Food and Agriculture Organization of the United Nations

GLOBAL SOIL PARTNERSHIP

Questionnaire

Assessment of the global status and regional trends of soil pollution

We estimate that it will take about 20 minutes of your time to respond to questions, which are divided into 12 sections; the survey is customized depending on your stakeholder group.

As you may not have all the answers, please share the pdf questionnaire with all relevant actors in your country in order to have the most complete information possible. Once you have collected information from key stakeholders, please proceed to complete the online form.

Assessment of the global status and regional trends of soil pollution

We need your inputs!

The Global Soil Partnership, with the support of its Intergovernmental Technical Panel on Soils and the Regional Soil Partnerships, and in collaboration with UN Environment and World Health Organization (WHO), proposes to conduct a detailed study of soil pollution worldwide by collecting basic information such as policies to prevent, control and remedy soil pollution; the number and extent of polluted sites; and, the identification and location of potentially polluting activities. This approach will help to better understand the problem of soil pollution on a global scale and identify the main knowledge and legal gaps.

Soil pollution has been internationally recognized as a major threat to soil health and soil's ability to provide ecosystem services (FAO and ITPS, 2015), including the production of safe and sufficient food and clean water. Soil pollution is a chemical degradation process that is consuming fertile soils resulting in impacts on global food security and the achievement of many Sustainable Development Goals (SDGs) (Zero Hunger, end of poverty, ensure healthy lives and well-being, halt and reverse land degradation and biodiversity loss and make cities safe and resilient).

Human activities over thousands of years have left a legacy of polluted soils worldwide. Developed regions have been tackling and monitoring soil pollution over several decades while developing regions are only beginning to understand and take action now, but still many uncertainties remain.

At the United Nations Environment Assembly (UNEA3) of UN Environment, Nairobi, Dec. 2017, 170 countries agreed on the urgency of addressing soil pollution. The Ministerial resolution "Managing Soil Pollution to Achieve Sustainable Development" was adopted to tackle the problem at a global level. The purpose of this survey is to gather data and information which will help build a global picture of soil pollution and identify gaps and areas of intervention, will trigger national, regional and global actions.

INSTRUCTIONS FOR RESPONDING

⇒ We estimate that it will take about 20 minutes of your time to respond to questions, which are divided into 12 sections; the survey is customized depending on your stakeholder group, so you can have fewer sections depending on your role.

⇒ Choose the stakeholder group that better match your role, as the questionnaire is prepared to show different questions depending on the role selected. - There are several mandatory questions, you need to respond to them to be able to continue with the questionnaire.

⇒ If you do not know the answer or are unsure, use the "**Don't know/No answer**" (DN/NA) answer to avoid false positives or negatives.

⇒ You **may share this questionnaire** with other colleagues, government technicians, laboratory personnel, or researchers who have more information or who may be able to answer questions of which you are unsure.

⇒ Note that the **information is not saved if you close this window**. We recommend that you look at the questionnaire in pdf format first and make sure you have the information you need to answer all the questions before you start the online questionnaire.

THANK YOU FOR TIME AND YOUR SUPPORT!

The Global Soil Partnership Secretariat

For any additional info, please contact Natalia.RodriguezEugenio@fao.org

1. **Email address** *

*Required

2. **0.1 General Information** *
   Name/Surname

3. **0.2 Position** *

4. **0.3 Affiliation** *

5. **0.4 Country** *

6.

0.5 Stakeholder group *

If you identify with more than one stakeholder group, please select the one you think is most appropriate.

Mark only one oval.

- ◯ Ministry of Agriculture
- ◯ Ministry of Environment
- ◯ Ministry of Public Health
- ◯ Public/government authority
- ◯ Research institute or University *After the last question in this section, skip to question 24.*
- ◯ International Research Initiative or programme *After the last question in this section, skip to question 24.*
- ◯ International policymaker (eg. EU, African Group or UN institution) *After the last question in this section, skip to question 24.*
- ◯ Non-profit environmental organization *After the last question in this section, skip to question 24.*
- ◯ Non-profit development/food security organization *After the last question in this section, skip to question 24.*
- ◯ Farmer's association *After the last question in this section, skip to question 24.*
- ◯ Agricultural extension/farm advisory *After the last question in this section, skip to question 24.*
- ◯ Financial industry: insurance or banks *After the last question in this section, skip to question 68.*
- ◯ Agricultural supply industry: fertilizers, machinery or other inputs *After the last question in this section, skip to question 24.*
- ◯ Food industry: food production, processing and marketing *After the last question in this section, skip to question 24.*
- ◯ Environmental consultancy companies *After the last question in this section, skip to question 24.*
- ◯ Regional Soil Partnership
- ◯ Other: _____

7.

0.6 Do you agree to respond to this questionnaire in as much detail as possible? *

Mark only one oval.

- ◯ Yes
- ◯ No, but I will provide one/several case studies *Skip to question 81.*
- ◯ No *Stop filling out this form.*

Section 1. Administrative level of competence for soil pollution issues

Countries can have different administrative and legal procedures. Competences are frequently shared or delegated to lower administrative levels. In addition, national laws may be supported by more specific rules and regulations, as well as by local ordinances and local rules and regulations. In order to understand how your country coordinates the legal aspects related to soil pollution, please answer the following question as accurately as possible.

8.

1.1 What administrative levels of the public institution have competence over soil pollution? *

Tick all that apply.

- [ ] Supranational level (Unions, Intergovernmental institutions)
- [ ] National level (Central government or federate states)
- [ ] Regional level (federal states, autonomous regions, self-governing provinces)
- [ ] Local level (counties, municipalities)
- [ ] Supranational & national levels
- [ ] National & regional levels
- [ ] National & local levels
- [ ] Regional & local levels
- [ ] National, regional & local levels
- [ ] Other: _____

Section 1.b. Legislation (a single administrative level responsible for the instruments regulating soil pollution)

In order to evaluate existing national, regional and local legislation that can contribute to the prevention, control and remediation of soil pollution, please answer the following questions.

9.

1.1b Does your country have a national soil pollution act? *

Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA
- ◯ Other: _____

10. **1.2.b Soil pollution act (or related law): Please provide the title, date of enforcement and the online link, if available**

11. **1.3.b Does your country have a legislation on soil protection/conservation?** *

Mark only one oval.

- No
- Yes
- DN/NA

12. **1.4.b Legislation on soil protection/conservation: please provide the title, date of enforcement and the online link, if available.**

13.

1.5.b Does your country have any other legislation that includes or can affect soil pollution prevention and control? (eg. environmental act, environmental liability, waste act, water act...) *

Tick all that apply.

- [ ] Sewage sludge use in agriculture
- [ ] Wastewater management and use
- [ ] Waste management
- [ ] Industrial emissions and pollution
- [ ] Pesticides
- [ ] Chemicals
- [ ] Environmental liability
- [ ] Contaminants in food and feed
- [ ] No
- [ ] DN/NA
- [ ] If other, please provide the title, date of enforcement and the online link, if available, in the box below:
- [ ] Other: _____

14.

1.6.b Has your country adopted and implemented the international conventions on chemicals? *

Tick all that apply.

- [ ] Rotterdam Convention
- [ ] Stockholm Convention
- [ ] Basel Convention
- [ ] Minamata Convention
- [ ] Code of Conduct on the use and management of pesticides
- [ ] None of the above
- [ ] DN/NA

15.

1.7.b Does the legislation above-mentioned* include reference values for different contaminants in the environment (water bodies, food, soils)? *

*This question relates to the soil pollution act or to any other legislation that includes or can affect soil pollution prevention and control.

Mark only one oval.

- ◯ No *Skip to question 24.*
- ◯ Yes, it includes reference values for contaminants present in water bodies (groundwater and/or surface water) *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in soil. *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in food and feed. *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in soil and water bodies. *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in the three compartments (water, soil and food/feed). *Skip to question 22.*
- ◯ DN/NA *Skip to question 24.*
- ◯ Other: _____ *Skip to question 22.*

Skip to question 24.

Section 1.c. Legislation (two administrative levels responsible for the instruments regulating soil pollution)

In order to evaluate existing national, regional and local legislation that can contribute to the prevention, control and remediation of soil pollution, please answer the following questions.

16.

1.1.c Does your country/region/county have a soil pollution act? *

Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA

17.

1.2.c Laws or regulations on soil pollution: please provide the titles, the administrative level that created them, the dates of application and the online links, if available.

_____

_____

_____

_____

_____

18.

1.3.c Does your country/region/county have a legislation on soil protection/conservation? *

Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA

19.

1.4.c Legislation on soil protection/conservation: please provide the titles, the administrative level that created them, the dates of application and the online links, if available.

_____

_____

_____

_____

_____

20.

1.5.c Does your country/region/county have any other legislation that includes or can affect soil pollution prevention and control? (eg. environmental act, environmental liability, waste act, water act...) *

Tick all that apply.

- ☐ Sewage sludge use in agriculture
- ☐ Wastewater management and use
- ☐ Waste management
- ☐ Industrial emissions and pollution
- ☐ Pesticides
- ☐ Chemicals
- ☐ Environmental liability
- ☐ Contaminants in food and feed
- ☐ No
- ☐ DN/NA
- ☐ If yes, please provide the title, date of enforcement and the online link, if available, in the box below:
- ☐ Other: _____

21.

1.6.c Has your country/region/county adopted and implemented the international conventions on chemicals? *

Tick all that apply.

- [ ] Rotterdam Convention
- [ ] Stockholm Convention
- [ ] Basel Convention
- [ ] Minamata Convention
- [ ] Code of Conduct on the use and management of pesticides
- [ ] None of them
- [ ] DN/NA

22.

1.7.c Does the legislation above-mentioned* include reference values for different contaminants in the environment (water bodies, food, soils)? *

*This question relates to the soil pollution act or to any other legislation that includes or can affect soil pollution prevention and control.

Mark only one oval.

- ◯ Yes, it includes reference values for contaminants present in water bodies (groundwater and/or surface water) *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in soil. *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in food and feed. *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in soil and water bodies. *Skip to question 22.*
- ◯ Yes, it includes reference values for contaminants present in the three compartments. *Skip to question 22.*
- ◯ No *Skip to question 24.*
- ◯ DN/NA *Skip to question 24.*
- ◯ Other: _____ *Skip to question 22.*

Skip to question 24.

Section 2. Reference values for contaminants

These reference values are often referred to as soil quality values, selection values, threshold values, remediation levels, and so on. All refer to values that limit the acceptable presence of contaminants in soil, water bodies or food, above which remediation or intervention measures are required to prevent those contaminants from harming human health or the environment.

23.

2.1 Which contaminants are included in the above-mentioned legislation? *

_____

_____

_____

_____

_____

24.

2.2 Do the reference values included in the above-mentioned legislation vary?

Tick all that apply.

- [ ] They vary depending on land use (eg. industrial, residential, agricultural...)
- [ ] They vary depending on soil properties (eg. soil pH, soil texture...)
- [ ] No, the threshold values are general and do not depend on any particular situation.
- [ ] DN/NA
- [ ] Other: _____

Section 3. Sources of soil pollution

In order to identify the major sources of soil pollution by region and to assess the differences and priorities in the different regions, please answer questions in the following section. Please note that the term 'potentially polluting activities' refers to all the activities, industries and land uses that are occurring or may have historically occurred on the land and whether they may have caused contaminants to enter the soil resulting in pollution.

25.

3.1 Does an official definition/list of potentially polluting activities exist in your country? *

If your answer is "Yes", please provide the link to the online document (if available) where this definition is included in the "other" box below.

Mark only one oval.

- ◯ No
- ◯ DN/NA
- ◯ Other: _____

26.

3.2 For each of the following activities please rate their potential as a major polluting activity in your country: *

To rank the importance of pollution sources in your country, consider the following criteria: a) Persistence of the pollutants and their bioavailability and routes of exposure; b) Extent (area) covered by these activities/pollution; c) Population potentially affected; d) Health risks that may be associated with the pollution source (carcinogen, chronic diseases); e) Environmental compartments affected (soil, groundwater, surface water, indoor/outdoor air). If the pollution is caused by contaminants with limited bioavailability, which occupy a limited and well-defined area, where there the affected population is small, and few or no cases of chronic and fatal diseases have been reported, the source of pollution can be considered minor. On the contrary, a major source of soil pollution is caused by persistent pollutants or highly toxic elements that have the potential to affect or are affecting the food chain, occupy large areas of the country and affect a large population, and are associated with a high number of cancers, chronic diseases and mortality.

Mark only one oval per row.

	Not present	Minor source of soil pollution	Moderate source of soil pollution	Major source of soil pollution
Industrial activities (eg. chemicals, tanneries, cement factories, etc.)				
Mining and quarrying activities, including the accumulation of waste, the processing of minerals and/or metals and other life-cycle related activities of minerals and/or metals				
Agriculture (overuse of pesticides, fertilizers, untreated wastewater for irrigation, use of sewage sludge as amendments)				
Livestock production (use of antibiotics for prevention, use of hormones to accelerate growth)				
Fossil fuels (oil and gas) extraction and processing				
Use of leaded fuels				
Military sites (shooting tests, weapons tests areas)				
War areas (personal land mines, bombarded areas)				
Transport infrastructure and transport emissions				

	Not present	Minor source of soil pollution	Moderate source of soil pollution	Major source of soil pollution
Landfills (legal or illegal) and waste treatment plants				
Nuclear plants				
Other activities				

27.

3.3 If you selected "other activities" in the previous question, please indicate which activity you refer to and how important it is as a source of soil pollution in your country:

28.

3.4 How common are these agricultural practices in your country? *

To classify the frequency of occurrence of agricultural practices in your country, consider the percentages in parentheses of occurrence on agricultural land.
Mark only one oval per row.

	Very frequent (>50% of farms)	Quite frequent (30-50% of farms)	Frequent (10-30% of farms)	Infrequent (<10% of farms)	Never
use of synthetic fertilizers	◯	◯	◯	◯	◯
use of pesticides (herbicides, insecticides, fungicides)	◯	◯	◯	◯	◯
use of sewage sludge as fertilizers/soil amendments (without previous quality test)	◯	◯	◯	◯	◯
use of uncomposted manure and slurry as fertilizers	◯	◯	◯	◯	◯
use of untreated wastewater for irrigation	◯	◯	◯	◯	◯
use antibiotics in plants/livestock for disease prevention	◯	◯	◯	◯	◯
use hormones and antibiotics as growth promoters	◯	◯	◯	◯	◯

29.

3.5 How common are these industrial and urban waste management practices in your country? *

To classify the frequency of occurrence of waste management practices in your country, consider the percentages in parentheses of occurrence of these practices.
Mark only one oval per row.

	Very frequent (>50% of the time)	Quite frequent (30-50% of the time)	Frequent (10-30% of the time)	Infrequent (<10% of the time)	Never
Industrial wastewater is directly discharge in the nearest waterway without previous treatment	⬭	⬭	⬭	⬭	⬭
Urban wastewater is directly discharge in the nearest waterway without previous treatment	⬭	⬭	⬭	⬭	⬭
Industrial wastes are discharged in general landfills without previous treatment	⬭	⬭	⬭	⬭	⬭
Hazardous wastes are discharged in general landfills without previous treatment	⬭	⬭	⬭	⬭	⬭
Medical waste are discharged in general landfills without previous treatment	⬭	⬭	⬭	⬭	⬭
Waste treatment plants are fully equipped to properly treat hazardous waste	⬭	⬭	⬭	⬭	⬭

30.

3.6 What are the main groups of organic contaminants causing soil pollution in your country? *

For each of the following contaminants, please qualify their potential as one of the main soil contaminants in your country, considering the area they occupy and the severity of the pollution caused by them in relation to the risk to human health and the environment, consider the following criteria: a) Persistence of the contaminants and their bioavailability and routes of exposure; b) Extent (area) covered by these contaminants; c) Population potentially affected; d) Health risks that may be associated with the contaminants (carcinogen, chronic diseases); e) Environmental compartments affected (soil, groundwater, surface water, indoor/outdoor air). If the pollution is caused by contaminants with limited bioavailability, which occupy a limited and well-defined area, where there the affected population is small, and few or no cases of chronic and fatal diseases have been reported, the contaminant can be considered minor. On the contrary, a major soil contaminant is one that persists in the environment or is highly toxic, is affecting the food chain, occupies large areas of the country and affects a large population, and is associated with a high number of cancers, chronic diseases and mortality in your country.
Mark only one oval per row.

	Not present	Minor soil contaminant	Moderate soil contaminant	Major soil contaminant
Pesticides (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene; chlordecone, alpha hexachlorocyclohexane, beta hexachlorocyclohexane, lindane, pentachlorobenzene)				
Industrial chemicals (hexachlorobenzene, polychlorinated biphenyls (PCBs); hexabromobiphenyl, hexabromodiphenyl ether and heptabromodiphenyl ether, pentachlorobenzene, perfluorooctane sulfonic acid, its salts, perfluorooctane sulfonyl fluoride, tetrabromodiphenyl ether and pentabromodiphenyl ether)				
By-products (hexachlorobenzene; polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), PCBs, alpha hexachlorocyclohexane, beta				

	Not present	Minor soil contaminant	Moderate soil contaminant	Major soil contaminant
hexachlorocyclohexane and pentachlorobenzene)				
Hydrocarbons				
Volatile Organic Compounds (VOCs)				
Non halogenated monocyclic aromatics				
Halogenated aliphatics				
PAHs				
PCBs				
Dioxins+furans				
PFAS				
Phthalates				
PBDEs				
Phenols and chlorophenols				
Chlorobenzenes				
Pharmaceuticals, drugs and personal care products;				
Plastics and synthetic polymers (AC);				
Other				

31.

3.7.a. What are the main groups of trace elements (formerly called heavy metals) causing soil pollution in your country? *

For each of the following contaminants, please qualify their potential as one of the main soil contaminants in your country, considering the area they occupy and the severity of the pollution caused by them in relation to the risk to human health and the environment, consider the following criteria: a) Persistence of the contaminants and their bioavailability and routes of exposure; b) Extent (area) covered by these contaminants; c) Population potentially affected; d) Health risks that may be associated with the contaminants (carcinogen, chronic diseases); e) Environmental compartments affected (soil, groundwater, surface water, indoor/outdoor air). If the pollution is caused by contaminants with limited bioavailability, which occupy a limited and well-defined area, where there the affected population is small, and few or no cases of chronic and fatal diseases have been reported, the contaminant can be considered minor. On the contrary, a major soil contaminant is one that persists in the environment or is highly toxic, is affecting the food chain, occupies large areas of the country and affects a large population, and is associated with a high number of cancers, chronic diseases and mortality in your country. Please note that trace elements naturally present but in concentrations posing a serious risk to human health and the environment are considered soil contaminants for the purposes of this questionnaire.
Mark only one oval per row.

	Not present	Minor soil contaminant	Moderate soil contaminant	Major soil contaminant
Lead (Pb)	◯	◯	◯	◯
Cadmium (Cd)	◯	◯	◯	◯
Copper (Cu)	◯	◯	◯	◯
Mercury (Hg)	◯	◯	◯	◯
Zinc (Zn)	◯	◯	◯	◯
Arsenic (As)	◯	◯	◯	◯
Antimony (Sb)	◯	◯	◯	◯
Selenium (Se)	◯	◯	◯	◯

32.

3.7.b. If any of the above trace elements is naturally present in your country in a concentration which represents or may represent a risk to human health and the environment, please indicate this in the box below.

33.

3.8 Of the following groups of contaminants, how often is soil pollution caused by these pollutants present in your country? *

For each of the following contaminants, please qualify their potential as one of the main soil contaminants in your country, considering the area they occupy and the severity of the pollution caused by them in relation to the risk to human health and the environment, consider the following criteria: a) Persistence of the contaminants and their bioavailability and routes of exposure; b) Extent (area) covered by these contaminants; c) Population potentially affected; d) Health risks that may be associated with the contaminants (carcinogen, chronic diseases); e) Environmental compartments affected (soil, groundwater, surface water, indoor/outdoor air). If the pollution is caused by contaminants with limited bioavailability, which occupy a limited and well-defined area, where there the affected population is small, and few or no cases of chronic and fatal diseases have been reported, the contaminant can be considered minor. On the contrary, a major soil contaminant is one that persists in the environment or is highly toxic, is affecting the food chain, occupies large areas of the country and affects a large population, and is associated with a high number of cancers, chronic diseases and mortality in your country.
Mark only one oval per row.

	Not present	Minor soil contaminants	Moderate soil contaminants	Major soil contaminants
Radionuclides	◯	◯	◯	◯
Explosives	◯	◯	◯	◯
Synthetic dyes	◯	◯	◯	◯
Asbestos	◯	◯	◯	◯
Microbial contaminants (pathogens and antimicrobial resistant bacteria and genes)	◯	◯	◯	◯
Emerging contaminants	◯	◯	◯	◯
Plastics and microplastics	◯	◯	◯	◯

Section 4. Soil pollution assessment and monitoring

The following set of questions is intended to assess the information available worldwide.

34.

4.1 Does your country have a database of georeferenced soil information organised in a National Soil Information System? *

Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA

35.

4.2 If yes, how regularly is it updated?

_____

36.

4.3 Is the National Soil Information System publicly available?

If your answer is "Yes", please provide the online link in the "other" box below.
Mark only one oval.

- ◯ No
- ◯ DN/NA
- ◯ Other: _____

37.

4.4 If no, does your country have a national soil map?

National soil maps may refer to soil properties map, soil type maps, land capability classes for agriculture.
Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA

38.

4.5 If yes, is the national soil map publicly available?

If your answer is "Yes", please provide the online link in the "other" box below.
Mark only one oval.

- ◯ No
- ◯ DN/NA
- ◯ Other: _____

39.

4.6 Have spatial distribution maps of different contaminants been produced in your country? *

For example, maps of the spatial distribution of heavy metals.
Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ DN/NA

40.

4.7 If yes, are they publicly available?

If your answer is "Yes", please provide the online link in the "other" box below.
Mark only one oval.

- ◯ No
- ◯ DN/NA
- ◯ Other: _____

41.

4.8 Does your country have an inventory of local soil pollution deriving from point sources such as industrial sites, landfills, or 'hot spots' (both historical and recent pollution)? *

Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA

42.

4.9 If yes, is it publicly available?

If your answer is "Yes", please provide the online link in the "other" box below.
Mark only one oval.

- ◯ No
- ◯ DN/NA
- ◯ Other: _____

43.

4.10 Does your country have a monitoring programme to assess pollution both/either at sites and in soils (point-source pollution and diffuse pollution)? *

Mark only one oval.

- ◯ No
- ◯ Yes, but only for point-source polluted sites.
- ◯ Yes, there is a monitoring programme for both point-source and diffuse pollution.
- ◯ DN/NA
- ◯ Other: _____

44.

4.11 Is there any laboratory in your country that analyses soil contaminants on a regular basis? *

Mark only one oval.

- ◯ No
- ◯ Yes
- ◯ DN/NA

45.

4.12 If yes, are the following soil contaminants analysed on a regular basis? *

Mark only one oval per row.

	Analysed regularly	Not analysed	The technology is available, but is not analyzed on a regular basis, unless requested.
Trace metals			
Macro and micronutrients			
Semivolatile Organic pollutants (pesticides and herbicides (containing phosphorus, sulfur, chlorine or nitrogen), flame retardants, ingredients in cleaning agents and personal care products, solvents and chemicals used in textile/electronic manufacturing and material manufacturing process additives)			
Per- and polyfluoroalkyl substances (PFAS)			
Dioxins			
Chlorinated hydrocarbons (CHC, such as trichlorethene and polychlorinated biphenyls – PCBs)			
Plastics and microplastics			
Polycyclic Aromatic Hydrocarbons			
Mineral oil or other petroleum products			
Radionucleids			
Explosives			
Asbestos			
Emerging pollutants			
Others			

46.

4.13 If you have selected "Others" in the previous question, what contaminants are you referring to?

47.

4.14 Does your country have related information that can be useful in understanding the extent of soil pollution? *

Mark only one oval per row.

	Yes and publicly available	No	Yes, but the information is not publicly available
Land use/land cover map			
Geological map			
Geochemical dataset (background levels)			
Atmospheric industrial emissions			

48.

4.15 Do you wish to add any other source of information that you consider relevant?

Section 5. Soil pollution data

Where possible, please provide data on the following. Indicate whether the value provided is real or estimated, and if estimated, provide the estimated error as well.
In case you do not have the information required, please answer with "DN/NA".

49.

5.1 Number of polluted sites

50.

5.2 Number of potentially polluted sites

51. **5.3 Area (real or estimated) affected by point source pollution (historical and current)**

52. **5.4 Area (real or estimated) affected by diffuse pollution (historical and current)**

53. **5.5 Number of polluted sites that are under remediation or management measures**

54. **5.6 Number of polluted sites that have been remediated in the last 10 years**

55. **5.7 Amount of antibiotics (tonnes/year) used for human health in your country**

56.

5.8 Amount of antibiotics (tonnes/year) used for animal health (prevention and disease treatment) in your country

57.

5.9 Amount of antibiotics (tonnes/year) used for plant health (prevention, growth promoter and disease treatment) in your country

58.

5.10 Total amount (tonnes/year) of urban waste generated in your country

59.

5.11 Total amount (tonnes/year) of industrial waste generated in your country

60.

5.12 Total amount (million litres/year) of wastewater generated in your country

Section 6. Risk to human health and the environment

For decades, pollution and its harmful effects on people's health, the environment, and the planet have been neglected both by Governments and the International Development Agenda. Yet, pollution is the largest environmental cause of disease and death in the world today, responsible for an estimated 9 million premature deaths (Lancet Commission on pollution and health, 2017).

The aim of this section is to collect information to clarify the availability of data relating soil pollution to effects on human health and the environment.

61.

6.1 Does your country have any institutional mandate for data collection on health issues? *

Mark only one oval.

- Yes
- No
- DN/NA

62.

6.2 Is there any information (including statistics) on human health impacts of soil pollution available in your country? *

Mark only one oval per row.

	No data has been collected on this regard	No data has been collected on this regard but it is planned to do so in the near future.	Yes, but data is not publicly available	Yes and data is publicly available
Contaminants in blood				
Contaminants in breast milk				
Contaminants in urine				
Contaminants in nails and hair				
Mortality due to non-communicable diseases				
Hospitalizations due to non-communicable diseases				
Cancer incidence (childhood/adults)				
Congenital anomalies and birth outcomes				
Epidemiological studies				

63.

6.3 If the above-mentioned information is publicly available, please provide links to the databases or reports in which it may be found.

64.

6.4 Does your country have any epidemiological monitoring programme?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ DN/NA

65.

6.5 If yes, is the epidemiological monitoring programme publicly available? Please provide links to the database, if available.

_____

_____

_____

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66.

6.6 Are there any reports or registries on the impacts of soil pollution on the environment in your country? *

Mark only one oval.

- ◯ Yes, there is a record of pollution accidents and regular reports are made on the state of the environment.
- ◯ Yes, there is a pollution accident register, but it is not publicly available.
- ◯ No
- ◯ DN/NA
- ◯ Other: _____

67.

6.7 If there are records and/or reports publicly available in your country, please provide the online link

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68.

6.8 Are there specific measures to control the presence of contaminants in food in your country? Please describe *

In case you do not have the information required, please answer with "DN/NA".

Section 7. Economic costs of soil pollution

According to the Lancet Commission on Pollution and Health, the overall financial costs of pollution are enormous. Pollution-related diseases cause productivity losses and also cause health care costs. In addition, pollution endangers the health of the planet, destroys ecosystems and is intimately linked to global climate change. Clean-up costs for point source pollution range from hundreds of thousands to millions of dollars. The costs associated with crop productivity losses, withdrawal of contaminated food from global markets, and abandonment of land affected by diffuse pollution have rarely been estimated.
This section aims to gather information to better understand the global economic cost of soil pollution.

69.

7.1 Is any public funding to clean up polluted soils in place in your country? *

Mark only one oval.

- Yes
- No
- DN/NA

70.

7.2 If yes, how much money does the funding consist of and for how long?

71.

7.3 Who provides this funding?

72.

7.4 Public budget spent on soil pollution management and remediation in the last ten years (actual or estimated expenditure)

73.

7.5 Private budget spent on soil pollution management and remediation in the last ten years (actual or estimated expenditure)

74.

7.6 Is any information on agricultural losses due to soil pollution available in your country? *

For example, tonnes of crops discarded due to high contents of potential toxic elements, reduction of crop yields in polluted soils. In case you do not have the information required, please answer with "DN/NA".

75.

7.7 Is there any information on the economic costs of non-communicable diseases due to soil pollution in your country? *

In case you do not have the information required, please answer with "DN/NA".

Section 8. Soil pollution management

There are many different approaches to manage and remediate polluted soils.Remediation is commonly done on a site-by-site basis, since for every combination of pollutant, soil property, land use, property and liability regimes and technical and economic reality of the site or area, a different technique or combination of techniques may be more appropriate.
This section has been designed to draw the main approaches used worldwide to manage and remediate soil pollution.

76.

8.1 Does your country have an established procedure to act when soil pollution occurs (an accident or intentional pollution)? *

If yes, please describe briefly the procedure or name the regulation where this procedure is described in the "other" box below.
Mark only one oval.

- ◯ No
- ◯ DN/NA
- ◯ Other: _____

77.

8.2 Does your country have an institution/organism whose mandate is to address soil pollution and its remediation? *

For example, the Environment Agency, the Ministry of Environment, etc. In case you do not have the information required, please answer with "DN/NA".

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_____

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78.

8.3 How often are the following technologies used in your country to remediate soil pollution? *

To rate the frequency of the use of different technologies, please consider the
Mark only one oval per row.

	Never (0% of cases)	Infrequent (less than 10% of cases)	Frequent (10-30% of cases)	Quite frequent (30-70% of cases)	Very frequent (more than 70% of cases)
In situ biological treatment (ex. phytoremediation, vermiremediation, bioreactors, bioventing, natural attenuation)					
In situ physical/chemical treatment (ex. thermal treatment, electrokinetic separation, washing/pump and treat)					
In situ nanotechnologies					
Ex situ biological treatment (ex. Biopiles, composting, slyrry phase biological treatment)					
Off-site treatment (ex. excavation, retrieval, and off-site (dig-and-dump))					
Containment for soil (ex. Capping with clean soil, landfill cap enhancements)					

79.

8.4 In case you have information about the area remediated using these technologies, please provide it in the box below:

80.

8.5 Is there a procedure in your country to change land use according to the level of pollution when remediation is not possible (due to high costs or the size of the affected area)? *

Mark only one oval.

- ◯ Yes. Land use change is considered an adaptation measure when remediation is not feasible.
- ◯ No. When remediation is not feasible, the site is abandoned.
- ◯ DN/NA
- ◯ Other: _____

81.

8.6 If yes, could you give us some details and the document defining the land-use change procedure, if available?

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_____

_____

Section 9. Case studies

In case you have any case studies that you would like to make available to the public in this report, on accidents, examples of successful remediation or on prevention and management of soil pollution, summarize them in the box below.
Please, include the following information when describing your case study to the fullest extent of your knowledge:
- Type of activity causing soil pollution
- Other activities present in the affected area
- Environmental media affected (surface water bodies, groundwater, sediments, biota, soils, air, food chain)
- Type of contaminants present in the affected area
- Monitoring system for these contaminants
- Polupation affected (actual or estimated number)
- Demographic characteristics of the affected area (age, gender, ethnicity, socio economical level, educational level, occupation)
- Exposure assessment and exposure pathway
- Approach used to determine exposure assessment
- Mortality and morbidity data of the affected area
- Register of chronic diseases (number of cancer cases, genetic disorders)
- Measures to minimize the risk/remediate soil pollution
- Remediation technologies used (if any)

You can send the long version of your case studies by email to natalia.rodriguezeugenio@fao.org

82.

Case studies of pollution accidents, successful remediation or examples of soil pollution prevention and management

Please, include information about the source/s of pollution, major contaminant/s, surface affected, population affected, and remediation technologies, if any.

Section 10. Soil pollution and the achievement of the Sustainable Development Goals (only for governmental actors)

While in the 2030 Agenda, only target 3.9 of the SDG 3 explicitly mentions soil pollution, it is clear that many other targets cannot be achieved until soil pollution problems are addressed. Soil pollutants can cause toxicity in plants, reducing crop yields, and can be transferred to edible parts of plants, making them unsafe for consumption. Both aspects jeopardize food security targets and the end of hunger (SDG 2). Soil pollution affects us all, but it affects vulnerable people the most, who have neither the funds nor the technical capacity to minimise and remediate it. When soil fertility is affected, crop health and productivity decline, and farmers, mainly small holders, are forced to abandon their lands and migrate (SDG 1). Soil pollutants can also be toxic to soil-dwelling organisms, leading to loss of soil biodiversity and widespread degradation of terrestrial ecosystems (SDG 15). It is well known that fertilizers (organic, chemical and mineral) play a key role in soil fertility and crop productivity by supplying nutrients to the soil that have been mined by unsustainable agricultural practices. However, the overuse of fertilizers is one of the major sources of soil and water pollution. Excess nutrients that cannot be taken up by plants or retained in the soil matrix are leached through the soil solution to groundwater (SDG 6) or are washed away by runoff and can reach very distant areas, including oceans (SDG 14). In addition, excess nitrogen can be transformed into volatile forms by soil microorganisms, becoming N_2O, one of the main greenhouse gases, contributing to and accelerating the climate change (SDG 13).
The aim of this section is to assess the consequences of soil pollution that hinders the achievement of sustainable development, addressing the impact on the economy, employment and social welfare. In addition, these data could be useful for monitoring improvements in the management of soil pollution.

83.

10.1 Is your country reporting/planning to report on the following SDGs indicators? *

Mark only one oval per row.

	Yes, we are already reporting on this target	No, we are not reporting yet on this target, but we will plan to report before 2030	No, we are not reporting and we do not have plans/resources to report	DN/NA
1.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population				
1.5.2 Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)				
2.4.1 Proportion of agricultural area under productive and sustainable agriculture				
3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease				
3.9.1 Mortality rate attributed to household and ambient air pollution				
3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)				
6.3.1 Proportion of wastewater safely treated				
6.3.2 Proportion of bodies of water with good ambient water quality				

	Yes, we are already reporting on this target	No, we are not reporting yet on this target, but we will plan to report before 2030	No, we are not reporting and we do not have plans/resources to report	DN/NA
11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities				
11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)				
12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP				
12.3.1 Global food loss index				
12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment				
12.5.1 National recycling rate, tons of material recycled				
14.1.1 Index of coastal eutrophication and floating plastic debris density				
15.3.1 Proportion of land that is degraded over total land area				

84.

10.2 If an international indicator to monitor soil pollution was to be proposed, to what extent would your country be able to provide the following information? *

Mark only one oval per row.

	Unable to provide current or future information	Unable to provide updated information but plan to collect this information in the near future	Able to partially provide current and future information	Able to provide complete current and future information	DN/NA
Number of polluted sites	◯	◯	◯	◯	◯
Management of polluted sites (status)	◯	◯	◯	◯	◯
Area affected by diffuse pollution	◯	◯	◯	◯	◯
Area affected by point source pollution	◯	◯	◯	◯	◯

Section 11. Major barriers and constraints in tackling soil pollution

This section aims to analyse what are the most important barriers and constraints to the analysis and monitoring of soil pollution.

85.

11.1 Technical constraints *

Mark only one oval per row.

	Not Important	Minor Importance	Important	Most Important	DN/NA
Information and knowledge support is not available					
Lack of qualified staff to conduct soil sampling, soil contaminants analysis and soil pollution mapping					
The right machinery/technology for analysing soil contaminants is not available in your country					
The right machinery/technology for remedying polluted soils is not available in your country					
Technical solutions for remedying polluted soils are not mature (additional research is required)					
Land ownership is a barrier to conduct national studies (access to the site for sampling)					

86.

11.2 Financial constraints *

Mark only one oval per row.

	Not Important	Minor Importance	Important	Most Important	DN/NA
Lack of funds to access technology and qualified personnel for mapping and monitoring soil pollution					
Lack of funds to provide laboratories with adequate equipment to measure contaminants					
Lack of incentives for medium/long-term investment in remediation and reclamation of polluted soils.					
Private investors are not convinced of the economic benefits (in relation to costs) of remediation of polluted soils					

87.

11.3 Political constraints *

Mark only one oval per row.

	Not Important	Minor Importance	Important	Most Important	DN/NA
Soil pollution is not a political priority in your country					
Remediation of soil pollution is not rewarded financially (e.g. without subsidies or a specific budget)					
Remediation of soil pollution is not rewarded politically (benefits of addressing pollution are long-term and the political mindset focuses on short-term outcomes)					

88.

11.4 Other constraints you face to tackle soil pollution

Section 12. Proposals to increase action against soil pollution

In this section, possible solutions to increase action against soil pollution and the adoption of soil pollution monitoring at the national level are proposed. You are requested to evaluate their importance and feasibility. You can also provide other options you might consider relevant.

89.

12.1 Technical solutions *

Mark only one oval per row.

	Not important	Minor importance	Important	Most important	DN/NA
Tailored guidance and advice for national experts on how to assess and monitor soil pollution					
Strengthen technical advisory services and knowledge sharing with other countries and regions (e.g. workshops, demonstrations)					
Improve infrastructure to assess soil contamination and thus increase the availability and interoperability of data.					

90.

12.2 Financial solutions *

Mark only one oval per row.

	Not important	Minor importance	Important	Most important	DN/NA
Set an annual budget for remediation of polluted soils					
Create incentives for private investors to promote remediation and reclamation of polluted sites					
Promote incentives for the greening of industries and thus prevent soil pollution					

91.

12.3 Political solutions *

Mark only one oval per row.

	Not important	Minor importance	Important	Most important	DN/NA
Improved awareness among the public					
Establish mandatory threshold values for soil contaminants and soil quality standards in national legislation					
Improve information to policy makers on where and how to guide soil pollution policy.					
Establish international indicators for technicians and policy makers to measure progress in combating soil pollution.					

92.

12.4 Other proposals you consider useful to increase action against soil pollution

93.

12.5 Are there any other points you would like to raise in relation to the aspects covered in this questionnaire?

THANK YOU VERY MUCH FOR TAKING THE TIME TO ANSWER THIS QUESTIONNAIRE!

Your contribution is very important to better understand the status of soil pollution worldwide and to urge governments to take further action.

A copy of your responses will be emailed to the address that you provided