VIVEKANANDA COLLEGE
THAKURPUKUR
KOLKATA-700063

NAAC ACCREDITED 'A' GRADE

Topic: Development-Environment Conflict

Course Title: Human Geography

Paper: 3

Unit: II

Semester: 2nd

Name of the Teacher: Samik Chakraborty

Name of the Department: Geography

ENVIRONMENT AND DEVELOPMENT

Table of contents

1. INTRODUCTION

The purpose of the text „Development and Environment“ is not only to provide necessary data, information and knowledge, but also to find relations and consequences in depth, ways to find solutions and to show possible courses of development assistance.
Integral element of the text forms references on other sources for the studying particular parts of the text. Besides, the aim of the course is to convince participants of the acute need for dealing with this discourse within development studies disciplines.

Content of the first lessons is definition of the basic terms (environment, development, security) and explanation the relationship among these terms. Various views on sustainable development strategies are explained in detail. Understanding the problems requires brief analysis of the main environmental problems on a global scale and their relations to development of poor (developing). The United Nations Program of Millennium Development Goals is included due to its topicality. Environmental development goals and related problems are mentioned in the text. Furthermore, the text contains problems concerning the little explored issue of environmental migration and benefits of green revolutions (in relation to GMOs). The end of the course is devoted to development assistance and cooperation in the environmental field.

2. BASIC MODEL

2.1. RELATIONSHIP BETWEEN DEVELOPMENT, SECURITY AND ENVIRONMENT

On one hand, material and social poverty are often identified as two of the main causes of living environment devastation. On the other hand, the bad quality of environment can be a cause of poverty as well. In order to comprehend the subject, it is necessary to start with brief analysis of selected environmental problems on a global scale and their relation to the development of economically and socially poor (developing) countries. We shall be concerned with:

a brief description of the millennium development goals focused on environment;
the problem of soil degradation (desertification) and desert expansion, with special attention paid to the Sahel region;
the problem of deforestation, agriculture and export cash crop plantation in developing countries;
the lack of drinking water in Sub-Saharan Africa and Central Asia;
the problem of biodiversity loss, with laying out the main causes of biological species extinction and defining cases when a species is to be considered extinct;
climate change, air pollution and their impact on economy, water supply and agriculture;
the phenomenon of environmental migration;
the pluses and minuses of the so-called „first“ and eventual „second“ Green Revolution (specifically of transgenic crops).

BASIC TERMINOLOGY

1) Environment

Environment is a system which provides natural surroundings for the existence of organisms (including humans) and which is a prerequisite for their further evolution.

Abiotic components of environment (atmosphere, water, minerals, energy etc.) and biotic components of environment (organisms – from the simplest to the most complex) are its main elements. To summarize, it is all which surrounds us. It is noteworthy that this is essentially an anthropocentric (non-biological) definition perceiving environment as one in which a man can live.

Ecological Approach: Environment is a set of all factors with which a living subject interacts, and of all surroundings which encompass it. Thus, it is everything that a subject influences, directly or indirectly. A subject can be an organism, a population, a human or whole human society. Usually, the notion of living environment is conceived in the sense of human environment.

Biological Approach: 'environment' denotes the surroundings of an organism or a species, eventually the ecosystem in which an organism or a species lives. At the same time, it is a physical environment and other organisms with which the organism or the species enters into contact (interacts). The notion of biome is very similar to a living environment.

2) Development
The opinions on what development is to actually mean have passed great evolution in the last half of century and there is no consensus on how to define this notion at present. The causes of this differentiation can be found in the historical contexts of the approaches to development. Economic growth was regarded as central to the development endeavours up to the 1980's. Gradually, development came to be interpreted as multidimensional concept which should encompass material, social, environmental, political and cultural components (with all of them having a direct impact on the quality of human life). This way it was recognised that there is no single model of development appropriate and desirable for all countries. At the same time emerged the idea of *„sustainable development“,* emphasising the questions related to demographic processes, considerate use of natural resources and mutual influences between a human and his living environment.

3)Environment and security („peace is more than the absence of war“)
The generally defined notion of *security* means a subjective philosophic and psychological state of mind. Within social sciences, we talk about certain attributes/values linked to individual and social systems. According to the United Nations there are a few types of threats: poverty; contagious diseases; environmental degradation; interstate and internal conflicts; mass destruction weapons; and supranational organised crime.

Security is a necessary factor of human development. Henceforth, still more attention is being paid to the concept of human security, concerned with the problem of provision of sustenance and security to people. It became obvious that the price of letting the inhabitants of given regions in their deep security problems can be immense.

Environmental problems do not endanger solely the global ecosystems vital to the people's survival. Environmental stress and its socioeconomic and political effects touch

all world's regions and states. They influence local, regional and international security in a still more decisive manner. The definitions of international and internal (national) security have gone through marked changes since the end of Cold War in 1989 – 1991. It is not only about reaching a military balance anymore but also about recognising the social, economic, political and environmental factors related to the issue. In connection with this shift the links between environment, global problems, migration and security gain more and more interest. Two sets of issues, the new dichotomy between the societies of the rich global North and the poor South and at the same time the threats of global ecological (environmental) problems, are more frequently discussed. In the beginning of the 1990's, the terms such as 'global village' and 'global society' were used, expressing the idea that problems in one of its parts (the South) can lead to problems in another of its parts (the North) and other way round. Hotly discussed topics among others are the environmental threats and their impacts on society and regions. Thus, we talk about so-called environmental security.

Environmental security is a concept stemming from the idea that environmental degradation or lack of natural resources of raw materials and energy can be a cause as well as a result of political strains or military conflict and hence can endanger human security. Even that it is a relatively new concept from the scientific point of view, historically it is nothing new. Fighting for land, pasture, sources of water, energy and raw materials is old as humanity itself. What is new is the *global reach of human agency* caused by increased number of Earth's inhabitants and by technologies making greater and faster destruction of environment possible.

The main subject fields of the domain of environmental security are:

the relationships between lack of natural resources and violent conflicts;
various forms of human vulnerability with regard to environment;
environmental migration and displacement
environmental stress and the capacity of social adaptation.

Why is the dilemma of environmental security crucial?
Due to the traditional approach, security has got its global, regional and national levels. Nonetheless, no state is capable to cope with global threats alone today. Thus, not only institutional measures on international level are necessary, but we also need to identify the causes and effects of security incertitude so that we could find possible solutions. Living environment degradation undermines the possibilities of sustainable development and increases the destructive potential of natural disasters in the same time. Environmental problems are the test of our traditional notions of boundaries and national security – environmental security touches humanity and its institutions and organisations in any time and any place in the world.

When natural resources are scarce
When natural resources of raw materials and energy become scarcer and therefore the competition for localities where they can be found is intensified, the potential of conflict for them increases as well. The environmental scarcity is caused by environmental

changes or population number and growth, or eventually by uneven distribution of (or access to) these resources. Among the best known examples of environmental changes with negative impact on quantity or quality of natural resources rank:

depletion and contamination of the drinking water resources;
reduction in fish stocks in oceans;
reduction and loss of biodiversity;
degradation of soil and pastures;
nutritional and health security;
loss of stratospheric ozone;
air pollution (specially in cities) ;
global warming and climate changes (oscillations);
lack of other natural resources of raw materials and energy.

Wars for natural resources

The wars for natural resources and raw materials have been fought throughout all of human history. The main cause of the increasing potential for possible (or already occurring) conflicts for natural resources is the reaching of ultimate limit of accessibility of the sources of water, grazing land etc. for a given state (society, tribe etc.). The possible trends in this field are already monitored for a longer period of time by some intelligence agencies, especially the CIA. So, for example, the CIA report titled *Global Trends 2015* (2000) notes that more than a half of water resources is represented by rivers flowing through more than one country, and that more than thirty nations pump more than a third of their water consumption from the outside of their own territory. This surely contributes to the increase in potential for violent outbreaks.

Conflicts for pasture and water resources repeat periodically at the Horn of Africa and in Eastern Africa. In the 1970's, Somalia and Ethiopia fought for the Ogaden pastures. In the 1990's, few-year-long drought in Northern Kenya led to tribal-level disputes for water resources and pastures between Turkana and Sambura. Kenya is endangered by a similar crisis in the beginning of 2006. Disputes for natural resources in this region will probably be for water from the Nile between Egypt standing on one side and Sudan and Ethiopia on the other. The demand for water and water resources will rise in the following years in each of these three countries due to the population growth and environmental degradation. Egypt is likely to have the greatest requirements, but it is located on the lower reach of the Nile.

The need for new institutional arrangements

Contemporary global political, legal and economic institutions have been founded during the 20th century to great extent as a reaction to the Second World War or Cold War. Therefore today, on both global and local level they operate with obsolete concepts, often not containing implementation of preventive procedures. If global institutions are to be effective in resolving the security threats of the 21st century, they need (among others) to be provided tools for solving problems related to environment.

As an example of such initiative the Global Partnership for Development (Nováček & Mederley, 2002), better known as 'Global Marshall Plan', can be taken, first introduced by the American ex-president Albert Gore in 1993. This plan is to be founded on extensive, long-term and precisely targeted financial aid to the developing countries for discovering new environmental technologies and their transfer to them, and finally on stabilisation of world's population. Among the other instruments of the initiative are: new, worldwide valid international covenants (including sanctions in case of their violation as well) monitored by United Nations; change of economic norms used for assessing environmental impacts of our agency; and finally, the organisation of worldwide environmental education ('what's crucial is to persuade people that global ecosystem starts at their court').

4) The relationship between development and the environmental condition

This interaction can be characterised as one of interdependence. Just as development is impossible without a good condition of living environment, so quality environment cannot be maintained in inhabited or intensively exploited areas without their sustainable development.

The impact of development on environment

This impact is determined specifically by the following two factors:

Approach to development

If we regard development narrowly only as economic growth, the quality of environment in general is not quite so important as abundance, quality and accessibility of natural resources of raw materials and energy central for the economy. If we understand development more broadly, for example in the sense of sustainable development, the quality of environment and its sustainable condition will become one of key priorities. In that case, the long term preservation of environment's inhabitability or eventually the betterment of its condition (in case of its past devastation) will be at the centre of attention.

The condition or quality of living environment after/during implementation of development programmes

The implementation of development programmes or projects can have negative or positive impacts on living environment.

negative impacts:

programmes: construction of transport infrastructure, great water dams, cities; mining of natural resources of raw materials and energy etc.

effects: fragmentation of natural habitats; loss of fertile soil; deforestation and soil degradation; pollution of environment; local climate change etc.

positive impacts:

programmes: construction of smaller water dams; application of environment - friendly technologies etc.

effects: increase in biodiversity; enrichment of landscape by cultural features; sustainable exploitation of environment for present as well as future generations.

The impact of living environment on development
Environment is one of the important decisive factors exerting influence on development's possibilities. It is empirically known that diversified strategies of development must be applied in urbanised, industrial and rural areas. Different methods of development must be chosen in coastal and landlocked areas, different ones are valid in mountains and in lowlands. The type of ecosystem and climate of the area where we want to implement a development programme also play an important role. Among the most decisive factors rank:

climate zone (tropical, subtropical, temperate zone);
basic physical-geographic factors (e.g. elevation above sea-level, rainfall, temperatures),
the living environment quality (e.g. the degree of pollution, population density, expanse of deforested areas, the level of soil degradation and desertification),
the quality and fertility of soil,
the quality and quanta of natural resources of raw materials and energy,
Accessibility of sustainable drinking water resources, and the like.

2.2. SUSTAINABLE DEVELOPMENT STRATEGY

Sustainable development the most frequently used term within strategies and concepts of „sustainability". There are however more terms that describe it such as "sustainable way of life", "sustainable society" or "sustainable future".

1) Sustainable development
The concept of sustainability has evolved along with our worries about the possible impact of our lifestyle on the environment. The strategy strives to draw people´s attention to problems that development brings about as it heavily depends on intensification of industry and agriculture. The main reason why we should care about the issue is that for future generations it is becoming harder to meet the basic need as drinkable water, food or clear air. What is the point of sustainability? Chiras claims the sustainability means sustaining life within limited capacity of biosphere.

The World Commission on Environment and Development (WCED), in 1987 Brundtland Report Our Common Future defined sustainabale development as „*development that meets the needs of the present generation without compromising the ability of future generation to meet their own needs"*.
Later the concept of sustainable development has been changed from a mere concentration on environmental problems towards comprehension of three different factors: social, economic and environmental.
Ability to meet the needs of present as well as of future generation depends on our ability to balance all three elements, so that not a single one is neglected.

Four principles of sustainable development:
1. Decision-making process should depend on the best available scientific information and risk analysis.
2. In case of uncertainty and threat of serious risks, the precautionary principle should be involved.

3. Environmental impact should be taken into account, especially in cases of non-renewable resources or possible non-reversible effects of human activities.
4. Polluters should be responsible for effects of their activities according to „polluters pay principle“ (PPP).

b) Sustainable way of life
Josef Vavroušek (NOVÁČEK & MEDERLY, 1996: 19) prefers the term sustainable way of life. It draws on ideals of humanism and harmony of relationship between the man and nature. It is based on awareness of responsibility vis-a-vis present and future generations, and respect for nature.

c) Sustainable society
Donella Meadows, Dennis Meadows a Jørgen Randers (1993) have come up with the term sustainable society, defined as society which can sustain for generations and which is foresight, resilient, and smart enough not to undermine physical and social systems that it is based on. They contrast their concept of sustainable society with the present society that is oriented towards expansive and quantitative (exponential) growth.

Transition towards the sustainable type of society demands careful balancing between long-term and short-term aims. It also emphasizes adequacy, equity and quality of life. Furthermore, the transition requires increased productivity and change of technologies. However, the idea of sustainable society does not denounce growth on its own, but it preaches the growth connected with certain social achievements.

Economist Herman Daly (MEADOWS & MEADOWS & RANDERS, 1993) reminds that if society is to be physically sustainable, it needs to fulfil three conditions of flow of materials and energy:
intensity in use of renewable resources does not exceed the speed of their regeneration,
intensity in use of non-renewable resources does exceed the speed of evolving new sustainable substitutes,
intensity of pollution does not exceed the assimilation capacity of environment.

d) Sustainable future
Dovers (NOVÁČEK & MEDERLY, 1996: 18) uses term sustainable future that is defined by following basic attributes:
continuation of mankind on the Earth,
meeting the basic needs for all,
maintaining elementary ecological processes,
sustaining of biological diversity.

The World Summits aimed at environmental problems

International community expresses its willingness for dealing with global environmental problems in relation to developing discourse several on different occasions. The following list of world summit gives the evidence about its effort.

The Conference on the Human Development *(Stockholm. 1972)*
identification of the main environmental problems caused by human development
effort to implement so called integrated development
solution of problems are aimed at end of pipe technologies
United Nations Environment Program was created (UNEP)
(For details see
http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID)

The United Nations Conference on Environment and Development "The Earth Summit" *(Rio de Janeiro, 1992)*

The following document have been admitted:
the United Nation Framework Convention on Climate Change
Convention on Biological Diversity
Agenda 21 represents a plan how to implement concrete steps towards regulating human influence on environment in cooperation with United Nations institutions, governments, nongovernmental organisations, local communities etc.
Agenda 21 deals with environmental topics and calls for creating plans for developing countries by 2005 that constitute ground for realizing steps on local, regional and global level.
(For details see http://www.un.org/geninfo/bp/enviro.html)

The United Nations Confernce on Sustainable Development *(Johannesburg, 2002)*
main topic: integration of economic, environmental and social politics into sustainable development
five key fields - globalisation, balancing development and environment, poverty and Millennium Development Goals, models of production and consumption, protection of biodiversity and natural resources,
debates concerning following issues: water resources, access to drinkable water, power engineering that does not harm environment, health service, sustainable agriculture,
Johannesburg Declaration on Sustainable Development and Implementation Plan have been admitted. (For details see: http://www.johannesburgsummit.org , United Nations Division for Sustainable Development - http://www.un.org/esa/sustdev/index.html, Forum of participants - http://www.earthsummit2002.org, The EU and the Follow-up to the World Summit on Sustainable Development
http://europe.eu.int/comm/environment/wssd/index_en.html)

2.3. THE GREATEST GLOBAL ENVIRONMENTAL CHALLENGES

The greatest global environmental challenges (the most affected areas) are:
desertification and soil degradation
1. Sahel
expansion of the Sahara desert (up to the Southern Europe);
Lake Chad dying away,
lack of water and pasture for people and stock (excessive grazing, soil erosion),
migration of population to the coastal areas,
augmented by conflicts in the region (Sudan, Chad, Mauritania, Western Sahara)

2. Central Asian countries

Aral Lake and its inflows drying out,
ineffective techniques of irrigation (in cotton plantation)
obsolete agricultural technologies (excessive usage of pesticides and other chemicals)

3. China

northern and western areas threatened by drought
overpopulation and increasing environmental stress on soil
soil contamination by garbage (over 10 millions hectares)
migration of population out of affected areas
augmented by ethnic conflicts (the Uygurs)
deficient access to sustainable drinking water resources (Sub-Saharan Africa, Western Asia, China)

1. Sub-Saharan Africa

long-term droughts in certain areas (the Sahel, Ethiopia, Somalia, Eastern Africa)
contaminated water resources and river streams (chemically, biologically, by solid substances)
population density too high in certain areas
deforestation and little rainfall
excessive grazing and inability of soil to keep rainfall

2. Western Asia

whole area affected already for a long period of time (tropical dry climate)
decreasing reserves of subterranean waters in urbanised areas (Yemen)
one of the cases of conflicts between Israel and Palestine

3. China

northern and western areas threatened by drought and lack of rainfall
while in the countryside situation slowly improves, in cities it worsens (decreasing reserves of subterranean waters)
contamination of river streams
threat of contamination of subterranean waters in urbanised areas along the coast of ocean
greenhouse gas emissions

USA, China and European Union states are the biggest emitters of greenhouse gas:

1. USA

at present the biggest emitter of the air pollution
emits 23% of the CO_2 emissions (2002)
didn't accede The Kyoto Protocol to the United Nations Framework Convention on Climate Change http://unfccc.int/2860.php)

2. China

at present the second biggest absolute polluter of atmosphere
emits 14% of the CO_2 emissions (2002)
inter-year increase of 12% in 2003 on national level
in this respect, China will probably top EU in the future
is not bound by The Kyoto Protocol as a developing country

3. European Union countries

all lumped together, they make the second biggest emitter of greenhouse gas currently
EU 15 emitted 16% the CO_2 emissions (2002)
all 25 EU states acceded The Kyoto Protocol

supporting environmental technologies
deforestation (Sub-Saharan Africa, Latin America, Russia)
1. Sub-Saharan Africa
loss of 0,6% from the total expanse of natural forest (3.2 mil. hectares) each year
from this amount, 10% to 20% is cut down for commercial purposes (trade in wood)
the majority of forests is cut down due to the shortage of firewood or is
'cleared' for the purpose of subsequent agricultural use
violent conflicts lead to migration of people who devastate forests
reduction in biodiversity
low soil fertility (maximum 5 years)
decrease in rainfall on the given territory
soil degradation (e.g. in Ethiopia)
2. Latin America
Brazilian inhabitants hungry for land
environ 26 thousands square kilometres cut down each year
more than a third of total forest territory is already cut down today
infrastructure construction and mining of raw materials
export of wood
demand for fine wood in the rich states
deforestation affects also the Central American countries and Ecuador
Haiti is almost completely deforested (2% of the total territory!)
3. Russia
illegal taiga exploitation (threatens half of territory)
demand for wood in China and Europe
climate changes and oscillations
- threatens the whole planet
- the topical debated topics are:
increasing intensity and frequency of hurricanes in the Carribic region,
more frequent occurrence of the El Nino phenomenon in the Southern Pacific,
iceberg melting in Antarctica and the Arctic
Eastern Africa – few-year-long droughts (Kenya, Tanzania, Uganda) or great floods (Mozambique)

3. MORE ADVANCED MODELS

3.1. ENVIRONMRNTAL MILLENNIUM DEVELOPMENT GOALS

Millennium Development Goals (http://www.un.org/millenniumgoals/) is a programme aiming at reduction of the global poverty. It seeks to implement the sustainable development on the global level. It consists of eight general goals and eighteen particular targets that are expected to be reached by the year 2005. These goals have been drawn from international agreements admitted during 1990s and subsequently confirmed at the so-called Millennium Summit in New York in September 2000. The Millennium Declaration was adopted by representatives of 189 countries. In 2002 in Monterrey rich countries committed themselves to provide financial support for this ambitious program by devoting 0,7 per cent of their GDP to development assistance by the year 2015.

First seven goals are aimed at improving conditions in the poorest countries, the last goal refers to developed countries that should strive for developing a global partnership in the

field of development cooperation. The year 1990 is considered as a starting point for comparison of individual indicators.

The list of environmental targets that form part of the seventh goal of the Millennium Development Goals strategy*:*

GOAL 7: TO ENSURE ENVIRONMENTAL SUSTAINABILITY

TARGET 9 Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources

TARGET 10 Halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation

TARGET 11 Have achieved a significant improvement by 2020 in the lives of at least 100 million slum dwellers

3.1.1. TARGET 9: INTEGRATE THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT INTO COUNTRY POLICIES AND PROGRAMS AND REVERSE THE LOSS OF ENVIRONMENTAL RESOURCES

Target 9 is monitored by reference to indicators concerning five fields of sustainable development and sustainable use of environmental resources. Unlike many of other targets, these indicators are not focused on developing countries alone but incorporate actions taken or needed by rich countries in order to ensure environmental sustainability. The indicators therefore include outcomes from both developing and developed countries. Indicators are available on the web sites of United Nation Statistics Division: (http://millenniumindicators.un.org/unsd/mi/mi_coverfinal.htm):
the sustainable management of forestry resources;
the preservation of biodiversity and genetic resources;
the efficient use of energy;
the "greenhouse effect" which is linked to global warming;
the damage to the ozone layer –tracked by the consumption of ozone-depleting substances.

Sustainable management of forestry resources

In the year 2000, total forest area amounted to 3.9 billion hectares, or about 30 per cent of the world's land area. (Please see table 1). About half of the forests are in the tropics and sub-tropics, and the other half in temperate and boreal ecological zones. The Food and Agriculture Organization of the UN (FAO) estimates that a decrease in forest areas decrease by 4.2 percent from 1990 to 2000.
In non-tropical areas this decrease was partially reversed by the expansion of planted forests – during the same period 1.8 per cent of the same area have been planted. But non-tropical planted forests cannot make up for the loss in deforested tropical areas. Overall lost was 2.4 percent over the ten year period. Every year forests reduce totally of 14.6 million hectares and are replaced only by 5.2 million hectares of planted or naturally

restored forests (UNSD, 2005). The estimated net loss is 9.4 million hectares per year – an area about the size of Portugal. (UNSD, 2005).

Table 1: Forest area by region, 1990-2000

	Percentage of land area covered by forest	
	1990	2000
World	30.3	29.6
CIS, Europe	48.9	49.2
CIS, Asia	5.1	5.8
Northern Africa	1.0	1.0
Sub-Saharan Africa	29.3	27.1
Latin America	50.4	48.0
Caribbean	24.4	25.0
Eastern Asia	15.4	17.0
Southern Asia	13.5	13.3
South-Eastern Asia	53.9	48.6
Western Asia	3.1	3.1
Oceania	68.0	65.7

Source: UNSD (2005)

Food Agriculture Organization (FAO) characterises deforestation as a conversion of forests to different land use as an intensive agriculture, rangelands, development of settlements and infrastructure. Deforested areas do not include areas affected by fire or acid rain. (World Bank, 2001).

Causes:
firewood deficiency (the most important factor),
lack of cultivated soil,
timber selling,
armed conflicts cause human migration and migrants devastate local forests,
natural resources extracting,
building of infrastructure (e.g. highways, cities)
growth in consumption of paper and other wood products (UNEP, 2001).

Amazonian forests face similar problems as those in Africa. Recently, however, more important role play felling forests in order to gain a land where the soybeans can be grown. They are afterwards exported mainly to China and Europe.

Consequences:
Fast decline of tropical forests in developing countries brings about the loss of biodiversity, increases amount of carbon dioxide in the atmosphere and desertification. Furthermore, deforestation of tropical forests causes decreased amount of rainfall in a given region and worsening conditions for agriculture practicing by local communities in consequence. Forests deserve protection from many reasons. Forests provide a wide range of goods and services, including timber, fuel-wood, food, medicine, soil and

watershed protection, and climate stabilization. It is estimated that half of all terrestrial biological species live in tropical forests (UNEP, 2001). Forests also play a vital role in culture and religion of many communities.
(UNEP, 2001).

Researches highlight the importance of forests and its biodiversity for agriculture. The importance may be shown on the close relationship between wild bees and coffee yields. It was found out that bees can cross over from nearby jungle to pollinate the coffee trees and pollination by wild bees increased coffee yields by 20 percent and decreased by 27 percent probability to produce "peaberries" - small, misshapen seeds that result from inadequate pollination. Farmers may benefit of conserving tropical forests and its biodiversity (Planet Ark, 2004).

Preservation of biodiversity and genetic resources

Protected areas[1] are an important indicator of environmental sustainability as they help to maintain biodiversity through the provision of species habitat and the preservation of genetic resources. In 2002 the worldwide protected areas covered 19 million km² of which an estimated 17.1 million km² comprised of protected areas on land – 11.5 per cent of the Earth's land surface.
Regional data from 1990 – 2004 gives evidence on the increase of natural protected areas worldwide. The greatest progress shows Oceania, East and South-East Asia, apart from West Asia that contributed with only one foundation of protected area in Saudi Arabia. On the contrary, the Northern and Sub-Saharan Africa shows the lowest share (UNSD, 2005). In developing countries the problems connected to good management of protected areas and respect for rules of protection in developing countries are preserved.

Biodiversity is a variability of all species existing in terrestrial, marine and other types of water ecosystems a ecological complexes. It concerns diversity within individual species, between species, and a genetic diversity (Jehlička, 2000: 18-35). Biodiversity is threatened by destructive performance of human beings that causes either extinction or decreasing numerousness of the species.

Primordial causes of species extinction (Primack, 2001:82):

Habitat destruction and fragmentation (e.g. deforestation, agriculture, construction of highway, railway or pipeline).
Habitat degradation and pollution (coral degradation, ocean´s pollution, seaside pollution, pesticides and other soil pollutants).

[1] The definition of a protected area adopted by the International Union for the Conservation of Nature is “An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means”. Although all protected areas meet the general purposes contained in this definition, in practice the precise purposes for which protected areas are managed differ greatly.

Over-exploration of species for human requests (e.g. poaching, overfishing) or overgrowth demand for natural resource (deforestation, overgrazing, resources mining).
Invasion of geographically nonnative species (e.g. rabbits in Australia, cats in Galapagos, insects, parasites).
Disease (e.g. transportation of distemper to lions).

Globally extinct species are species that have not survived in wild nature (only individuals have survived in captivity, botanic gardens or zoo) or anywhere in the world. Ecologically extinct species survive in so low numbers that their influence on other species is insignificant (i.e. tiger). (Primack, 2001: 71-72)

Decreasing number of cultivated types of farm crops also causes the loss of biodiversity. For example farmers in Sri Lanka cultivated 2000 types of rice during 1950s, nowadays the number of types has shrunk in five high-yielded types only (Primack, 2001: 175).

Causes of extinction of biological species (Primack, 2001):
Unique genetic information covered in DNA, together with special combination of qualities and its potential value, has been lost for ever.
Population of extinct species can not be recovered.
Ecological communities, to which extinct species used to belong to, has been impoverished for ever.

The most affected areas are:
areas achieving high numbers of endemic species, i.e. islands (Madagascar),
areas being crushed by fast pace of deforestation,
areas suffering from intensive anthropogenic influence (agriculture, settlements)

Efficient use of energy

Between 1990 and 2001 many countries, both in developed and developing regions, have made progress in using energy in a more efficient way. In the same decade high-income countries have reduced energy use per $1,000 PPP GDP from 233 kg of oil to 214. Similarly, Eastern and Southern Asian countries have used over 26 and 22 per cent less energy, respectively, for producing a unit of GDP. In contrast, Western Asia, South-Eastern Asia and CIS countries have increased energy use per unit of GDP over the same period (see table 2).
Despite improved efficiency in energy consumption in some developing regions, the gap between low-income and high-income economies persists. Solutions may lie in enabling developing countries to increase the use of new technologies.

Table 2. Energy use per unit of GDP

	Consumption of kg oil equivalent per $1,000 GDP (PPP)	
	1990	**2001**
High-income countries[1/]	233	214
Transition countries in Europe[2/]	527	484
Low-income countries[1/]	320	274
CIS	613	644
Latin America and Caribbean	187	177
Northern Africa	202	196
Sub-Saharan Africa	400	406
Eastern Asia	294	216
Southern Asia	326	256
South-Eastern Asia	223	237
Western Asia	268	327

Source: UNSD (2005)

Despite the certain progress, total energy consumption is still growing - between 1989 and 1999 energy consumption grew by 12.7 per cent to 9,702,786.000 tons of oil equivalent metric ton.
Fossil fuels comprise 80 per cent from total energy consumption, renewable resources comprise 11 about per cent.
But the modern renewables (including wind, solar, geothermal, wave/tide, liquids such as ethanol and gas derived from biomass) form only 0.65 total world energy consumption.
Traditional renewables (including fuel wood, crop residues, and biomass left from industrial sources such as production of paper) form 10.5 per cent, but their consumption is not always considered as long-term sustainable.
The remaining 9 per cent of total world energy consumption comes from hydro-electric and nuclear energy (WRI, 2003: 262-263).

Causes:
population growth,
growth in consumption and welfare,
insufficient investments to renewable sources,
huge economy growth in China.
Consequences:
increasing prices of energy resources (with more negative effects for developing countries),
environmental changes (e.g. climate changes, air pollution),
expansion of energy resources extracting with negative environmental impacts,
security risk and threat of breaking out conflicts over energy resources.

„Greenhouse effect" which is linked to global warming

Largely as a result of increased concentrations of greenhouse gases in the atmosphere, the global average surface temperature increased 0.6^{o} Celsius over the 20^{th} century. Carbon dioxide is the main source of the so-called "greenhouse effect". Validity of Kyoto

Protocol that calls for reduction of emission came into effect in beginning of the year 2005. Rich countries committed themselves to reductions in carbon dioxide emissions by 8 percent by the year 2010. Developing countries were free form the commitments, including the second biggest polluter of the air – China.

Anthropogenic emissions of CO_2 increased from 22,460 million metric tons of carbon dioxide in 1990 to 24,238 million metric tons of carbon dioxide in 2000. Because of population growth, over the same period, there was a small decrease in the emissions per capita from 4.25 to 4.00 metric tons. In the developing regions, the estimated emissions of CO_2 increased by 42 percent between 1990 and 2000, from 6,749 to 9,597 million metric tons of carbon dioxide.
While CO_2 emissions declined significantly in the economies in transition in Eastern and Western Europe, a decrease of 38 percent mainly due to economic restructuring during the period, the main reason of decrease is not better efficiency of production, but decline of industrial activities. The amount of emission in the remaining countries – the European Union, Canada, the United States, Japan, Australia and New Zealand have actually increased by 11 per cent (UNSD, 2005).

No one can answer the question on how much anthropogenic emissions of CO_2 and other greenhouse gases influence global warming and consequential climate changes.
However, some biologists deny that the problem is serious. Their argumentation is based on the fact that life on the Earth had overcome warmer periods in the past.

Table 3. CO_2 emissions

	Millions of metric tons of CO_2			Per capita emissions (metric tons per person)		
	1990	1995	2000	1990	1995	2000
Fossil fuel sources[1/]						
World	22,460	23,468	24,238	4.25	4.14	4.00
Developed regions[2]	14,521	13,097	13,402	12.06	11.21	11.27
Developing regions	6,749	9,163	9,597	1.68	2.07	2.01

[1]/ Total CO_2 emissions from fossil-fuels (expressed in million metric tons of CO_2) includes CO_2 emissions from: solid fuel consumption, liquid fuel consumption, gas fuel consumption; cement production; and gas flaring
[2]/ Including CIS countries in Europe.
Source: UNSD (2005)

Causes:
growth in consumption (food – e.g. rise growing, animals breeding; consumer goods, traffic, aj.),
insufficient investment or implementation of renewable sources and environment friendly technologies,
orientation of communities on consumption life style,
huge economy growth in China and selected developing countries (India, Brazil).

Consequences:

health condition consequences (climate changes – drought, temperature increase, frost; spread of diseases – malaria, diarrhea - WHO, 2003: 7, etc.) and increasing expenditures to the health service (a much more serious problem for developing countries),
rising sea-level and following forced migration (due to more intensive natural disasters, soil degradation, deterioration of economies or armed conflicts over natural resources),
negative effects for food security (malnutrition, food crises or famines),
increasing number of floods (e.g. Mozambique in 2000 - the most extreme floods in last 150 years; in 2004 Bangladesh - 2/3 of the territory was flooded, together with the provinces Assam and Bihar, more than 50 million people were affected) (Simms, 2004: 5),
every increase in temperature by 1^{o} Celsius causes the decrease in rice production by 10 per cent,
tropical and sub-tropical areas are likely to be the most affected (particularly the countries threatened by food crisis at present time),
worsening situation in the access to sustainable safe water sources in certain regions,
certain areas could be threatened by long-term droughts,
deterioration of human security situation in threatened areas.

Damage to the ozone layer – caused by the consumption of ozone-depleting substances

The ozone layer in the stratosphere absorbs ultra-violet radiation that is otherwise harmful to life. Using and emitting ozone-depleting substances, especially chlorofluorocarbons(CFC), halons, methyl bromide cause formation of „the ozone hole" over the North and South Poles. The maximum size of the hole – 28 million km^2 was measured in 2000 over the Antarctica. Consequently, Montreal Protocol was admitted in 1986, when countries committed themselves to a dramatic reduction in the consumption of ozone-depleting substances by the year 2005. Developing countries were allowed a ten-year postponement. The commitments are freezing CFC consumption by the year 2009 and other ozone-depleting substances by the year 2012. (UNSD, 2005).

The global consumption of CFCs controlled under the Montreal Protocol dropped from 1.1 million tons of ozone depleting potential (ODP tons) in 1986, before the adoption of the Montreal Protocol, to only about 91,000 ODP tons in 2002. Out of which 89,585 ODP tons were consumed in developing countries (99.1 per cent). The bulk of the 1986 consumption, more than 0.9 million ODP tons, was consumed in industrialized countries. The size of the ozone hole over the Antarctica have increased from about 10 million square km in the mid 80's to the largest size on record in 2000 of 28 million square km. It is expected to decrease slowly in the future considering slow and long-term dissolution process of ozone-depleting substances in the stratosphere. It is expected that the level of the year 1970 will be reached in the half of the twenty first century (UNSD, 2005). Transfer of modern technologies from rich countries to developing countries could contribute to abolishment of production and usage of ozone-depleting substances.

3.1.2. TARGET 10: HALVE BY 2015 THE PROPORTION OF PEOPLE WITHOUT SUSTAINABLE ACCES TO SAFE DRINKING WATER AND BASIC SANITATION

People without access to safe drinking water

Access to safe drinking water (without chemical and bacteriological contamination) and basic sanitation is an indispensable component of primary health care and human development and a precondition for success in the fight against poverty, hunger, child deaths and in achieving gender equality. Naturally, it is also a basic human right. In spite of some progress, 1.1 billion of people live without access to safe water, nearly two-thirds live in Asia, with almost 300 million in China alone. Access to safe water is relatively high in most urban regions except sub-Saharan Africa (UNSD, 2005).

In 2002, 83 per cent of the world's population used improved water sources, compared with the level of 77 percent in 1990. It corresponded to an increase of other 1.1 billion people.
The region with the greatest progress was Southern Asia, where coverage increased from 68 to 86 per cent,
Progress was significant also in sub-Saharan Africa, where supply with the safe water remains however very low – only 58 per cent of the population has access to improved sources (see Table 4),
The lowest score is in Oceania with only 52 per cent,
Numbers in China faces controversial shift – access to safe water has improved in rural regions, while the situation in urban areas has worsen from 100 to 92 per cent (UNSD, 2005).

Table 4: Countries where less than 50 per cent of the population have access to an improved water source, 2002

Country	*Percentage of population have acces to improved sources of water*
Afghanistan	13
Ethiopia	22
Somalia	29
Cambodia	34
Chad	34
Papua New Guinea	39
Mozambique	42
Lao People's Democratic Republic	43
Equatorial Guinea	44
Madagascar	45
Congo	46
Congo, Democratic Republic of the	46
Niger	46
Mali	48

Source: UNSD (2005)

Because of population growth and commitment to fulfil the goals, access will need to be provided to an additional 1.2 billion people by the year 2015, equivalent to establishing new water supply services for the area of about 300,000 people each day (UNSD, 2005).

Causes:
combination of natural (e.g. climatic) and anthropogenic phenomenons (e.g. exhaustion of safe water resources),
river pollution,
excessive or ineffective consumption (irrigation, industrial production),
climate change

Consequences:
countries suffering from water deficiency have to import grain and other basic food (e.g. Morocco, Alger, Yemen),
exploitation of underground water at the expense of future generations,
children have to seek water instead of attending school,
women have to spend much time seeking water instead of studying or making money,
threats of food crises, famines or migration,
worsening security situation (threats of civil disorders, civil conflicts, armed conflicts).

People without the access to sanitation

In 2002, 2.6 billion people i.e. 42 percent of population were estimated using inadequate sanitation facilities. Although estimates indicate that between 1990 and 2002 some progress towards halving proportion of the world's population without the access to sanitation was made in most of the developing regions, sanitation coverage remains low. Between 1990 and 2002 about 1 billion people gained access to improved sanitation facilities. In order to fulfill the target, an increase up to 75 percent is required. (For comparison, please see Table 5). Globally, it will require reaching an additional one billion urban dwellers and almost 900 million people in often remote rural communities, where the situation is much worse. Situation is similar for refugees, who had been forced to leave their homes due to war conflicts and famine. Of the 2.6 billion people using inadequate sanitation facilities, over 2 billion are in rural areas. Urban areas faces problems concerning inadequate sanitation facilities in over-crowded districts – so called slums or favelas above all.(UNSD, 2005).

In southern Asia almost two thirds of the population still lacks access to improved sanitation,
In Sub-Saharan Africa only 36 per cent of population has the access to improved sanitation
Coverage situation worsened both in rural and urban areas in Western Asia, and in rural areas of Oceania and Commonwealth of Independent States (UNSD, 2005),
If the 1990-2002 trends persist, the world will miss the sanitation target by more than half a billion people.

Table 5. Population with access to improved sanitation

	Percentage of population					
	1990			2002		
	Total	Urban	Rural	Total	Urban	Rural
World	49	79	25	58	81	37
Commonwealth of Independent States	84	93	68	83	92	65
Northern Africa	65	84	47	73	89	57
Sub-Saharan Africa	32	54	24	36	55	26
Latin America and the Caribbean	69	82	35	75	84	44
Eastern Asia	24	64	7	45	69	30
Southern Asia	20	54	7	37	66	24
South-Eastern Asia	48	67	39	61	79	49
Western Asia	79	96	52	79	95	49
Oceania	58	83	50	55	84	46

Source: UNSD (2005)

Causes:
inadequate sanitation,
insufficient education (school often represents only one institution where it is possible to receive sanitation knowledge),
cultural traditions and habits,
poor state of health services (lack of physics and health staff, drugs),
poverty.

Consequences:
spread of diarrhea disease,
duration of human life decrease,
economic loss for state,
poverty

3.1.3. TARGET 11 - BY 2020 TO HAVE ACHIEVED A SIGNIFICANT IMPROVEMENT IN THE LIVES OF AT LEAST 100 MILLINS SLUM DWELLERS

The number of people living in poor districts and slums (favelas) is increasing. In developing countries, migration from rural areas contributes to this trend significantly. In the decade between 1990 and 2001 the number of people living in slums increased in all regions, except for northern Africa and the Commonwealth of Independent States - European part (see Table 6).
The United Nations Human Settlements Programme (UN-Habitat) estimates that there were 924 million slum dwellers in the world in 2001, in Southern Asia, where about 60 per cent inhabitants is not steadily employed. In sub-Saharan Africa, 72 per cent urban population lives in slums. In Latin America, about one quarter of urban population lives in slums. The number of urban dwellers living in slums forms about one third of all urban dweller. (UNSD, 2005).

Slum dwellers lack access to adequate water, sanitation, durable housing, adequate living space indoors, and security of tenure. For example, public toilets are shared by up to 250 households, as in the case of Nairobi slums, no doubt pose a health hazard and high risk of being raped for women during the night. Disease, mortality and unemployment rates are much higher in slum conditions compared to other areas of cities and towns. More than 200 million new slum dwellers were added to the world's cities, in the decade between 1990 and 2001—a 28 per cent increase over the period. Most of the increase in the number of slum dwellers occurred in the developing countries. Countries of sub-Saharan Africa face the worst situation, where the proportion of urban population living in slums, 72 per cent, has remained unchanged during the decade, while the size of the slum population grew over the same period, from 101 milion in 1990 to 166 million in 2001. In most sub-Saharan African countries, more than 80 per cent of the urban population consists of slum dwellers. Some settlements of Ethiopia, Chad and Central African Republic can be called slum-cities. (UNSD, 2005).

In South-Eastern Asia, the most dramatic decline, nearly tenfold, was experienced in Thailand, in a decade time. This is due to a combination of factors associated with very high GDP growth rates, as well as the commitment to eliminate slums. The share of slum dwellers in the cities of Brazil declined from 45 to 37 percent, albeit with a 2 million increase in the absolute numbers.
Effective public health, primary education and employment generating activities do improve the lives of slum dwellers, with or without the upgrading of the physical and spatial living conditions. However, if conditions such as access to safe drink water, sanitation and the livelihood do not improve, the population of slum dwellers is projected to grow to 1.4 billion. (UNSD, 2005).

Table 6. Slum dwellers, 1990 - 2001

	Slum dwellers (million)			Slum dwellers as percentage of urban population	
	1990	2001	2020	1990	2001
World	721.6	924.0	1,416.2	31.6	31.6
Developed regions	41.8	45.2	51.8	6.0	6.0
CIS, Europe	9.2	8.9	8.3	6.0	6.0
CIS, Asia	9.7	9.8	10.0	30.3	29.4
Developing regions	660.9	860.1	1,355.5	47.0	43.3
Northern Africa	21.7	21.4	20.7	37.7	28.2
Sub-Saharan Africa	101.0	166.2	393.1	72.3	71.9
Latin America and the Caribbean	110.8	127.6	162.6	35.4	31.9
Eastern Asia	150.8	193.8	299.2	41.1	36.4
Eastern Asia excluding China	12.8	15.6	21.7	25.3	25.4
Southern Asia	198.7	253.1	384.6	63.7	59.0
South-Eastern Asia	49.0	56.8	73.3	36.8	28.0
Western Asia	28.6	40.8	74.8	34.4	35.3
Oceania	0.4	0.5	0.9	24.5	24.1

SSource: UNSD (2005)

3.2. OTHER GLOBAL ENVIRONMENTAL PROBLEMS

3.2.1. DESERTIFICATION

In contrast to the natural expansion of existing deserts, desertification means degradation of land in arid, semi-arid, and dry sub-humid areas. It is a gradual process of soil productivity loss and the thinning out of the vegetative cover as a consequence of human activities and climatic changes such as prolonged droughts and floods. Desertification is a worldwide problem directly affecting 250 million people and a third of the earth's land surface or over 4 billion hectares. (UNCCD).

The desertification rate in China from the mid-1990s to 2000 was 3,436 km², compared to the rate of 1,560 km²in the 1970s and 2,100 square km² in the 1980s. A considerable number of villages have been lost to expanding deserts, sand drifts, dune movement and sandstorms. It is estimated that some 24,000 villages, 1,400 km of railway lines, 30,000 km of highways, 50,000 km of canals and waterways are subject to constant threats of desertification (UNCCD).

Causes:
deforestation,
overgrazing,
long-term drought,
climate change,
unsuitable agriculture techniques,
soil pollution.

Results:
deepening human poverty in stricken areas by desertification,
worsening health condition of population,
safe water scarcity,
food deficiency,
human migration and increase of potential conflicts with host population,
worsening the economic situation on state or regional level,
increasing the number of population in slums,
increasing inclination to soil erosion (wind and water),
soil salinization,
worsening the water quality,
soil erosion increases the amount of silt in rivers and reservoirs,
drying up the lakes.

3.2.2. ENVIRONMENTAL MIGRATION

Environmental degradation or environmental change may cause resources to deplete (safe water, cultivated soil, etc.) following population movement away from the affected areas. People are forced to leave their habitats, lands and look for new livelihood elsewhere. The resulting mass resettlement can disrupt environmental, economic and social balance in target areas and elicit the conflict with host populations. The people who are forced to flee before environmental degradation are called environmental refugees.

Environmental refugees are people who have been forced to leave their traditional habitat, temporarily or permanently, because of some lack of natural resources and/or environmental disruption that jeopardized their existence and seriously affected the quality of life. Their region is not able to ensure them safe livelihood. 'Environmental disruption´ is meant by any physical, chemical and/or biological changes in ecosystem (or the resources base) that render it temporarily or permanently unsuitable to support human life and can be caused by natural and/or human activity. This often relates to population pressures and poverty in the area (compare with Myers, 1994, 2001; Wijnberg, 2002; Leiderman, 2002: 5). In the majority of cases it is quite difficult to distinguish environmental refugees from people forced to leave their habitats due to economic or another causes. But it is undisputed that environmental change influences social and economic conditions. The worsening of these conditions can cause movement from disturbed areas.

Migration flows are as old as a mankind. Human migration is related to natural processes and anthropogenic changes of environment. Environmental factors played similar roles in past as well as in present. Of course, there are some disparities between history and our time - greater human density in every continent, therefore less "free space" for living. In fact, ecological footprint is getting bigger due to increasing demands for space and natural resources. Therefore, a higher number of people have to face environmental results of natural processes or anthropogenic activities.

Estimation of number of environmental refugees in the world was 15 - 25 million in 1990s and for 2050 no fewer than 150 - 200 million (Myers. 1993, 1994; compare with Brown, 2004).
Construction of large river dams in the world during the second half of 20th century displaced 40 – 80 million people (WCD, 2000: XXX, 129).
The category "environmental refugees" is not embodied in the international refugee legislation. Because of the complexity of the issue, there are no exact statistical data that would allow assessing the real extent of environmental migration. The Treaty of Geneva, from 1951, defines refugees "as persons forced to flee across an international border because of a well-founded fear of persecution based on race, religion, nationality, political opinion or membership of particular social group"

Main causes:
Natural Disasters (drought, flood, earthquake, volcanic eruptions). They are usually characterized by a rapid onset.
Cumulative (Slow-Onset) Changes (deforestation, soil erosion, soil desalinization, desertification, climate change, deficiency of safe water). Cumulative changes are, in general, natural processes existing at a slower rate which are interacted and advanced by human activities.
Involuntarily Cause Accidents and Industrial Accidents (industrial and nuclear accidents).
"Development" Projects (construction of river dams, irrigation canals, extraction of natural resources, expansion of cities or construction of traffic infrastructure).

Armed Conflicts and Warfare (biological warfare, wars over natural resources, natural resources extending to conflicts). Environmental degradation and lack of natural resources is one of the causes of human migration and armed conflicts.

Effects:
frustration of migrants due to loss of habitat, household, field, etc.
increasing number of people in slums,
increasing or deepening poverty.

Regions where the environmental migration can be found: Sahel; Central Africa countries; South Asia (particularly Bangladesh); Central and North China; Aral Sea area; Central America (particularly Mexico); Haiti and Pacific Islands gradually (see Table 7) are among the most threatened areas of contemporary environmental migration.

Table 7: Contemporary „Hot Spots“

Threatened Areas	Aimed areas
Sahel	South, Western Sahel, Western Africa coast
Central Africa	Central Africa countries
Bangladesh, India	India
China (Central, North-West)	Coast areas in China, Tibet
Kazakhstan, Uzbekistan	Central Asia, Russia
Mexico, Central America	USA, North Mexico
Haiti	USA
Pacific Islands	New Zealand, Australia, USA

New, potentially threatened regions in the world with a prospective growth of environmental refugees: Sahel; North Egypt (the Nile delta); South regions in Africa (threatened by food crisis); Bangladesh and India; Pakistan (Karachi city with safe water deficiency); Central East (particularly Yemen and Palestine); China (low-lying coast areas in Southeast and East regions, cities with safe water deficiency); Indian Ocean islands (especially Maldives); Central Asia; Pacific Islands; Mediterranean Sea countries in case of long-term drought or rainfall deficiency due to climate change (see Table 8).

Table 8: Prospective „Hot Spots“

Threatened Areas	Aimed areas
Egypt	Central East
Sahel	Guinea Bay countries, West Africa
Southern Africa countries	South Africa
Bangladesh, India	North India, Myanmar
Pakistan (Karachi)	North Pakistan

Table 8: Prospective „Hot Spots“	
Near East (Yemen, Palestine)	Central East
China (Central, North, West, coastline)	South-East Asia, Siberia, USA, Western and Central Europa
Maldives	??? (India)
Central Asia	Russia
Oceania	New Zealand, Australia, USA
Mediterranean Sea countries	Western and Central Europa
Central America, Caribbean	USA, Mexico

There is a special category of environmental refugees who do not leave their country of origin. They are called "internally displaced people". Severe living conditions may undermine social stability in host (aimed) regions or cause some crisis or conflict.

3.2.3. FOOD DEFICIENCY AND GREEN REVOLUTION IN PAST AND TODAY

The first attempts to solve the problems of food security on global occurred in the second half of twentieth century. The main effort was put into cultivating types of cereals that are resistant to pests and that may grow in various geographical areas.

The process of cultivation of several special kinds of cereals (i.e. Mexican wheat) and their introduction to Mexico, India, Pakistan is called *"The first green revolution*". In 1960s and 1970s Rockefeller´s Foundation and Ministry of agriculture in Mexico supported long-term program for cultivation of wheat which is resistant to wheat rust that have destroyed yields in many countries of Latin America. Resistant crops were actually cultivated in order to be able to tolerate fluctuating temperature. This, in turn, enabled the growth of cereals in various geographic latitudes (south Asia).
A ten-time higher production was enabled by growing of the cultivated in short-term horizon. As a consequence, India has become almost self-sufficient in food supplies. Similar success was recorded in cultivation of rise in the Philippines or the growing potatoes in Peru, where research was financially supported by United Nations. (Nátr, 1998: 116-119).

Several authors question green revolution benefits and refer to additional costs like a necessity of introducing irrigation, artificial fertilisers and biocide required for such intensive growing crops. In Europe the changes were gradually introduced from 1950s to 1980s, while developing countries were faced with too fast change. On one side, production of food has increased, on the other hand, the use of non-renewable resources and energy has increased as well. Locally limited and short-term benefits can turn into long-term, higher costs of agricultural inputs (artificial fertilisers, pesticides) or natural resources (oil, phosphate). As a matter of fact, green revolution has not arrived in Africa yet, where the situation in food supplies is worst from long-term point of view. (Compare with Nátr, 1998: 116-119).

Nowadays, we speak about „*second green revolution*“, based on the usage of biotechnology and genetically manipulated organism (GMOs) in agriculture. The main difference between the first and the second revolution lies in the methods of cultivating crops. Traditional cultivating methods created combination of already existing species that could be hybridized in natural conditions, whereas present modern technology enable the creation of plants or animals that could not have arisen from nature. Genes of another organism are transmitted into the genome of a primary organism, and even sometimes across biological kingdoms (gene of bacteria to maize, gene from fish to tomato. These organisms have arisen in the biotechnology laboratory conditions.
Simply, GMOs are biological organisms that have changed their genetic equipment for the purpose of getting one or more new qualities (Lacinová, 1999).

Scientists and politicians from the USA, Australia and several developing countries (Argentina, Chile, Brasilia, the South Africa, China) believe in this strategy. They hope to solve discrepancies between population growth and increasing food demand. According to them the income of calories would increase as well as living standard of inhabitants, who would be able to grow resistant crops in poorer conditions such as dry or salty soil. Outcomes of second green revolution could help to prevent from felling forest due to getting new agricultural land.

Nevertheless, environmentalists and several specialists and politicians from EU warn against possible negative effects to health and environment (no one is being able to estimate the effects of intensive agriculture or use of GMOs). Besides, GMOs could bring other economic problems due to higher cost of seeds and equipment needed for growing basic crops. Biotechnology companies often obtain patents for local crops from developing countries, thus obtaining the right to cope with them freely.

Even if attitudes to GMOs are unclear and controversial, experiments on the fields are being carried out. Four countries contributed to 99 per cent of production of GMOs in 2002: USA (66 per cent), Argentina (23 per cent), Canada (6 per cent) and China (4 per cent). China achieving the highest race of increasing area of growing transgenic crops. Amount of production is growing quickly in the South Africa too(270000 hectares in 2002). India, Columbia and Honduras launched growing transgenic crops in 2002 (Boháček, Cvrčková, 2004: 630-631).

3.2.4. OVERFISHING

Fishing and hunting marine species started to have serious global impacts on ocean ecosystems and coastal economy during the 20th century. In overfished areas result in the loss of biodiversity and the disruption of ecosystems.

Causes:
use of purse seining in commercial fishing,
using fish nets with small holes,
slaughtering a big amount of “non-commercial” fish (in many cases 2/3 of catch)
sea and ocean pollution (waste, oil, artificial fertilizers)
breaking the international agreements that prohibit fishing in extraneous territorial zones (FOC)

The reality of modern fishing is that the industry is dominated by fishing vessels that far out-match nature's ability to replenish fish. Giant ships using state-of-the-art fish-finding sonar can pinpoint schools of fish quickly and accurately. The ships are equipped like giant floating factories - containing fish processing and packing plants, huge freezing systems, and powerful engines to drag enormous fishing gear through the ocean. To put it simply the fish don't stand a chance. (Greenpeace, no date). Researchers refer to the halved quantity of fish between 1985 - 1990 in West Africa seaside due to commercial fishing. These areas are/were traditional fishing zones for regional fishers and majority of giant floating factories are from developed countries.

Only the smallest fish can escape through the holes in the net. A large portion of each catch is juveniles and unwanted non-target species (they are “unprofitable”), which are usually thrown back. The purse seining process damages and often kills the fish - reducing value of the catch and survival chances of those thrown back. A big number of sea mammals and other animals (e.g. turtles) are suffocated in holes of fishing nets. And big areas of the world’s ocean are polluted by waste from the rivers, industrial and agricultural chemicals, nuclear waste and oil incidents.

Results:
devastated marine ecosystems,
disturbance of traditional style of life,
food deficiency and loss of incomes for fishers’ families (particularly in poor regions) and jobs in the industry,
economic decline for countries,
result of sea pollution is infestation of seaweeds releasing the toxic materials to water which is killing fish and other sea organisms. Their consumption brings about health problem to humans and other predators.
among the most threatened areas belong Baltic Sea, Black Sea, North Sea, Mediterranean Sea, Gulf Bay.

3.3. ENVIRONMENTAL DEVELOPMENT ASSISTANCE

The links between poverty and environment were paid a lot of attention during the last two decades. Poverty is regarded not only as a cause but also as a result of environmental degradation. Continually, the effect of a 'downward spiral' emerges due to the fact that the poor are bound to use natural resources excessively so that they could meet their basic needs. The subsequent degradation of these resources then further deepens their poverty. The poor are affected by the environmental degradation much more than the rich. They face basic problems related to low quality of living environment, such as polluted air or water and an incidence of toxic chemical substances. The problems such as soil degradation, desertification, deforestation or excessive fishing endanger the subsistence of hundred million people. Environmental degradation deepens the most burning issues in the domain of health. The World Health Organisation estimates that almost a quarter of diseases on a global scale are linked to low quality of environment.

Environ 90% of all deceases from malaria (1.5 – 2.7 million a year) is linked to the corruption of the environment, e.g. by rain forest exploitation or construction of large

open irrigation systems. Ca. 3 million people a year die due to the polluted air, whereas environ 90% of these deceases is caused by pollution of air in interiors (the reason for this is the burning of traditional firings, such as biomass and coal, in poorly ventilated houses). Especially women and children are affected in this respect. As long as we talk about poverty reduction, it is obvious that we cannot focus solely on economic and social factors but we also need to pay attention to the third pillar of sustainable development – the environmental aspect. Thus, the protection of environment represents an important category of development aid.

3.3.1. PRINCIPLES OF ENVIRONMENTAL DEVELOPMENT ASSISTANCE

The methodology of Project Cycle Management is made up of six project cycle phases (Programming - Identification - Appraisal - Financing - Implementation & Monitoring - Evaluation):

Programming – preparation of strategic development programmes for individual countries, eventually for individual sectors
Identification of project's topics – preparation and preliminary appraisal of the project's blueprint
Complex appraisal of a proposed project in regard to the decisive criteria (usually feasibility, relevance, effectiveness and sustainability)
Financing – authorising financial resources for a project
Implementation of a project accompanied by indispensable monitoring – continual following and assessment of implementation and its accordance to blueprint
Periodic evaluation of expediency, efficiency, relevance, effects or sustainability of a project (during a project as well as ex post); should make it possible to profit from the experiences

When evaluating project, we should keep in mind several basic criteria that a development project in the domain of environment is to meet:
improvement or preservation of natural assets (biodiversity, water and other natural resources, soil and the like),
usage of environment-friendly and locally appropriate technologies,
usage of local natural and human resources in the implementation of project,
emphasis on renewable resources of raw materials and energy.

Furthermore, each development project should be evaluated on grounds of these three primary principles:
effectiveness – the relationship between outputs and goals of project and their impact on a development objective
efficiency – efficient usage of inputs for achievement of outputs
sustainability – the positive results of cooperation must be profitable for a long period of time even after a development agency shuts down the project (programme)

When preparing development project in the field of environment, it is essential to be familiar with analysis of local environment and of inhabitants' subsistence techniques.

3.3.2. VALUING THE STATE OF THE ENVIRONMENT

Valuing the state of the environment can be carried out by means of following methods (EADE &WILLIAMS, 2000):
Environmental profiles,
Environmental Impact Assessment (EIA),
Participatory Rural Appraisal (PRA)

ENVIRONMENTAL PROFILES

Environmental profiles of countries and regions, also known as country environmental studies, are generally used by policy makers in government ministries or agencies such as the World Bank; they may also be useful to many nongovernmental organisations . The studies usually involve some form of environmental survey, and use existing data, such as socio-economic and other data from special research. (EADE &WILLIAMS, 2000: 97).

Objectives of environmental profiles can be (EADE &WILLIAMS, 2000: 97-98):
to identify the current environmental management processes and management knowledge,
to identify changes in resource use and resource management,
to assist local planning to reverse environmental degradation and to work towards sustainable development,
to develop and strengthen institutional procedures for monitoring and evaluating environmental impacts,
to inform debates on the relationship between poverty and environment

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Environmental Impact Assessment (EIA) is a general means of evaluating and assessing the potential impact of large scale development projects on environment. Projects generally requiring an EIA are (OECD, 1992: 8):
those which cause a substantial change in renewable resource use;
those which substantially change farming and fishing practices;
the exploitation of hydrological resources;
the building of infrastructure;
industrial activities;
extractive industries;
waste management and disposal.

The term environmental impact includes:
effects on human health and well-being, the environmental media, eco-systems (including flora and fauna), agriculture and buildings (classified as protected);
effects on climate and atmosphere;
use of natural resources (both regenerative resources and mineral resources);
utilisation and disposal of residues and wastes;
related aspects such as resettlement, archaeological sites, landscape, monuments and social consequences as well as relevant upstream, downstream and transboundary effects.

EIA is widely used in many countries (including developing, e.g. Ethiopia, China), and is integrated into official legislation. EIA is also used by international organisation such as the World Bank (WB) calling EIA a Strategic Environmental Assessment (WB, 2006), Organisation for Economic Cooperation and Development (OECD, 1992) Overseas Development Administration of British Government. (Detail can be found in OECD, 1992; OECD, 2005; WB, 2006; EADE &WILLIAMS, 2000).

PARTICIPATORY RURAL APPRAISAL (PRA)

Participatory rural appraisal method is a useful tool for environmental assessment, and has evolved from analysis of the state of agriculture and natural resources exploitation. It has now been applied more widely.
Much PRA work is based on semi-structured interviews with individuals or with groups with a limited number of predetermined questions. New questions arose during open interviews.
PRA method uses following appraisal tools for environmental assessment (EADE &WILLIAMS, 2000: 100-101):
mapping and modelling of present environmental situation,
analysis of historical connections and influences to present situation, based on asking local people to draw historical changes (getting primary data),
identification of technologies and strategies used in hoseholds and farms by local people in past,
analysis and classification of causes of environmental problems
by means of creating seasonal diagrams of environmental state of given area and its influence on social and economic situation of local community,
making time-use profiles of relative time consumption and other activities of local people during some period
analysis of all parts of social system entering into interaction on the local level (core family, relatives, clans, regional, state system)
analysis of local economic system such as income, expenses of local people, causes and reasons of economic problems,
creating diagrams which show food security of local people and identification of potential problems in given area,
getting and analysis of secondary data (accessible researches, studies, articles) which deal with given problems,
organising workshops and problem-solving methods (brainstorming, expert panel) concerning ways of looking for sustainable solutions of present problems,
finding out possible participation of local communities.

For defining possible solutions, is necessary to obtain primary information (such as dialogues, questionnaires, interviews, etc.) as well as secondary data (climatic and demographic statistics, sociological and technical studies, and aerial photographs etc.).

LIVELIHOODS ANALYSIS

Analysis of the ways of ensuring local communities living belongs to basic attributes of preparing of development project. Guidelines for conducting analysis are (EADE &WILLIAMS, 2000: 102-103):

Social and geographical definition of livelihood system
definition of target group
number of inhabitants and composition of household,
livestock ownership,
proportion of household incomes and expenditures,
credit and debt,
labor market,
ethnicity,
Identification of the availability and quality of natural and other resources (transport, infrastructure, market, government services, credit system).
Gender view
what natural and social resources exist and where are they,
who controls these resources,
what benefits and disadvantages of the system does provide for whom,
how is the situation changing and who feels the impacts,
what are the gender-differentiated capabilities to create livelihood opportunities,
what is the local and regional level of gender and social equity.
Identification of the main obstacles for improvement of livelihoods of the most impoverished and disempowered groups.
Finding out long-term system of sustainable providing of livelihood
possibilities for change,
strengths and weaknesses within current and future system in terms of long-term sustainability,
unsuggestible risks of providing livelihoods (natural disasters, changes in market prices),
all kinds of sustainability: social, environmental, economic, institutional. institucionální.

3.3.3. EXAMPLE OF A SUCCESSFUL ENVIRONMENTAL DEVELOPMENT PROJECT

Pastoralism strategies of Tuareg people for longterm drought, Niger, since 2002

Since 1990, local organisation JEMED has been working with the semi-nomadic Tuareg people in Niger to reduce their vulnerability to drought. The Tuareg are well adapted to surviving in the Sahel's dry, marginal land – if pastures fail in one area they move on, taking everything with them. However, the great droughts of 1973 and 1984 decimated herds, and subsequent droughts in 1993–4 and 1997–8 have thwarted recovery, and climate change means that already dry areas are likely to get drier. The combination of droughts and the need to graze herds has had a devastating effect on the land, causing famine and poor health. (Simms a kol., 2004: 11).

Since 2002, JEMED has been helping communities establish 'fixation points' to enable them to survive the changes that desertification and increased population have brought. These do not settle people permanently, but build on a tradition that the Tuareg would spend part of each year camped in a particular place. Fixation points also enable communities to develop a social infrastructure and education, training, health, and

agricultural projects, while keeping hold of many of their traditional pastoral ways and hese measures mean thousands of Tuareg families are more prepared to face and survive drought, and to build up their assets in good years.

JEMED assisted three communities to dig a 95-metre-deep well at three points, providing water for all human and animal needs in each community. JEMED has also helped communities conserve scarce rainwater by forming a low dike of stones across valley contours. This resulted in an increased milk supply, which improves health. The produce from the herds can be sold to provide a small income. This way of life helps the community better manage and use the resources of the surrounding area. (Simms a kol., 2004: 11).

According to available information (Hall & Hall, 2005; Simms a kol., 2004) project has reach to fulfill environmental aims in the filed of natural values (improvement of access to water resources), use of environmentally friendly and suitable technologies on local level (sustainable way of pastoralism), use of local resources (natural and human) for realisation of the project (Tuareg people have built infrastructure on their own). The project and its positive results have all conditions for sustainable continuance and use of its positive results.

3.3.4. EXAMPLE OFAN UNSUCCESSFUL ENVIRONMENTAL DEVELOPMENT PROJECT

Exploration of the hydrocarbon potential in Cameroon, 1997 - 1999, 2001

The goal of the project was to explore oil and gas deposits located in the northern Cameroon. The implementing agency – the firm GEOFYZIKA a.s., declared in application form addressed to the Ministry of Environment of the Czech Republic (required 13.7 milion crowns of financial support) that the area of the northern Cameroon represented the poorest part of the country, it was predominantly dependent on agricultural activities and suffered from a high rate of unemployment. It was perspective region in regards to deposits of hydrocarbons, but there was minimal interest of foreign investors in this area at Lake Chad.

The implementing firm also claimed that geological databases (as a result of the projects) were used to attract potential investors and financial resources of the development assistance were used for training of local employees, ensuring safety of the workers of the seismic team and provision of the health care for the Czech experts as well as the local community.

But, considering the general misconception about the local context (rural area was intended to be saved from high rate of unemployment by mining of oil and gass), claims that the firm did not care about the area were false. The fact of the matter is that oil companies are interested in mining in this area. This confirms the fact of controversial project of mining oil in Chad and construction of pipelines across Cameroon to the Guinean Gulf that is financially supported by World Band and consortium of mining companies managed by the Firm Exxon Mobil. The project is criticised for its environmental risks, human rights violation and dictator regimes support. It is apparent that in this case the money from the development assistance source were spent wastefully. Similar kind of eploration can be financed by oil company on its own.

Implementation of the project does not correspond to any essential environmental goal. On the contrary, it supports mining and use of nonrenewable resources, that brings about increasing amount of green house gasses in the atmosphere. The project is not able to use environmentally friendly technologies in principle and possible mining the fosil fuels is likely to cause degradation of the environment (soil pollution, deforestation) – well known effects of mining in neighbouring countries, instead of improving or preserving origin natural values.
Besides, the project has not brought benefits to local communities, because the nature of the work was too special. Similar „benefits“ can be expected in the case of mining these resources.

4. CASE STUDIES AND ASSIGNEMENTS

Global warming, climate changes or oscillation – reality or fiction? What is all about – natural occurrence or new phenomenon?
Anthropogenic influence on climate – can we recognize and distinguish this sometime? Is it important for us?
Causes of food crisis and famines – how can we prevent them? What factors influence their emergence with the strongest force?
What conditions are needed to make sense implementation of environmental refugee status?
What are the effective ways of development assistance?
How can be measured the effectiveness of environmental development assistance?
How far real is fulfilling of Millennium Development Goals in environmental field?

5. EXERCISES

1. Why does timber present a main source of energy for many inhabitants from developing countries when there are rich deposits of oil and natural gas (i.e. Nigeria, Chad, Indonesia, Brasilia)?
2. Why is overgrazing done in areas threatened by desertification?

Why do politicians refuse toformally accept the status of environmental refugees?
What are the main diferences in environmental migrations in past and today?
What are the main diferences in wars on land and other natural resources in past and today?
What are other negative impacts of loss of biodiversity for development?
How can we prevent further increase of numbers of inhabitants in slums?
Is the second green revolution (biotechnological) able to save affected areas from hunger?
Can you find further positive examples of environment and development projects and make analysis?
Why is development cooperation in environmental field so important and where can it actually assist?

6. MAIN REFERENCES

BOHÁČEK, Ivan; CVRČKOVÁ, Fatima: 2004. *Genetické modifikace u rostlin.* Vesmír 11/2004, str. 630-631. ISSN 0042-4544

BROWN, Lester R.:*New flows of environmental refugees.* [online]. People & the Planet, 2004. [cit. 2004-02-18]. Available on http://www.peopleandplanet.net/doc.php?id=2134

CIA: *Natuaral Resources and Environment.* [online]. In: Global Trends 2015. Central Intelligence Agency. Washington, December 2000. [cit. 2001-01-29]. Available on http://www.cia.gov/cia/publications/globaltrends2015/

DONALD, S. H.; BENEWICK, R.: *The State of China Atlas.* University of California Press. Berkeley, 2005. ISBN 0-520-24627-6

EADE, Deborah; WILLIAMS, Suzanne: *The Oxfam Handbook of Development and Relief.* Volume 1. Oxfam GB, 2000. ISBN 0 85598 307 8.

GREENPEACE: *Overfishing.* [online]. Greenpeace. No date. [cit. 2006-04-22]. Available on http://oceans.greenpeace.org/en/our-oceans/overfishing

GORE, Albert: *Earth in the Balance: Ecology and the Human Spirit*. Plume, Reprint edition. 1993. ISBN: 0452269350 (česky, Argo, 1994)

HALL, Ian; HALL, Jenny**:** *Working with the nomadic Tuareg in Niger.* [online]. Tearfund International Learning Zone. Last updated on 6 December 2005, [cit. 2006-04-12]. Available on http://tilz.tearfund.org/Publications/Footsteps+51-60/Footsteps+53/Working+with+the+nomadic+Tuareg+in+Niger.htm

JEHLIČKA, Petr: *Mezinárodní politika životního prostředí. Konflikt mezi integrálním ekosystémem a fragmentárním systémem států?* Mezinárodní vztahy č.3, 2000, str.18-35. ISSN 0323-1844

MÁCHAL, A.; HUSTÁK, J.; SLÁMOVÁ, G.: *Malý ekologický a environmentální slovníček.* Rezekvítek, Brno, 1996.

MYERS, Norman: *Environmental Refugees in a Globally Warmed World.* BioScience 11, December 1993.

MYERS, Norman: *Environmental refugees: a crisis in the making.* [online]. People & the Planet, No.4/1994. [cit. 2004-02-18]. Available on www.oneworld.org/patp/pp_eco_refugees.html

MYERS, Norman: *Environmental refugees: a growing phenomenon of the 21st century.* Philosophical Transactions: Biological Sciences, Vol. 357 No.1420, 2001, p.609-613.

MEADOWS, D.; MEADOWS, D.; RANDERS, J.: *Beyond the Limits: Confronting Global Collapse, Envisioning a Sustainable Future*. Chelsea Green Publishing Company, 1993. ISBN: 0930031628 (česky Argo, 1995)

NÁTR, Lubomír: Rostliny, lidé a trvale udržitelný život člověka na zemi. Karolinum, Praha, 1998, str.116-119. ISBN 80-7184-681-3

NOVÁČEK, P. MEDERLY, P.: *Global Partnership for Development.* Millennium Project, Central European Node. American Council for the United Nations University and Palacky University Press, Washington, D.C., Olomouc, 2002.

NOVÁČEK, P. MEDERLY, P. a kol.: *Strategie udržitelného rozvoje.* Univerzita Palackého, Olomouc, 1996.

OECD/DAC: *DAC Guidelines on Aid and Environment: No. 1, Good Practices for Environmental Impact Assessment of Development Projects.* [online]. OECD Development Assistance Committee, Paris, 1992. Available on http://www.oecd.org/dataoecd/37/25/1887592.pdf

OECD/DAC: *DAC Guidelines and Reference Serie. Managing Aid:Practices of DAC Member Countries.* OECD, Paris, 2005. ISBN 92-64-00761-X

PLANET ARK: *Saving Jungles May Aid Nearby Coffee Plantations.* [online]. August 4, 2004. Reuters News Service. [cit. 2005-05-12]. Available from www.planetark.com.

PRIMACK, Richard B., kol.: *Biologické principy ochrany přírody.* Portál, Praha 2001. ISBN 80-7178-522-0

RENNER, Michael: *Omezení osobního ozbrojování*. In: Brown, Lester R. a.d.: Stav světa 1998. Hynek, Praha 1998.

SIMMS, Andrew; MAGRATH, John; REID, Hannah: *Up in smoke? Threats from, and responses to, the impact of global warming on human development*. New Economics Foundaion. London, 2004. ISBN 1 899407 92 8

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD): *UNCCD confirms NATO concern with desertification as a threat to security.* [online]. Bonn, December 19, 2003. Press Release. United Nations Combat Desertification. [cit. 2005-08-17]. Available from www.unccd.int

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD): *Desertification is a Global Problem.* [online]. Media Brief. Secretariat of the Convention to Convention to Combat Desertification, nedatováno. [cit. 2005-08-17]. Available from www.unccd.int

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP): *Forest biodiversity in danger.* [online]. Montreal, November 8, 2001. Secretariat of the Convention on Biological Diversity, 2001. [cit. 2001-11-9]. Available from www.biodiv.org.

UNITED NATIONS STATISTICS DIVISION (UNSD): *Progress towards to Millenium Development Goals. Goal 7 – Ensure environmental substainability.* [online]. United Nations Statistics Division, 2005. [cit. 2005-05-12]. Available on http://millenniumindicators.un.org/unsd/mi/mi_coverfinal.htm

WORLD BANK: *Definitions of groups.* [online]. World Bank Group, Washington, 2001 [cit. 2001-03-12]. Available from http://www.worldbank.org/data/databytopic/class.htm#Sub_Saharan_Africa

WORLD BANK: *Strategic Enviromental Assessment.* [online]. World Bank Group, Washington, 2006 [cit. 2006-04-12]. Available on http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/0,,contentMDK:20274476~menuPK:549265~pagePK:148956~piPK:216618~theSitePK:244381,00.html

WORLD HEALTH ORGANIZATION (WHO): *Climate change and human health: risks and responses. Summary.* Geneva, 2003. ISBN 92 4 159081 5

OTHER SOURCES:

DEVELOPMENT

United Nations Development Programme
www.undp.org

United Nations Human Settlements Programme
www.unhabitat.org

United Nations Population Fund
www.unfpa.org

United Nations Industrial Development Organization
www.unido.org

SECURITY, PEACE AND DEVELOPMENT

Fighting Poverty to build a saver World - A Strategy for Security and Development, DFID Strategy Paper, No. 3/2005
http://www.dfid.gov.uk/pubs/files/securityforall.pdf

The Security-Developemnt Nexus: Conflict, Peace and Development in the 21st Century, Seminar from May 2004
http://www.ipacademy.org/PDF_Reports/SECURITY-DEV_NEXUS.pdf

A more Secure World: Our shared Responsibility - Report of the United Nations-High-level Panel on Threats, Challenges and Change, November 2004
http://www.un.org/secureworld/

Development Policy as a core element of European Security Policy, DIE Discussion Paper, No.3/2004
http://www.die-gdi.de/die_homepage.nsf/FSdpub?OpenFrameset

Europe in the world - Essays on EU foreign, security and development policies
http://www.bond.org.uk/eu/euinworld.htm

Human Security-United Nations
http://www.humansecurity-chs.org/

Challenges and Opportunities for defining and measuring Human Security, UN Department for Disarmament Affairs, 2004
http://www.unidir.org/pdf/articles/pdf-art2138.pdf

ARMED CONFLICTS / CONFLICT PREVENTION

UNDP: Crisies Prevention and Recovery, thematic website
http://www.undp.org/bcpr/conflict_prevention/

Promoting Security - But how and for whom?, Contributions to BICC's Ten-year Anniversary Conference, October 2004
http://www.bicc.de/publications/briefs/brief30/content.html

Exchanging Guns for Tools, BICC- Brief, April 2004
http://www.bicc.de/publications/briefs/brief29/content.html

ENVIRONMENT / NATURAL RESOURCES

United Nations for Environment
www.unep.org

Managing Urban Risk: Perceptions of Housing and Planning as a Tool for Reducing Disaster Risk, Paper published in 'Global Built environment' (GBER)
http://www.hdm.lth.se/STAFF/christine/Article%20Christine%20Wamsler.pdf

State-of-the-Art Review of Environment, Security and Development Co-operation, OECD DAC Working Paper, February 2000
http://www.oecd.org/dataoecd/8/51/2446676.pdf

A Forest Convention, Position paper of the BMZ on the state and the perspectives for creating a legally binding instrument for international forest policy, DIE Discussion Paper, No. 6/2004
http://www.die-gdi.de/die_homepage.nsf/FSdpub?OpenFrameset

Risk Reduction in the 12st Century - International Strategy for Disaster Reduction, United Nations, May 2004
http://www.ehs.unu.edu/PDF/RiskReduction.pdf

Keysheets for sustainable livelihoods, thematic site by DFID, ODI
http://www.keysheets.org/

Consequences of the Asian Tsunami, ODI document, January 2005
http://www.odi.org.uk/publications/opinions/32_tsunami_aid_economics_jan05.html

ENVIRONMENTAL SECURITY

Worldwatch Institute
http://www.worldwatch.org/

Humanitarian Early Warning System
http://www.hewsweb.org/home_page/default.asp

Communicating Dvelopment Research - id21 Natural Resources
http://www.id21.org/nr/index.html

USGS Minerals Information
http://minerals.usgs.gov/minerals/pubs/myb.html

EADI Insecurity Forum
http://www.insecurityforum.org/

Earth Policy Institute
http://www.earth-policy.org/

Living Space for Environmental Refugees
www.liser.org

United Nations University - Intitute for Environment and Human Security
http://www.ehs.unu.edu/

7. RELEVANT CONFERENCES

11th EADI General Conference, Bonn: Insecurity and Development: Regional Issues and Policies for an Interdependent World
(http://www.eadi.org/gc2005)

NATO/CCMS Environmental Security Conference
(http://www.carlisle.army.mil/usacsl/Publications/NES.pdf)

The Hague Conference on Environment, Security and Sustainable Development
(http://www.envirosecurity.net/conference)

United Nations Conference on the Human Environment *(Stockholm. 1972)*
*(*http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=
)

United Nations Conference on Environment and Development, "Earth Summit" *(Rio de Janeiro, 3-14 June 1992)*
(http://www.un.org/geninfo/bp/enviro.html)

The World Summit on Sustainable Development *(Johannesburg, 26 August- 4 September 2002)* (http://www.johannesburgsummit.org , http://www.un.org/esa/sustdev/index.html, http://www.earthsummit2002.org,
http://europe.eu.int/comm/environment/wssd/index_en.html)

8. GLOSSARY

- Environmental security
Sustainable Development

sustainable society
sustainable future
sustainable life
- Millennium Development Goals
- Desertification
- Environmental migration (refugees)
- Internally Displacement People
Green revolution
Climate Change
Biodiversity
safe water
deforestation
sanitation
slums,
fishery
sources of energy
food deficiency