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IOM International Organization for Migration
IOM Internationale Organisation für Migration

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IOM´s Approach to Combating the Social Effects of land degradation and soil contamination

Facts and figures

Drylands cover almost 54 million square kilometres of the world, which corresponds to almost 40% of terrestrial land area globally.[1] They are home to about two billion people, of which from about 2 million to 1.2 billion people are considered to be severely affected by dryland degradation.
According to the summary of the Millennium Ecosystem Assessment Report[2]

- approximately 60% of the ecosystem services examined during the assessment were being degraded or used unsustainably.
- 10 to 20 % of drylands are already degraded.
- pressure is increasing on dryland ecosystems for providing services such as food, and water for humans, livestock, irrigation and sanitation.
- between 1960 and 2000 world population doubled to 6 billion people and the global economy increased more than sixfold which led to a growing demand for ecosystem services. To meet this demand, food production increased by roughly two-and-a half times, water use doubled, wood harvests for pulp and paper production tripled, installed hydropower capacity doubled, and timber production increased by more than half.
- climate change is likely to increase water scarcity in regions that are already under water stress as they accommodate close to a third of world population but harbour only 8% of global renewable freshwater resources.
- droughts are becoming more frequent and their continuous reoccurrence can overcome the coping mechanisms of communities.

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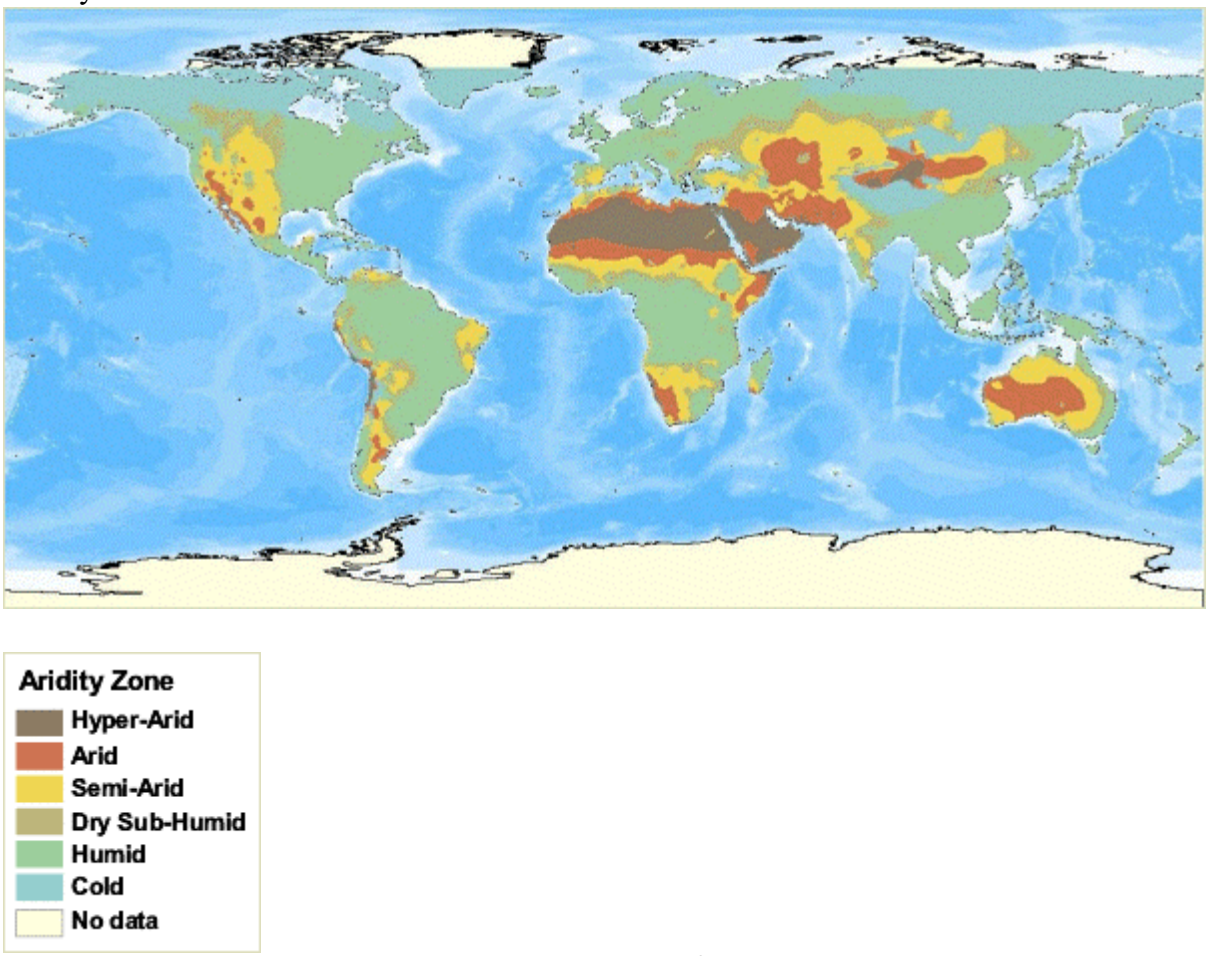
[1] Arid, semi-arid, and dry sub-humid zones, as defined by the United Nations Conventions to Combat Desertification.
World Resources Institute: Earthtrends – Environmental Information:
http://earthtrends.wri.org/maps_spatial/maps_detail_static.php?map_select=459&theme=9.

[2] A working program launched by former UN Secretary General Kofi Annan and completed in March 2005. MA (2005d): Ecosystems and Human Well-being: Desertification Synthesis. World Resources Institute. Washington D.C. In: Bogardi, Janos J.; Renaud , Fabrice G.: Les dynamiques migratoires provoquées par les problèmes écologiques. Institut pour l´Environnement et la Sécurité Humaine. Université des Nations Unies. Allemagne.

According to Population Action International, based upon the UN Medium Population Projections of 1998, more than 2.8 billion people in 48 countries will face water stress or scarcity conditions by 2025.
Of these countries, 40 are in West Asia, North Africa or Sub-Saharan Africa. Nearly 250 million people on the African continent are vulnerable to degradation.[3]

Aridity zones of the world:



Source: World Resources Institute[4]

Examples of desertification

Major overgrazing in the region and large and unsustainable irrigation projects which have diverted water from both the lake and the Chari and Logone rivers have led to a minimization of **Lake Chad** to about nearly a twentieth of its original size. Since 1963, the surface area of Lake Chad has decreased from approximately 25,000 km^2 to 1,350 km^2.[5]

Low irrigation efficiencies and overuse of pesticides led to the disappearance of the **Aral Lake** ecosystem: By 1990, more than 95% of the marshes and wetlands had given way to

[3] Moustafa Mahmoud M.; El-Kady, Mona; El-Shibini, Foad: A strategy to combat desertification in the Nile basin. National Water Research Center. Cairo.
[4] World Resources Institute: Aridity Zones of the World. http://earthtrends.wri.org/maps_spatial/maps_detail_static.php?map_select=459&theme=9.
[5] UNEP – Vital Water Graphics: A chronology of change. Natural and Anthropogenic Factors affecting Lake Chad. http://www.unep.org/vitalwater/27.htm.

sand deserts and more than 50 delta lakes, covering 60,000 ha, had dried up. Aral Lake's level dropped from 53m above sea level to 36m; its surface area shrunk by a half and its volume by three-quarters. The mineral content of the water increased fourfold, preventing the survival of most of the sea's fish and wild life. Commercial fishing ended in 1982. The surrounding climate has changed, becoming more continental with shorter, hotter, rainless summers and longer, colder winters.[6]

Europe will be severely affected by climate change and environmental degradation. Over the past 100 years, the global mean temperature has increased by 0.7 °C and in Europe by about 1.0 °C. Temperatures are projected to increase further by 1.4 to 5.8°C by 2100. Especially Eastern and Southern Europe will be affected.[7] Greater frequency and intensity of extreme weather events as well as a rise of sea level are expected.
In Spain tourism and agricultural activities are the cause for an immense water use. According to an article in the British Guardian, more than 90% of the land bordering the Mediterranean from Almeria in the south to Tarragona in the north is considered to be at high risk of desertification.[8] The European Environment Agency published a report on the consquences of climate change in **Spain**. The report warns that the Spanish province of Alicante will lose 20% of its water resources during the next 75 years as average temperatures are expected to rise by as much as 4ºC. If the population in Southern Spain continues to grow the whole area will have a serious drinking-water problem in a few decades.

Little is known about economic losses due to desertification. An unpublished World Bank study suggested that the depletion of natural resources in just one Sahelian country was equivalent to 20% of its annual Gross Domestic Product. At the global level, it is estimated that the annual income foregone in the areas immediately affected by desertification amounts to approximately US$ 42 billion each year. The indirect economic and social costs suffered outside the affected areas, including the influx of "environmental refugees" and losses to national food production, may be much greater.[9]

Sir Nicholas Stern, Head of the British Government Economics Service and Adviser to the British Government on the economics of climate change and development, has issued a report "The Economics of Climate Change" in October 2006. The following are some important findings of the report:[10]

- Rising sea levels could leave 200 million people permanently displaced.
- Extreme weather could reduce global gross domestic product (GDP) by up to 1%.
- A two to three degrees Celsius rise in temperatures could reduce global economic output by 3%.
- If temperatures rise by five degrees Celsius, up to 10% of global output could be lost. The poorest countries would lose more than 10% of their output.
- In the worst case scenario global consumption per head would fall by 20%.

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[6] Orlovsky, N. and L (2002): Irrigation and Desertification. Ecological consequences of Arid Land Reclamation in the Aral Sea Basin and Land Degradation Control. Jacob Blaustein Institute for Desert Research. Ben Gurion University of Negev. http://www.tucson.ars.ag.gov/isco/isco12/VolumeIV/IrrigationandDesertification.pdf.
[7] EEA: Climate Change: http://themes.eea.europa.eu/Environmental_issues/climate.
[8] Tremlett, Giles (2005): Spain warns desert is spreading. In: The Guardian. 18 June 2005. http://www.guardian.co.uk/spain/article/0,2763,1509401,00.html.
[9] UNCCD: An introduction to the UNCCD. Fact Sheet 3. http://www.unccd.int/publicinfo/factsheets/pdf/factsheets-eng.pdf.
[10] The whole report can be downloaded on HM Treasury´s Website: http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm.

 To stabilise at manageable levels, emissions would need to stabilise in the next 20 years and fall between 1% and 3% after that. This would cost 1% of GDP.

Environmentally induced Migration

Quantifications are complicated by the fact that environmentally induced migration flows are mostly internal or regional.
It is difficult to distinguish "environmental refugees" from economic migrants. In many cases the decision to migrate is the result of a combination of a push factor to leave one disaster-affected location and the economic pull of another, more flourishing place as well as of a variety of social, economic, political and environmental reasons.
Environmental problems can be both the cause and consequence of migration, although they predominantly cause migration outflows.

Most of the estimates place the number of environmental refugees worldwide well above that of migration due to socio-political reasons.

At the International Symposium on Desertification and Migrations held in Almeria/Spain on February 9 to 11, 1994 it was stated that the number of migrants in the world continues to increase by about three million each year. Approximately half of these migrants stem from Africa and are largely of rural origin and related to land degradation. It is estimated that over 135 million people may be at risk of being displaced as a consequence of severe desertification.[11]

In his report " Environmental Refugees. An Emergent Security Issue" at the 13th OSCE Economic Forum in May 2005 Professor Norman Myers from Oxford University pointed out the following numbers to illustrate the global impact of environmental refugees:[12]

By 1995 environmental refugees totaled at least 25 million people. 27 million people were considered to be traditional refugees (e.g. people fleeing from political oppression, religious and ethnic persecution). The environmental refugees total could well double between 1995 and 2010 million in the **African Sahel** where ten million people had fled from droughts. Only half of them returned home. In other parts of Sub-Saharan Africa, where 80 million people are considered to be close to starvation due primarily to environmental factors, seven million people had to migrate in order to obtain food. In early 2000, there were eight million people in Sudan, six million in Somalia and three million in Kenya, plus several million others in other countries who were officially considered to be at risk of starvation. Most of them can be characterized as environmental refugees.

Apart from Africa, environmental refugees can be found in many other regions of the world:
In **China** six million of its 120 million internal migrants were forced to leave their farmlands. In Mexico there are one million new environmental refugees each year; only few return home. People are also displaced involuntarily by public works projects, e.g. large dams. This number increases by ten million every year. 50 million can be found in China and India. Most of them

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[11] The Almeria Statement on Desertification and Migration. International Symposium on Desertifications and Migrations. 9-11 February 1994. Almeria/Spain. http://www.unccd.int/regional/northmed/meetings/others/1994AlmeriaSpain.pdf.

[12] Myers, Norman (2005): Environmental Refugees. An Emergent Security Issue. 13th OSCE Economic Forum. Prague. 23-27 May 2005. http://www.osce.org/documents/eea/2005/05/14488_en.pdf.

settle down elsewhere, but the number remaining in a refugee-like situation totals at least one million.

Consider, for instance, the case of **Italy**, a country that can be easily reached from Tunisia in about three hours. At least 120,000 persons come across the Mediterranean Sea each year; their cumulative total has exceeded one million.
Spain is an even easier to reach, 15 kilometers of the Straits of Gibraltar separating the African from the European continent; the number of refugees matches those of Italy. A still more facile opportunity awaits Hispanics from Mexico and Central America who cross the Rio Grande into the United States with numbers of at least 0.5 million per year, and with a cumulative total of six million.

Population pressures aggravate environmental pressures: within the European Union population is projected to increase by 2% in 2025 whereas projections for North Africa/Eastern Mediterranean indicate an increase of 32%.[13]

An IOM/TCC Report issued in 2005 about internal displacement in Europe and Central Asia deals among others with the number of displacements in Central Asia due to natural disasters. In **Kyrgyzstan** the number of landslides by April 26th, 2004 had risen to 92, the majority of which were life threatening for villages in mountainous areas.[14] This means the occurrence of roughly nine disasters a year that have displaced, or threatened to displace, hundreds of small, already impoverished village communities. Hundreds of households have been predominantly displaced in the south of Kyrgyzstan. Some victims have rebuilt homes close to their original settlements, others placed in temporary shelters either moving to an officially designated relocation site or migrating within the province or the country. From 2001 to 2004, there was a significant push from the government to resettle permanently victims of disasters; situations in April 2004 totaled 1,240 households for the entire Republic, a significant increase from the 23 December 2002 list of 385.
Tajikistan is said to be the most affected country in the region in terms of the number of disasters, the level of damage and the loss of life.[15] Between 1991 and 2001 over 66,000 people were made homeless as a result of natural disasters; and the damage caused by natural disasters in 1999 was estimated to be equivalent to 95 % of the GDP. In the first nine months of 2002, 200,000 people were affected by 65 small or mid-scale natural like floods, earthquakes, mudslides and landslides. Sixteen different larger scaled disasters involving flooding and land/mud slides occurred in the country between April 2003 and April 2004.
From 1991 to 2000, water-related disasters in **Kazakhstan** were composed of the following percentages: 11 % drought; 50 % flood; nine % landslides; two % famine; and 28 % epidemics caused by poor quality water.[16]
Around 10,000 people have become unemployed due to the death of the Aral Sea. Up to 50,000 people in the region were left without resources for living. Every year, 10 to 15 % of arable land in the Kyzylorda Province turns to desert, while between 20 to 25 % of the pastures in the southern areas of the Aral Sea have been lost completely.

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[13] Myers, Norman (2005): Environmental Refugees. An Emergent Security Issue. 13th OSCE Economic Forum. Prague. 23-27 May 2005. http://www.osce.org/documents/eea/2005/05/14488_en.pdf.
[14] Salfrank, Heather (2005): Internal Displacement in Central Asia. Underlying reasons and response strategies. Vienna. IOM Technical Cooperation Centre for Europe and Central Asia. p. 41f.
[15] Ibid. p. 49ff.
[16] Ibid. p. 28ff.

IOM's Responses To Date

Since the 1990ies, IOM has researched the nexus between migration and environment. Two conferences were organized on this issue and, as a result, two reports - on "Migration and Environment" by IOM/RPG (1992) and "Environmentally-Induced Population Displacements and Environmental Impacts Resulting from Mass Migration" by IOM (1996) – were published. Two other reports address the issue of ecological migrants in Belarus and the risk areas of environmentally induced migration in the Commonwealth of Independent States.

Furthermore, IOM has been actively involved in various environmentally related projects.

In August 2005 a one-year **Rehabilitation of Water System project** ended in Shvandizor, **South Armenia**. The lack of potable and irrigation water in Syunik region had caused a breakdown in agriculture, which resulted in outflows of local population from Southern Armenian settlements. IOM intended to mobilize the community of Shvandizor village to revitalize their system of Chaheriz (traditional underground wells) in order for the water system to become fully functional. A community-based water users´ association as well as regional links were established to harness regional knowledge and expertise on constructing, restoring and maintaining them. IOM managed the project implementation. 112 households of Shvanidzor village (384 inhabitants) were beneficiaries.

In **Azerbaijan** a similar project was launched in the period of January 2004 to September 2006. IOM was working with the government of Nakhchivan Autonomous Republic to mitigate push factors for economic migration through a community building and technical assistance programme.

The main objective of the **Water supply improvement project** in Astana Valley, **Afghanistan**, was to rehabilitate and establish a sustainable maintenance system for the existing 24 kilometres gravity fed pipe scheme in Faryab province, to clean, improve, and protect the spring located at Aq Bulaq in Faryab province, to clean and protect two springs and two wells located at Qalin bulaq.

IOM was one of the few international agencies present in Aceh, Indonesia, before the **tsunami** hit the shores and severely impacted on the lives of the inhabitants.[17] IOM assisted the survivors of the disaster in meeting their basic needs and provided livelihood support with an eye on their future.
Shelter construction, revitalization of the health infrastructure, livelihood support and counter-trafficking projects are the pillars of IOM's Indonesia Disaster Recovery Programme. In addition, IOM is providing road-infrastructure rehabilitation, transportation and logistical support. A project in this category is being implemented on the heavily damaged island of Nias, close to the Aceh shores. This particular IOM project has received wide support from the Indonesian authorities and the United Nations. In Sri Lanka, the IOM Tsunami Response Programme has been designed to assist Sri Lankans with emergency shelter and transitional housing, health care services, livelihood support, transport and logistics and counter-trafficking projects. IOM is currently also engaged in the design of disaster risk management programmes. Although many victims of the tsunami have been assisted by IOM to get their lives back on track, IOM's long standing presence in both countries will continue in order to meet the longer term needs that are still tremendous.

[17] IOM Brussels (2006): One Year Tsunami. http://www.belgium.iom.int/News_Details.asp?sm=451

After the 8 October 2005 **earthquake**, IOM-Pakistan undertook emergency relief programmes with a total budget of over US$23 million and more than 175 local and international staff in Islamabad and sub-offices.[18] Immediately responding to the urgent need for humanitarian assistance, the mission focused on Emergency Shelter Cluster (ESC) coordination, delivery of emergency shelter, transport assistance to the humanitarian community, and undertaking medical evacuations.

In the framework of IOM's Dialogue on Migration, a **two-day expert seminar** on migration and environment will be held in Bangkok, Thailand, on February 22 and 23, 2007. Twenty-five to thirty experts, including government officials, non-governmental representatives, researchers and technical experts will discuss two main issues: environment-related causes of migration and environmental consequences of migration. The purpose of this seminar is to promote discussion among migration and environmental experts and to begin examining the nexus between these two issues. A report summarizing the discussions will be published at a later date.

[18] IOM Pakistan (2006): An information sheet. http://www.reliefweb.int/rw/RWB.NSF/db900SID/EVOD-6TDJA2?OpenDocument