drought of Wollo".*** This is about the miserable story of Yimer and his family during the 1974 drought. Yimer lost his wife, six children and all his cattle during the drought. There was no food for the family, no vegetation for the cattle. **PRESENTATION** ***Discuss water as a resource and its methods of conservation.*** ■ Dump building ■ Use of reservoir ■ Importance of irrigation **STABILIZATION** Summarise the important values of water, i.e, ■ The care for water. ■ Appreciate the application of water in cultivation of vegetables at home.	- *Pupils are likely to* say that there is no food if there is no water. - Listen and participate actively in the discussion. - Digging wells in a team.	*Pictures and charts* of dump, wells, local reservoirs

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
	■ Develop compassion and sympathy towards others. ■ Dig wells in the school compound. **EVALUATION** 1. Give class work: (a) How do we conserve rainwater? (b) What is the importance of damps? 2. Give assignments to visit the nearby damp and report their observation.	- Ask questions related to values based on water.	Visit the nearby damps.

NAME: **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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NAME: _____

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DATE: **22 AUGUST 2002**
SECTION:
PERIOD: **40 MINUTES**

SUBJECT: **PHYSICS**
TOPIC: **ELECTRICAL ENERGY**

OBJECTIVES:

1. Show students how electrical energy is generated from water.
2. State the importance of water.
3. Integrate values in the lesson.
4. Integration of values.

MATERIALS :

1. Sheet of tin
2. Scissors
3. Metal rod
4. Stand
5. Water hose pipe
6. Trough basin

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
Electrical energy (hydro-electric)	**INTRODUCTION** The process of changing mechanical energy to electrical energy can generate electrical energy. **PRESENTATION** Water is a major source of electrical energy. To generate this energy, water actually has to fall from high to low altitude to turn a turbine. One common method to generate electrical energy is building a dam across a river so that the water is trapped in the form of lake behind the dam and is allowed to fall through the pipe to turn the turbine. **STABILIZATION** Water is one of the sources of electrical energy where potential energy (mechanical) is converted to electrical energy.	Listen attentively in a disciplined manner. Have a good participation in the teaching-learning process. Students are expected to answer the questions asked and perform their experiment (assignment).	Draw the attention of students to develop curiosity and sense of inquiry in order to know about electrical energy from water. Help students to realise that water is an important source of energy to generate hydroelectric power. ■ Instil in the students a sense of responsibility and care for water as a resource.

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
	EVALUATION – QUESTIONS: 1. Ask oral questions related to the topic so as to know how much they have coped with the topic. How do we generate electricity from water? 2. Group Assignment In groups of four, students are assigned to construct a model experiment to show that water flowing through a pipe rotates turbines.		■ Draw the attention of students to utilize water properly.

NAME: **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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NAME: _____

SIGNATURE: _____ DATE: _____

NAME OF SCHOOL:
GRADE: **9**
DATE: **22 AUGUST 2002**
UNIT: **SEVEN**
PERIOD: **40 MINUTES**

NAME OF TEACHER:
SECTION:
SUBJECT: **CIVICS**
TOPIC: **GUIDING PRINCIPLES OF ETHIOPIAN ECONOMY**

OBJECTIVES:

1. Acquiring basic knowledge about civic education and appreciate its instrumental role for shaping competent citizens.
2. Demonstrate qualities of responsible Ethiopian citizenship.
3. Cultivate in the students a sense of responsibility not to abuse usage of water.

VALUES:

1. Tolerance
2. Respect
3. Honesty
4. Compromise

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
■ Basic concepts and processes in economics. ■ Basic elements in economic relations and activities.	**INTRODUCTION:** The following terms will be defined in lecture method and discussion will be held in the classroom: ■ Demand ■ Supply ■ Scarcity and resources **PRESENTATION** ■ Using explanation and discussion ■ Giving short notes	■ Listen carefully. ■ Participate in the discussion. ■ Asking questions. ■ Taking brief notes. ■ Group activity. ■ Visiting economic activities institutions. ■ Writing reports in construction of dams, roads, health centres.	■ Civic education for Grade 9, July 1999. ■ Economic development. (Todara Michael, P. 1994)

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
■ Demand of water service by urban people for development. ■ Solving problems of scarcity of water.	**STABILIZATION** Human wants are without limits, whereas the resources available at any one time to produce goods and services are limited in supply thus, studies into economic problems by proposing alternative options and mechanisms. The discipline that studies these issues and processes is referred to as 'economics'. **EVALUATION** The following questions will be given to the students at the end of the lesson: (1) How do you balance the scarcity of water? (2) What solution will you provide for those people who are living with the scarcity of water?	(a) Give answers. (b) Participate in the discussion.	

NAME: **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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NAME: _____

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NAME OF SCHOOL: **MINILIK II**
GRADE: **2**
DATE: **22 AUGUST 2002**
UNIT: **ENVIRONMENT**
PERIOD: **40 MINUTES**

NAME OF TEACHER: **GETAHUN BERHANU**
SECTION: **C**
SUBJECT: **AESTHETICS & PHYSICAL EDUCATION**
TOPIC: **LIVING THING (FROG)**

OBJECTIVES:

1. Describe where frogs live and produce.
2. Develop muscle strength and balance through jumping on two legs like frogs.
3. Develop ability to draw diagrams.
4. Integrate values in the lesson.

VALUES:

1. Help to develop a sense of obedience through implementing the instruction given by the teacher.
2. Develop courage, self-confidence when discussing and doing exercises independently.
3. Develop brotherhood, friendship, discipline, respect for property while working in groups borrowing materials.

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
Discuss the living thing Frog. ■ What type of animal? ■ Where it lives (a) Water (b) Land? ■ For what purpose it uses water: (a) Food (b) Reproduction? ■ Develop strength and body balance through exercise. ■ Ability of drawing diagrams. ■ Develop singing ability.	**INTRODUCTION** Frogs are amphibians living on land and more in water. They use water as a food and food source, reproduce by laying eggs in water. They cannot reproduce without water. ■ They hop, hop and hop when they move. ■ They sing when the rain falls. **PRESENTATION** ■ Let the students discuss frogs in their surroundings in groups. ■ Jump on two legs into different plastic rings numbering 1 – 5 put at an equal distance in line. ■ Discuss the amount of water needed for a student after physical exercise and for what purposes. Expect cleaning their bodies, clothes and drink to replace the water lost during exercises. ■ Draw diagrams of frogs swimming in the pond.	■ Listening to the teacher's explanation. ■ Jump on two legs from ring to ring. ■ Discussing in groups about the need of water after exercises. ■ Draw diagrams of swimming frogs. ■ Sing songs about frogs and rivers.	■ Pencils ■ Crayons ■ Plastic rings ■ papers

MAIN CONTENTS	TEACHER'S ACTIVITY	STUDENTS' ACTIVITY	TEACHING AIDS AND MATERIALS
	STABILIZATION ■ Ask students to briefly explain what frog is and where it leaves. ■ Show the movement of frog particularly with different speeds. ■ Discuss the use of water for animals like frog and man after exercises. **EVALUATION – QUESTIONS:** 1. Can anybody show the movement of a frog practically? 2. Show or tell which muscles participate in this movement and what they acquire. 3. What purposes can water provide for a frog and man after exercises?	Explaining what a frog is: (a) Where it lives (b) The movement of frogs by hopping on two legs. (c) The use of water for: - Frog's food - Reproduction. (d) Cleaning body, clothes and drink for a man.	

NAME: GETAHUN BERHANU **SIGNATURE:** _____ **DATE:** 22ND AUGUST 2002

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2. Sample Lesson Plans - Zambia

2.1 Social Studies

NAME OF SCHOOL: **LUSAKA BOYS BASIC SCHOOL**
NAME OF TEACHER: **J. B. NKOLE (CDC)**
GRADE: **6**
DATE: **11 SEPTEMBER 2002**
SUBJECT: **SOCIAL STUDIES**
UNIT: **CONSERVATION OF WATER**
PERIOD: **40 MINUTES**
REF.: **TEACHERS GUIDE AND PUPILS BOOKS PAGES: 6+7 AND (PLS: 5-6)**
ELEMENT OF COMPETENCE : **THE IMPORTANCE OF CONSERVING WATER**

RANGE OF VARIABLES

- Chart of tips of how to conserve water.
- Charts drawn by learners on tips on how to conserve water.
- Overhead projector with transparencies on water sources.
- Ten tips on how to conserve water.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION Teacher will ask class to answer questions on the previous lesson on the importance of water as follows: a) Why is water important to animals and man? Ans: *It gives us life.* b) Can you mention the various sources of water? Ans: *Rivers, oceans, springs, lakes, rain etc.* c) Where is salty water found amongst these sources? Ans: *In oceans.* d) Which water is good for drinking - hard or soft water? Ans: *soft water.*	Learners will acquire the following values: - responsibility - caring - understanding - acceptance - dependability - self confidence - self awareness

STEPS TO FOLLOW	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES	INTEGRATED VALUES FOR THE LEARNER
1st step Group work 10 minutes	Teacher will divide the class into groups of 5 and give them a chart in each group on the ten tips of how to conserve water. Ask them to draw the activities in the tips and answer the questions that will follow.	Pupils will read the tips and answer the following questions. 1. How can they save water by not doing each of the activities in their drawn pictures? 2. What methods can they use to teach others on how to conserve water? 3. What are the advantages of conserving water? 4. Who is responsible in conserving water in the home and why?	The values they will acquire here are - Self confident - Creativity in drawing - Self control - Leadership in groups - Responsibility over work - Co-operation with others - Self discipline - Sharing ideas - Consideration of other people's views - Good behaviour - Obedience in carrying out instructions - Understanding by seeing things in drawing - Resourcefulness
2nd step Group presentation 10 minutes	Teacher will ask the class to present their drawn charts and answers to the questions in step 1.	Pupils will have their selected presenters but are free to add in where the presenter lacks. - They will pin their work in front of the class. - Present the answers and drawings on bad ways of water management.	The values they acquire are - Sharing - Co-operating with others - Leadership - Self-confidence when reporting - Loyalty to the teacher and group - Unity of purpose - Acceptance of responsibility - Self control and discipline
3rd step Class discussion 10 minutes	Teacher will discuss with the class the matter given on page 24		- Spirit of inquiry - Quest for knowledge - Concentration to know what they do not know. - Self analysis

STEPS TO FOLLOW	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES	INTEGRATED VALUES FOR THE LEARNER
	1. What are the uses of water? **Domestic:** Cooking, cleaning, washing, gardening, building etc. **Industrial and technology:** Manufacturing of different products. Service industries e.g. building and other processors. **Agriculture** For animals, crops. Let them mention these from their home experiences.	Learners will bring out answers on the uses of water on the various headings given in the teacher's column from their home experiences.	- Self-awareness of where the learner is not aware of knowledge. - Curiosity. - Attention to get the questions in order to answer correctly. - Responsibility. - Equality before the class. - Self control and discipline.
4th step Conclusion 10 minutes	Teacher will give the class a task of guided writing. To fill in the blank spaces in the following passage: 1. Water gives us ..... 2. The following are the sources of water O—s, R—s, L—s, R—n, S—s 3. When brushing your teeth always c—e your tap. 4. When bathing remember to close the t-p when applying soap.	Learners to take their exercise books and fill in the blank spaces of the given 4 sentences.	Learners here acquire values: - Responsible - Resourcefulness to find answers - Build self respect, control and discipline - Reasoning in order to find the answers - Co-operation to follow the teacher's instructions
	Teacher will give homework to the pupils to go and ask or look at the different ways people conserve water in their homes and communities.	Learners to go and research on different ways if conserving water by either asking their elder brothers, sisters mothers, fathers or any other people or by seeing what happens.	The learners here acquire - Self responsibility - Spirit of inquiry - Quest for knowledge - Discipline - Co-operation - Sharing - Dedication and devotion to their work

STEPS TO FOLLOW	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES	INTEGRATED VALUES FOR THE LEARNER
5th step Evaluation	Teacher will evaluate by assessing the performance of the children in the following tasks and values. **1. Group discussions** - Open-mindedness - Knowledge - Responsibility - Sharing - Facts, concepts, knowledge **2. Drawing** - Creativity - Composition - Facts portrayed - Beauty appreciation - Validity of drawings **3. Filling in the blanks** - Facts and knowledge - Handwriting - Obedience - Enjoyment through neat work **4. Home work** - Responsibility - Research ability - Care - Working independently		

ACTIVITIES

Draw the following water conservation tips in your groups:
Lusaka is experiencing a shortage of potable water.
Help us to make every drop of this precious resource count.

1. Take short showers and shallow baths.
2. Turn off the water while you are brushing your teeth, washing your hands and taking a shower.
3. Repair every tap and toilet leak. Even a slow drip can waste a lot of water each day and swell your bill.
4. Do not use toilets to flush away gum, plastic wrappers or any other small crap. These can block your drain and waste water.
5. Use a bucket to water the garden rather than a hosepipe.
6. Wash full loads in the clothes washer, washing partial loads can waste electricity, water and money.
7. Never use the hosepipe to clean off the driveway, a broom is better.
8. Use a bucket of water when washing the car instead of a hosepipe
9. Use the water you require and then turn off the taps in public places.
10. Report leaking and damaged pipes.

ACTIVITIES

1. Water gives us .....
2. The following are the sources of water O—s, R—s, L—s, R—n, S—s.
3. When brushing your teeth always c—e your tap.
4. When bathing remember to close the t-p when applying soap.

2.2 Environment Science

NAME OF SCHOOL:
GRADE: **4-6**
SUBJECT: **ENVIRONMENTAL SCIENCE**
TOPIC: **LIVING THINGS**

NAME OF TEACHER:
DATE:
UNIT:
PERIOD: **40 MINUTES**

OBJECTIVES:

1. Distinguish living from non-living things.
2. Explain the importance of water to living things.
3. Suggest ways of conserving water.
4. Integrate values in the lesson.

MATERIALS:

Plants
Animals
Stones
Chairs
Tins/spoons/pots

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION 1. Ask pupils to name things found in their homes. 2. Ask pupils to define living things. 3. Ask pupils to explain how living things in their environment get water.	Encourage pupils to be curious, seek knowledge and develop the spirit of inquiry and truth.
1. Living and Non-living Things The planet Earth is made up of living and non-living things, living things breathe, eat, move and can reproduce themselves while non-living things cannot. ■ Animals - man, birds, fish, insects, worms and snakes are living things. ■ Plants are living things. ■ Stones, furniture, football etc are non-living.	Encourage pupils to be curious, seek knowledge and develop the spirit of inquiry and truth.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
2. Living Things and Water Water is life. Living things both big and small depend on water for survival. They travel long distances in search of water. Animals, birds, insects need water to replace that lost through respiration, excretion and sweating. Plants cannot move from one place to another. They develop long roots that grow deep into the soil in search of water. It is important to conserve water. Without water living things become dehydrated and die.	Encourage responsibility of conserving water as the resource is not for human beings only but for all living things. Encourage proper utilization of resources through efficiency improvements.
Activities: 1. Ask pupils to sort out picture cards into two groups - living and non-living. 2. Discuss the main differences between human beings and the stones. 3. Suggest ways in which effects of drought can be reduced.	Encourage sharing of information with others to widen and improve choices.

2.3 English

NAME OF SCHOOL:
GRADE: **8**
SUBJECT: **ENGLISH**
TOPIC: **THE PRESENT SIMPLE TENSE**

NAME OF TEACHER:
DATE:
UNIT:
PERIOD: **40 MINUTES**

OBJECTIVES:

1. Use the present simple tense correctly.
2. Construct sentences in the present simple tense referring to habitual (repeated) action and facts.
3. Integrate human values in the lesson.

MATERIALS:

1. English Book 1 (1990); ZEPH, page 39.
2. Overhead projector.
3. Transparents.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION **Story** I wake up every morning at 06:00 hours. I greet my wife and my children. I then wash my hands, my face and brush my teeth. After I am ready, I go to the kitchen to help my wife with preparing breakfast. Thereafter, the family sits at the table to eat together.	We show the importance of cleanliness and healthy living. We also make pupils realise that love can be shown through helpfulness, friendship and sharing.
Development The teacher gives an explanation: We use the present simple tense for actions we repeat often and for stating facts. 1. I share my food with friends. 2. I help my parents in the chores. 3. My brother does not tell lies. 4. John does not like fighting. 5. Daddy stands by his friends all the time.	Love Right conduct Truth Peace Non-violence

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
Pupil's Oral Activity Match the following sentences with an appropriate human value. 1. People in my village draw their water from a well. 2. He visits his family every weekend. 3. Zambians observe October 24 as their Independence Day. 4. No one can live with water. 5. He controls the boys well.	
Written Exercise Change the words in the bracket to the present simple tense and indicate the human values. e.g., He (have) a glass of water after meals. (Answer 'has') 1. She (drive) carefully on wet grounds. 2. In the rainy season, I (like) watching grasshoppers. 3. They (wash) old people on Saturdays. 4. The Victoria Falls (be) one of the wonders of the world. 5. The African Union (meet) once each year. 6. Her trainer (make) win the swimming gala.	Right conduct/Healthy living.
Conclusion This lesson has shown us the important roles of water in various situations be it in the home, at work places and even in sporting activities. Values such as love, peace, non-violence and right conduct emerge as we use our water.	

2.4 Home Economics

NAME OF SCHOOL:
GRADE: **4**
SUBJECT: **HOME ECONOMICS**
TOPIC: **WATER**

NAME OF TEACHER:
DATE:
UNIT:
PERIOD: **40 MINUTES**

OBJECTIVES:

1. State the sources of water.
2. State /discuss the uses of water.
3. Mention the importance of drinking clean water.
4. Identify ways of making water safe for drinking.
5. Integrate values in the lesson.

MATERIALS:

Chart on sources of water, saucepans, filtering cans.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION Sing a song Water, water, water Water gives us life (x 2)	Arouse happiness in the pupils
Sources of Water - River - Dam - Taps - Wells - Rains	
Uses of Water Domestic use Bathing Washing Cooking Drinking - Factories - Agriculture	Encourage healthy living, and proper use of water cleaning
Safe Water Water can be purified (made safe to drink) by:	Inculcate a sense of purity of water

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
a) Boiling b) Adding chemical like chlorine c) Filtering Safe water must be: Clear Tasteless	
Reasons For Purifying Water Impurities may be found dissolved or suspended in water. Drinking such water can cause diseases like dysentery, diarrhoea, cholera and bilharzia. These diseases are known as water-borne diseases and could kill. So drink purified water.	Promote healthy living - values in pupils. Stress need for drinking safe water.
Activity a. (In groups) purify water by: - Boiling - Chlorination - Filtration b. Individually draw sources of water.	
Conclusion - Post Test 1. What are the sources of water? 2. How do we make water safe to drink? 3. Why must you drink purified water?	

2.5 Environmental Science

NAME OF SCHOOL:
GRADE: **9**
SUBJECT: **ENVIRONMENTAL SCIENCE**
TOPIC: **DISPERSION**

NAME OF TEACHER:
DATE:
UNIT:
PERIOD: **40 MINUTES**

OBJECTIVES:

1. Make a rainbow (natural spectrum).
2. Explain how a rainbow is produced.
3. Integrate values in the lesson.

MATERIALS:

Hosepipe, running tap water and rainbow sprinkler.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION Experiment: A (i) Connect hosepipe to tap water. (ii) Open tap and spray small drops of water up in air where there is sunlight. (iii) Observe what happens. Experiment: B (i) Connect hosepipe to running tap water. (ii) Connect hosepipe to rainbow sprinkler and spray little drops of water in air where there is sunlight. (iii) Observe what happens.	Stimulate curiosity and instil self-confidence in pupils.
EVALUATION a) When do rainbows occur? b) Mention two differences between a primary rainbow and a secondary rainbow. c) Name two things, which are able to split up sunlight into seven colours.	To develop respect, teamwork and co-operation in pupils.

2.6 Religious Education

NAME OF SCHOOL:
GRADE: **10**
SUBJECT: **RELIGIOUS EDUCATION**
TOPIC: **ZAMBIAN TRADITIONAL RITES**

NAME OF TEACHER:
DATE:
UNIT:
PERIOD: **80 MINUTES OF PASSAGE AND CHANGE**

OBJECTIVES:

1. Mention and describe at least three rites of passage among the 'Plains Tonga'.
2. Describe the same rites of passage in their ethnic group/tribe.
3. Explain the significance of each rite of passage.
4. Integrate values in the lesson.

MATERIALS:

1. Large picture or drawings of a newly born baby, a slightly older baby, an initiation ceremony, a wedding celebration and a funeral procession.
2. Excerpt on Traditional Rites of Passage from RE syllabus 2044 Grade 10 Pupils' Book (CDC 1985), PP 21-22

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION As you know, there was no piped water, no taps in traditional Zambian / African society. Water had to be drawn from rivers, streams and springs. 1. What was used to carry and store water? 2. How was water carried from the source to homes? Expected answers: - Clay pots, calabashes - People (mainly women) carried water on their heads	- Pupils will appreciate the importance of and need for water. - Will appreciate the value of self-reliance.
Development 1. As you are aware, the situation is no longer exactly the same because Zambian society has been changing. Just as traditional society changed and developed, individual people/ members also grew, developed, went through important rituals/ceremonies and changes in their social status. Such changes in a person's life are called rites of passage. Give examples of such changes.	- Pupils will appreciate Zambian /African culture. - They will also be made aware of the importance and indispensability of water.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
Expected answers; - Birth - Name giving - Puberty - Marriage All these and other rites of passage include rituals and celebrations, which involved the use of water in one way or another.	
2. Now read about these rites of passage among the "Plain Tonga" in the passage given to you or on pp. 21-22 of your book. - Important water related ideas: ■ Birth - Baby washed with water. - Relatives and friends purify. - Father cleanses himself with water. ■ Name giving - father washes his face with water. ■ Puberty for girls or 'Nkolola'/'Muchando' - Initiate girls taken to a well early morning. - Ice-cold water poured on the girls. - Girls given a proper bath at the end of exclusion. N.B. Among the Plains Tonga, there was no specific puberty or initiation ceremony for boys. However they underwent almost the same traditional education and training as the girls privately as they grew up.	- Appreciation of the importance of water at all stages of life. - Awareness of the need for right conduct, purity and cleanliness. - There will be an appreciation and awareness of several values here including cleanliness, courage, obedience, endurance, self-discipline/control, respect and love for family. The same values as above should be appreciated.
Activities/Exercise Answer the following questions 1. Write down three ways in which water was/is used when a baby was/is born among the 'Plains Tonga' (i) ..... (ii) ..... (iii) ..... 2. What change took/takes place when a person was/is born?	Reasoning and understanding will be promoted. Pupils' appreciation of the importance of water in human life will be reinforced.

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
3. Give one way in which water was/is used during the name giving ceremony. .... 4. What change took/takes place during the name-giving ceremony? .... 5. State two ways in which water was/is used during the Nkolola/ Machando initiation ceremony. (i) ..... (ii) ..... 6. What change took/takes place in a girl's social position when she underwent/goes initiation?	Similarly awareness and appreciation of African/Zambian religious and cultural beliefs and values will be reinforced.
Follow-Up Activity 1. Write down two ways in which water was used in your ethnic group/ tribe during the following rites of passage: a) Marriage b) Death 2. State the change in the social status of the people who went through these rites of passage.	Awareness and appreciation of their own ethnic group's/tribe's traditional culture.

2.7 GEOGRAPHY

NAME OF SCHOOL:
GRADE: **9**
SUBJECT: **GEOGRAPHY**
TOPIC: **SUGAR CANE GROWING IN MAZABUKA**

NAME OF TEACHER:
DATE:
UNIT:
PERIOD: **40 MINUTES**

OBJECTIVES:

1. Explain the importance of sugar.
2. Describe the climatic and physical conditions of growing sugar cane.
3. Integrate values in the lesson.

MATERIALS:

1. Zambia secondary school geography - Naidoo
2. Packet of sugar, tea leave, water, spoon

CONTENT/DEVELOPMENT	NOTES ON INTEGRATION OF VALUES
INTRODUCTION Show packet of sugar. Pupils asked about importance of sugar, name any places where sugar cane is grown (Mazabuka - Tonga).	■ Teacher stresses importance of healthy living. ■ Appreciation of other cultures and religions.
1. Growing Conditions Teacher asks questions: what type of plant sugar cane is and the growing conditions? Answers: plantation crop (i) High temp - 21°C (ii) High rainfall, adequate water, 1520mm (iii) Irrigation necessary - flat land (iv) Deep nitrate soils (v) Labour - planting and picking (many workers from all over Zambia) (vi) Mechanization * Kafue River	■ Emphasise need for perseverance. ■ *Responsible use of water. ■ Many workers away from home = sacrifice. ■ Hard work involved - leads to endurance. ■ Machinery - respect for property. ■ *Rainfall = purity - peace. ■ River - needs care, protection or else weeds, choked, polluted - dry up.
2. Challenges/Problems Teacher explains that growing sugar cane can be hazardous: - Snakes - Fire - Accidents Solutions to challenges.	Teacher helps pupils understand the need for and importance of: - Helping - Caring - Cooperation
Activity 1. Why is Mazabuka suitable for sugar cane growing? 2. Where is the irrigation water obtained? 3. Describe the growing conditions of sugar cane.	Teacher helps pupils sharpen their - Reasoning - Understanding - Synthesis

3. Sample Lesson Plans – Cote d'Ivoire

Fonction Affine Par Intervalles

Niveau 2ndA

Objectifs :
Mettre en place la notion de fonction affine par intervalles
Représenter graphiquement une fonction affine par intervalles
Intégrer des valeurs dans la leçon.

Matériels Une facture d'eau Une feuille **Un crayon à papier** Une feuille millimétré Une règle.	**Préréquis** - Définition d'une fonction affine - Représenter graphiquement une fonction affine

Introduction En Côte d'ivoire la distribution de l'eau est assurée par la SODECI (société de distribution de l'eau de la C.I) Tous les trois mois la SODECI envoie à chacun de ses clients la facture des consommations d'eau du dernier trimestre. La facturation est informatisée compte tenu du grand nombre de clients. La consommation du client exprimée au mètre cube est transmise dans l'ordinateur qui calcule automatiquement le montant à payer et imprimer la facture correspondante. Nous allons ensemble analyser une facture d'eau et comprendre les calculs exécutés par l'ordinateur.	-Curiosité -Esprit de recherche -Quête du savoir -Contrôle de suivi -Prudence -Autodiscipline -Sens de la Justice Sociale
ACTIVITE DE DECOUVERTE *Distribuer une copie de facture d'eau* -Observe la facture ! *On va décrire sur trois exemples le procédé de calcul utilisé par la SODECI* (en hors taxe) - Détermine sur la facture les différents intervalles qui interviennent dans la facturation en fonction du prix du m3 - Vérifie que le prix du forfait des 9 premiers mètre cube est à l'unité près 1651 francs. - Décris ensuite le procédé de calcul qui permet de trouver le prix à payer. - Calcule le prix à payer pour une consommation de 80 m3 puis de 100 m3 - Calcule le prix à payer pour une consommation de x m3 Pour calculer le prix à payer on constate qu'on peut utiliser la fonction f définie par : Si $x \in [0 ; 9]$ $f(x) = 1651$ Si $x \in [9 ; 18]$ $f(x) = 183,4x + 1651$ Si $x \in]18 ; 90]$ $f(x) = 339,9x + 3302$ Si $x \in]90 ; \rightarrow [$ $f(x) = 559,5x + 27775$ La fonction f ainsi définie est une fonction affine par intervalle **Définition** : livre CIAM 2ndA page 110 Exercice	Activité de découverte -Esprit de recherche -conscience de la Responsabilité -Sens de discernement -Sens de la Justice Sociale -Solidarité
ACTIVITE: représentation graphique On donne la fonction affine f définie par Si $x \in [0 ; 9]$ $f(x) = 1651$ Si $x \in [9 ; 18]$ $f(x) = 183,4x + 1651$ Si $x \in]18 ; 90]$ $f(x) = 339,9x + 3302$ Si $x \in]90 ; \rightarrow [$ $f(x) = 559,5x + 27775$	Activité -Conscience de la Responsabilité

Dans le plan muni d'un repère orthogonal - Construis la droite (D1) : $y = 1651$ - Construis la droite (D2) : $y = 183.4x$ - Construis la droite (D3) : $y = 339.9x + 3302$ - Construis la droite (D4) : $y = 559.5x + 27775$ Déduis en une représentation graphique de f - Détermine graphiquement la consommation d'eau en m3 lorsque le montant hors taxe de la facture s'élève à : Exercice	

Module de chimie

Objectif général

- Travailler efficacement en équipe
- Jouer pleinement son rôle au sein de l'équipe
- Emettre des opinions
- Respecter l'opinion des autres membres de l'équipe
- Prendre la parole au moment opportun
- Cela favorise la prise en compte des valeurs telles que
- La communication
- L'esprit de créativité
- L'idée de justice, d'égalité, de liberté, de solidarité, de démocratie chez l'apprenant.

Leçon du jour : L'eau

Objectif général : appliquer la notion de réaction chimique à des exemples d'oxydoréduction et acido-basique

Objectifs spécifiques

L'élève doit être capable de :

1. interpréter la réaction d'électrolyse de l'eau
2. interpréter la réaction de synthèse de l'eau

Prérequis

- composition de l'air
- différents états de l'eau
- corps purs et corps composés
- notions d'atome et de molécule
- notion d'ion
- notion de réaction chimique

Matériels (par groupe d'élèves)

- 1 électrolyseur
- 1 générateur de tension continue
- 1 interrupteur
- 1 ampèremètre (ou multimètre)
- 1 boîte d'allumettes
- 1 boîte de modèles moléculaires
- 1 pince en bois
- 4 fils conducteurs
- de l'eau
- de la soude
- 3 tubes à essai
- 1 tube à combustion
- du zinc en grenaille

Amorce de la leçon

1. quel est le nom de la substance vitale pour les êtres vivants occupant les ¾ de la surface du globe terrestre ?
2. citer les différents états de l'eau
3. nous allons voir aujourd'hui de quoi est constitué l'eau et comment on peut la fabriquer.

Conception de la fiche de classe : MM Djedje Nomel Jacques ; Sory Touré ; Sery Gnoleba – conseillers pédagogiques, Abidjan

ACTIVITIES	CONTENUS	VALEURS	OBSERVATIONS
Réaliser la décomposition de l'eau	L'eau I – Electrolyse de l'eau 1.1 Expérience (croquis de l'électrolyse de l'eau) 1.2 Observation Dès qu'on ferme l'interrupteur, il y a un dégagement de gaz aux électrodes. Il y a deux fois plus de gaz dans le tube de la cathode que dans celui de l'anode. L'aiguille de l'ampèremètre dévie.	Vérité Quête du savoir Recherche Esprit d'équipe Honnêteté Prudence Propreté Connaissance et conservation de l'environnement Solidarité Discipline Economie	

ACTIVITIES	CONTENUS	VALEURS	OBSERVATIONS
	1.3 Interprétation L'eau additionnée de soude conduit le courant électrique. De l'eau a disparu et il s'est formé des gaz dans les tubes. Il y a eu donc une réaction chimique 1.4 Identification des gaz formés (croquis) le gaz produit à l'anode entretient la combustion. C'st de l'oxygène le gaz produit à la cathode est de l'hydrogène	Sens du discernement	
	1.5 Bilan de l'électrolyse eau ————————-à Oxygène + hydrogène		
	II- Synthèse de l'électrolyse 2.1 Expérience (croquis) 2.2 Interprétation Au contact de la flamme, le mélange gazeux a brûlé et disparu en formant de l'eau. Il y a eu donc une réaction chimique 2.3 Equation bilan de la synthèse Hydrogène + Oxygène -à Eau	Quête du savoir Curiosité Vérité Honnêteté Propreté Economie	
	III- Structure de l'eau Chaque molécule d'eau est formée de deux atomes d'hydrogène unis à un atome d'oxygène. L'eau est constituée de molécules identiques. La molécule d'eau est représentée par un modèle moléculaire. (croquis) Evaluation 1. Compléter les phrases suivantes avec les mots justes L'eau pure est constituée de ....., elle peut être décomposée par ..... en .... Et .... Sa formule est ... La ... de l'eau est réalisée par combustion de ... et de ... L'équation chimique qui traduit cette réaction est ..... 2. Les poissons peuvent-ils vivre dans l'eau pure ? Justifier votre réponse.	Concentration Recherche Pureté	

LANGAGE

Classe: **Préscolaire (kindergarden 3-5 years old children)** Durée: **30 minutes**
Thème: **La découverte du milieu scolaire** Titre: **Ka et Ba**

OBJECTIF:
l'élève doit être capable de raconter le conte à sa manière et en tirer des règles de vie.

MATÉRIEL:
le conte (story / tale)

DATE	ETAPE	ACTIVITÉS	OBSERVATIONS
	Chant Rappel Motivation Question de compréhension	Chant connu Conte précédent Je vais vous raconter l'histoire de Ka et Ba. Deux enfants comme vous. Les enfants sont assis en groupe. Résumé du conte Ka n'écoute jamais la maîtresse, ni les parents à la maison. Elle verse l'eau partout, elle ne se lave jamais les mains après ses besoins ou avant de manger. Alors, elle est tombée malade (dire de quoi elle a souffert : tousser, vomir, mal au ventre). Lors de la visite à l'hôpital le médecin lui a donné l'exemple de Ba qui est obéissante. C'est ainsi que Ka a décidé de ne plus se mouiller et de laver les mains.	Mémorisation Socialisation Curiosité Discipline Concentration
	Explication des mots difficiles	De qui parle-ton ? Quels sont les noms ? Qu'est-il *arrivé* à Ka ? Etc.	Connaissance
	Récapitulation	Obéissante – Médecin	
	Evaluation	Demander aux enfants de raconter l'histoire en les aidant par de petites question. Ils racontent l'histoire à leur manière.	Sur le plan psychologique l'enfant acquiert de bonnes manières
	Prolongement	Moralité : amener les enfants à tirer les règles de vie : ne pas se mouiller, ne pas gaspiller l'eau, se laver les mains. Illustration du conte : constitution d'une bande dessinée ou d'un livre	Confiance en soi Esprit de créativité

Objective:
the pupil should be able to tell the story he heard in his own terms and draw from it some rules for life

DATE	STEPS	ACTIVITES	OBSERVATIONS
	Song Revision Motivation Comprehension questions	A song they already know. Previous story. I am going to tell you the story of Ka and Ba two kids like you. (pupils sit in groups). Summary of the story. Ka never listens to his/her teacher, nor does she/he listen to her parents at home. She spills water everywhere, she never washes her hands after toilet and before eating. So she got sick (tell what she suffered from: cough – vomiting - stoma hack). When she was sent to hospital, the doctor gave her example of Ba who is very respectful. Therefore Ka decided not to waste water and to be clean.	Memorisation Socialisation Curiosity Discipline Concentration
	Elicitation of difficult words	Whom is the story about? What happened to Ka?? Etc.	Knowledge
	Recalling	Obedience - Doctor	Creativity
	Evaluation	Ask children to tell the story they have heard helping them with some small questions. They tell the story as pleases.	Copying good manners
	Consolidation	Morals : Bring the children to state and retain hygienic rules themselves. Not to waste water, wash hands, not getting water on oneself at any time (get wet).	Self confidence Creativity
		Illustration du conte : constitution d'une bande dessinée ou d'un livre	

Presented by Mrs Nguessan Yollande Konan, Nursery School

Arts plastiques

Aménagement d'espaces verts et qualité de l'habitat

Objectif terminal : sensibiliser sur le respect des espaces verts et de leurs équipements

Objectifs spécifiques de la leçon
L'élève doit être capable de :
- identifier un espace vert et ses équipements en milieu urbain et/ou rural ;
- définir un espace vert ;
- esquisser un plan d'aménagement d'espace vert ;
- argumenter en faveur du respect des espaces verts et de leur équipement ;
- indiquer l'importance de l'eau dans la préservation et l'animation d'un jardin public.

Dispositif pédagogique
- méthode active ;
- démarche : inductive
- technique : discussion dirigée
- procédés : interro-explosif
- matériels didactiques conseillés :
- 2 planches (jardin public et jardin privé) comme les images ci-contre ;
- un plan de lotissement d'un quartier ou d'une ville (auprès des services d'urbanisme locaux) ;
- tout autre matériel didactique approprié

Durée : trois séances de 55 minutes chacune

MOTIVATION	VALEURS
Dans un rêve, vous vous retrouvez : - dans un jardin public d'une ville où il n'a pas plu depuis 3 ans. Les lacs et les jets d'eau se sont asséchés pour laisser apparaître les squelettes des Animaux aquatiques (grenouilles, poissons). Il n'y a plus de feuilles sur les arbres, toutes les plantes sont mortes, il n'y a aucune ombre Ainsi l'eau est essentielle pour la création, la préservation et l'animation d'un jardin public. Il y a donc besoin d'en prendre soin, de l'utiliser judicieusement afin de se prémunir contre une pénurie.	- prise de conscience - esprit de prévoyance - esprit de prévenance
Activité Par groupe de 3 élèves, réaliser la maquette d'un parc où l'eau est judicieusement utilisée pour l'animation et la préservation de l vie des animaux et des végétaux.	- esprit d'équipe - solidarité
Interactions Les réalisations sont suivies d'exposition qui donne lieu à des échanges entre élèves, entre élèves et enseignants pour dégager des valeurs - esthétique - morale humanisme lié à l'éducation relative à l'eau	- partage - économie - esprit civique

Education musicale

Classe 5ème

Chant

TITRE	THÈMES	OBJECTIFS	VALEURS HUMAINES	DURÉE	MATÉRIEL	MÉTHODOLOGIE
Comment vas-tu Sorro	- hygiène corporelle et préservation de la santé	- chanter avec justesse - mémoriser le chant - connaître les règles d'hygiène - appliquer les règles d'hygiène	- Connaissance - Propreté	30 mn	- Diapason - Flûte - Guitare - Partition	Chant à une voix Interprétation modèle Apprentissage phrase par phrase Mise au point Exécution d'ensemble

Français

Niveau : 6/5
Durée : 60 minutes
Objectifs
- montrer l'importance du Nil dans la vie de l'Egypte
- justifier l'adoration dont il est l'objet de la part des égyptiens
- dégager les valeurs humaines que le poème suggère

Présentation
Titre : *Cantique au Nil*
Auteur : André Barucq et François Daumas
Œuvre : Extrait des "hommes et prières de l'Egypte ancienne"
Les attentes de la lecture : à partir du paratexte faire formuler les attentes de lecture (accepter toute réponse en rapport avec l'eau : navigation, pêche, voyage fluvial)
Impression de lecture : Faire une lecture silencieuse pour faire formuler les impressions de lecture.

Lecture magistrale

Hypothèse générale

A titre indicatif : - ce poème est un hymne au Nil, source de vie ; ce poème célèbre le Nil, divinité pourvoyeuse de vie.

Jugement
De part le bonheur immense que le Nil procure aux égyptiens, ils l'élèvent au rang de Dieu. Ils le vénèrent. Le Nil pour les égyptiens, est sacré. Le culte d'adoration qui transparaît dans cet hymne donne un caractère presque universel au Nil, d'où cet appel à tous les hommes au vers 19.

Valeurs humaines
Les valeurs de générosité, d'amour, de crainte, de justice, d'obéissance, humanisme dans les relations de l'homme avec l'univers, respect doivent habiter tous les hommes dans leur rapport avec la nature de manière générale et avec l'eau, source de vie, de manière particulière.

Ouverture
Amener les élèves à citer d'autres fleuves, objet de vénération par les peuple bénéficiaires.

Annexe

Inondée chaque été par les cours du plus log fleuve d'Afrique, qui y dépose ses limons fertiles, la vallée du Nil a toujours été, à travers le vaste désert égyptien, un lieu propice à la chasse, la pêche et l'agriculture.
Dans l'étroite vallée de la Haute Egypte, comme dans le large delta de la Basse Egypte, les eaux du Nil ont apporté la vie : elles sont ainsi à l'origine d'une brillante civilisation antique qui s'affirmera pendant plus de trois millénaires.

Cantique au Nil

Salut à toi Nil !
Celui qui sort de la terre et vient faire
Vivre l'Egypte ;

Lui qui irrigue les champs
Lui qui fait vivre tout le bétail
Lui qui abreuve tout le désert ...

Lorsqu'il inonde le pays,
Toute lèvre se met à rire,
Toute dent est découverte
Et tout cœur est dans la joie.

Quand tu te lèves parmi les citoyens affamés
Ils se rassasient des bons produits des champs
Qui surabondent alors dans le pays
Celui qui mange a oublié sa faim
Le bonheur s'est posé sur les quartiers

Le pays tout entier est dans l'exaltation
On inaugure pour toi un chant sur la harpe
Quand l'inondation monte on te fait une offrande solennelle

Tous les hommes, exaltez le Nil
Craignez son prestige
Respectez sa puissance !

Extraits des "hymnes et Prières de l'Egypte ancienne"
Par André Barucq et François Daumas
Editions du Cerf

Présentation d'un fleuve généreux

ENTRÉES	RELEVÉS	ANALYSE	INTERPRÉTATION	VALEURS HUMAINES
1. le lexique	Irrigue, fait vivre, abreuve, vient faire vivre, sort, inonde, lèves	Verbes d'action indiquant l'action qu'accomplit le Nil : pourvoyeur d'eau et de vie.	Le Nil qui sort de la terre va à la rencontre de la nature et des hommes. Dans sa générosité digne des Dieux, il apporte, grâce à son eau, la vie (fait vivre 2 fois). L'action de l'eau sur la nature et les hommes engendrent le bonheur chez ces derniers. Cette générosité du Nil lui vaudra d'être déifié.	Les valeurs humaines qui se dégagent sont : **L'amour,** générosité, don de soi, humanisme dans les relations avec l'univers. La **non-violence,** la solidarité La **bonne conduite,** la justice, la conservation de la nature et de l'environnement
2. Champ sémantique du bonheur	Rires, dent découvert, joie, bonheur, exaltation	Substantif relatif au thème du bonheur		

La célébration du Nil

ENTRÉES	RELEVÉS	ANALYSE	INTERPRÉTATION	VALEURS HUMAINES
1. Les figures de style	Salut à toi, Nil Lui qui Lui qui Lui qui Celui qui Craignez son prestige Respectez sa puissance	Recours à : L'apostrophe L'anaphore La métaphore L'insistance.	Le Nil devenu une divinité est glorifié à travers un hymne. Les figures de répétition marquent la vénération du peuple pour son bienfaiteur "Le Dieu Nil" Nil, dieu créateur (vie)	Les valeurs humaines qui se dégagent sont : L'amour Gratitude, reconnaissance
2. Champ sémantique de la religion	Chant sur ka harpe offrande solennelle Exaltez Craignez Prestige Respectez Puissance	Termes religieux propres au culte des divinités	Le peuple célèbre ici le Nil élevé au rang de Dieu. A ce titre, il a droit comme tous les dieux, à un culte de la part de ceux qui le craignent et le vénèrent Le Nil est généreux, il est identifié à un dieu	La bonne conduite Obéissance, loyauté, vénération, fidélité

Classe de 5ème
Durée : 1 heure

Le littoral ivoirien

Objectifs d'enseignement
Au cours de cette leçon, le professeur devra amener les élèves à :
- acquérir des connaissances sur le littoral ivoirien
- analyser les possibilités de mise en valeur
- intégrer des valeurs humaines relatives à l'eau

objectifs d'apprentissage
après la leçon, l'élève doit être capable de :
- définir le littoral ivoirien
- caractériser le littoral
- décrire le système lagunaire
- montrer l'importance du littoral pour la Côte d'Ivoire
- relever les valeurs relatives à l'eau

Introduction
La zone de contact entre la terre et la mer, là où s'exerce l'action des vagues et la marée, constitue le littoral
Long de près de 600 km, le littoral ivoirien s'étend largement à l'intérieur des terres. Il ne présente pas partout le même aspect et sous l'action de la mer et l'occupation humaine, il évolue constamment.

Les valeurs
- Quête du savoir
- Sens du discernement
- Humanisme dans les relations de l'homme avec son milieu

Un espace dominé par l'eau
A l'est
De la frontière ghanéenne, à Fresco (2/3 du littoral) le littoral ivoirien est sableux, bas et doublé d'un système de lagune.
Ces lagunes sont reliées entre elles par des canaux aménagés.
Dans cette zone, le littoral est régulièrement battu par la barre.
On y trouve de belles plages au sable fin et au tracé rectiligne.
Cette partie du littoral est inhospitalière à cause du déferlement violent des vagues.
A l'ouest
Le littoral est rocheux et constitué de falaises vives. Elles s'étend de Fresco à Tabou. Elle est entrecoupée de tronçons rectilignes et de caps rocheux qui ont créé des baies sableuses protégées de la houle. Ainsi sont nés des plans d'eau calmes, accueillant de multiples activités maritimes et balnéaires
Les valeurs humaines
curiosité

- quête du savoir
- esprit de discernement
- humanisme dans les relations de l'homme avec son milieu
- discipline et autodiscipline
- prudence (vis-à-vis des forces de la nature)

Un espace humanisé
Cette région connaît une occupation dense à la fois agricole et urbaine. On y développe l'agriculture de plantation (palmier à huile, cocotier, hévéa mais aussi café, cacao, ananas, banane).
De grands centres urbains se sont développés, reliés entre eux par un dense réseau de communication.
Abidjan, perle des lagunes est une véritable métropole qui fait d'elle la zone la plus urbanisée et la plus développée du pays.
Le sud-ouest, jusqu'alors peu peuplé, connaît de nos jours un attrait indéniable grâce à son débouché naturel qu'est le port de San-Pedro. Ici, le rivage atlantique favorise le développement du tourisme, du fait de ses paysages naturels enchanteurs et de ses plans d'eau calmes.
Les valeurs humaines
- curiosité
- quête du savoir
- humanisme dans les relations de l'homme avec son milieu
- conservation de la nature et de l'environnement
- conscience de la valeur de la propreté civique et nationale (le littoral est un bien commun qui mérite respect)
- sens de la solidarité humaine
- bonne manière

Conclusion
Bien exploité, le littoral ivoirien s'avère aujourd'hui d'un grand potentiel et sera peut-être une nouvelle base de développement pour le pays.
Valeurs humaines
- vérité
- bonne conduite
- Amour

Lecture

Titre : Au bord de la rivière
Durée :
Matériel : livre élève page 98 CE1
Objectif : l'élève devra être en mesure de lire couramment le texte et de façon expressive

ETAPES	ACTIVITÉS - MAÎTRE	ACTIVITÉS - ÉLÈVES	VALEURS
Création d'ambiance	Demander aux élèves de faire le résumé du texte exploité au paravent - de qui parle-t-on ? que font-elles ? sont-elles seules à la rivière ?	Lucie et Akissi vont à la rivière pour faire la lessive Lucie et Akissi	Hygiène corporelle et vestimentaire
Lecture magistrale	Lire le texte à haute voix et de façon expressive en respectant la ponctuation et l'intonation	Au bord de la rivière, il y a des pêcheurs, des baigneurs, des potières, une grenouille, des oiseaux, des arbres et de hautes herbes	Economie Créativité Effort personnel
Lecture individuelle	Interroge les élèves à tour de rôle pour lire le texte paragraphe par paragraphe	Ecoutent Lisent le texte	Partage

Texte

La rivière et le fleuve : Au bord de la rivière
Près du village, coule une rivière. Elle est bordée d'arbres et de hautes herbes. L'eau est claire et limpide. Lucie et Akissi viennent y faire la lessive.
"Il y a du monde aujourd'hui" remarque Akissi.
De petits baigneurs sautent dans l'eau. Ils éclaboussent leurs camarades restés sur la berge. Un peu plus loin, en amont, des pêcheurs, silencieux surveillent les flotteurs de leur canne de pêche. En aval, des vieilles femmes viennent chercher de l'argile pour en faire des poteries.
De temps en temps, une grenouille saute dans l'eau. Des oiseaux assoiffés viennent boire. Ils trempent leur bec dans l'eau puis s'envolent.
"Quel beau spectacle !" dit Lucie, en riant.
Soudain une voix les interpèlle, c'est celle de maman.
- Akissi, lucie, vous avez fini ?
- Non, maman, on vient juste de commencer.
- dépêchez-vous, bientôt il y aura plus de soleil pour sécher le linge »
Aussitôt, les fillettes se mettent au travail.

Science de la Vie et de la Terre (SVT)
Etres vivants et microscopiques

OBJECTIFS SPÉCIFIQUES	CONTENU DE I' ENSEIGNEMENT	ACTIVITÉS PÉDAGOGIQUES
1. Identifier les êtres vivants microscopiques d'une infusion ou d'une mare 2. Comparer les êtres vivants microscopiques observés 3. Déduire les notions : - De cellule - D'être unicellulaire - D'être pluricellulaire lire le texte paragraphe par paragraphe	- Etre vivants microscopiques observé - Notion de microbe - Tableau de comparaison * Ressemblances (une membrane, un noyau cytoplasmique et un noyau) * Différences (mobiles ou immobiles, cils, flagelles, chloroplastes, vacuoles) - Schéma annoté d'un être vivant microscopique - Cellule = être vivant microscopique ou partie d'être vivant, composé d'une membrane, d'un cytoplasme et d'un noyau - Notion d'être unicellulaire et d'être pluricellulaire	- Observation d'une goutte d'eau déjà montée au microscope - Utilisation du microscope - Exploitation de documents - Déduction de la notion de microbe (éviter la description systématique du microscope) - Comparaison - Réalisation d'un tableau de comparaison montrant les ressemblances et les différences - Schématisation d'un être vivant microscopique - Déduction des notions

Non-formel

Les trois objectifs sont présentés dans le tableau ci-dessous

PROBLÈMES	APPROCHE CLASSIQUE DE SOLUTION	VALEURS HUMAINES
Environnement Rejet d'eaux usées domestiques et industrielles sans traitement dans la lagune	- Mise en place d'un système d'évacuation des eaux usées dans la mer	Esprit d'équipe dans la recherche de solution - Responsabilité par rapport aux taxes d'assainissement sur les factures de la SODECI - Hygiène environnementale pour le bien-être de la population

PROBLÈMES	APPROCHE CLASSIQUE DE SOLUTION	VALEURS HUMAINES
Construction des latrines sur pilotis	- Construction des latrin,es publiques - Sensibilisation des populations par les agents d'hygiène des mairies	- Humanisme pour l'ide envers les populations - Egalité dans la distribution des ouvrages - Propreté à travers un comportement hygiénique
Déchets solides	- Libéralisation de la gestion des déchets - Sensibilisation des populations pour la bonne gestion des déchets	- Responsabilité des sociétés de collecte et des populations - Régularité dans la collecte - Propreté pour le bien-être de la population
Sociaux - Accès à l'eau potable : longues files d'attente des femmes et des enfants ; querelles autour des points d'eau	- Construction de bornes fontaines publiques - Sensibilisation des communautés pour la gestion des points d'eau par les ONG et les agents d'hygiène des mairies	- Humanisme : esprit de partage - La tolérance : la modération, la patience pour premier et le dernier arrivé au point d'eau - Responsabilité civique dans la gestion des fontaines
Vulnérabilité aux maladies liées à l'eau	- Sensibilisation de la population sur les causes et les mesures préventives - Soins des malades dans les hôpitaux - Vulgarisation des techniques de traitement d'eau à faible coût	- Vérité dans le message - Compassion, humanisme et solidarité de la part des populations démunies - Comportement hygiénique à travers la propreté
Economiques Coût élevé des branchements et de l'abonnement	- Subvention des branchements par l'état (en voie de disparition)	- Humanisme, solidarité à travers les subventions - Esprit de partage, d'unité nationale

Séance de sensibilisation de la population

Quatre points :

1. 1. Les causes de la pollution de l'eau
2. 2. Les conséquences
3. 3. Les solutions aux problèmes
4. La conclusion

Expérience de Madame Irié

Projet "Femme et Eau", Kouamefla, sous-préfecture de Oumé

7 principales activités menées pendant l'exécution de ce projet, à savoir :

1. Etude du milieu
   Valeur humaine dégagée : le respect de la tradition
2. Séances de sensibilisation
   Valeurs humaines dégagées : la courtoisie, la vérité (communication en langage simple)
3. Organisation de la population en comité
   Valeurs humaines dégagées : la responsabilité, la solidarité, l'hygiène (propreté)
4. La formation des comités
   Valeurs humaines dégagées : la patience, l'humilité, la ponctualité, la maîtrise de soi, l'assiduité.
5. Le fonctionnement des activités
   Valeurs humaines dégagées : honnêteté, la solidarité, la vigilance et la rigueur.
6. Suivi et évaluation
   Valeurs humaines dégagées : l'impartialité, l'esprit d'équipe

English

Topic/Title: **Wonderful water (adapted from GFE 5, Unit 9, lesson 1 to 3)**
Level: **10**
Duration: **55 minutes**
Type of lesson: **Reading for comprehension**

Global objectives

At the end of this lesson, learners should be able to talk and write about:

1. The importance of water for living creatures.
2. Man's relevant attitudes/behaviour towards it.

Operational objective(s)

By the end of this lessons, learners should be able to talk and write about:

1. The different uses of water.
2. The importance of water.
3. Man's attitude towards water.

Phases

A. Brainstorming

Look at these pictures carefully and:

1. Describe them.
2. Say what they suggest to you (pictures).

B. Reading

1. Look at these pictures and tell the class where we can get water from (pictures).
2. Read the following passages and say what they talk about.

A man can live three weeks without food, but he can only live for a few days without water. Water is the most important thing in the world. We need it for drinking, for cooking and for washing. We use a lot of water for growing crops. Without water everything dies.

Our planet earth has a lot of water, but most of it is in the oceans and the seas. This is salt water, and we cannot drink it. But we can drink freshwater. All our freshwater comes from rain. Rain runs into streams, and streams run into rivers and lakes. In many countries people built dams or rivers. Then they can have plenty of water. Sometimes the rain goes through the earth and makes lakes under the ground. Then people dig wells to get the water.

"These new wells are no good." The women said. "We need water for drinking and washing and there's no water for our gardens and our animals. We have to walk ten kilometres to get water from our old wells. We must do something". They went home. "Do something," they said to the men. "What can we do?" the men asked. "We can build a dam," said the women. "All of us. You, us and children. We must start now". "No, we must wait for the engineer from the city," said one of the men. "We can't wait for him," said the women. "We need the dam now. The rainy season is coming and we must be ready. We must start tomorrow."

They started work the next day. The young people dug the foundations of the dam wall. As they worked, they sang to the sound of drums. They needed stones for the wall. The women carried the stones on their heads, and the children pulled them in carts. The men cut the stones. Everybody helped. The rains came. Soon the dam was full of water.

Read the text again and answer the following questions. Do it individually first, then compare your answers in groups.

1. How long can a man live without water?
2. What happens when there is no water?
3. Can we drink salt water?
4. Where does fresh water come from?
5. How do people get it?
6. What problem is raised in the third passage?
7. What solution is proposed?
8. How did the people proceed to solve it?

C. Discussion and appropriation

Write a paragraph in which you will show the misuses of water and propose solutions to these attitudes (work individually, then in your groups –of 4). The reporters of your groups will read it to the class.

D. Follow-up

Do this exercise at home and be ready to share it with your classmates at the next class.

1) What words related to water did you learn from this lesson?
2) Can you remember some uses of water?
3) What positive attitudes towards water should we adopt?

ETAPES DE LA LECÇN	VALEURS À INTÉGRER	DOMAINE DE SAVOIR
Brainstorming	Vérité - curiosité - quête du savoir - esprit de recherche - propreté : hygiène - observation - prise de conscience	Savoir (savoir faire / Savoir être
Reading for comprehension	- curiosité - quête du savoir - esprit de recherche - propreté : hygiène - observation - prise de conscience - sens du discernement - esprit de collaboration / équipe - conservation / entretien de la nature et de l'environnement	Idem
Discussion – appropriation	- Discipline - Initiative – participation - Souci pour les autres - Epouser, partager les causes communes - Humanisme dans les relations avec l'homme et la nature - Respect des règles établies	Savoir faire Savoir être
Récapitulation - Suivi	- Vérité - Amour - Bonne conduite	Savoir être (savoir)

4. KENYA

4.1 PRIMARY - SAMPLE LESSON PLAN

NAME OF SCHOOL:
GRADE: **4**
SUBJECT: **MATHEMATICS**
SUB-TOPIC : **COLLECTION AND RECORDING OF DATA**

NAME OF TEACHER:
DATE: **7 FEBRUARY 02**
TOPIC: **TABLES AND GRAPHS**
PERIOD: **8.10 - 8.45 A.M.**

OBJECTIVES:
By the end of the lesson, the learner should be able to:-
(i) Collect and record data in tables.
(ii) Practice economic use of water.

MATERIALS:
School water meter, containers of different sizes, water, writing materials, drawing of water meter on a chart.

REFERENCE: Mathematics book 4

STEPS	TEACHER'S EXPERIENCE	PUPIL'S EXPERIENCE	INTEGRATED VALUES
INTRODUCTION (5 Mins)	Explain how to read a water meter. - Ask questions - Display a water meter. - Display a chart showing a water metre	Listening and observing the water meter.	Arousing the learners' curiosity in the way water meter works.
STEP II **(10 Mins)**	- Explanation of use of a water meter in measuring the amount of water used in a given duration. - Giving instructions to pupils on the visit to the school water meter point.	- Listening - Observation of a water meter - Moving to the water meter point	Help pupils develop a sense of discipline as they listen, observe and move from the classroom to the water meter point.
STEP III **(10 Mins)**	Divide pupils into three groups and guide them in various activities - Those to read metre - Those to record - Those to collect water in containers of different sizes - Guide pupils in reading, recording and collecting water	- Drawing water in containers - Reading the metre - Recording the metre reading - Pupils to walk back to the classroom	Pupils will co-operate by working together. This will create a sense of responsibility when drawing water from the taps.

STEPS	TEACHER'S EXPERIENCE	PUPIL'S EXPERIENCE	INTEGRATED VALUES
STEP IV APPLICATION (5 Mins)	Guide pupils to record the information in a table form. Teacher to explain the importance of knowledge on quantity of water used within a given duration of time. Lead a discussion on the importance of putting information in table form.	- Pupils to record information in tables	Enhancing sense of responsibility. Learners to appreciate the importance of economical use of water, which is a very important resource. Pupils to develop a sense of responsibility and discipline in use of water
CONCLUSION **(5 Mins)**		- Listening - Asking and answering questions.	

PRIMARY - SAMPLE LESSON PLAN

NAME OF SCHOOL:
CLASS: **2**
SUBJECT: **SCIENCE**
SUB-TOPIC : **PERSONAL ITEMS**

NAME OF TEACHER:
DATE: **16 DECEMBER 02**
TOPIC: **HEALTH EDUCATION**
PERIOD: **8.20 - 8.50**

OBJECTIVES:
By the end of the lesson, the pupils should be able to:
(i) Wash their handkerchiefs and socks.
(ii) Practice an economic use of water.

REFERENCE:
Primary Science book 2

T/L Materials: Water, soap, bucket, handkerchiefs and socks.

LESSON DEVELOPMENT

TIME	TEACHER'S EXPERIENCE	LEARNING EXPERIENCE	INTEGRATED VALUES
5 MINS	**INTRODUCTION** Asks pupils to sing a water wise song for motivation (this is the way we wash our hands)	Sing the song with Actions	Create awareness in pupils on need for cleanliness using water.
20 MINS	**PRESENTATION** a) Asks Oral Questions on:- (i) Uses of handkerchiefs and socks (ii) What happens when the items get dirty (iii) What do we do with used water b) Demonstration washing of a handkerchief and economic use of water Then divide class into 6 groups. **EVALUATION** i) We use ___ and ___ for washing dirty handkerchiefs and socks. ii) What do we do with used water?	Respond from their own experiences (Expected answers) - Blowing nose - Keep legs warm - Prevent shoes from becoming dirty - Wash them - Pour out	Creating awareness on responsibility and economic use of water. Creating sense of responsibility and co-operation as they work together in their groups.

TIME	TEACHER'S EXPERIENCE	LEARNING EXPERIENCE	INTEGRATED VALUES
5 MINS	**CONCLUSION** Guides pupils in clearing the working area and preserving used water for further use and asks oral questions.	- Pupils do the written exercise - Clear working area Answers Questions	Helps the pupils appreciate cleanliness and economic use of water.
SELF EVALUATION The lesson was very successful. All the pupils participated actively by washing the items.			

PRIMARY

NAME OF SCHOOL:
GRADE: **6**
SUBJECT: **ENGLISH**
PERIOD: **10.30 - 11.40 A.M.**

NAME OF TEACHER:
DATE: **16 DECEMBER 02**
TOPIC: **COMPOSITION WRITING**

OBJECTIVES:
By the end of the lesson pupils should be able to:
(i) Write a guided composition on "The day when taps ran dry".
(ii) Demonstrate proper use and conservation of water.

MATERIALS:
Illustrations from books/newspapers of an area burning.
Pictures in the story that will be used as source of background information.

REFERENCE: Primary English BK 6
LESSON DEVELOPMENT

TIME	TEACHER'S ACTIVITY	PUPIL'S ACTIVITIES	INTEGRATED VALUES
8 MINS.	**INTRODUCTION** (a) Teach this song. The house is burning The house is burning Pour on water Pour on water No water, no water What will happen? What will happen? The school is burning. (b) Teacher tells pupils to recall a day in their home/school when there was no water.	Pupils will sing the song in rounds and then after mastery they will dramatize. Discuss in pairs and share their experiences.	(a) Developing in them a sense of curiosity and inquiry. (b) Create awareness on the uses of water. (c) Encourage pupils to develop creativity.
10 MINS.	**LESSON PRESENTATION** STEP I: Teach appropriate vocabulary related to the topic e.g. hosepipe, drought, containers, flush, source, scarcity etc.		
10 MINS.	STEP II: The teacher will guide pupils in composition writing by considering the following: (i) Who are they in that composition – their role. (ii) Who will their readers be?	Pupils construct sentences using the same vocabulary.	Promotion of self-confidence.

TIME	TEACHER'S ACTIVITY	PUPIL'S ACTIVITIES	INTEGRATED VALUES
	(iii) The purpose of writing. (iv) Format. (v) Vary the moods in each scene. (vi) Discuss all the things that make the composition interesting e.g. proverbs, similes, sayings, parts of speech etc.	Pupils listen, take brief notes, respond to those questions by giving examples e.g. I will be a driver, father, victim etc.	
25 MINS.	STEP III (a) Divide pupils into six groups. Give clear instructions on their roles in the group. Explain how the discussions will be conducted. (b) Go round supervising and giving assistance where necessary.	Suggest the different moods giving examples of the relevant ones. (a) Pupils listen, go to their groups and take up their roles. - Under the the leadership of the group leaders, they will discuss and record the information. (b) Write their compositions, drafts and proofread them.	Pupils will develop a spirit of co-operation and build self-esteem.
5 MINS. 5 MINS.	STEP IV Teacher's input, lead the discussions using the pupils' reports to harmonize the information e.g. - the length of the composition - how many paragraphs - sequence the paragraphs etc. STEP V Give the assignment - Go round assisting individuals.	Listen, note down the relevant points and ask questions for clarification. Write the compositions individually and hand them in for marking.	
7 MINS.	CONCLUSION (i) Basing on the pupils' contributions the teacher brings out the points very clearly on why we need to conserve water because without it there can be loss of life and property. (ii) Mark, correct and do follow up activities.	Pupils do correction in their individual work.	

4.2 SECONDARY - SAMPLE LESSON PLAN

NAME OF SCHOOL:
CLASS: **FORM 3**
SUBJECT: **BIOLOGY**
PERIOD: **9.20 - 10.00**

NAME OF TEACHER:
DATE: **15 DECEMBER 02**
TOPIC: **ECOLOGY**
SUB-TOPIC : **HUMAN DISEASES - SCHISTOSOMIASIS**

OBJECTIVES:
By the end of the lesson, the learners should be able to:

a) Identify the mode of transmission of schistosome.
b) State the effects of the parasite on the host (human).
c) Identify the symptoms of schistosomiasis.
d) Describe the adaptive characteristics of the parasite.
e) Explain the control or prevention of schistosomiasis.
f) Demonstrate a willingness to drain stagnant water.
g) Appreciate the dangers of being barefoot in stagnant water.

Learning/Teaching Activities
- Group discussion
- Observation of permanent slides and charts
- Investigation/ inquiry
- Narration

Resources
- Wall charts
- Pictures
- Permanent slide
- Videos
- Microscope
- Resource person e.g. a medical practitioner.

Reference
1. Biology and Biological Sciences Bk. 3 by KIE
2. Other relevant textbooks

Presentation

STEP	TIME	TEACHING EXPERIENCES	LEARNING EXPERIENCES	VALUES
1	**5 Mins.**	**Introduction** Narration of a story about a young boy who used to play in stagnant water, then later got infected with schistosome.	■ Listening to the story ■ Visualizing the context of the story.	The teacher stimulates the learners so that they concentrate as they listen to the story. This should help them develop self-awareness and acquire knowledge as they visualize the details of the story.
2	**30 Mins.**	**Development** a) Discussion on the mode of transmission of schistosome. b) Guide learners in stating the effects of parasite on the host (human). c) Guide learners in identification of symptoms of schistosomiasis through asking questions. d) Displaying pictures showing people suffering from the disease. e) Description of the adaptive characteristics of the parasites. f) Explanation and discussion on the control. g) Prevention measures necessary for schistosomiasis.	■ Participation in discussion and answering questions ■ Observation of pictures, charts, permanent slides and video ■ Making notes, demonstrations and ■ Explanations of how to avoid having stagnant water	The teacher helps learners to develop values, like the spirit of enquiry, quest for knowledge and responsibility as they participate in class discussion, observe pictures, charts, slides and videos. This will also create in them a sense of duty and cleanliness as they drain stagnant water and care for their environment.
3	**5 Mins.**	**Conclusion** Recap of the lesson through asking questions on:- a) Mode of transmission of the disease. b) Effects of the parasite on the host. c) Symptoms of schistosomiasis. d) Adaptive characteristics of the parasites. e) Control/prevention of schistosomiasis.	■ Answering questions on areas discussed during the lesson ■ Making notes	The teacher summarizes the lesson by asking questions to stir their memory and knowledge acquired while at the same time developing in them a sense of responsibility, which should help them in the future.

Self Evaluation - The lesson was well taught and the objectives achieved. The teacher later organized a field trip to the local hospital to learn more about the disease.

SECONDARY - SAMPLE LESSON PLAN

NAME OF SCHOOL:
GRADE: **FORM 1 NORTH**
SUBJECT: **AGRICULTURE**
PERIOD: **11.00 - 12.20**

NAME OF TEACHER:
DATE: **15TH DECEMBER 02**
TOPIC: **WATER SUPPLY, IRRIGATION & DRAINAGE**
SUB-TOPIC : **DRAINAGE**

Objectives:
By the end of the lesson, the learner should be able to:-
(a) Define drainage.
(b) Explain the importance of drainage.
(c) Describe methods of drainage.
(d) Demonstrate positive attitude towards drainage management.

Learning and Teaching Activities
- Demonstration
- Discussion
- Observation

Resources
- Maps
- Pictures on drainage system
- Jembes/hoes
- Water buckets
- Chalk board

Reference:
1. Agriculture Bk. 1 by KIE
2. East African Agriculture by Ngugi
3. Other relevant texts

LESSON PRESENTATION	TIME	TEACHING EXPERIENCE	LEARNING EXPERIENCES	VALUES
Step 1.	5 Mins.	Introduction: Display pictures or newspaper cuttings of a flooded street and a swampy area.	Description of what is on the pictures.	The teacher will stress to the learners the need to appreciate the role of proper drainage and also arouse their curiosity and sense of concentration as they observe the pictures and newspaper cuttings.
2.	30 Mins.	Development ■ Definition of drainage. ■ Group discussion on the importance of drainage and on the methods of drainage.	■ Participation in discussion. ■ Observation of pictures of drainage methods. ■ Presentation of findings of group discussion.	The teacher stresses that the learners need to cultivate the culture of respect, good behaviour, responsibility dedication, natural awareness,

LESSON PRESENTATION	TIME	TEACHING EXPERIENCE	LEARNING EXPERIENCES	VALUES
		■ Guide the learners to identify different methods of drainage from available pictures.	■ Making notes	co-operation and willingness as they discuss.
3.	40 Mins.	■ Guide the learners to make trenches as a method of surface drainage.	■ Making trenches	The teacher will stress the values of humility, healthy living, co-operation and respect as learners make trenches.
4.	5 Mins.	Conclusion Highlights of the lesson ■ Definition of drainage ■ Importance of drainage ■ Methods of drainage **Assignment** Write about the drainage system in the local environment.	Making notes Writing on the drainage system in the local environment	The teacher will stress the values and help the learners develop a sense of responsibility and healthy living so that they would understand the importance of drainage so that they maintain proper drainage for themselves and future generations.

Self Evaluation

SECONDARY - SAMPLE LESSON PLAN

MPANGILIO WA SOMO

SOMO	DARASA	TAREHE	MUDA	IDADI YA WANANFUNZI
Kiswahili	Kidato cha kwanza	16.10.02	Dakika 40	40

Mada: Kuandika insha:

Mada ndogo: Uhifadhi wa chemichemi za maji

Shabaha: Baada ya kipindi mwanafunzi aweze:

(a) Kuandika kwa hati nadhifu na zinazosomeka.
(b) Kujadili hoja kimantiki.
(c) Kueleza manufaa ya maji.
(d) Kujadili umuhimu wa kuhifadhi maji.
(e) Kufafanua njia za kuhifadhi chemichemi za maji.

Marejeleo: Kiswahili kwa kidato cha kwanza na K.I.E uk. 5

Zana za kufunzia

1. Picha na michoro
2. Video
3. Vinasa sauti
4. Majarida na magazeti
5. Vibonzo na mabango

Njia za kufunzia

1. Utazamaji
2. Maelezo
3. Tajriba

Kujadili

HATUA / MUDA	SHUGHULI ZA MWALIMU	SHUGHULI ZA MWANAFUNZI	MAADILI YANAYOLENGWA
Hatua ya kwanza Dakika nane	Mwalimu awaonyeshe wanafunzi picha, michoro video, vibonzo au mabango kuhusu chemichemi mbalimbali za maji kama vile mlima Kenya, Aberdare, Elgon, Ziwa Viktoria, n.k. ?Hali kadhalika, aonyeshe video, picha, michoro na mabango kuhusu sehemu kame.	Wanafunzi wawe wakitazama picha na kunakili wanayoyaona.	kuzindua/uzindushi ufahamu wa mazingira yao Ulengaji Kuhamasisha
Hatua ya pili Dakika kumi	Mwalimu awaulize wanafunzi kutaja chemichemi cha maji zinazopatikana katika mazingira yao. ?Awaongoze kueleza manufaa ya maji. Awaongoze kutambua na kufafanua njia mbalimbali za kuhifadhi chemichemi za maji.	Waeleze chemichemi zinazopatikana katika mazingira yao k.m. visima, mito, vidimbwi, n.k. Waeleze manufaa ya maji maishani mwao. Waelezea namna chemichemi za maji zinavyoweza kuhifadhiwa. Wanakili yale wanayosomewa.	Kuzindua ufahamu wa mazingira yao Kuhamasisha maadili ya utabuzi wa chemichemi na ufahamu wa jinsi ya kuhifadhi. Kuibua maadili ya ushirikiano katika uhifadhi. Kujitolea kuhifadhi
Hatua ya tatu Dakika ishirini	Awape kichwa cha insha. Uhifadhi wa chemichemi za maji	Waandike insha huku wakizingatia kanuni za za kisarufi, hati bora zinazosomeka na mantiki.	Kuamsha stadi ya Kumbukumbu, ufahamu na ufanisi.

HATYA YA NNE

HITIMISHO LA SOMO

DAKIKA MBILI

Tathmini: Mwalimu aokote madaftari ya wanafunzi na kuyasahihisha.
Asichukue muda mrefu kusahihisha. Wanafunzi wapewe matokeo pindi mwalimu anapomaliza kusahihisha.

SECONDARY - SAMPLE LESSON PLAN

NAME OF SCHOOL:
GRADE: **FORM 1**
SUBJECT: **KISWAHILI**
PERIOD: **40 MINS.**

NAME OF TEACHER:
DATE: **16TH DECEMBER 02**
TOPIC: **COMPOSITION WRITING**
SUB-TOPIC : **CONSERVATION OF WATER SOURCES**

Objectives:
By the end of the lesson, the learner should be able to:
(a) Write legible letters.
(b) Organize ideas in his/her writing logically.
(c) Explain the importance of water.
(d) Explain the importance of conserving sources of water.
(e) Mention and elaborate various ways of conserving water sources.

Reference: Kiswahili for Form 1 by Kenya Institute of Education

Teaching Learning Activities
- Demonstration and observation
- Explanation
- Giving own experience
- Discussion

Resources
1. Pictures or drawings related to topic
2. Video
3. Radio
4. Journals and newspapers
5. Cartoons and posters

LESSON PRESENTATION

STEP	TIME	TEACHING EXPERIENCE	LEARNING EXPERIENCES	VALUES
1.	8 Mins.	■ Teacher to show learners pictures, drawings, newspaper cuttings, video, or posters on various sources of water like Mount Kenya,	■ Learners to observe and record what they see and perceive. ■ Discuss what they observe	Arouse the value of quest for knowledge, focus, spirit of inquiry and understanding.

STEP	TIME	TEACHING EXPERIENCE	LEARNING EXPERIENCES	VALUES
		Kilimanjaro, Elgon, Average, Lake Victoria etc. ■ To show learners pictures, drawings, video or posters on dry areas that have been affected by drought.		
2.	10 Mins.	■ Ask learners to name the sources of water in their locality or environment. ■ Guide learners to identify the various ways in which sources of water can be conserved.	■ To name the sources of water in their environment like boreholes, rivers, springs etc and make notes. ■ To explain the importance of water and make notes. ■ To identify the various ways to conserve water sources.	Create the sense of:- ■ Understanding their environment. ■ Focusing on their locality. ■ Caring for the water sources and willingness to conserve them.
3.	20 Mins.	■ Give them the title of the composition. ■ Conserving water sources.	■ Write a composition on the given topic by observing grammar rules, good handwriting and logical flow of ideas.	Creating the value of:- ■ Recalling (memory) what they have learnt and put it in writing. ■ Knowledge of what is required in the composition. ■ Synthesizing the content that is needed in the composition.
4.	2 Mins.	Conclusion and Evaluation The teacher to collect exercise books and mark them. The results should be given immediately after marking is completed.		

APPENDIX III

Country Declarations

1. Cote d'Ivoire

ABIDJAN DECLARATION ADOPTED BY PARTICIPANTS DURING TOT WORKSHOP HELD IN COTE D'IVOIRE FROM 15-19 JULY 2002

I — Context

With the scarcity of drinking water, especially in African cities, the United Nations Programme for Human Settlements (UN-HABITAT) has initiated the "Water Management for African Cities Programme", jointly with United Nations Environment Programme (UNEP). Seven cities are implementing this project, namely: Abidjan, Accra, Addis-Ababa, Dakar, Johannesburg, Lusaka and Nairobi.

In Côte d'Ivoire, the Value-based Water Education (VBWE) component is implemented by the Ministry of National Education.

Objectives:

- To raise awareness on water as a cornerstone for social, economic and environmental development; and
- To develop lasting positive behaviours in schools and communities in order to conserve water and avoid wastage.

For the implementation of the project action plan, a training of trainer's seminar took place in Abidjan from 15 to 19 July 2002. Participants to this capacity-building seminar were from both formal and non-formal education sectors.

II — The necessity of human values integration

Such a project cannot reach its goals without the integration of appropriate tools in the educational process from kindergarten to secondary school, especially when the children are still young.

Water education will then be implemented within the Ministry of National Education. If young children are well educated on water-related topics, it ascertains that the future generation will be a good actor for a lasting development of the society.

Everybody agrees that teachers are recognised as educators. However our educational practices give very little place to the development of human values, with subsequent breakings between school and society.

Bringing human values to the contents and in the methodology of teaching will permit to reconcile, progressively, the school and society and to give back to school its function as an institution for development.

The advent of the VBWE project is a unique opportunity to undertake a deep and innovative reform in our school environment because it takes place when we are just in the process of revising our curriculum.

The project will enable us to integrate topics and subjects related to universal human Value-based Water Education in our curricula.

III — Implementation

A) Formal education

The ongoing restructuring of our curricula requires from all of us, inspectors, pedagogic advisors and teachers, a total adherence to the VBWE approach.

Activities of curricula development, starting next on September 2002, will allow all subjects of primary and secondary schools to proceed with efficient integration of human values in water-related topics.

This integration of values will substantially improve the quality of the ongoing curricula.

Curriculum developers will introduce human values in all subjects related to water. In the implementation of all teaching activities, special emphasis will be laid on human values wherever water appears. Activities will have a maximum of illustrations as far as possible.

The commitment process shown during the seminary will still continue during the experimental phase of the approach in the academic year, 2002–2003. A general implementation of the approach is foreseen by 2003–2004.

B) Non-formal education

The interaction between pupils and their community imposes the integration of human value approach in water education in the non-formal sector.

The Value-based Water Education will allow awareness-raising and will reinforce efficient behaviour changes while the approach is integrated into school curricula.

To reach the goals, the Director of Extra Scholar and Cooperative Activities (DESAC), the Service in charge of illiteracy elimination (SAA), the Ministry of National Education, the Ministry for Family, Woman and Children, NGOs should all together be fully involved in the implementation of the project in order to complement the skills and trainings brought about by the formal education sector.

Some lesson plans are enclosed to help with the integration of values in water-related education.

In Abidjan, 19 July 2002

The Workshop Participants

2. Ethiopia

DECLARATION ADOPTED BY PARTICIPANTS DURING TOT WORKSHOP HELD IN ETHIOPIA AT NAZRET, FROM 19-23 AUGUST 2002

Your Excellency Mr. Habtu G / Hiwot

Distinguished Guests from TAISSE Institute and UN-HABITAT

Dear Participants, Ladies and Gentlemen

Taking into consideration the recommendations and action plan developed by the Expert Group Meeting (EGM) held in Johannesburg from 30 April 2001 for Value-based Water Education in African Cities;

Again taking into account the sub-regional workshop held in Ndola, Zambia from 26 to 28 July 2001 aimed at exposing senior professionals from education and water resources in Ethiopia, Kenya, Tanzania, South Africa and host country, Zambia, in the implementation of Value-based Water Education through formal and non-formal channels. Ethiopia, which was one of the participants, developed her national action plan of implementation for Value-based Water Education;

Considering the action plan for Value-based Water Education developed by the Ethiopia delegation at the Ndola sub-regional workshop;

Recognizing the role of human values in changing the attitudes and behaviours towards water use and conservation;

After attending a five-day TOT workshop on Value-based Water Education, held at Adama Mekonnen Hotel, Nazret (Ethiopia) from 19-23 August 2002, which in fact enabled us to obtain such a remarkable knowledge, skills and attitudes of human values in water education;

We the Participants

- The Head and Vice Head of the Education Bureau of Addis Ababa,
- Heads of departments and services of the Education Bureau of Addis Ababa,
- Heads of the zone education departments,
- Team leaders and senior experts of different departments of Addis Ababa Education Bureau,
- Representatives of the secondary school language, social and natural science teachers
- Head teachers and teachers of pilot primary schools,

Hereby declare our commitment to implement Value-based Water Education in Addis Ababa

The implementation of Value-based Water Education will take the following steps:

1. To integrate VBWE in the existing regional curriculum
2. To introduce the concept of VBWE to concerned higher officials and experts
3. To train head teachers and teachers of the pilot schools
4. To incorporate VBWE in
   - Non-formal basic education programme
   - Community skill training centres, educational mass media of Addis Ababa Education Bureau
   - Teachers training institutes of Addis Ababa
5. Monitor and evaluate the VBWE programme in the pilot schools.

'Water is Life'

"Water is the fundamental pre-requisite for sustainable human development"

Adama Mekonnen Hotel Nazret, Ethiopia
August 23, 2002

Prepared by:
Delegated Committee Members
Mr. Kasahun Tasew
Mr. Aynalem Abebe

3. Ghana

DECLARATION ADOPTED BY PARTICIPANTS AT THE VALUE-BASED WATER EDUCATION (VBWE) TRAINING OF TRAINERS WORKSHOP HELD IN ACCRA, GHANA FROM 22-26 JULY 2002

Recalling the recommendations made at the high level "Ministerial Advisory Group Meeting" held in The Hague in 1997 to introduce water education in the participating cities;

And Regional Expert Group Meeting held in Johannesburg in April 2001, which developed a set of recommendations and an action plan for introduction of Water Education in African cities;

And the two sub-regional workshops held in Accra, Ghana and Ndola, Zambia in 2001 to develop specific country-level action plan for VBWE project implementation;

And considering the importance of water to life and water as a finite natural resource and its role in the socio-economic development of Ghana;

And noting the low level of water use and management ethics in African cities, Accra included;

And recognizing the role that Value-based Water Education can play in creating positive behavioural and attitudinal change in the proper utilisation and preservation of water resources;

We the participants of Value-based Water Education TOT Workshop held in Accra, Ghana, 22 – 26 July 2002,

Do hereby declare our intention to mainstream VBWE in our national education curriculum

The stages of implementation of the VBWE be as follows:

- Conduct baseline study in the ten pilot schools
- Develop institutional materials for use in the pilot schools
- Train teachers in pilot schools and non-formal education practitioners
- Implement VBWE programme in pilot schools and selected communities by:
  - Establishing Simple Water Classrooms in each of the ten pilot schools
  - Carrying out water quality education
  - Carrying out water health care education
  - Twinning pilot schools, i.e., exchange of experiences between pilot schools
  - Carrying out VBWE programme in the non-formal sector
- Conduct internal monitoring and evaluation of the programme
- Assist in the conduct of external monitoring and evaluation of the programme
- Mainstream VBWE issues in the national curriculum.

And that the aforementioned activities would be implemented from August 2002 to May 2003.

The mainstreaming of VBWE issues in all the syllabuses will be achieved by the year, 2005.

4. Senegal

REPUBLIC OF SENEGAL, ONE PEOPLE – ONE GOAL – ONE FAITH, MINISTRY OF EDUCATION, DEPARTMENT OF PRIMARY EDUCATION

VALUE-BASED WATER EDUCATION WORKSHOP
TRAINING OF TRAINERS
(UN- HABITAT PROGRAMME)
29, 30, 31 JULY & 1 and 2 AUGUST 2002 at BREDA
(UNESCO) – DAKAR

DECLARATION

We, participants in the training of trainers workshop on Value-based Water Education, organized on 29, 30, 31 July & 1 and 2 August 2002 at BREDA

- Considering the participation of Senegal in experts meeting in Johannesburg;
- Considering the action plan designed in Accra in August 2001;
- Considering the measures taken by the Senegalese Ministry of Education for the official setting up of the Value-based Water Education project introduction in primary schools and in the non-formal sector;
- Considering the setting up of the National Strategic Steering Committee for the introduction of Value-based Water Education in primary schools and in the non-formal sector;
- Considering the results obtained during this training of trainers workshop thanks to the efficient support from the UN-HABITAT experts :
  - Dr Victor Kanu (The Sathya Sai TAISSE Institute in Ndola - Zambia)
  - Mme Genoveva Kanu (Sathya Sai TAISSE Institute in Ndola - Zambia)
  - Mr Bornwell Daka (Sathya Sai TAISSE Institute in Ndola - Zambia)
  - Mme Rubandree Naicker (South Africa)
  - Mr Pireh Otieno (Programme Manager, UN-HABITAT, Nairobi)
  - Eric Moukoro (WAC Programme Coordinator in West Africa, UN-HABITAT, Dakar)

DECLARE OURSELVES READY FOR:

- The effective implementation of Value-based Water Education project in primary schools and in the non-formal sector in Senegal, which will be experimented in both the formal sector (primary education) and the non-formal as of October 2002;
- The integration of this educational programme in the primary school curriculum by July 2003, so as to make it durable.

Consequently:

- We request UN–HABITAT to timely release the means which are necessary for that implementation, according to the updated operation plan;
- We would like the Ministry of Education, through the National Strategic Steering Committee, to take all the measures for an effective implementation of the project activities in all the experimental sites.

ISSUED IN DAKAR ON AUGUST 2, 2002

1. Mohamadou Aly Sall		14. Ibou Ndiathe	
2. Abdourahim Gaye		15. Aly Sarr	
3. Mamadou Abdoul Sow		16. Omar Diom	
4. Abdou Diaw		17. Iba Mar Diop	
5. Moussa Mbaye		18. Moustapha Niang	
6. Kaba Diakhate		19. Malick Gaye	
7. Cheikhou Toure		20. Loly Diouf	
8. Mme Anta Diop Ndiaye		21. Salimata Diop	
9. Mamadou Diop		22. Siny Sene	
10. Yoro Sow		23. Idrissa Thiaw	
11. Mamadou Diabate		24. André Bihibinai	
12. Modou Fall		14. El Hadji Lamine Mangane	
13. Khady Gueye			

5. Zambia

DECLARATION ON VALUE-BASED WATER, EDUCATION ADOPTED BY PARTICIPANTS DURING TRAINING OF TRAINERS WORKSHOP HELD AT GARDEN HOUSE HOTEL LUSAKA, ZAMBIA, FROM 9 SEPTEMBER 2002 TO 13 SEPTEMBER 2002

Based On:

1. The recommendations and action plan developed by the Expert Group Meeting (EGM) held in Johannesburg from April 30 to 2 May 2001 for Value-based Water Education in African Cities.

2. The sub-regional workshop held in Ndola, Zambia from 26 to 28 July 2001 aimed at exposing senior professionals from education and water sectors from Ethiopia, Kenya, Tanzania, South Africa and host country, Zambia, in the implementation of Value-based Water Education, we, the participants comprising:

   - Curriculum Development Centre (CDC), Teacher Education Department (TED), Ministry of Education (MOE)
   - University of Zambia (UNZA), colleges, high schools and basic schools
   - Ministry of Water and Energy
   - Lusaka Water and Sewerage Company
   - Care International
   - Environmental Council of Zambia

Hereby declare our commitment to implement Value-based Water Education in Zambia.

The implementation of Value-based Water Education will take the following steps:

- Integration of VBWE in our existing school curriculum.
- Training of head teachers and teachers of pilot schools
- Incorporation of Value-based Water Education in formal and non-formal education programmes
- Monitoring of evaluation of Value-based Water Education programmes in the pilot schools by Curriculum Development Centre (CDC).

'WATER IS EVERYBODY'S BUSINESS.'

Signed by:

S.NO.	NAME	DESIGNATION	SIGNATURE
1.	L.S. NTALASHA (MRS)	A/DIRECTOR	
2.	F. CHIPINDI	ORBIT MAGAZINE	
3.	M.G. NYAMBE	CURR. SPECIALIST	
4.	B.M. BANDA	PRI. EXAM SPECIALIST	
5.	J. MUKOSA	EDUCATION OFFICER	
6.	M.C. M'HANGO	HEAD	
7.	M. SIMUCHIMBA	LECTURER	
8.	K. NYUNDU	WATER ENGINEER	
9.	G.K. SOLAMI	PRIN. ADM OFFICER	
10.	S. HIKAULA	CDS	
11.	G.H. SITALI	LECTURER	
12.	S. ZIWA	HEAD	
13.	DR. M. MAJUMDAR	TAISSE TEAM MEMBER	
14.	PIREH OTIENO	PROJECT OFFICER	
15.	B. DAKA	LECTURER	
16.	VERONICAH NJUGUNA	PROGRAMME ASSISTANT	
17.	H. CHIBUYE	WATER ENGINEER	
18.	B.C. MWEENE (MRS)	CDS	
19.	F. MULUNDA	DEPUTY HEAD	
20.	M. MONDE	SCDS	
21.	J.B. NKOLE	SCDS	
22.	C. SITALI	CDS	
23.	J. MUYANGANA	CDS	
24.	NKHUWA D. DR	UNZA	
25.	CHONDOKA DR.	UNZA	
26.	S. CHANKANONDO KAPUTOWAKAPUTO	SENIOR INSPECTOR OF SCHOOLS (MATHEMATICS AND SCIENCE)	
27.	MWIYA	CARE INTERNATIONAL	
28.	G. KANU (MRS)		
29.	V. KANU		

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