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**Conference Services**

**Fifteenth OSCE Economic and Environmental Forum - Part 1:  
“Key challenges to ensure environmental security and sustainable development in the  
OSCE area: Land degradation, soil contamination and water management”  
Vienna, 22 - 23 January 2007**

**Session I  
Environmental security and the specific challenges of land degradation  
and soil contamination**

Please find attached the presentation by Ms. Claudia Olazábal, Agriculture and Soil Unit,  
Environment Directorate-General, European Commission.



## LAND DEGRADATION



- ❖ Soil is a **non-renewable** natural resource
- ❖ Soils are **increasingly degrading** or **irreversibly lost** across the EU and across large areas of the world
- ❖ Soil performs **CRUCIAL functions** for human activities and ecosystems survival



## SOIL FUNCTIONS



- (a) biomass production, incl. agriculture & forestry;
- (b) storing, filtering, transforming nutrients, substances, water
- (c) biodiversity pool, habitats, species and genes;
- (d) physical and cultural environment for humans & human activities;
- (e) source of raw materials;
- (f) acting as carbon pool;
- (g) archive of geological and archaeological heritage



## SOIL DEGRADATION PROCESSES



**CONTAMINATION**

**EROSION**

**SEALING**

**ORGANIC MATTER DECLINE**

**SALINISATION**

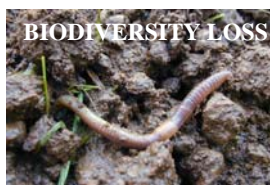
**COMPACTION**

**LANDSLIDES**

**BIODIVERSITY LOSS**



## SECURITY IMPACTS OF SOIL DEGRADATION PROCESSES





## SECURITY IMPACTS OF SOIL DEGRADATION PROCESSES



### DESERTIFICATION



- ❖ often triggers a famine and a subsequent humanitarian crisis
- ❖ clear link between desertification and poverty, massive movements of people and conflicts.
- ❖ people have become internally displaced or forced to migrate to other countries
- ❖ Waves of environmental refugees. The environmental resources in and around the cities and camps where these refugees settle come under severe pressure.
- ❖ Difficult living conditions and the loss of cultural identity further undermine social stability.



## SECURITY IMPACTS OF SOIL DEGRADATION PROCESSES



### EROSION



- ❖ Fertility and crop yield losses thus income losses- Land abandonment
- ❖ Sedimentation in rivers and lakes, and damage to reservoirs and navigation channels, reduced water quality downstream in other countries.
- ❖ Dust storms and air pollution, damaged machinery, reduced visibility, unwanted sediment deposits.
- ❖ Soil water retention capacity can be hampered, thus causing floodings when there are heavy rains in whole regions.
- ❖ Wind-blown dust can also worsen health problems, including eye infections, respiratory illnesses, and allergies across wide portions of the populations in large areas.



## SECURITY IMPACTS OF SOIL DEGRADATION PROCESSES



### CONTAMINATION



- ❖ Contamination of groundwater and surface water bodies thus worsening drinking water quality and exacerbating water scarcity.
- ❖ Very serious health problems and health care impacts (worse for the most vulnerable groups) disrupting the demographic structure and creating social instability
- ❖ very serious problems to the ecosystems and the limiting the biomass and species that can resist such degraded environment
- ❖ hampers food safety (due to uptake of contaminants by the crops), increases the needs of food safety controls
- ❖ hindering export of feed and food products in the international markets thus hindering economic growth and increasing social instability
- ❖ Depreciates land value depreciation and increases insurance costs thus hindering investments and economic growth



## SECURITY IMPACTS OF SOIL DEGRADATION PROCESSES



- ❖ Losses of human lives
- ❖ Enormous losses of productive soil
- ❖ Infrastructure damage which can cause contamination due to rupture of storage capacity, and conflicts between countries of for instance transport infrastructure is damage and the transport and trade of goods is interrupted.



## SECURITY IMPACTS OF SOIL DEGRADATION PROCESSES



- ❖ Soil is the largest terrestrial carbon pool in the planet -Global Effect
- ❖ Losses of soil organic matter which translated into CO<sub>2</sub> emissions to the atmosphere
- ❖ Exacerbation of climate change with all the security consequences that implies



## BARRIERS TO COMBAT SOIL DEGRADATION



As regards the **PREVENTION**

- ❖ lack of awareness on the part of soil users and policy makers
- ❖ lack of institutional infrastructures (more complex as local level and other levels)
- ❖ limited access to efficient equipment, cleaner technologies and adequate knowledge on good agricultural practices
- ❖ lack of legislative framework



## BARRIERS TO COMBAT SOIL DEGRADATION



As regards the **RESTORATION**

- ❖ lack of awareness on the part of soil users and policy makers
- ❖ lack of transboundary cooperation
- ❖ lack of funding
- ❖ private ownership of the land
- ❖ uncertainty about the ownership of the land
- ❖ lack of robust liability regimes
- ❖ difficulties to apply the polluter pays principle- heavy burden on competent authority



## INTERNATIONAL EFFORTS TO COMBAT LAND DEGRADATION



### SOLUTIONS

- ❖ awareness raising and public participation at all levels
- ❖ correct diagnosis and systematic approach
- ❖ integrated approach and customised programs of measures to reflect the variability of soils and local conditions
- ❖ knowledge transfer
- ❖ exchange of best practices
- ❖ pilot projects reproducible
- ❖ establishment of financial mechanisms





## INTERNATIONAL EFFORTS TO COMBAT LAND DEGRADATION



### **EU THEMATIC STRATEGY ON SOIL PROTECTION**

- ❖ comprises a proposal for a Law to ensure the protection and sustainable use of soil across the European Union.
- ❖ This proposal for a Framework Law to protect soil is unique in its kind
- ❖ it establishes a comprehensive approach giving soil the same protection to soil as for air or water
- ❖ it covers all soils and all degradation processes
- ❖ it addresses both prevention and restoration
- ❖ in a flexible manner allowing countries to take account of the enormous soil and climatic variability and the local and regional specificities.



<http://ec.europa.eu/environment/soil/index.htm>