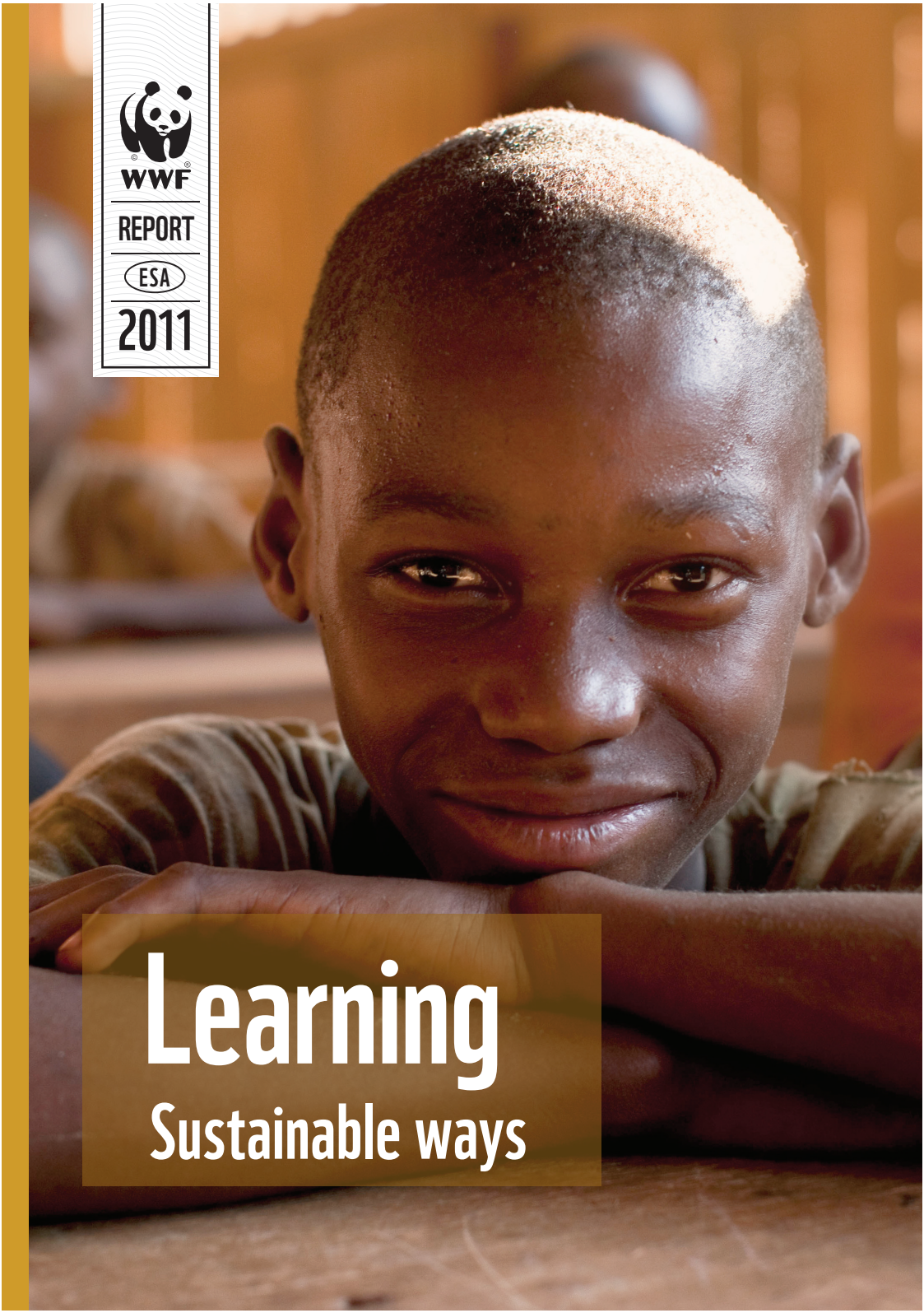





Learning

Sustainable ways

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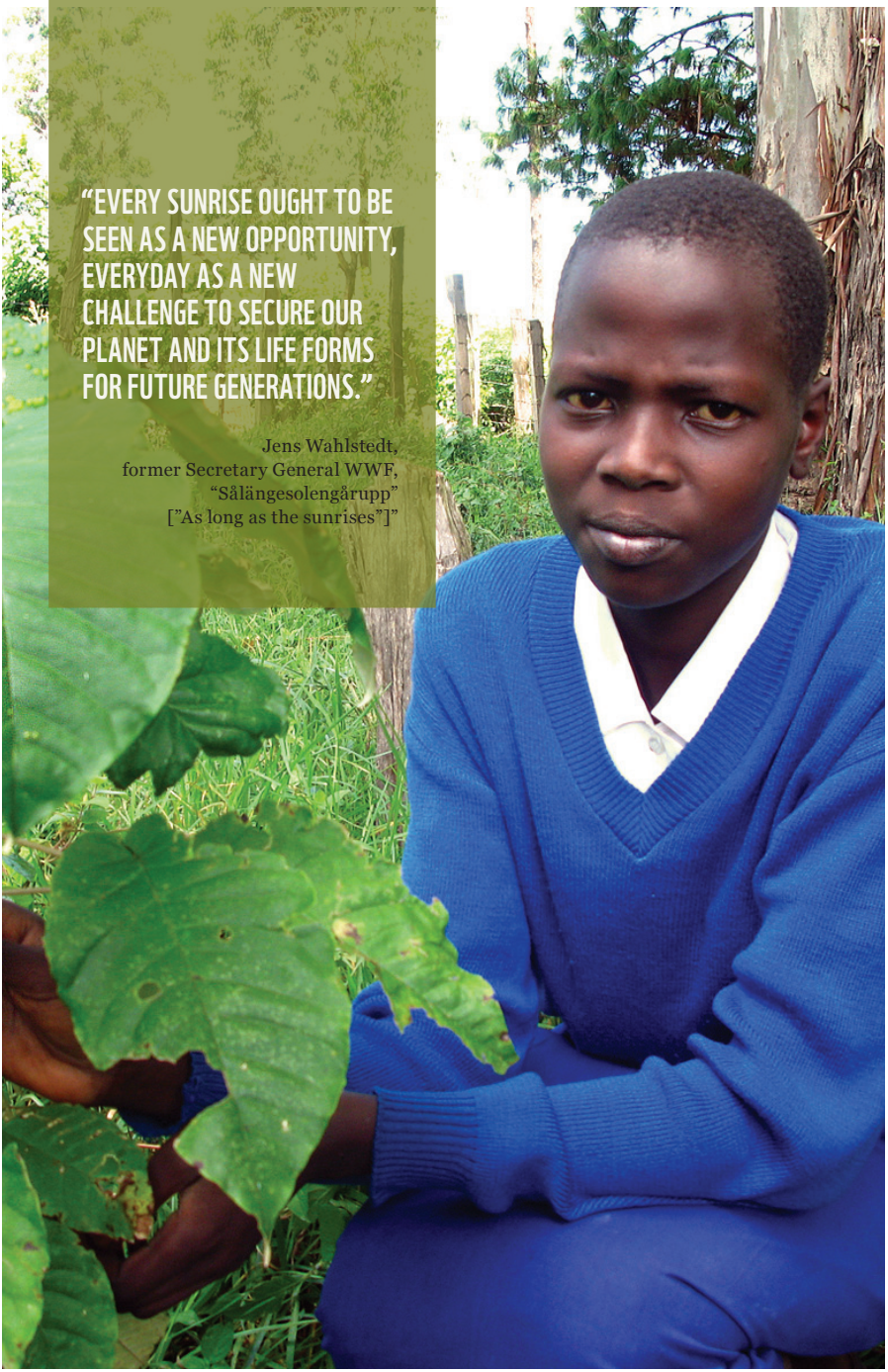

“EVERY SUNRISE OUGHT TO BE SEEN AS A NEW OPPORTUNITY, EVERYDAY AS A NEW CHALLENGE TO SECURE OUR PLANET AND ITS LIFE FORMS FOR FUTURE GENERATIONS.”
Jens Wahlstedt,
former Secretary General WWF,
“Sålängesolengårupp”
[”As long as the sunrises”]”

FOREWORD

Melting glaciers, floods, landslides, hurricanes, desert encroachment, rising temperatures... The list is endless.

Are these normal climatic variations or changes created by human beings? How is it that the rich world over-consume, while starvation and poverty prevail in other parts of the world? How ought we to tackle the problems of poverty, starvation, inequality, reduced biological diversity, etc? Despite living in a so-called knowledge and information society the questions are many and the answers far from obvious.

Environmental education and courses have been part of formal education since the 1960s, but this has clearly not been sufficient. Social changes and new insights have led to the UN's ten-year plan, 2005–2014, Education for Sustainable Development.

The aim of this publication is to highlight the WWF Network's view of the role of education in achieving a sustainable society. The target groups we have in mind are learners and the wider member of the community or interested in fostering Education for Sustainable Development (ESD).

Education for Sustainable Development involves a different way of looking at the world."

Inger Björneloo,
Teacher Training,
Göteborg University Sweden

"WE LIVED IN A LAND ABUNDANT WITH SHRUBS, CREEPERS, FERNS AND TREES...BECAUSE RAIN FELL REGULARLY AND RELIABLY, CLEAN DRINKING WATER WAS EVERYWHERE. THERE WERE LARGE, WELL-WATERED FIELDS OF MAIZE, BEANS, WHEAT AND VEGETABLES. HUNGER WAS VIRTUALLY UNKNOWN."

Prof. Wangari Maathai,
Nobel Laureate

THE DRAGONFLY'S LANDSCAPE

– introductory reflections on sustainability

The canoe glides unhindered down the meandering river, paddles dipping rhythmically into the flowing water. We run aground at a particular bend of the looping river and have to push and wiggle ourselves free. After a brief discussion we agree that we should avoid the inner bends of the river; the slow flow and sedimentation make the river difficult to navigate.

We hear a swishing sound behind us. Millions of mosquitoes, flies and dragonflies are outlined like silhouettes against the setting sun. We are fascinated to discover that the sound is coming from the wings of dragonflies as they search for food.

We approach the next river bend and choose the fast and powerful flow of the outer curve. There's no sediment here, only depth and power. We move easily and confidentially forward.

Looking back occasionally and glimpsing the unexpected gives rise to new thoughts. The dragonfly, a virtuoso of the air, is an ancient insect that hasn't changed much in the last 300 million years.

It flies forwards, backwards, can remain motionless and even mates in the air – all this with the help of thin, transparent wings. They look so fragile! But the dragonfly lives according to minimalistic principles: resource efficiency and strength are its virtues. The thin ribbed wings with their hexagonal patterns provide stability and durability. The dragonfly has discovered how to live sustainably and durably!

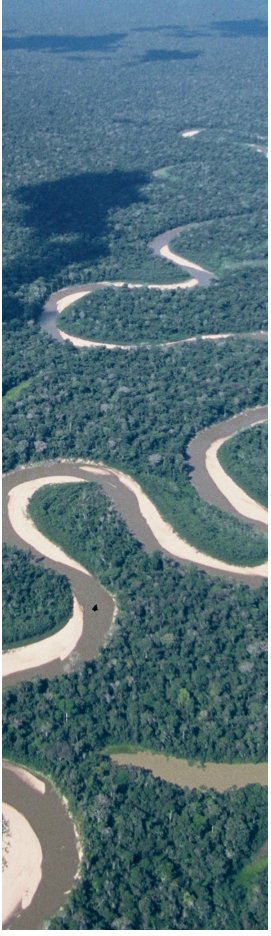
Our sustainable dragonfly flies over a river. The river's weaving and searching form is similar to the landscape of learning; learning as a two-part process. After having received new information we all need time for peaceful thought and reflection, when things can sink in and be stored in our bank of experience; a place where the new has time to settle within us and be fully absorbed. But the energy of the outer curve is also important as a new and powerful stimulation. People need challenges where old established thoughts can be tested, changed and developed into new experiences. Living in this space between the inner and outer curves in a real situation, where experiences are mine and therefore personal at the same time as they are shaped into a social context, is a foundation for learning.

"Living is like travelling through a landscape," says the Norwegian philosopher Arne Naess.

It's difficult to predict what the future will bring. We are now in the decade of Education for Sustainable Development (2005 - 2014) which emphasises learning about sustainability. This should continue even beyond the decade. Let's turn back to look at the dragonfly's meandering metaphoric landscape and, with wide-open eyes, search for sustainable knowledge. Come with us on an exciting journey of discovery into the future, where we can only imagine the possibilities and opportunities awaiting beyond the next bend of the river.

"Living is like travelling through landscape of easy or rugged terrain, light or dark places, in all conditions and with hidden surprises."

Arne Naess, Livs filosofi
[Life Philosophy]



COLLOSAL CHALLENGES AHEAD

How is the Earth actually faring? WWF uses two indicators to assess the health of the planet.

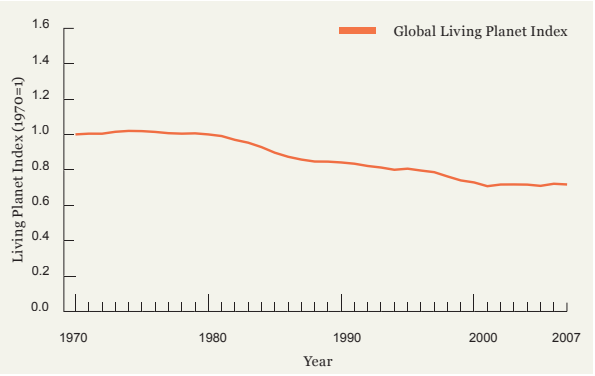
One indicator, the Living Planet Index, is concerned with the number of birds, mammals, reptiles and fish and measures changes in the population size of the planet's 2,544 species of wild vertebrates. The prognosis is not good; the curve dips downwards. Between 1970 and 2007 the Living Planet Index went down by 30 percent.

"The earth has enough for man's need but not for man's greed."

Mahatma Gandhi

We also measure the extent to which we humans impact the planet, i.e. our resource consumption and its effect. In 2007, humanity's ecological footprint was three times greater than it was in 1961.

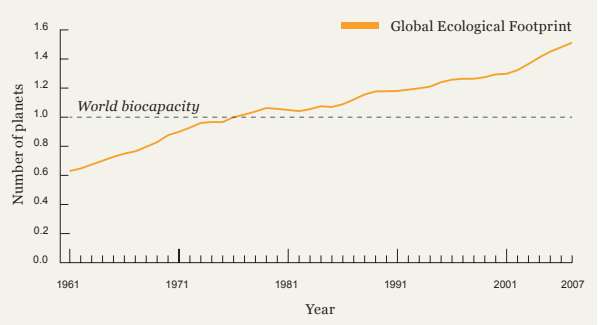
THE LIVING PLANET INDEX, 1970 - 2007



30%

The Living Planet Index measures trends relating to biological diversity. The population of 7,953 vertebrates has been studied. The biological diversity went down drastically by 30 percent between 1970 and 2007 (Index 1970=1.0).

HUMAN'S ECOLOGICAL FOOTPRINT, 1961 - 2007



Humanity's ecological footprint is increasing. Since the end of the 1980s we have been exceeding the Earth's biocapacity. Today we use more resources and produce more waste than nature can deal with, which means that we outstrip nature's capacity to create new resources.

Our ecological footprint is too big

Humanity's demand on the planet's living resources, its Ecological Footprint, now exceeds the planet's regenerative capacity by about 30 per cent. This global overshot is growing. Consequences: deforestation, water shortages, declining biodiversity and climate change. We now consume the world's natural resources at a rate that is 25 percent faster than nature's capacity to create new ones Differences in lifestyles between different countries are considerable, and only in the so-called developing countries is the footprint considered reasonable.

If we continue in the same way, by 2030 we would need two planets – a very unsustainable development to say the least!

Today humanity uses the equivalent of 1.5 planets to provide the resources we use and absorb our waste. This means it now takes the Earth one year and six months to regenerate what we use in a year. If current population and consumption trends continue, by the 2030's, we will need the equivalent of two Earths to support us, but we only have one.

We are now faced with the tasks of sustainable development having to make choices. We can either decide to continue as we have been doing – which will lead to destruction – or to live, eat and move around in sustainable ways.

We are facing enormous challenges. The number of vertebrates is diminishing, the amount of artificial chemical substances is increasing and the climate is changing. As many as 37 football fields of tropical rainforest disappear every minute, 45,000 dams have a negative impact on nature, declining fish species in Lake Victoria, more than one billion people do not have access to clean water and the number of fish and whales in the world's seas is decreasing rapidly. The list is endless. Not only that, if we continue with the same unsustainable consumption- and production patterns, by 2030 we would need two planets – a very unsustainable development to say the least!

But we also see a world that has been agreed that global warming should be kept below two degrees. We see that seas and forests are protected and in East Africa, there is universal free primary education which gives all children an opportunity to have access to education.

WWF

WWF was formed in 1961 in London to raise money to save animals in danger of extinction.

Today WWF is a global nature conservation organisation with a broad remit. WWF works to stop the destruction of the planet's natural environments and to build a future where people live in harmony with nature. WWF doesn't only make use of nature conservation, research, lobbying, information and education as tools for maintaining ecosystems and species, but also to address the root causes of environmental problems.

The Giant Panda feeds on the bamboo and is endangered due to loss of its habitat in China.

WWF's three basic tenets are:

- Conserving the world's biological diversity
- Ensuring that the use of renewable natural resources is sustainable
- Promoting the reduction of pollution and wasteful consumption.

ENVIRONMENTAL ISSUES AND SOCIAL DEBATE

"Sustainable development doesn't only mean ecological sustainability, but also includes social and economic dimensions."

At the beginning of the 1960s the time was ripe for a wide social debate on environmental issues. Rachael Carson's book "Silent Spring", published in 1962, constituted a starting signal. The connection between the demise of Yellow hammers and mercury impregnated seeds formed the basis of her book.

In the 1960s society took the idea of having to do something about the existing environmental problems on board. In the developed world technology was harnessed in the cleaning of chimneys and sewage pipes, while in the developing countries the emphasis was on health, sanitation and hygiene. For an average person, it was mostly to do with the correct way of disposing waste. In schools of many countries children learned about ecology and the environment. The idea was that knowledge about the problem would automatically lead to changed behavioural patterns.

The first International Environmental Conference was held in Stockholm in 1972, under the auspices of the UN, to discuss the Western world's environmental problems. These were to be taken care of by scientists, experts and technology. Ordinary people didn't need to worry. But this calming attempt failed. During the 1970s both discontent and involvement increased. Environmental organizations were created, people became active and vocal on issues to do with environmental conservation. The Green Belt Movement was one such organization in Kenya that focused on tree planting and protection of indigenous forests playing an advocacy role for the protection of forests.

After the launch in the Eighties of the World Conservation Strategy WWF, IUCN* and UNEP**

* IUCN is the world's largest nature conservation network.

* *UNEP is the acronym used for the United Nations Environment Programme.

Environmental Education – three traditions

1. Fact-based Environmental Education
Environmental problems are the result of poor knowledge. The natural sciences are designed to help solve environmental problems. Teaching objective facts should lead to changed habits and a better environment. (The 1960s and beyond)

2. Normative Environmental Education
Knowledge alone is not enough. Environmental problems go hand in glove with values. Scientific experts should guide people towards good environmental actions and scientific knowledge should be normative. (The 1980s and beyond)

3. Education for Sustainable Development
Ecological, economic and social aspects are emphasised. There are conflicts of interests and different people have different points of view. Reflection and critical thinking are emphasised. (The 1990s and beyond)

Sandell, K., Öhman,
J. & Östman, L. (2005): Education for Sustainable Development: Nature,
School and Democracy.

joined forces in the 1990's to publish Caring for the Earth - A Strategy for Sustainable Living. Twenty years after the Stockholm conference the UN again raised the environmental questions, this time on a global stage, with its sights on the 21st century. The conference was held in 1992 in Rio de Janeiro and had been prepared for in different ways.

2005–2014

The period 2005–2014 was proclaimed by the UN as a decade that would focus on Education for Sustainable Development (also known as ESD), with an emphasis on the importance of education for sustainable societal development.

The World Commission on Environment and Development, also called the Brundtland Commision, defined Sustainable Development in the report "Our Common Future" in 1987 as "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainable development doesn't just mean ecological sustainability, but also includes social and economic dimensions.

The Rio Conference resulted, among others, in Agenda 21, containing guidelines for the world's governments, local government authorities and important social groups as to how to create development in the 21st century without damaging the environment. The message from Rio Conference (also known as the Rio Summit) was that both rich and poor countries have their environmental problems. Besides global, local solutions can also be found which often derive from lifestyles and local decisions. It was a global call that every local government authority published local versions of Agenda 21. These have now been revised and incorporated into local government planning and policy documents.

"Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."

The World Commission on Environment and Development, "Our Common Future", 1987

An entire section of Agenda 21 was devoted to education – Chapter 36. This has formed the basis of present initiatives. Many schools and universities are now obliged to include Education for Sustainable Development in their programmes. Ten years after the Rio Conference the countries of the world met again in Johannesburg for a UN Summit on sustainable development. Here it was decided that sustainable patterns of consumption and production, as well as the conservation of natural resources, were priority aspects of a sustainable society.

"It would be good to live without spoiling things for others."
Wolfgang Brunner

Teacher from Visby, Gotland, Sweden

LIVING A GOOD LIFE

In their innermost depths everybody wants to live a good life.

In an ideal world you decide the direction and content of your own life. You might want to start an organic farm, visit a national park or run a restaurant in a town. Every choice you make affects both nature and people. Other people's life paths might cross yours and result in a conflict of interest.

When do you really feel at your best? What is a good life for you and me and everyone on Earth? Could life be better? What do you long for? What is welfare anyway? Is it just about faring well? What kind of basic needs have to be met?

Our most basic needs must naturally be met – food, housing, security, clothing and good health. But we also need to feel safe and secure, enjoy good social relations with fellowship and love, be appreciated and respected and be able to realise our dreams and our potentials.

What is your image of a good and valuable life?

In 1987 the UN commissioned the so-called Brundtland Commission to formulate a trategy document entitled "Sustainable Development". While this outlines a variety of inspiring developments, the interpretations of future routes are numerous.

WHAT IS SUSTAINABLE DEVELOPMENT?

Sustainable development can be regarded as a journey, an ongoing process within an ecological framework.

"Enough for all forever!"

Unknown pupil

The long-term objective is to have as good a life as possible without harming other people, nature and society in both time and space. In other words – care! This can be expressed in three dimensions: ecological, social and economic.

Despite all the alarms and investments in intensive environmental work the Earth is still deteriorating; plants, animals and ecosystems are affected and people suffer beneath the weight of an environmental debt that just gets heavier and heavier. At the Rio Conference in 1992 the countries of the world were united in their intentions to stop this negative development by investing in a sustainable future. But what is sustainable development? What is it that mustn't fall to pieces but must instead be sustainable? And what or whose development are we aiming for?

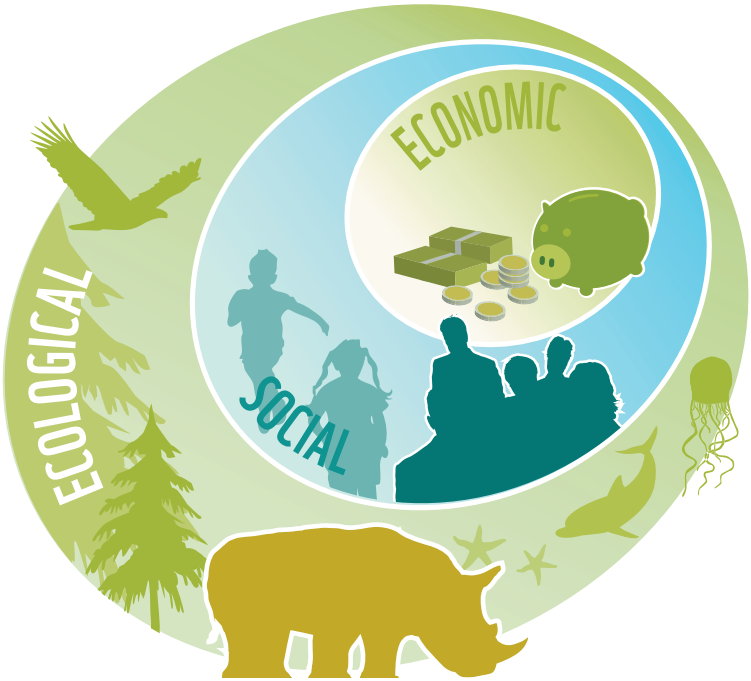
Sustainable Development

The UN defined sustainable development on the basis of the fulfillment of our needs. The question is, – whose needs? Mine or yours? Are we talking about basic needs like food and clothing? Or are we also talking about the desire to travel and decorate our homes with beautiful furniture and electronic equipment. In an attempt to explain what kind of sustainable development was being promoted the Rio Conference put forward a holistic view of the future: Sustainable development is about uniting three particular aspects: the ecological, the social and the economic.

There are a number of different interpretations; some emphasize the importance of a functioning nature and environment, others focus on democracy and equality or society having a stable economic growth. What do these three dimensions mean for you?

"In the heart of the forest there's an unexpected glade that can only be found by those who get lost."

Tomas Tranströmer,
Author "Enough for all forever!"



Three Dimensions of a Sustainable Society

The three dimensions of a sustainable society can be illustrated by three circles. The outer, ecological circle is to do with safeguarding

"An economy that is socially unjust or that doesn't correspond to the ecological framework is not sustainable. In other words, acting sustainably makes economic sense"

a well-functioning ecosystem with a considerable biological diversity – an ecological foundation that constitutes the basis of everything. Preserving the long-term, ecological processes of nature, that in turn constitutes human beings' future life insurance, is of vital importance.

Nature provides us with a range of free services, such as natural water purification, filtering of ultra-violet radiation, and insect pollination. Everything in nature can be justified. The ecological aspect forms the outer framework for all human activities.

The social circle incorporates the human dimension – that we live in a local and global society in a mutually dependent relationship and equitably and equally share the earth's resources in a democratic way. In short, building a society where our basic needs are met and human rights are respected. The social aspect is about constantly maintaining and creating a good life. Which human needs should we emphasise? How might we create a society of happy and contented people with keywords like security, participation, integration and culture?

The economic circle describes an important housekeeping aspect – being careful with the endless resources we have, human as well as material. An economy that uses the interest rather than the capital. An economic development that means economic benefits for society as a whole and that doesn't pose a threat to artificial and natural capital.

An economy that is socially unjust or that doesn't correspond to the ecological framework is not sustainable. In other words, acting sustainably makes economic sense.

WWF bases its work on ecological issues and incorporates the social and economic dimensions in its nature conservation work.

There are many definitions of sustainable development, but in the end what it comes down to is care:

- Care for ourselves
- Care for others
- Care for the planet
- Care for future generations

Department for Education and Skills, UK

Measure your own ecological footprint at www.myfootprint.org

Millennium Development Goals

Around one billion people live in extreme poverty and hunger. Thirty thousand children die everyday from one illness or another. 33 million people have HIV/Aids. Almost half the world — over three billion people — lives on less than USD 2.50 a day.

In 2000, UN member countries agreed on a common international agenda for global development. In practical terms, the focus was on eight measurable and time-limited goals for creating a sustainable society by the year 2015. These eight goals include: eradicate poverty and hunger, achieve universal primary education, promote gender equality and empowerment of women, combat HIV/Aids and other diseases, reduce child mortality, improve maternal health, ensure environmental sustainability, and develop global partnerships.

Reducing our ecological footprints

Every day we impact our environment in different ways, for example, when we buy food, drive cars or use hot water. We affect our surroundings and leave a so-called ecological footprint. This footprint can be measured. The available footprint, i.e. if we divide the earth's biocapacity (biologically productive area to provide ecological resources and services) equally between everybody on the planet, is around 1,8 global hectares (gha) per person. The average North American ecological footprint is 7,9 gha and the average European's (EU) 4,7 gha while the footprint of an average citizen in

Asia is 1.8 gha and the average African is 1.4 gha. An unsustainable situation! Many countries, while allowing others to increase their footprint, must therefore significantly reduce the ecological footprint.

The footprint challenge is multi-faceted. While the average footprint in China is 2.2 gha the average footprint of a citizen in Shanghai is higher than of an average Londoner.

How can I as an individual reduce my ecological footprint?

A lot of things can be done, such as:

- reducing product consumption
- changing to sustainable energy systems
- buying second-hand clothes
- supporting environmental organisations
- encourage organic farming (use of natural manure)
- use energy saving jikos
- control bushfires in the villages.

When we eat we affect the planet with our ecological footprint.

EDUCATION FOR SUSTAINABLE DEVELOPMENT

How the educational system's aspirations for a sustainable development ought to be formulated is a complex and multi-faceted question.

"In a global perspective every person seems tiny. But lots of tiny people can make an incredible difference."

The task is facilitated somewhat if we divide the subject into four parts and ask the questions "what", "why", "how" and "where", as follows:

- What are the main aims?
- Why Education for Sustainable Development?
- How should Education for Sustainable Development be structured?
- Where should Education for Sustainable Development take place?

WHAT is the main objective of ESD?

The main objective is that everybody should acquire knowledge about and feel motivated to work towards a sustainable future.

Education for Sustainable Development includes processes that foster knowledge, skills, values and attitudes that affect the individual's, the school's and the community's work in creating a fair and just society, economic security, ecological capacity, and democracy.

WWF emphasises that Education for Sustainable Development should be regarded as an overall perspective and an ongoing process in a changing world. The long-term goal is that we can live as good a life as possible without harming other people, nature and society in both time and space. For the individual person, this demands a developed capacity to act for a sustainable society, i.e. knowledge, opportunities and motiva¬tion. In a global perspective every person seems tiny. But lots of tiny people can make an incredible difference.

"Our biggest challenge in this new century is to take an idea that sounds abstract – sustainable development – and turn it into reality for all the world's people."

Kofi Annan, UN, 2001

WHY Education for Sustainable Development?

The world's present development is unsustainable. If we are to successfully address the world's problems and possibilities we need to equip ourselves to act for a more sustainable future.

"Why does the school's subject content have to be changed yet again? Because Education for Sustainable Development is an ongoing process!"

Taking East Africa as one case, many of the policy documents governing primary and secondary schools, universities and university colleges include provision for Education for Sustainable Development.

Why does the school's subject content have to be changed yet again? Because Education for Sustainable Development is an ongoing process! Schools are influenced by and exposed to what happens in society. The question is whether schools should copy prevailing social developments or be open to the possibility of

thinking again and thinking anew? Nobody can say with any certainty what the future will bring. Change occurs at an increasing rate. And future generations must be able to cope with the change.

For Kenya the Poverty Reduction Strategy Paper was overtaken by Vision 2030. So we could say; Vision 2030, Kenya's new development blue print emphasizes on sustainable development across all sectors. The Medium Term Plan for the Vision 2030 under environmental education and awareness, requires that Kenya has an ESD Policy developed and all training institutions curricula re-oriented to address ESD concerns. Kenya currently has an ESD Implementation Strategy and the policy process in ongoing.

Environmental Education in Rwanda is primarily guided by international and regional agreements that that country has ratified. The Rwanda government is currently working on establishing and setting up of the Rwanda Environment Management Authority.

In 1995, Tanzania emphasised the importance of sustainable development in its new Education and Training Policy. The schools had therefore to take account of sustainable development in any production work they did. Other ESD initiatives such as integration of ESD into the whole curriculum started also.

Uganda has policies calling for integration of ESD into the curricula at all levels of educational institutions. An EE strategy is also in place.

The vision of education for sustainable development is a world where everyone has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sus¬tainable future and for positive societal transformation.

UN Summit on sustainable development, Johannesburg 2002

"Future generations must be able to cope with change."

HOW should Education for Sustainable Development be structured?

Knowledge is very much about dealing with the problems of a changing world and feeling one's way through life is like a river meandering through the landscape.

In the spite of our capacity to educate and be educated, the environmental pressure on our planet is still increasing. A new educational approach is therefore essential. But how should Education for Sustainable Development to be structured? Will today's young people be sufficiently equipped to work towards a sustainable future? We at WWF want to start with the basics and identify essential concepts and approaches so that we can then develop the skills necessary for action.

Six important cornerstones have been identified as creative bases for Education for Sustainable Development. Each cornerstone is connected to new knowledge in a progressive and flexible structure.

Lifelong Learning

The progress towards a sustainable society is a continuous process where we constantly have to reflect, rethink and reform. It will require a lifelong learning in the different stages and roles in life, as student or teacher, consumer or producer, citizen or politician. While society provides for a formal education, everyday life offers an informal and continuous learning, everyday. Learning is continuous, and lifelong. Children take their first stumbling steps, learn to talk, ride a bike, and then it is time for school. Radio programmes, books, a wide variety of human contacts, travel, situations, bruises and laughter, etc. Inquisitiveness is the key to lifelong learning: inquisitively searching, looking for, discovering, wondering and noticing. The road to knowledge is seldom straight and simple, but often involves a winding and laborious detour. Inquisitiveness thus becomes a bridge between us and reality and between you and me.

Everything that we learn affects how we, as individuals, understand the world around us. In different educational contexts, it is therefore important that personal experience and knowledge are taken into account and affirmed.

Both bees and wasps know that the hexagon is the strongest and most flexible shape. They are genetically programmed to construct one cell after another in hexagonal patterns in order to provide the best possible conditions for future generations.

Key questions

1. In what way can you, as a teacher, support your students to rethink and be innovative?
2. How do you plan for education that the focus will be on the learning process rather than exams?
3. What is the the spiral progression in your education?

2. LEARNERS IN FOCUS

Learners in Focus

Acquiring knowledge might be a demanding and tedious process, but it is nevertheless easy to carry – it fits nicely into the body and is personal. I create knowledge in a lifelong learning process in conjunction with my social environment. At times I'm alone, and sometimes I exchange thoughts and ideas with others. Learning takes place all the time, and in a social and cultural context. Such a view of knowledge emphasizes the importance of starting from the previous knowledge of the individual in whose body that knowledge is formed.

Key questions

1. Of what importance is a learners preknowledge, questions and knowledge in the learning process?
2. How does the student form his/her knowledge? Is it a process alone or together with others?

Holistic Approach

An Education for Sustainable Development that feels relevant, meaningful and is based on reality is facilitated by a holistic approach. A basic knowledge of the green circle, the outer ecological framework that forms the basis of society, is essential. This can be knowledge about ecological frameworks, systemised thinking, energy flows, different cycles, interactions in nature, and biological diversity. It can also include knowledge about human needs, language, culture, creativity and questions about ethics and the meaning of life, as well as how we, with the aid of technology, can respond to the future's challenges of energy and resource-saving constructions.

As I eat my breakfast of tea with sweet potatoes and a cob of boiled maize, I think about the amount of firewood I used to cook my breakfast. I wonder if I can use less wood and save our trees and forests. I also realize that I'm affecting the rain forests in the lake basin including its natural resources. Much of what I eat contains palm oil, vegetable cooking oil, produced on the converted rain forest areas of Kalangala in Uganda. Life is complicated, to say the least. It is no longer possible to study each part on its own, every subject isolated from another. Everything is connected, my social behavior can have ecological consequences in the same way, as ecological disturbances can force me to live a different life.

"Two truths approach one another. One comes from within and one from without, and where they meet we have an opportunity to see ourselves."

Tomas Tranströmer,
Author

Key questions

1. How can you link environmental, social and economic aspects when you for example are educating about water?
2. How would you cooperate and teach, for example about fishing, in an interdisciplinary way ?

Democratic Work Methods

Sustainable development presupposes participation and commitment on the part of everyone. We affect social development in our different roles, as consumers and producers, and as politicians and voters.

We are not naturally democratic. Democracy is something that we have to learn in our formative years. We create democracy in gradual stages. If we are to be integral parts of social structures and constructions we need to be involved, committed and motivated. In our youth this can consist of practicing social roles; being considerate, expressing our own ideas, listening to others, respecting each other as fellow humans and respecting other people's views, co-operating, taking responsibility, reflecting and participating, etc. A little later democracy can include deeper reflection, testing one's arguments and making democratic decisions.

Democracy in school is facilitated if the entire school organisation – staff, head teachers, students and parents – actually practices democracy.

Student influence can be formal or informal, individual or collective, and can include every-thing from individual development plans and dialogues to a student council and co-operation with the local community.

Democracy is closely associated with knowledge. Should we improve ourselves and develop our knowledge, or should we leave the difficult questions to experts? Don't we need to have the relevant knowledge if we are to participate in a democratic process? Is knowledge a prerequisite to democracy, and is knowledge power?

Key questions

1. Do the students have any possibility to influence their education or the surrounding society?
2. Do the students train capacities as an active member of the society?

Discussion Practice

Democracy involves discussion, and this needs to be practiced. An Icelandic model* provides a good example of how this can be done:

A problem …

1. Define the problem. What is the problem? Analyse. Reflect and consider.
2. What are the feelings of the participants? Empathy and feelings.
3. What can I do to solve the problem? There are no right or wrong answers.
4. Agree on the best solution.
5. Consequence description. What happens now? What is the best and worst that could happen?
6. Adopt a definite position.

Reflection

We live in the midst of a continuous surge of impressions. We can only digest and experience a fraction of all this. It is when we reflect that experience is turned to knowledge.

It's sometimes important to pause and take stock. Reflection can take many forms. It can be a quiet, continuous and inner dialogue. It can also be a structured discussion with others. The forms can vary. Listening, talking, writing, artistic creativity, and so on, are important tools in the reflection process. Documenting what you do, having a critical and open mind and asking questions are all useful, reflective tools. We don't have ready answers to sustainable development in a changing society. We need to continually think in new ways and question present trends and ways of thinking through process-oriented education. This also includes teachers. Daring to change and learn new ways!

"It is when we reflect that experience is turned to knowledge."

Key questions

1. In what way do you encourage the learners to think in a critical way and develop visions for a sustainable future?
2. Mention two critical issues affecting Lake Victoria.
3. How can the learners develop their skills of reflection?

Different Perspectives

Rufiji Delta in Tanzania, East Africa's largest mangrove forest. The area is important for a number of fish species, birds and sea turtles. Now we can see threatened mangrove forests. There are large development plans for Western countries' rising demand for biofuels. Plans such as sugar cane cultivation for biofuels would damage the unique delta.

The governments of both countries welcome foreign investment enterprises. They see opportunities to increased incomes, new jobs, reduced dependence on expensive imports of petrol and diesel. Biofuel crops could be an important part of poverty reduction.

People develop different perspectives depending on when and where they live. In the past people lived and worked in a more local context. Today we can follow what is happening in foreign countries whenever we like. We can communicate at lightning speed by means of mobile telephones and the Internet. At times we live in a borderless world. In terms of education this means cultivating an openness to different perspectives and points of view.

Key questions

1. How do you manage your students to look at the world from different perspectives?
2. In what way do you, as a teacher, discuss values and issues of interest?

"I see a unique opportunity for the African continent to create its own niche to feed the second continents and serve as a lubricating oil in the world's economies."

Bernadine Kayumba, The Citizen, Dar es Salaam, October 28, 2008

"... I am hopeful current biofuel company here. If the company keeps what they have promised will revenue increase in our village and everyone will benefit from their presence."

Mohamed Osman Makaui, Nyamage village, Rufijideltat

"People walk around with T-shirt that says" Promote Biofuel ", but nobody has a clue what it is really about. "

Researchers, Rufiji Delta

WHERE should Education for Sustainable Development take place?

"I believe in a life-long learning where I go out to learn, in sun, water and wind. I believe in going out to experience the unpredictable and real. I believe in a wind, an unexpected breeze of intensive presence. I believe in consideration's reflection and silhouette. I believe in a lifelong learning where I go outside to learn."

Germund Sellgren, Naturpedagogik [Nature Education] 2003

The answer to the question, "where" is simple: wherever knowledge is best cultivated. Educational traditions are strong, however. Teaching often takes place inside, in a classroom. But it is important to ask yourself the question where should teaching take place?

WWF encourages people to go outside and experience the white-throated bee-eater, planting of trees in the community or the difference in erosion if you compare one slope with grass with another without. This is enriching for several reasons. You are exposed to your own unique experience; one that is yours alone. You are then in a context that is real, with smells, sounds and sights. You are physically active and can walk, run and move about. Experiencing things at first hand, with your own senses, is natural in an outdoor environment. Being the co-creators of a sustainable societal development means having an already established relationship with the environment from which we originate and are totally dependent on.

Making use of the local environment as a learning environment is a first step. The world is much bigger than that, however. Cultivating close and active relationships and possibly taking part in study visits to other parts of the country or visiting or establishing contacts with other countries is another step forward. Improving our understanding of other cultures and the feeling that we are connected are important qualities.

WWF emphasises the value of close contact with the surrounding nature and community. It can be about enriching the ecological aspects of the school-ground by, for example, increasing its biological diversity by growing things, creating a pond and choosing flowers,

bushes and trees that will thrive in that habitat. Having close contact with the local community is also important, such as creating meaningful dialogues and collaborations with parents, politicians, civil servants, and so on. It can also be about getting actively involved in local social issues.

Examples of this include:

• A school participates in a tree planting exercise to rehabilitate a nearby forest.

• The students have been sent to Kisumu - as it is near the lake and not Nairobi. It may make more sense since the Lake Victoria Basin Commission which is under the East African Community is stationed in Kisumu.

• Student representatives at a school form a group, with support from teachers, to develop an action plan for the school's management and development of the school ground.

• Another school class helps the local Environment Department with the inventory of plants in a nature reserve.

• A school sends a group of young people to Nairobi to discuss the pollution of the Lake Victoria with students of a similar age.

• Consultation – a way of creating participation in the societal debate. Young people are able to meet researchers, politicians, representatives of different organisations and others for debate and discussion.

"It is important to give children the opportunity to create a space in which they feel they belong. Belonging to a place leads to a motivation to care for, rather than harm, nature and culture."
Lars Olof Dahlgren

Interview published in the journal "Förskolan" [Pre-School] No. 3, 2006

SUSTAINABLE DEVELOPMENT ACTION SKILLS

We affect the local environment or those of distant countries every single day, and a Western life-style puts a tremendous burden on the environment.

We have to reduce our ecological footprint if they are too big or increase them sustainable – But how should we do this? Doesn't this also include all the minute steps that I take everyday, and that you take and we all take in the direction of a sustainable development – to all intents and purposes – insignificant changes and adjustments in our habits and behaviour? We need to develop personal action skills for sustainable development. It is not only about being willing and able to influence lifestyles and living conditions with a sense of global responsibility and respect for future generations, but is also about acquiring the relevant skills and knowledge so that we can actively participate in societal development.

How can we change gear and develop a new environmental integrity? How might our ways of living be changed? Three factors affect our ability to act: increased knowledge, a selection of different opportunities and personal driving force – an inner and outer motivation.

The diagram shows how a combination of knowledge, opportunities and motivation helps to develop action competence.

"In the beginning our planet didn't have any roads, but when lots of people share the same goal a road is created."

Lu Hsün, Author

Three-pronged Action Competence

Knowledge is about pure facts, practical skills, a deeper understanding, being well informed and wisdom – in short, what we know. For example, I know a farmer who feeds his cows with concentrates made from soybeans cultivated on the cleared savannah lands of Brazil. At the same time I know that ecological milk comes from cows that have eaten locally produced fodder. In other words, I have some knowledge about how national agriculture is connected to and is dependent on countries on the other side of the globe.

Opportunities depend on the existence of different alternatives and possibilities – we can do it!

This means that contributing to an environ¬mentally compatible society is worthwhile. If, for example, shops sell organic milk that is also reasonably priced, people's willingness to buy it increases.

Motivation is an inner driving-force that compels me to act or change. I have a particular idea – I want to do something – and I see the opportunities that exist. This might lead to benefits such as improved health, a higher status or a saving of time. Education that emanates from the reality we find ourselves in can lead to increased motivation, such as allowing learners to identify problems and find solutions. Learners must be given enough space and support to act.

Perhaps the most important impetus for changing our behaviour is a belief in the future. I enjoy good health and live in a safe and peaceful society, I have a social context, a job, access to clean air, clean water in beautiful surroundings, feel that I am developing and having fun ...

In short, I have faith in the future!

"KNOWLEDGE IS THE ONLY TREASURE YOU CAN GIVE ENTIRELY WITHOUT RUNNING SHORT OF IT."

African proverb

Where should Education for Sustainable Development take place? The answer to the question, "where" is simple: wherever knowledge is best cultivated. Educational traditions are strong, however. Teaching often takes place inside, in a classroom. But it is important to ask yourself the question where should teaching take place?

WWF encourages people to go outside and experience the white-throated bee-eater, planting of trees in the community or the difference in erosion if you compare one slope with grass with another without. This is enriching for several reasons. You are exposed to your own unique experience; one that is yours alone. You are then in a context that is real, with smells, sounds and sights. You are physically active and can walk, run and move about.

The three aspects of knowledge:

A A theoretical/ scientific aspect that is based on real experience – what I know

B A practical aspect, knowledge and skills – what we can do

C Wisdom, practical wisdom that life provides us with when we live in a social context as open and sensitive individuals.

What is knowledge?

Let us pause for a moment and ask ourselves an important question: "What is knowledge?" Answers to this will probably be many and varied: "Something you do in school. Reading, writing, and arithmetic. Identifying my country's most important cities. How to hammer in a nail, or per-haps, the ability to find the right path through the forest".

WWF believes in a view of knowledge that is wide and that accommodates different values. Human beings are naturally knowledgeable, capable and practical. This can be summarised as: Facts, Skills, Understanding and Familiarity.

Development-oriented Education

Development-oriented education widens the concept of knowledge. Not only does it become more relevant, it also means that quality, theory and practice are integrated. See the Table on the following page. This has an effect on both teaching and learning processes, with an increased emphasis on understanding, reflection and depth.

Knowledge should lead to action. A more development-oriented education also leads to changes in the teaching role, e.g. to being a supervisor offering a variety of ways of working and encouraging pupils to take more responsibility for their own learning.

"I always start out by asking: What is real for you? How do you want to change the world? What do you want to take with you into the future? When the pupils answer I say: "Well, do it then!"

That's what Anders Erixon, a teacher at Värmdö upper secondary school in Sweden, has to say. Anders stresses the importance of the reality principle in teaching and uses actual problems, roleplay and realistic situations as methods. (Reference: The Swedish National Agency for School Improvement's website.)

How does such a view of knowledge affect the teaching and learning situation and the role of the teacher?

	Traditional education	Development-oriented Education
View of knowledge	Knowledge is a product. Objective and quantitative aspects are important.	Knowledge is a process in which the quality and value of knowledge is emphasised. Theory and practice are interlinked.
Learning/ teaching Process	Education is characterised by superficiality, texts having to be memorised and a motivation that is created from sources other than one's own experience.	An in-depth education with an emphasis on understanding and reflection. Motivation usually comes from within. Previous knowledge and experience are valuable and pupils are involved in active cooperation. A focus on knowledge in action.
Role of the teacher	The teacher has responsibility for the teaching content and conduct.	The teacher is more like a supervisor or mentor offering varied ways of working. Encourages pupils to take responsibility for their own learning.

It would be interesting to compare a traditional style of education with one that is more development-oriented.
Source: L. Svensson, A. Hedin (1997), "Nycklar till kunskap" [Keys to Knowledge]

"Working with visions is an important part of Education for Sustainable Development."

How can you describe your history and your coming days in a similar way?

Working with visions is an important

Working with visions is an important part of Education for Sustainable Development. What the future will look like beyond the next river bend is difficult to predict. But we can dream and imagine and use a compass to direct it into as sustainable a direction as possible. What kind of knowledge will be important and how we prepare ourselves for an as yet unknown future with the knowledge we have today are important questions to ask.

Imagine yourself one thousand years ago. In Eastern Africa the population density in the vast natural environment was extremely low. Most areas were not occupied at all. The present communities started to infiltrate into the region from various directions. People lived in the open natural environment. A few erected temporal structures for habitation. Modern means of transport and communication which exist currently were non-existent by then. The food eaten at that time was either raw or partly cooked using firewood. Across the Indian Ocean travelled people from the Arab World who ultimately settled along the east African Coast. They used Dhows and other simple vessels to cross the expansive Indian Ocean.

If we look into the future, what will planet Earth be like by the year 3010, one thousand years from today? Will there be humanity? Peace? A sustainable environment? Environmental hazards? Human migrations? Races? Industries? Large water masses and snow capped mountains?

Richard Ogeto

CONCLUDING QUESTIONS

8 Eight questions for those involved in education for sustainable development

1. How can education change the world?
2. Discuss what a good life is?
3. What is sustainable development to you?
4. What do you think about the three dimensions of sustainable development: ecological, social and economic?
5. What kind of knowledge is especially important in a sustainable society?
6. Reflect on the words inquisitiveness and discuss how inquisitiveness contributes through life long learning.
7. a) Education for Sustainable Development makes different demands on the teacher. What kind of roles might the teacher have to play in promoting ESD?
   b) What opportunities and difficulties exist in these new teaching roles?
8. Our ability to act is described as a combination of knowledge, opportunities and motivation. Do you agree (see the figure on page 38)?

Five questions for schools involved in education for sustainable development

5

1. How can we ensure that the whole school participates in Education for Sustainable Development – all the teachers, pupils, head teachers and parents?
2. How can we develop methods and resources further?
3. How can pupils become more involved in decisions that affect their education and their school?
4. How can we develop the school's collaborative work with the local community and thereby identify and deal with a range of different issues?
5. How can schools be more active in creating sustainable strategies that affect the school's management and its use of resources?

"Reflect on the words inquisitiveness and sustainable development."

LINKS AND LITERATURE TIPS

Internet

EDUCATIONFORCHANGE
www.balticuniv.uu.se/educ/
Globalfootprintnetwork
www.globalfootprintnetwork.org

ONE PLANET LIVING
www.oneplanetliving.org

THESWEDISHNATIONALAGENCYFORSCHOOLIMPROVEMENT
www.skolutveckling.se/in_english/sus¬tainable_development

UN MILLENNIUMDEVELOPMENTGOALS
www.un.org/millenniumgoals

KenyaESD ImplementationStra¬tegy
www.nema.go.ke

UNESCO, UN DECADEOFEDUCATIONFORSUSTAINABLEDEVELOPMENT
http://portal.unesco.org/education/en/ev.php- URL_ID=27234&URL_DO=DO_
TOPIC&URL_ SECTION=201.html

WWF
www.panda.org

WWFLEARNING, WWF UK
www.wwflearning.org.uk/wwflearning-home

WWF SWEDEN
www.wwf.se

ESD TOOLKIT
http://www.esdtoolkit.org/default.htm

TEACHING AND LEARNING FOR A SUSTAINABLE FUTURE, UNESCO
http://www.unesco.org/education/tlsf

Literature

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Sandell, K., Öhman, J. & Östman, L. (2005): Education for Sustainable Development: Nature, School and Democracy. Studentlitteratur, Lund

Orr, D W (1994): Earth in Mind, Island press, California

UNESCO (2005): Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability, UNESCO Education Sector, France. http://unesdoc.unesco.org/images/0014/001433/143370E.pdf

Wickenbergetal, (2004) Learning to change our world, Studentlitteratur, Lund

WWF (2008) Living Planet Report, http://wwf.panda.org/about_our_earth/all_publications/living_planet_report

"Living is like travelling through a landscape of easy or rugged terrain, light or dark places, in all conditions and with hidden surprises. In this landscape we set out on short and long expeditions, all the time collaborating and interacting with others. We can't move anywhere independently, just as we can't always be facing the sun. An important part of the trip is taking time to stop and enjoy life in all its manifestations. A beautiful sunrise, a loving smile, a gripping piece of music, a cloudless sky."

Arne Naess, "Livsfilosofi" [Philosophy of Life]

"IN THE END, WE SHALL CONSERVE ONLY WHAT WE LOVE, WE WILL LOVE ONLY WHAT WE UNDERSTAND AND WE WILL UNDERSTAND ONLY WHAT WE TAUGHT."

Gaba Dioum,
Senegalese
Conservationaist





WWF

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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