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(Item 3 (b) of the provisional agenda)

DATA COLLECTION FOR THE KIEV REPORT

Addendum 1

**QUESTIONNAIRE ON CONTAMINATED SITES, SOIL EROSION
AND SOIL SEALING**

Submitted by the European Environment Agency (EEA)[1]

The data collection for producing the indicators in the Kiev report is executed by the European Topic Centres under contract by EEA. In Newly Independent States (NIS) the data collection will be supported by consultants of the TACIS programme, in Balkan countries by consultants of the EEA financed by the European Union stability pact fund.

SCOPE OF THE DATA REQUEST

This is a request for data to be used for the preparation of the Chapter on soil degradation in the Kiev report. In order to present an up-to-date overview of soil degradation in Europe, the countries are invited to give short answers on three topics:
• soil degradation caused by local contamination
• soil degradation caused by soil erosion
• soil loss due to soil sealing.

The specific questions are as follows:

1. Soil degradation caused by soil erosion
      1.1. How much soil is lost, by total erosion, from agricultural land for the last 10 years?
      1.2. What is the area of agricultural land affected by erosion for the last 10 years?

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[1] This document was not formally edited.

2. Soil degradation caused by local contamination
2.1. Can the progress in the management of local soil contamination be quantified at national level?
2.2. Can you give a rough estimation of the annual expenditures for investigation and remediation of local soil contamination?
3. Soil loss due to soil sealing
3.1. Are data available concerning land cover statistics?
3.2. Can you give an estimation of the increase over time of the build-up area at national level? (only if your country does not have land cover statistics)

Please return the outcomes to

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DATA REQUEST

This section explains the specific requests for different topics. Each question has a corresponding table. The tables included below are examples only.

I. Soil loss caused by soil erosion

Soil lost from agricultural land

Comments: The intensification of agricultural practices, the use of machinery for the cultivation of enlarged fields, the overgrazing and other instruments of intensive land use practices could be seen as the main driving forces and corresponding pressures on soil that cause erosion in regions with a potential for soil erosion risks. Data requested will be used to obtain an indicator of state: volume of soil lost annually from agricultural land.

Question: How much soil is lost, by total erosion, from agricultural land?

Units: tonnes/ha/year

Table 1.1

Please, fill in for the most recent information available. If data available, fill in with the last 10 years.

Year	Amount of soil lost (tonnes/ha/year)	Data source	Comments

Question: What is the extension of agricultural land, affected by erosion?

Units: ha

Table 1.2

Please, fill in for the most recent information available. If data available, fill in with the last 10 years.

Year	Agricultural land (ha)	Total area affected (ha)	Data source	Comments

II. Soil degradation caused by local contamination

The following questions relate to local contamination in soils deriving from point sources.

Diffuse contamination and local contamination are often treated as distinct soil problems. Diffuse contamination is generally caused by contaminants transported over wide areas, often far from the source. It includes heavy metals, acidification, nutrient surplus (eutrophication), etc. Local contamination (contaminated sites) is a problem in restricted areas (or sites) around the source, where there is a direct link to the source of contamination. This distinction has an historical origin and it is mainly made in relation to the different management, legal and liability aspects involved. Both types of degradation may be present within the same problem area or hot-spot, such as in highly-contaminated areas around cities where soil pollution is caused by localized sources (e.g. landfills) as well as road transport. In agricultural areas, diffuse contamination due to the overuse of fertilisers is generally the main problem.

Most questions need to be answered based on expert knowledge, if detailed statistical data are not available.

Management of contaminated sites

Comments: The management of local soil contamination is a tiered process. The following processing steps can be distinguished:

Preliminary survey	On the basis of available information the preliminary survey has the goal of assessing whether potentially polluting activities have taken place and whether contamination can be suspected. The results of the preliminary survey will in most cases classify a site as potentially (suspected) contaminated site.
Preliminary investigation	Preliminary investigations are carried out to confirm the existence of contamination. In most cases the results of the preliminary investigation form the basis to definitely classify sites as contaminated. A variety of issues will influence the results of the preliminary investigation, the major issues being sampling patterns, number and type of samples, depth of the boreholes, quantity of the samples, transport and storage of samples, selection of substances to be analysed, treatment of samples.
Main site investigation	The main site investigation is carried out to determine the need for remediation or other measures to eliminate or reduce the exposure to the contamination. Major goals are - to define the extent of the contaminated area and the degree of contamination - to assess the risk s of the involved hazards.
Implementation of remediation activities	A detailed planning of measures to reduce the degree of negative effects on human health or the environment is developed. Measures for reduction of environmental impacts have been started.
Remediation activities completed	Monitoring of environmental media has proven that agreed remediation-targets have been meet.

Question: Can the progress in the management of local soil contamination be quantified at national level?

Units: Number of sites

Table 2.1

Please indicate the reference year: _____

Step	Number of sites	Data sources	Comments
Preliminary survey			
Preliminary investigation			
Main site investigation			
Implementation of remediation activities			
Remediation completed			

Clean-up cost of contaminated sites

Comments: Expenditures on remediation measures highly depend on national legislation. The relationship between environmental merit and invested budgets are highly dependent on national standards in connection with the remediation target and the local site conditions. Therefore a direct international comparison is not possible. Nevertheless, remediation expenditures are a measure for the awareness turned to local soil contamination.

Costs for remediation highly depend on the legal background and local land conditions. For remediation activities huge amount of money (public and private) have to be provided. Though, these figures cannot be compared directly because very often private expenditures for remediation activities are not known. But the figures indicate the public awareness of the problem.

So far, several countries have already estimated the total amount of the annual expenditures for investigation and remediation of local soil contamination. In the current questionnaire an update of the estimated yearly expenditures is required.

Question: Can you give a rough estimation of the annual expenditures for investigation and remediation of local soil contamination?

Units: Million Euro per year (alternative million US $ per year, please indicate unit clearly)

Table 2.2. Clean-up cost of contaminated sites

Please, fill in for the most recent information available. If data available, fill in with the last 10 years.

Year	Clean-up Expenditures [Million Euro per year]	Data sources	Comments

III. Soil sealing[2]

Comments: The major causes for soil sealing can be seen in urban expansion, driven mainly by increasing human population, and urban sprawling. Urban expansion and urban sprawl lead to land consumption (pressure) through the construction of human settlements and traffic routes. Land consumption, in turn, results in the impermeabilisation of ground surfaces and sealing of the soil. The main message is: the higher the development of human population the higher are the pressures by urban expansion; the higher the urban expansion, the higher is the land consumption by human settlements and traffic routes, the higher is the portion of sealed soil with respect to the land area (water bodies not included, i.e. inland waters plus marine waters).
Total amount of built-up areas can be used as a proxy indicator for the state and trends of sealing of soil surface.

Question 3.1: Are data available concerning land cover statistics?
If yes, please fill in Table 3.1
If your country does not have land cover statistics, please follow question 3.2

Question 3.2: Can you give an estimation of the increase over time of the build-up area at national level? (only if your country does not have land cover statistics)
If yes, please fill in Table 3.2

Units: km^2

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[2] Soil sealing is the covering of soil due to urbanisation and infrastructure construction, such that soil is no longer able to perform the range of functions associated with it. Soil sealing is not adverse *per se*, rather it is the irreversibility in practical terms of sealing the soil and the consequent loss of soil functions. Soil multi-functionality should be considered in its environmental, social, economic and time dimensions. Some soil functions are mutually exclusive and are often in competition (e.g. soil used for waste treatment in a landfill cannot be used for food production). This competition between functions may lead to an unbalanced use of soil resources and finally to soil degradation. In particular, the major current issue (and in the foreseeable future) in Europe and in most industrialised countries is represented by the continuous increase of built-up areas. This usually leads to irreversible losses of soil resources (soil sealing), which means that the soil cannot perform a wider range of functions. Moreover, soil issues are complicated by the fact that most soils are under private ownership and those private interests can often conflict with national public interests.

Table 3.1

Land cover classes follows Corine Land Cover legend. Please, look at annex for a detailed explanation. Only first level of Corine Land Cover classes is requested (i.e . classes 1, 2 ,3 and 4). If your information does not fit in this classification, please provide a correspondence between your country classification and Corine Land Cover classes. Please fill in the following table for your country (add more columns if needed).

Land cover classes		Year					
Artificial surfaces	km²						
Agricultural areas	km²						
Forest and semi natural areas	km²						
Wetlands	km²						
LAND AREA	km²						
Data Sources							
Comments							

Table 3.2

If land cover statistics are not available, please complete the following table (add more rows and columns if needed). If data available, fill in with the last 10 years.

Year	Built-up area (km2)	Data Sources	Comments

<u>Annex</u>

CORINE LAND COVER LEGEND

More information and examples are accessible through the Corine Land Cover Technical Guide web page (see Corine Land Cover Technical Guide
http://natlan.eea.eu.int/datasets/landcover/reports/methodology/Page1.htm#all).

Level 1	Level 2	Level 3
1. ARTIFICIAL SURFACES	1.1. Urban fabric	1.1.1. Continuous urban fabric
		1.1.2. Discontinuous urban fabric
	1.2. Industrial, commercial and transport units	1.2.1. Industrial or commercial units
		1.2.2. Road and rail networks and associated land
		1.2.3. Port areas
		1.2.4. Airports
	1.3. Mine, dump and construction sites	1.3.1. Mineral extraction sites
		1.3.2. Dump sites
		1.3.3. Construction sites
	1.4. Artificial non-agricultural vegetated areas	1.4.1. Green urban areas
		1.4.2. Sport and leisure facilities
2. AGRICULTURAL AREAS	2.1.Arable land	2.1.1. Non-irrigated arable land
		2.1.2. Permanently irrigated land
		2.1.3. Rice fields
	2.2. Permanent crops	2.2.1. Vineyards
		2.2.2. Fruit trees and berry plantations
		2.2.3. Olive groves
	2.3. Pastures	2.3.1. Pastures
	2.4. Heterogeneous agricultural areas	2.4.1. Annual crops associated with permanent crops
		2.4.2. Complex cultivation patterns
		2.4.3. Land principally occupied by agriculture, with significant areas of natural vegetation
		2.4.4. Agro-forestry areas

Level 1	Level 2	Level 3
3. FORESTS AND SEMI-NATURAL AREAS	3.1. Forests	3.1.1. Broad-leaved forest
		3.1.2. Coniferous forest
		3.1.3. Mixed forest
	3.2. Shrub and/or herbaceous vegetation association	3.2.1. Natural grassland
		3.2.2. Moors and heathland
		3.2.3. Sclerophyllous vegetation
		3.2.4. Transitional woodland shrub
	3.3. Open spaces with little or no vegetation	3.3.1. Beaches, dunes, and sand plains
		3.3.2. Bare rock
		3.3.3. Sparsely vegetated areas
		3.3.4. Burnt areas
		3.3.5. Glaciers and perpetual snow
4. WETLANDS	4.1. Inland wetlands	4.1.1. Inland marshes
		4.1.2. Peatbogs
	4.2. Coastal wetlands	4.2.1. Salt marshes
		4.2.2. Salines
		4.2.3. Intertidal flats
5. WATER BODIES	5.1 Inland waters	5.1.1 Water courses
		5.1.2 Water bodies
	5.2 Marine waters	5.2.1 Coastal lagoons
		5.2.2 Estuaries
		5.2.3 Sea and ocean