UNITED NATIONS ENVIRONMENT PROGRAMME

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Программа Организации Объединенных Наций по окружающей среде | برنامج الأمم المتحدة للبيئة
联合国环境规划署

UNEP

PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

1.1 Project title: Enhanced Cross-Sectoral Land Management through Land Use Pressure Reduction and Planning

1.2 Project number: GEF ID: 5822
PMS: 01276

1.3 Project type: Medium Size Project

1.4 Trust Fund: **GEF Trust Fund**

1.5 Strategic objectives:

GEF strategic long-term objective: LD-3

Strategic programme for GEF IV:

1.6 UNEP priority:

1.7 Geographical scope: Europe/Serbia

1.8 Mode of execution: Internal cooperation agreement DEPI - ROE

1.9 Project executing organization: UNEP Vienna Programme Office

1.10 Duration of project: 36 months
Commencing:
Completion:

1.11 Cost of project

	US$	**%**
Cost to the GEF Trust Fund	661,644	10.51
Co-financing	5,636,000	89.49
Cash	*100,000*	*1.59*
Ministry of Agriculture and Environmental Protection	**50,000**	**0.80**
UNEP	**50,000**	**0.80**
In-kind	*5,536,000*	*87.91*
Ministry of Agriculture and Environmental Protection	**500,000**	**7.94**
Serbian Environmental Protection Agency	**3,250,000**	**51.61**
Ministry of Mining and Energy	**1,000,000**	**15.88**
Italian Ministry of Environment, Land and Sea	**500,000**	**7.94**
Institute for Field and Vegetable Crops	**100,000**	**1.59**
Institute of Soil Science	**66,000**	**1.05**

Chamber of Commerce and Industry of Serbia	**20,000**	**0.32**
Forestry and Environment Action - fea	**10,000**	**0.16**
UNEP	**90,000**	**1.43**
Total	**6,297,644**	**100**

1.12 Project summary

In line with the Thematic Strategy for Soil Protection of the European Commission, at present the main processes connected with soil loss and degradation in Serbia are as follows: 1) soil loss and damage due to industrial, mining, and power-producing activities, 2) loss of soil organic matter, 3) acidification and salinization of soil, 4) different forms of soil pollution (excessive use of agrochemicals, heavy metals, industrial pollution, etc.), 5) Aeolian and water erosion, and 6) compaction of agricultural soils.

In general, these processes lead not only to the physical loss of soil but also to soil degradation and are very often interconnected, so that, for example, soil acidification leads to a loss of soil organic matter, soil erosion reduces soil biogenicity, and so on. Between 1957 and 1993, Serbia irreversibly lost around 220,000 ha of mostly fertile agricultural land due to various industrial, mining, power-producing, and infrastructure activities (Rudić et al. 1995).

The main governmental institution responsible for monitoring and reporting on the state of soil in Serbia is the Serbian Environmental Protection Agency (SEPA), within the Ministry of Agriculture and Environmental Protection. Some of SEPA's related activities so far included the preparation of a manual entitled "Monitoring land - the legal basis, objectives and indicators", which is the starting point for the development of a systematic program for soil monitoring. In 2012, SEPA started introducing methods for sampling and analysis of soil quality. A set of other related activities includes: Adjustment of existing laboratories for receiving, storage and preparation of samples; construction of a new laboratory for soil analysis; supply of sampling equipment; training of technicians and engineers; and initial sampling in 78 locations collecting 100 samples.

An Inventory of Contaminated Sites, as part of the Environmental Information System managed by SEPA, is currently being developed. Data is collected from local governments based on the Questionnaire for Determination of Contaminated Sites. The Questionnaire consists of general information about the site and specific information depending on the type of contamination on the site (such as activity status, pollution quantity in m^3 or ha, physical state of the pollutant, duration of contamination, exposure risks). The Inventory provides basic information for development of a hotspots cadaster[1] ie. database of identified contaminated sites as an intermediate tool to engage further in implementation of measures for prevention; rehabilitation and remediation.

This project aims at providing the lacking methodologies, knowledge and coordination mechanisms to follow-up on and embellish the activities defined by the monitoring program. It will support the establishment of state and local networks for land use and quality monitoring and the development of a cadaster of environmental/industrial hotspot sites. Based on the Regulation 88/2010 (see part B1 - Description of the consistency of the project with national strategies, and plans or assessments under relevant conventions) land

[1] Technical term referring to a land register. It should also be distinguished from an "Inventory" (such as in *Inventory of Contaminated Sites*).

degradation risk will be defined according to selected indicators reflecting land vulnerability degrees.

The objective of this project is development of instruments and mechanisms for integrated land use management, remediation, and capacity development to reduce pressures on land as a natural resource from competing land uses in the wider landscape and to support reversal of land degradation. This will be accomplished through a number of activities which will have positive early, intermediate and long term results and impacts.

Early and intermediate positive results include a number of strategic documents and tools for application such as Environmental and Social Impact Assessments, cadaster of degraded “hot spots”, an Integrated Land Planning and Management Framework etc. (please refer to outcomes). Expected long term positive impacts include: remediation and amelioration of degraded “hotspots” and improved soil quality and capacity for utilization, enhanced pollution control and reduced pollution impact on the ecosystem and human health as a whole, prevention of further soil loss and maintenance of its quality, especially in the fields of industry, mining, power production and agriculture which are major economic drivers in Serbia.

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APPENDICES

ACRONYMS AND ABBREVIATIONS

CCI	Chamber of Commerce and Industry
CLC	Corine Land Cover
CSOs	Civil Society Organizations
DEPI	Division of Environmental Policy Implementation (UNEP)
EA	Executing Agency
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EIONET	European Information and Observation Network
EOU	Evaluation and Oversight Unit
EPIS	Environment Pollution Information System
EU	European Union
FVC Institute Novi Sad	Institute for Field and Vegetable Crops in Novi Sad
GEF	Global Environment Facility
GIS	Global Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IA	Implementing Agency
IHTM	Institute for Chemistry, Technology and Metallurgy
ILM	Integrated Land Management
ILMF	Integrated Land Planning and Management Framework
IPA	Instrument for Pre-Accession Assistance
JRC	Joint Research Centre
M&E	Monitoring and Evaluation
MoAEP	Ministry of Agriculture and Environmental Protection
MoME	Ministry of Mining and Energy
MoU	Memorandum of Understanding
NEPP	National Environmental Protection Program
NGO	Non-Governmental Organization
NRM	Natural Resource Management
NSSD	National Strategy for Sustainable Development
PIR	Project Implementation Review
PMIU	Project Management and Implementation Unit
POPs	Persistent Organic Pollutants
PSC	Project Steering Committee
PRTR	Pollution Release and Transfer Register
PSUCE Vojvodina	Provincial Secretariat for Urbanism, Construction and Environmental Protection in the Autonomous Province of Vojvodina
SEIA	Social and Environmental Impact Assessment
SEPA	Serbian Environmental Protection Agency
SLM	Sustainable Land Management
SO	Strategic Objective
SSNRM	National Strategy for Sustainable Natural Resource Management
ToR	Terms of Reference
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Program

WRB	World Reference Base for Soil Resources

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

1. Serbia is located in the Balkan Peninsula and the Pannonia Plain. The country has several notable topographical features: the Pannonia Plain (mainly Vojvodina) and river lowlands, the Balkan and Carpathian Mountains, the Dinaric Alps, along with hills stretching across the central part of Serbia. It is a landlocked country located at the crossroads of Central and Southeast Europe. Its total area is 88,502 km^2, populated with 7,199,077 inhabitants[2].

Illustration 1. Geographic Position of Serbia

2. The land and soils in Serbia are extensively utilized. An analysis of the Corine Land Cover (CLC) Database in 2006 shows 28 out of 44 CLC nomenclature classes, with agricultural areas dominating (56%). About 26% of this territory is occupied by non-irrigated arable land, 16% by complex cultivation and 13% by principally agricultural land with areas of natural vegetation. Semi-natural and forest areas cover almost 40% of the country (broad-leaved forest account for 27%). Land classified as artificial areas occupies nearly 3%, whereas the rest of national territory (app.1.6%) is classified as wetlands or water.

[2] Data from 2012.

3. Soil conditions in Serbia have been crucially influenced by the geomorphological structure of the terrain – the land relief and its variable petrographic composition, and anthropological influences (mining, urbanization, industrialization, agriculture, transport etc.). Absence of remediation after finalized exploitation of mineral resources, erosion of tailings material, historical pollution, construction without prior planning, unsustainable agricultural practices, along with natural geological processes (such as landslides and earthquakes) and climate change caused disasters (floods and droughts) have led to a significant decline in the state of soil in Serbia.
4. According to the Thematic Strategy for Soil Protection[3], and the Serbian National Strategy for Sustainable Natural Resource Management (2012), the main processes that lead to soil loss and degradation in Serbia are as follows:
    - Urbanization and infrastructure development;
    - Acidification of soil;
    - Loss of organic matter;
    - Primary and secondary soil salinization;
    - Wind erosion (typical for Vojvodina) and fluvial erosion (in central and mountainous parts);
    - Chemical pollution of soil (excessive use of agrochemicals, chemical storage, industrial pollution, waste disposal etc.).
5. In general, all these processes lead not only to the physical loss of soil but also to soil degradation and are very often interconnected, so that, for instance, soil acidification leads to a loss of soil organic matter, soil erosion reduces soil biogenicity, and so on. The eroded surface is increasing every year. Only in 2013, 6,296 km^2 was eroded in Serbia, stripping fertile layer of soil and vegetation, disabling its production capability. The 2013 analysis of organic carbon content in agricultural surfaces revealed very low content (only 1.66%) in comparison to the protected areas of Serbia, including meadows and pastures that proved to be rich in organic carbon (3.65%).
6. The exploitation of mineral raw materials, especially in surface coal mines, leads to complete land degradation. While the many problems pertaining to soils affected by this process in Serbia are known, it is not known whether or not they have been subject to statistical analyses, nor is it known how soil degradation of this type is treated, i.e. whether it is regarded as a change in the intended use of the soil or as an instance of soil loss, given the fact that the current legislation mandates that the users of such soils are obligated to eventually revert the soil to its original use. The surface coal mines of the Electric Power Industry of Serbia are currently spread across 10,000-12,000 ha of high-quality agricultural land. The bulk of this acreage is in the areas of the Kolubara and Kostolac mines, where lignite can be found below the high quality land. Both of these areas can be regarded as environmental hotspots, since for reasons described above, virtually no soil remediation efforts have been undertaken in them since the 1990s (Vujic 2004, Licina et al. 2005). Only in Bor District, the surface degraded due to three flotation tailings and open pit mines reached about 836 ha.
7. Soil quality is under threat in other mining areas as well. Besides exploiting the soil, due to the inadequate disposal of tailings containing metallic ingredients and a complete lack of planned land rehabilitation, mines in these localities also cause degradation in the outlying areas of the Timok, Kosovo, and Kopaonik mining basins,

[3] Communication from the European Commission to the Council and the European Parliament (2006), Thematic Strategy for Soil Protection, Brussels

in which the tailings mass is several tens of times larger than the mass of the ore dug out (circa 3,000 ha).

8. Lastly, sand and gravel pits located alongside rivers have also been contributing to the degradation of low-grade alluvial soils found on the banks of rivers such as the Danube, Sava, Drina, Morava, Ibar, and Pek. There are 125 or so gravel pits currently in operation in Serbia that are responsible for the destruction of around 60 ha of agricultural soil each year. Similar is the case with rock quarries and ceramic and fire clay pits (Rudic et al. 2005).
9. Uncontrolled land use change is mainly the result of converting agricultural soils into artificial surfaces. Land occupation by urbanization and supporting infrastructure (soil sealing) of 353 ha annually in the period 1990-2006 implies permanent loss. Historically speaking, between 1957 and 1993, Serbia irreversibly lost around 220,000 ha of mostly fertile agricultural land due to various industrial, mining, power-producing, and traffic activities (Rudic et al. 1995). Only in the last two decades, loss of agricultural surface amounted to more than 39 thousand hectares.
10. A change in the intended use of the soil also occurs when a soil is used as a borrow pit to provide raw material for the clay industry, especially in Vojvodina (areas of the towns of Kikinda, Kanjiža, Sremski Karlovci, Bečej, and others). In this manner, around 1,000 ha of agricultural soil have been destroyed so far due to a lack of soil remediation.
11. The different forms of soil contamination leading to soil degradation in Serbia have been gaining increasing attention in the country as of late. In addition to a number of pieces of legislation regulating almost all aspects of these instances of pollution, it is also evident that much has been accomplished in the practical sense as well, including extensive work on the remediation of sites contaminated by drilling fluid used for oil exploration between 1996 and 2003 (Sekulic et al. 2003, Hadzic et al. 2004, 2005, Nesic et al. 2006), reclamation by afforestation of some parts (971 ha) of the Kolubara surface mines (completed in 1997), changes in ash disposal technology (2005), lignite drying (2005), remediation of soil contaminated by depleted uranium at the Pljackovica site near Vranje and the Bratoselce site near Bujanovac (2003-2004), remediation in Bor mining complex during the period 1993-1998 and in 2008[4] (155 ha), and so on. Nevertheless, some of the problems of this kind are not so apparent as to elicit a strong public reaction, or the undertaking of clear and visible measures. Although, the post-war period resulted in weakened economic power of the society, reduced mining and industrial activities, leading to reduced pressure on environment in general, although investments in environmental protection were minimized, and control of landowners, including polluters, was limited. As a consequence, there is still not sufficiently systematic and precise data on areas that are threatened by degradation; often, problems related to land and its uses are identified on the basis of individual research and analyses conducted by international organizations (e.g. FAO).
12. Development of systematic soil monitoring in Serbia has its basis in the Law on Environmental Protection, and is in accordance with the goals of several national strategies. This process is a necessity to establish high quality and timely data on soil, adequate national reporting and reporting towards European Environment Agency (EEA) and other international institutions. Initial steps were already taken by Faculty of

[4] National Strategy for Sustainable Use of Natural Resources, Annex: State and Environmental Impact Assessment

Agriculture, Belgrade University, developing a draft Methodology for systematic monitoring of the quality and state of soils in 2011 (draft updated in 2015). The methodology defines 1) criteria for choosing the site for sampling in agricultural and forest areas; before and after construction of potential polluter; and contaminated areas, 2) criteria for sampling and description of agricultural and forest land, 3) general parameters for characterization of soil, 4) sampling procedure, 5) physical, chemical and biological parameters for agricultural and forest soil analysis.

13. Since 2006, the Serbian Environmental Protection Agency started data collection on potentially contaminated, sites and establishment of the National Inventory of Contaminated Sites, as an integral part of Environmental Protection Information System. The purpose of this Inventory is to provide systemized data on the potential or recognized activities causing pollution, type of site and activity (landfills, industrial sites, oil drillings etc) and status of identified contaminated site: whether preliminary or detailed investigation was carried out and if remediation measures were implemented. The Inventory is an on-going data collection mechanism aimed to continuously identify the areas at risk of pollution and land contamination. Until 2013, SEPA identified 404 relevant locations. For the locations suspected to be contaminated, it is required to carry out the preliminary analysis to determine if these locations are indeed contaminated and, hence, if more detailed analyses are necessary.
14. Until 2013, the number of identified potentially contaminated and contaminated industrial locations on the territory of Serbia was 219: the oil industry (42.4%), followed by the chemical industry (14.6%) and the metal working industry (10.9%).[5]
15. Such slow progress towards addressing the identification of the hotspots, and consequently requiring remediation measures, is mainly caused by lack of financial resources dedicated to this matter, along with limited human capacities for the required scope of work, as well as technical capacities to carry out the analysis based on the EU recognized standards. The limited resources in SEPA's budget planned for the Inventory cannot cover detailed investigations or the remediation activities later on.
16. The Inventory itself is an imperfect mechanism, given that there is no responsibility defined for the identification of hotspots. The data, which is a basis for developing the Inventory, is being collected by the Questionnaire for Determination of Contaminated Sites (also elaborated in Chapter 2.4.) provided to local authorities through the SLAP Information System hosted by the Standing Conference of Cities and Municipalities. This process was later somewhat improved in 2011 by also surveying the production industry. The turnout of the survey has been somewhat unpredictable and low, while some stakeholders complained about the complexity of the questionnaire, or their capacity/knowledge to address the questions. One should also have in mind that there is no legal obligation to complete the Questionnaire and procedure for submission the completed form to SEPA is still missing. On a voluntary basis few municipalities did report the number of locations , without indicating the type of pollution. Additionally, the questionnaire needs to be revised and the process linked to the PRTR reporting, especially related to waste management reporting by the industry sector.
17. Although it is not possible to approximate the remaining amount of the hotspots that are not covered by the ongoing Inventory, based on the fact that the mechanism is based on self-reporting, and that the surveying has been inconsistent it is reasonable

[5] State of Soil 2013, Serbian Environmental Protection Agency (draft)

to expect a greater number of unidentified hotspots that remains for identification in the future.

2.2. Global significance

18. Land is a complex system of bio-geochemical processes and a critical component in different ecological processes, such as water management and organic carbon cycle. It acts as a natural filter but also prevents floods due to retained precipitation. Globally, land degradation affects 33 percent of the world's land surface, with consequences hitting more than 2.6 billion people in more than 100 countries. Land that becomes progressively degraded cannot sustain agricultural production, and creates socioeconomic problems in agro-ecosystems. These problems can also be exacerbated by the increased vulnerability of people and ecosystems to climate change and variability.

19. Land degradation is a very important issue on the local level, and also has a greater global context. According to the unpublished map of the International Soil Reference and Information Center, Serbia belongs to the areas of serious concern for Soil Degradation (Wageningen, the Netherlands, 1990). Industrialization in Serbia led to land degradation causing reduced potential for its uses. Land became contaminated mostly with heavy metals and mineral oils. Once the functions and quality of the land have been violated, its regeneration can be costly and time consuming. Threats arising from poorly managed mining sites (e.g., tailing dams), landfills, and occurrences of industrial accidents have the potential of severely and adversely affecting not just specific sites in Serbia, but also pose a threat on a regional level.

20. Pollutants that migrate in soil and are carried, later on, by water, can jeopardize water resources and soils downstream and pose a significant threat to the health and livelihoods of local communities nationwide and regionally, since Serbia is an important geographic site for international waters vital for Central and South-East Europe - such as Danube and Sava. Land degradation can negatively impact waterways in a number of ways, including sedimentation and changes in the quantity, quality, and timing of water flow. Impacts to international waters are a special case of the off-site damages. They are similar to off-site effects felt nationally, except that national policymakers usually have no incentives to take them into account.

21. Agriculture is a traditionally important economic activity in Serbia, especially in the northern part, in Vojvodina region, where the majority of Serbian crops are being produced. Land degradation on agricultural land threatens the sustainability of growth and the welfare of the many people who depend on agriculture for their livelihoods. Loss of arable land also creates additional indirect pressures on biodiversity, by increasing the pressure to convert additional natural habitats to agricultural use. Serbia has 464 protected areas and 797 protected plant and animal species, with a total of 45,000 species and subspecies of flora and fauna found in its territory. The country has a potential of becoming a global biodiversity center[6].

22. Further on, the consequences and risks from land degradation are aggravated by climate change, especially the occurrence of extreme weather, such as droughts and floods. Major floods occurred twice this year in Serbia (and also in its neighboring

[6] http://www.rs.undp.org/content/serbia/en/home/ourwork/environmentandenergy/successstories/protecting-biodiversity-in-serbia/

countries), taking human lives, and causing severe loss in property, and for the overall economy, that exceeded US$1.5 billion in 2014.

23. Degradation of land is likely to reduce the ability of soils to serve as a carbon sink and causes release of carbon currently stored in soils to the atmosphere.

24. The challenges of reaching sustainable development, environmental services, as well as health and livelihood of local communities greatly depend on adequate planning and management of land resources on local and national levels, and with regional and global repercussions. Without healthy soils, ecosystems and human food production cannot be sustained.

25. Improvements in SLM will lead to direct and indirect positive impacts on the environment of neighboring countries in South East Europe, especially by reduced pollution carried by water, and decreasing risks form pollution caused by major environmental accidents. Based on the project interventions, lessons learned on SLM can be scaled up and used in the region and globally. Improved knowledge on threats to regional and international waterways, as well as ecosystems, can be shared with neighboring countries which are affected by similar problems and challenges with regards to SLM. This is especially relevant because the region shares some of the same root causes and threats given that it was not so long ago a single economic and political unit. The project carries important regional significance as being the first land degradation stand-alone project supporting SLM in the region. All the tools for SLM practices developed for Serbia within this intervention can be used as examples and be easily replicated to address the needs of other countries in South-East Europe.

2.3. Threats, root causes and barrier analysis

26. Recognizing and understanding the processes involving soil loss and degradation, including the threats, root causes and barriers, is essential to the design and implementation of measures intended to minimize the negative impacts and enhance the positive impacts.

27. **Threats:**

28. According to the Food and Agriculture Organization (FAO) of the UN, most of the territory of Serbia is regarded as “under severe and very severe land degradation” (Serbia Maps – Major Environmental Constraints). Even though soil is a renewable natural resource, due to the fact that paedogenesis is a very slow process, the soil is non-renewable for all practical purposes, and therefore classified as a conditionally renewable resource (Varallyay 2000, Montanarella 2007). The land and soils in Serbia are vastly utilized which leads to continued degradation. Agricultural land in the Republic of Serbia is generally threatened by the expansion of settlements, construction of transport infrastructure, the operation of large mining and energy industries and increased conversion of valuable agricultural land into construction land.

29. The issues described in more detail under 2.1 represent the threats to land and soil quality and preservation, and may be categorized into: (i) overutilization of the land (uncontrolled and inadequate land use) with respect to its bio-physical capacity, (ii)soil loss and damage due to industrial, mining, and power-producing activities, due to unsustainable exploitation of natural resources (unsustainable production practices and systems), and (iii) land pollution and contamination - different forms of soil pollution (excessive use of agrochemicals, heavy metals, industrial pollution, etc.).

30. **Root causes:**

31. *Lack of public awareness, information availability and flow.* There is a widespread lack of awareness about environmental issues among the population in Serbia. In particular, knowledge and awareness in Serbia about the functions and values of land, as well as land degradation issues, remain rather limited, as there have been limited communication and public outreach activities undertaken to date. Best practices in Integrated Land Management (ILM)[7] are not well known, and the National Strategy for Sustainable Natural Resource Management - the first strategic document on a national level to provide a basis for long-term protection of land - was only recently adopted (2012). Furthermore, environmental studies are not widely incorporated into the formal education programmes of schools nor are they adequately addressed in informal educational programmes. The involvement of CSOs (of which there are several in Serbia focused on the sustainable use of natural resources and conservation) remains to be adequately formalized and encouraged.

32. *Socio-economic challenges*, such as unemployment and poverty, have resulted in focusing of communities on immediate priorities rather than environmental issues, including land degradation. Thus, land degradation challenges are often not seen as a national priority requiring the allocation of the needed resources and receive less attention than the issues of job creation, economic growth and poverty alleviation.

33. **The barriers** - factors that may impede successful development activities are identified as follows:

34. *Lack of a comprehensive and effective policy framework.* Even though Serbia has a number of laws and numerous policy documents, action plans and strategies dealing with land protection (see Chapter 2.4. Institutional, sectoral and policy context), land conservation needs are not always mainstreamed into wider policy frameworks, and SLM is not considered in the local level environmental agendas. For instance, local authorities are required to monitor the state of soil and deliver data to the SEPA. Since this process is financed by the available resources at the local level and that there are no repercussions for not fulfilling this requirement, only 10-15 municipalities report, and only a few do it regularly. The systematic methods and approaches for the identification of contaminated sites are still missing.

35. Furthermore, there is a gap between the policies and priorities adopted at national level and what is essentially operational at provincial and local levels. There are weaknesses in the existing institutional framework of Serbia that affect effective environmental management, and require the strengthening of the ministries, institutes, provincial secretariats and local governments/secretariats for environment.

36. *Lack of institutional capacity:* Many national and local government agencies in Serbia responsible for environmental protection, at both national and local levels, lack adequate human, technical and financial resources. Most of the key institutions (such as SEPA or Environmental Protection Inspection Authority) are understaffed. Knowledge of SLM considerations by representatives of central institutions is a concern and impedes knowledge transfer to local institutions. The operational capacities of these institutions are also limited in infrastructure and budget (for instance, administrative and financial capacities to implement the established remediation and inventory classification system have proven to be insufficient). The

[7] The term ILM means the strategically planned approach to managing and reducing the human-caused footprint on public land

responsible staff and government officials on local and regional level are mostly untrained and unequipped in the field of ILM and sustainable land use. Furthermore, the efforts of different responsible institutions remain inadequately coordinated.

37. Existing gaps and barriers related to policy and institutional framework are further addressed in the following Chapter 2.4.

2.4. Institutional, sectoral and policy context

38. **Policies and Legislation:** The national legal framework relevant for land protection consist of the Law on Environmental Protection (Official Gazette of RS, no.135/04, 36/09, 72/09, and 43/11), the Law on Agricultural Land (Official Gazette of RS, no.62/06 and 41/09) along with relevant bylaws meant to define land risk assessment, remediation, and systematic monitoring of land and soil (please see the table below).

39. Main strategic documents reflecting on land degradation issues in Serbia are the National Environmental Protection Program[8] (NEPP), the National Strategy for Sustainable Development[9] (NSSD), and the National Strategy for Sustainable Natural Resource Management[10] (SSNRM).

40. SSNRM was adopted in 2012 and is considered as a first strategic document at national level to provide a basis for long-term protection of land. It defines the mechanisms for sustainable land use while treating land and soil as a non-renewable resource. The mechanisms identified in SSNRM are as follows: (i) harmonization of environment and land protection legislation with the EU directives and standards; (ii) setup of an integrated soil database (which is also foreseen by the Law on Agricultural land, and referred to as the Information System on Agricultural Land) based on existing scientific data and results of monitoring carried out by responsible public institutions; (iii) increasing technical capacities for soil data analysis in accordance with EU standards within the responsible institutions, especially on land pollution indicators; (iv) establishment of regular communication between and harmonization of the work of institutions for land protection and the institutions responsible for use of natural resources; and (v) raising public awareness and strengthening technical staff capacities for sustainable use of land resources. An important goal set by this strategy is remediation of degraded land primarily through identification and remediation of environmental/industrial hotspots. The goal for introducing the systematic monitoring of land is laid out by the NEPP and NSSD.

41. A regulation on systematic monitoring of soil quality (Regulation 88/10, see the table below for full reference) and regulation on establishing criteria identifying remediation priorities (Regulation 22/10, see the table below for full reference) define respectively the program for systematic monitoring of land quality, risk assessment for land degradation, and methodology for designing remediation programs, as well as criteria for determining the “endangered” status and prioritizing remediation sites. An additional regulation (Regulation 91/10 and 10/13 - see the table below for full reference) prescribes the methodology for setting up national and local pollution source registers of, and defines the types of pollution, data collection methods and deadlines. The basis for the application of the two regulations is founded on the results of and regular update of the Inventory, which is progressing slowly and is well beyond its expected pace (see paragraphs 13-17).

[8] Published in Official Gazette of RS, no.12/10
[9] Published in Official Gazette of RS, no.57/08
[10] Published in Official Gazette of RS, no.33/12

42. At present, Serbia does not have a Law on Soil (as a natural resource) to complement the existing Law on Water and the Law on Air Protection, as part of the environmental protection legislation framework. This law is in its drafting phase, carried out by responsible ministry.

43. The table below provides an overview of legislation relevant for land protection.

Table 1. Existing Legal Framework for Land Protection in Serbia

OFFICIAL GAZETTE OF RS NO.	LEGISLATION
135/04, 36/09, 72/09, and 43/11	Law on Environmental Protection
62/06 and 41/09	Law on Agricultural Land
23/94	Rulebook on the permitted amounts of hazardous and noxious substances in soil and water for irrigation and methods for their testing
112/09	Regulation on the content and manner of keeping the information system of environmental protection, methodology, structure, common ground, categories and levels of data collection, as well as the content of the information on which the public is regularly informed
88/10	Regulation on the program for systematic monitoring of the quality of land, indicators for assessing risk of land degradation and methodology for developing remediation programs
22/10	Regulation on establishing the criteria for determining the status of endangered environment and priorities for rehabilitation and remediation
91/10 and 10/13	Regulation on the methodology for preparation of national and local register of pollution sources, and the methodology for different types, modes and data collection timelines

44. Other relevant strategies at the state level are:

- National Sustainable Development Strategy
- Republic of Serbia Forestry Development Strategy
- Waste Management Strategy (2010-2019)
- Introduction of Cleaner Production Strategy in the Republic of Serbia
- National Strategy on the Inclusion of Republic of Serbia into Clean Development Mechanism of the Kyoto Protocol for the Waste Management Sectors, Agriculture and Forestry
- Strategy on Agricultural Development of Serbia
- Strategy on Biodiversity of the Republic of Serbia (2011-2018)

45. Although Serbia has a solid policy basis for incorporating SLM provisions and identifying hotspots as the long-term strategic goal to neutralize and remediate environmental pollution (some of which is a legacy from the previous industrial and mining system), the existing tools have been criticized by various stakeholders and the institutions themselves for being too complex, inadequate and difficult to implement under existing budgets, and human and technical capacities. For example, the existing stipulated classification system based on Regulation 22/2010 is very sophisticated and Serbia lacks administrative and financial capacity to implement it. The classification system was developed under a twinning approach and based on the Canadian system. The quality of data collected in the Inventory differs among sites. The questionnaires that were submitted to SEPA for the purpose of data collection (see Chapter 2.1.) are not complete and therefore it was difficult to establish clear priorities for recovery and remediation. Clear methodology for developing the Inventory to precisely define the content and procedure for data collection is still missing.

46. There are many overlaps or fragmentation of efforts by different institutions with regards to their policies, programs and operations when dealing with land issues, because the land and soil is overarching to several sectors and industries. It pertains to many different interests and stakeholders, but it was never treated systematically as a universal resource base requiring a holistic approach. Simply said, all the bits and pieces of legislation, policy and institutions dealing with land issues have not yet been placed into a context and framework of SLM.

47. **Institutional setup:** Serbia has three levels of government: national, provincial and local. The institutional framework for land protection includes competent ministries (natural resources, spatial planning, forestry, agriculture and environment), agencies, provincial secretariat, and secretariats/city administrations for environmental protection.

48. The activities performed by the national ministries relevant to land issues include expert work, strategic planning within the jurisdiction of the ministry in question, setting up priorities, providing support to harmonize sectoral policies, and establishing information systems.

49. At the national level, *the Ministry of Agriculture and Environmental Protection (MoAEP)* is responsible for overall environmental management. Its mandate includes, inter alia, prevention of large chemical accidents, inspection and surveillance for environmental issues, implementation of international environmental conventions, including and acting as a focal point for the aforementioned conventions. Water and Forestry Directorates are part of its organizational structure. The *Serbian Environmental Protection Agency (SEPA*) is an administrative authority under the MoAEP; it is the main governmental institution responsible for monitoring and reporting on the state of the environment, but also drafting the State of Soil Report, on a regular basis. Data that is fed into the National Environmental Information System is being collected following the specific methodology described in the National List of Indicators. SEPA cooperates with EEA and is a part of European Information and Observation Network (EIONET).

50. *The Ministry of Mining and Energy (MoME)* is responsible for overall mining and geological research management in the country. Its mandate includes, *inter alia*, strategy and policy development of natural resources; research relating to the exploitation of natural resources; norms and standards for geological maps; and

mining and geological inspection. MoME receives the data from mining companies, including intensity of their pressures on the land and surface re-cultivation. Sector for Geology and Mining will lead the IPA-funded project focused on developing the Cadaster of mining waste.

51. *Provincial Secretariat for Urbanism, Construction and Environmental Protection* in the Autonomous Province of Vojvodina (PSUCE Vojvodina) was established in 2011, following the reorganization of provincial administrative authorities. For the environmental protection, it is responsible for environmental monitoring, maintaining environmental information system, protection and enhancement of natural goods and biological diversity, cleaner production, renewable energy and sustainable development. Environmental surveillance and control is also under jurisdiction of the PSUCE Vojvodina, as well as preparation of spatial plans and issuing land use permits.

52. At the local level, city/municipal authorities are responsible for setting up local policies, regulations on the protection of natural resources, developing local action plans, keeping the record in the area of monitoring of environmental media, informing the public on the state of environment, implementing the EIA process, approving the SEIA of certain plans and programs, issuing integrated permits, as well as maintaining the local registry of pollution sources.

53. The institutional framework in Serbia is well developed, but often hampered by frequent changes and reorganization, especially in the environment sector. In the past 10 years, the institutional responsibility for environment has switched to different ministries, including the competent ministries being re-combined and re-shuffled (from the Ministry of Science and Environmental Protection; Ministry of Environmental Protection and Spatial Planning; Ministry of Natural Resources, Mining and Spatial Planning; recent Ministry of Energy, Development and Environmental Protection to today's Ministry of Agriculture and Environmental Protection). The capacity of responsible ministries was therefore fragmented with regard to environmental issues, and often lagging behind existing environmental challenges. Capacity of the MoAEP is currently limited to only two employees dealing with soil and land degradation issues and one Focal Point to the UNCCD. The issue of land degradation was often neglected given that it was of lower importance on the political agenda, lower than biodiversity or climate change.

54. The communication between the institutions and ministries dealing with land issues and operating at the national level is insufficient. The mentioned ministries and agencies dealing with the land do attempt to collaborate, but this collaboration and communication is on an "ad-hoc" basis. There is no systematic approach to establishing and maintaining communication and collaboration channels in order to comprehensively deal with SLM. The coordination is even more fragmented between state, regional and local levels, with local levels missing strategic support and guidance on how to address pollution and land degradation.

55. The players on all levels, especially on regional and local level, do not have sufficient capacity to understand and apply overly complex legislation and methodologies covering the identification of pollutants, soil analyses and monitoring, which often leads to uncompleted efforts to deal with the overwhelming demands for maintaining soil quality and reduction of pollution, requiring multi-stakeholder and multi-level approaches.

56. In addition to the lack of capacity and coordination, the implementation of environmental considerations for land in Serbia is further aggravated by the cancelation of the Environment Protection Fund in 2012[11]. The Fund was closed due to irregularities in its operations, which further intensified already acute problems of limited funding opportunities for environmental activities in the country, and in the area of land management in particular. The Government of Serbia planned to establish another fund, as a part of the state budget, dedicated to addressing various environmental issues in 2014, postponing the decision until autumn 2015, as the amendments to the Law on Environmental Protection are still pending approval. It is not known when the new fund will become operational.

57. **Science and Research:** The scientific sector in Serbia has some capacity for monitoring of land. Universities and research institutes dealing with land issues have conducted research concerning land pollution, in particular the transformation and migration of pollutants, monitoring and control of land quality. However, the academic and research institutions usually conduct the work independently, often using different approaches and applying these to limited geographic areas, making it more difficult to compare and generalize the results. It should also be noted that these organizations sometimes act as competitors (e.g. for research funding), hence not sharing all available information on soil among each other or with other stakeholders. Unifying the basis for scientific soil research, such as internationally acceptable classifications of soil, or other methodologies, would substantially advance the level of knowledge on the status of soil in Serbia, and it would make available more reliable and more practical data in the future. Such institutions can also play an important role in awareness raising on land degradation and SLM.

2.5. Stakeholder mapping and analysis

58. There is a wide range of stakeholders in the country that are involved in various aspects of land use, management, soil quality monitoring, surveillance and pollution control.

59. **The national government institutions** are considered as important stakeholders currently dealing with land degradation. Human capacities of governmental institutions in dealing with land/soil issues are limited. Staff engaged in environmental protection departments are generally covering all environmental issues together. However, the expectations are that the expertise and staff allocated to soil issues will increase, as general awareness on land degradation is increasing, as demonstrated by the recent establishment of a Soil Committee in MoAEP.

60. As part of its activities to support land protection efforts, SEPA prepared a manual on land monitoring called the “Manual on Monitoring of the State of Land: legal basis, objectives and indicators” (2013), which is a starting point to building a system for land monitoring. In 2012, SEPA started introducing methods for sampling and analysis of soil quality. The activities included adjustments to existing laboratories for handling soil samples (including receiving, storing and preparing samples for analyses), construction of a new laboratory for soil analysis, purchase of sampling equipment, and trainings for laboratory technicians and engineers. SEPA conducted initial sampling on 143 locations by collecting 165 samples[12.]

[11] Law on the Termination of the Fund for Environmental Protection (Official Gazette of RS no. 93/2012)

[12] www.sepa.gov.rs/index.php?menu=204&id=201&akcija=showXlinked_nopagenum

61. SEPA's reporting responsibilities are reflected in annually published reports on the state of environment. SEPA additionally publishes the Report on the State of Soil, containing data and information on areas under degraded land, the content of organic carbon in soil, the information on management of contaminated sites and land use change. For the purpose of this report SEPA uses indicators from the National List of Indicators. The latest report for 2013 was published in the beginning of 2015. The Inventory of Contaminated Sites is currently being developed by SEPA, as part of the Environmental Information System. The data is being collected by surveying local governments, for which the Questionnaire for Determination of Contaminated Sites is being used. The goal of developing this Inventory is to provide systemized data on pollution sources - such as the type, quantity, modality and location of discharged pollutants into the soil, in order to implement prevention/mitigation measures. Relevant projects led by both the MoAEP and SEPA are listed in detail in Chapter 2.7. SEPA has 72 full-time and 21 part time employees. Around 10% of employees have been working on sampling, data processing and reporting on state of soil. Since SEPA does not have developed capacities for sample analysis, it uses the services of Field and Vegetable Crops Institute in Novi Sad to test and determine the basic chemical soil attributes (e.g., heavy metals, organo-chlorine and organo-phosphorous pesticides, triazines, phenylureas, PCBs, and PAHs). In order to carry out the envisioned work for cadaster preparation and provide important monitoring and reporting role for soil quality in Serbia, SEPA needs to further build its capacities though increasing number of employees and training.
62. In the period 2002-2013, the PSUCE Vojvodina financed the monitoring of soil quality in Vojvodina. The monitoring included measurements of chemical, radiological and biological quality indicators in agricultural and non-agricultural areas in industrial zones of bigger cities, protected areas, in the vicinity of gas stations and on children playgrounds. Most of the results are published in the publication "State-Challenges-Perspectives in the Environment of Autonomous Province of Vojvodina", 2011. Additional reports are available on the website of the Secretariat, Sector for Monitoring and Environmental Information System.
63. **The Faculty of Agriculture**, University of Belgrade, Chair for Soil Management has 4 departments, among which is the Department for Soil Science and Geology. This department has developed cooperation with SEPA and is an integral part of the EEA network. Department research is focused on investigating soil properties, harmonization of national classification with WRB Soil Classification System, analysis of the mineral content in different systematic soil categories and application of GIS technology in developing soil database to be used in drafting pedological maps.
64. **Institute for Chemistry, Technology and Metallurgy** (IHTM) is the accredited state research institute. Its main activities are fundamental and applied multidisciplinary scientific research and development of technological processes. The Institute's activities are conducted in seven specialized scientific and research centers, among which: Center for Chemistry in charge of environmental chemistry; Centre for Ecology and Technoeconomics responsible for market engineering and development management in the process industries, technological processes design, and laboratory research and testing; and Center for Remediation focused on bioremediation of soil contaminated with oil, petroleum products and other organic pollutants. The Study of physicochemical and biochemical processes in living environment that have impacts

on pollution and the investigation of possibilities for minimizing the consequences (2011-2015) conducted by the IHTM serves as a solid basis for future soil protection activities.

65. **The Institute for Field and Vegetable Crops in Novi Sad (FVC Institute Novi Sad)** and its Laboratory for Soil and Agro-ecology is an accredited body for analyzing physical and chemical properties of soil, testing of hazardous and harmful substances in soil, testing the physical and chemical properties of pesticides and pesticide residues in soil, water, plant material and food, among other. The laboratory has means and capacities to respond to required testing and analysis. Their experience in the process of accreditation can also be valuable for building the capacities of the national laboratory in SEPA.

66. **The Soil Institute in Belgrade** is also an accredited laboratory for sampling and chemical, physical and microbiological testing of soil. The Institute consists of five departments: Soil Science, Agro chemistry and Horticulture, Land Reclamation and Erosion, Microbiology, and Land Remediation. Currently, the Institute is conducting a project on investigation of soil quality and irrigation water impact for the efficient production of agricultural crops and environmental protection.

67. **Civil society organizations (CSOs):** There are many environmental CSOs active in Serbia, with a few focused on the sustainable use of natural resources and conservation. Four Aarhus Centers were established in the past years: in Subotica, Novi Sad, Kragujevac and Nis, each covering a different region of Serbia in implementing the Aarhus Convention and establishing a liaison between local government and citizens for the purpose of better provision of information and education of the public as well as their inclusion into decision making processes. The Standing Conference of Cities and Municipalities supports the development of local government, facilitates communication and information flows between national and local level, and also represents the interests of local authorities by lobbying with the central government in the process of defining strategic directions and adoption of the regulations of importance for local government.

68. **Multi-lateral and bilateral donors and international organizations**, including World Bank, UNDP, GIZ, Czech Development Cooperation, Italian Ministry of Environment and Austrian Environment Agency, are also relevant stakeholders. They provide policy frameworks, networking, information exchange and financial and technical support to programs and projects dealing with land degradation. GIZ project on “Rural Development: Effective Land Management” is targeting: 1) Land Management in Urban Areas, and 2) Rural Land Management, investigating into land abandonment and consolidation in 7 pilot municipalities. Furthermore, UNDP implemented a regional project on “Contaminated sites management in the Western Balkans”.

69. **UNEP**, through UNEP Vienna Programme Office, being the leading voice for the environment in the Balkan region for the past 10 years, also brings a wealth of applied experience to this project. UNEP, thought the ENVSEC initiative has implemented numerous projects relating to assessment and management of risks from hazardous activities, management of natural resources, adaptation to impacts of climate change and regional cooperation. In the area of land use, UNEP has done a number of activities including identifying land-degraded hotspots, production of large-scale maps, public awareness raising campaigns and guidelines on remediation of hot-spots shown in the most recent publication “A Short Introduction to Environmental Remediation for Mining Legacies”. The current project builds on these activities to

scale up the approach to polluted areas from different sources but also to other major causes of land degradation. In addition, UNEP is currently supporting all the countries in the region comply with national and global commitments to UNCCD, UNCBD and UNFCCC through a number of different national projects. Furthermore, this project will complement the existing UNEP repository centers such as GRID Arendal and UNEP live, and that way contribute global perspective, knowledge development and experiences sharing.

70. Other stakeholders include **public and private companies** involved in production sectors that affect land use or cause pollution, as well as those sectors that can benefit from improved land management. Further, the companies responsible for implementing rehabilitation and remediation due to land degradation, according to the environmental legislation. **The Chamber of Commerce and Industry of Serbia (CCI)** is an important stakeholder to represent the interests of private sector relevant for the Project, and to offer opportunities for private sector involvement and capacity building. The role of the CCI is in ensuring a dialogue between economic sectors, professional associations of industries and the public sector. Beside the main headquarters in Belgrade, CCI has 19 regional offices in various parts of Serbia, including international representation in several European capitals, and Moscow. CCI has very strong communication channels developed in its division dealing with industry, agriculture and services and entrepreneurship.
71. **Local communities:** The municipalities and local population are important stakeholders, especially in the areas suffering from degradation of land, and loss of soil due to natural or anthropologic influences.
72. In conclusion, public awareness for land degradation issues, especially for soil loss and soil quality, is relatively low among general population and land users. There is a lack of awareness on the tools for SLM, and opportunities arising from implementing such approaches. Consequently, land degradation is, so far, relatively low on the policy agenda in Serbia. At the same time, the classical land use sectors of agriculture, forestry and fishing are employing about a fifth of the Serbian population (20.8% of all employed women and 22.8% of all employed men, compared to an EU average of 3.9 and 5.4% respectively). This demonstrates the strong agricultural orientation of Serbia and highlights the need to include gender sensitive assessments to land use and related socio-economic studies for ILM (see also activity 1.1.2.1 of this proposal)
73. **Table 2:** Identified Main Stakeholders for Land Degradation in Serbia

Main stakeholders	Scope of Work on Land Degradation Issues
Governmental institutions/ agencies	
MoAEP	▪ Responsible for overall environmental management in the country, protection and participation in response in case of a large chemical accident, inspection surveillance, implementation of the Aarhus convention, ▪ Acts as a focal point for various multi-lateral environmental

	agreements (e.g. UNCCD Convention).
SEPA	▪ Development of the Inventory and the cadaster; ▪ Soil sampling and sample preparation within the National Laboratory; ▪ Environmental monitoring, data collection and management, and preparation of national reports on the state of the environment and its components, among which the State of Soil Report. ▪ Acting as a national reference institution for environmental reporting towards EIONET, and subsequently the JRC-IES on Soil Data and Information System.
PSUCE Vojvodina	▪ Environmental monitoring, maintaining environmental information system, protection and enhancement of natural goods and biological diversity, cleaner production, renewable energy and sustainable development, environmental surveillance and control.
MoME	▪ Responsible for overall mining and geological research management in the country.
Research institutes/universities	
Faculty of Agriculture, Department of Soil Science and Geology	▪ Investigation of soil properties, harmonization of national classification with WRB Soil Classification System, analysis of the mineral content in different systematic soil categories and application of GIS technology in developing soil database to be used in drafting pedological maps.
IHTM	▪ Fundamental and applied multidisciplinary scientific research and development of technological processes.
FVC Institute Novi Sad	▪ Accredited for analyzing physical and chemical properties of soil, testing of hazardous and harmful substances in soil, testing the physical and chemical properties of pesticides and pesticide residues in soil, water, plant material and food, among other.
Soil Institute in Belgrade	▪ Accredited laboratory for sampling and chemical, physical and microbiological testing of soil.
CSOs	
Aarhus Centers	▪ Implementation of the Aarhus Convention and establishment of a liaison between local government and citizens for the purpose

	of better provision of information and education of the public, as well as their inclusion into decision-making process.
Standing Conference of Cities and Municipalities	▪ Supports the development of local government, facilitates communication and information flows between national and local level, but also represents the interests of local authorities by lobbying with the central government in the process of defining strategic directions and adoption of the regulations of importance for local government.
Private sector	
CCI	▪ Supports development and represents the interests of private sector, and important for maintaining a dialogue between economic sectors, professional associations of industries and the public sector.

2.6. Baseline analysis and gaps

74. The previous chapters provided a rationale for understanding main gaps and challenges for land use and SLM. The main gaps can be summarized as follows:

- Inadequate, fragmented and overlapping activities for the identification of soil pollution and systematic monitoring of the quality of soil;
- Lack of human, and technical capacities to fully implement and maintain the cadaster of hotspots, which serves as a basis for determining remediation measures and legal responsibility for remediation;
- Lack of coherence and harmonization of land use and land protection activities among different stakeholders and different institutions in charge of land issues vertically and horizontally;
- Weak systematic communication, cooperation, and coordination between the institutions dealing with land issues;
- Lack of knowledge and strategic guidance for local levels on SLM (e.g., integrated land management planning, cross-sectorial cooperation for SLM, transposition of national strategies and action plans into local action);
- Absence of funding mechanisms for environmental protection, and land degradation in particular.

75. During the organized consultations for the preparation of the PIF as well as for the full project document, the key stakeholders provided their comments and suggestions to identify the gaps and develop the project baseline. The project initiative to systematically address land degradation and boost the enabling environment for future development of SLM in Serbia is the first of its kind and was very well received by the stakeholders. The project received positive and encouraging messages about its role to scale up the issue of SLM in the political and institutional priorities. The project baseline evaluates the stipulated strategic goals pertaining to the land management and showcases the implemented activities, including the existing gaps, which need to be addressed.

76. The stakeholders provided valuable input regarding recent or ongoing initiatives that can be further scaled up or that can complement the project:

77. In 2011, the Faculty of Agriculture prepared a draft methodology for systematic soil monitoring (a comprehensive document of about 200 pages, financed by MoAEP). Based on this methodology, the main objective of the monitoring include identification of status/trends of land, agricultural areas, forests or ecosystems as a result of anthropogenic impacts, while developing an approach that will support solving emerging issues, including data storage and exchange of data. This methodology is being tested in several pilot projects, and was revised accordingly in the beginning of 2015..

78. In 2013, the monitoring of land quality at the local level was performed in individual cities and municipalities. According to the monitoring program of each local authority that typically includes zones of special local interest (excluding industry), the state of soil was investigated in urban areas of eight cities (Belgrade, Kragujevac, Krusevac, Novi Sad, Subotica, Pozarevac, Smederevo and Novi Pazar) and in the vicinity of landfills on the territory of Subotica, Zrenjanin and Ruma. . The Environmental Protection Agency initiated examination of the state of soil in the vicinity of industrial complexes in 2012 and within protected areas in 2013[13]. These activities present a solid basis for scaling up the monitoring of land and may give guidelines for determining environmental hot-spots, although they were not intended to provide information to the inventory at first place.

79. The Institute of Soil reported having increased workload due to the recent flooding in Serbia, when the regular control measures have been implemented. In the period July – August 2014, 40,000 results were obtained from the performed soil sampling by 4 field teams. Monitoring and control of quality of the land has improved in the last years, but the research needs to continue the same path.

80. On the other hand, environmental reporting showed continued improvements. In 2013, 225 out of 255 operators with reporting obligations reported their data to the register of pollutant release and transfer. However, according to the Serbian Progress Report to the European Commission from October 2014, additional efforts are required to improve reporting from the agricultural and mining operators.[14]

81. Apart from the mentioned initiatives, there are several other implemented activities that contribute to the project baseline. These projects are mainly related to enhanced land monitoring and reduced land pressures by industry/ mining activities in Serbia.

82. Some of the outcomes of the implemented activities include:

- Field-scale pilot tests of contaminated sediment treatment and pilot introduction of appropriate technological methods for effective remediation of Backi Canal;
- Identification of the environmental risks and hot spots in the industrial and urban areas of Pancevo Canal and the promotion of the best available technologies in reducing the consumption of the natural and energy resources, in protecting the water and air quality, in managing the urban and hazardous wastes;
- Remediation of the effects of mining activities affecting the environment in the Municipality of Sjenica;

[13] Soil State Report 2013 (draft), SEPA
[14] Serbia Progress Report, EC, October 2014

- Remediation of high priority hot spot – Veliki Backi Canal and a comparative analysis of techno-economic parameters for three selected locations for disposal and treatment of sludge from the Veliki Backi Canal;
- Overview of potential remediation measures adapted to the specific circumstances of the Bor mine surface and groundwater site and strengthening local capacities to perform such assessments and carry out remediation activities independently;
- Methodology framework and strategies for identification, investigation, assessment, evaluation, prioritization and remediation of sites contaminated by hazardous waste and the long-term storage of hazardous waste.

83. Aside from abovementioned activities and outcomes, there are several projects that are currently undergoing (see projects' details in section 2.7 below). The expected results of these projects include:

- Overview of the existing environmental legislation of Albania, Bosnia and Herzegovina, Kosovo, Montenegro, Serbia and The FYR of Macedonia and their compliance with related EU environmental acquis, with the special emphasis on industrial and mining related acquis;
- Inventory of the industrial and mining sites in the Western Balkan countries in breach of specific EU environmental acquis, as well as recommendations for their remediation;
- Development of geochemical atlas of the Republic of Serbia;
- Cadaster of mining waste material (toxic & inert, active & legacy mining sites);
- Cadaster of landslides and unstable slopes on the territory of the Republic of Serbia;
- Development of the geo-information system, which should support better control of use and a more efficient management of agricultural land, better planning and implementation of rural land policy.

84. Conclusively, Serbia initiated several activities that complement land management goals addressed in strategic national programs. However, the implementation is rather impeded with unclear responsibilities and leadership and the country lacks a supporting regulating framework to integrate various sectors that compete for land, such as agriculture or industry/mining into an integrated land management approach that could also ultimately lead to improved financing of the land management initiatives.

2.7. Linkages with other GEF and non-GEF interventions

85. Serbia has so far implemented a number of projects as a response to state laws and regulations. Some of these projects' outputs and results can serve as a beneficial platform for this GEF project. All the projects mentioned in this chapter are directly or directly included in project co-financing, through the contributions from MoAEP, SEPA and MoME.

86. **Projects implemented in cooperation with MoAEP:**

87. *Transfer of Czech experience - Contaminated sites management in Western Balkan (UNDP, 2014):* The project provides overview of the existing environmental legislation of Albania, Bosnia and Herzegovina, Kosovo, Montenegro, Serbia and The FYR of Macedonia and their compliance with related EU environmental acquis, with special emphasis on industrial and mining related acquis (e.g. mining directive, water

directive, convention on industrial accident in trans-boundary context, liability directive, etc.).

88. *Updating of National Implementation Plan for the implementation of the Stockholm Convention (UNIDO, ongoing):* Updating the existing inventories of POP chemicals and developing new inventories based on the amended Annexes of the Convention and introducing 10 new POPs. The project also includes identification of national capacities for managing the new POPs and undertaking priority measures to reduce the risk and exposure to new POPs. SEPA is responsible for POPs monitoring in environmental media, including soil.

89. *Feasibility study for the remediation of the Bor mine surface and groundwater (UNDP, completed in 2011):* The project prepared a feasibility study for selected sites in the Bor mine complex that both serve to determine requirements for environmental remediation of pollution sources to water and also introduce a socio-political perspective. It was intended to achieve remediation recommendations and study outcomes that introduce a community participatory approach to remediation of environmental hot spots that in the absence of remediation measures could constitute a trigger for national or transnational tensions.

90. *Austro-Serbian Twinning "Strengthening Institutional Capacity in Hazardous Waste Management", Component 4-"Prioritization of Hot Spots" (Environment Agency Austria – Umweltbundesamt, 2013):* A framework for methodology for identification of contaminated sites and prioritization was developed to serve as basis for the following activities and had included strategies for identification, investigation, assessment, evaluation, prioritization and remediation of sites contaminated by hazardous waste respectively the long-term storage of hazardous waste. Guidelines on programs for identification, preliminary risk assessment and prioritization of sites contaminated by hazardous waste had also been developed. A preliminary risk assessment for two sites potentially contaminated by hazardous waste was carried out according to the agreed guidelines. The risk assessment included a proposal for remediation measures to be carried out, including a monitoring program.

91. *Implementation of the Pancevo Action Program - Clean-Up of the Pancevo Canal (Italian Ministry for the Environment Land and Sea, 2007):* On the basis of the conclusion of the activities undertaken by the UNEP Balkan Task Force, it was identified that the South Zone Industrial Complex of Pancevo was one of the most critical environmental hot spots in Serbia, and on the basis of the "Environmental monitoring and sustainable requalification of selected industrial areas in the Republic of Serbia" undertaken by the Ministry for the Environment and Territory of the Republic of Italy, in October 2004 the Ministry of Science and Environmental Protection of the Republic of Serbia and the Ministry for the Environment and Territory of the Republic of Italy launched the "Pancevo Action Program", financed by the Italian Ministry of Environment, Land and Sea.

92. **Projects of the SEPA relevant for this project include:**

93. *LUKAS – Land use and land cover survey and soil sampling in the Republic of Serbia" (ongoing)*

94. *Assistance to the Environmental Protection Agency in establishing and maintenance of environmental integral monitoring system", (IPA 2012-ongoing)*

95. The operational work and development of the National Laboratory, (2007 – 2015)

96. *Improved system for assessment of water pollution from diffuse sources in Serbia (cooperation agreement between the MoAEP, SEPA and the Agency for Environmental Protection of Sweden, 2013)*
97. *Center for Environmental Management (supported by the Kingdom of Norway, 2011 – 2013)*
98. *Information system of the Environmental Protection Agency - Components: packaging and packaging waste, waste management, emission of pollutants, (2011 – 2012)*
99. *Assistance to Serbian Environment Protection Agency as National focal point institution for cooperation with European Environment Agency in strengthening the EIONET in Serbia, (IPA, 2008)*
100. *Monitoring of waste streams in the Republic of Serbia (Kingdom of Norway)*
101. *Establishing the inventory of contaminated sites, (financed from the SEPA budget)*
102. *Capacity building for implementation of the monitoring of water, sediment and soil (financed from the SEPA budget)*
103. *Projects related to Veliki Backi Canal (the most water polluted canal in Serbia:*
104. *Strengthening capacities in the Western Balkans countries to mitigate environmental problems through remediation of high priority hot spots – Remediation of Veliki Backi Canal (UNDP and NIVA, 2009): As a part of regional program this project supported the efforts of Serbia to resolve one of its key environmental hot spots – a part of Veliki Backi Canal that runs through in Autonomous province of Vojvodina. This part of the canal has been characterized as the worst polluted waterway in Europe. Through implementation of the project activities, main collector that serves as a recipient of pre-treated industrial and communal wastewaters has been prepared for construction. At the same time project supported creation of network for supply of professional services in the area of environmental protection. Following the assessment of policy coordination mechanisms in the country, project supported three pilot initiatives, which included broad spectra of stakeholders, as showcases of successful policy integration.*
105. *Clean up and Revitalization of Veliki Backi Canal in the City of Vrbas (DEKONTA, 2004): The identification of the environmental problem through site investigation (soil and surface water sampling, laboratory analyses, sediment distribution measurements) had been performed to discover the level and extent of Veliki Backi Canal contamination (investigation of the distribution of toxic pollutants in the sediment and determination of main sources of canal contamination), which enabled later environmental and human health risk assessment of the present contamination. Pilot installation of effective and cost-saving technology for municipal wastewater treatment had also been done (i.e. reed bed wastewater treatment plant).*
106. *Comparative analysis of techno-economic parameters for three selected locations for disposal and treatment of sludge from the Veliki Backi Canal (Institute Jaroslav Cerni, Belgrade, 2012).*
107. **Projects implemented with support of MoME:**
108. *Developing a cadaster of mining waste (IPA, contract forecast notice in 2014): The goal of this project is to improve the awareness and level of knowledge regarding mining waste management as well as development of the cadaster of mining waste, which includes risk assessment, categorization and classification of mining waste facilities.*

109. Development of Geochemical Atlas of Serbia (Geological Survey of Serbia, ongoing).

110. Developing a Cadaster of landslides and unstable slopes on the territory of the Republic of Serbia: design of a unique methodology for landslides risk assessment in accordance with the INSPIRE Directive.

111. Apart from the above mentioned projects that would be beneficial for establishing a good platform, other implemented projects whose results and outcomes relate to this project include:

112. Remediation of the effects of mining activities affecting the environment, Municipality of Sjenica (Czech Development Cooperation in Republic of Serbia, 2007)

113. Rural Development: Effective Land Management (funded by the EU and the German Government, ongoing)

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

114. The issues described in more detail under 2.1 represent the threats to land and soil quality and preservation, and may be categorized into: (i) overutilization of the land (uncontrolled and inadequate land use) with respect to its bio-physical capacity, (ii) soil loss and damage due to industrial, mining, and power-producing activities, due to unsustainable exploitation of natural resources (unsustainable production practices and systems), and (iii) land pollution and contamination - different forms of soil pollution (excessive use of agrochemicals, heavy metals, industrial pollution, etc.). It has been described that the root causes of threats to land are a lack of public awareness, information availability and flow, as well as socio-economic challenges such us unemployment and poverty.

115. Serbia lacks a comprehensive and effective policy framework dealing with land degradation. Conservation needs are not always mainstreamed into wider policy frameworks, and SLM is not considered in the local level environmental agendas. There is a gap between the policies and priorities adopted at national level and what is essentially operational at provincial and local levels, which remains unresolved due to the weaknesses in the existing institutional framework of Serbia that affect effective environmental management. Many national and local government agencies in Serbia responsible for environmental protection, at both national and local levels, lack adequate human, technical and financial resources. Most of the key institutions (such as SEPA or Environmental Protection Inspection Authority) are understaffed. The operational capacities of these institutions are also limited in infrastructure and budget. The responsible staff and government officials on local and regional level are mostly untrained and unequipped in the field of ILM and sustainable land use. Furthermore, the efforts of different responsible institutions remain inadequately coordinated.

116. The ILM gaps in Serbia are summarized as follows:

- Inadequate, fragmented and overlapping tools for the identification of soil pollution, inventory and systematic monitoring of the quality of land;
- Lack of human, and technical capacities to fully implement and maintain the cadaster of hotspots, which serves as a basis for determining remediation measures and legal responsibility for remediation;

- Lack of coherence and harmonization of land use and land protection activities among different stakeholders and different institutions in charge of land issues vertically and horizontally;
- Weak systematic communication, cooperation, and coordination between the institutions dealing with land issues;
- Lack of knowledge and strategic guidance for local levels on SLM;
- Absence of funding mechanisms for environmental protection, and land degradation in particular.

117. The project intervention logic is based on a holistic approach that addresses identified gaps and consolidates existing land degradation capacities and existing interventions at national and local level. The project **"Enhanced Cross-Sectoral Land Management through Land Use Pressure Reduction and Planning"** (LD Serbia Project) aims to provide a strategic enabling framework for all stakeholders enabling them to further build capacity and jointly tackle key policy issues, and implement concrete measures that will directly decrease land degradation, improve the status of currently degraded land and mainstream sustainable land management practices into operation of main sectors causing land degradation. By promoting SLM practices the Project will help to reduce main threats to land and soil in Serbia, i.e. soil loss and damage due to industrial, mining, and power- producing activities and different forms of soil pollution (excessive use of agrochemicals, heavy metals, industrial pollution, etc.), and increase soil productivity, thereby generating environmental and social benefits.

118. The project will build upon a baseline with a broad range of activities, as described in Section 2.6. The project's intervention strategy was developed to best complement and scale up the baseline, particularly the draft Methodology for soil monitoring (2015); the land quality monitoring (8 municipalities in 2013); the increasing soil sampling; and the ongoing land use and land cover survey (LUCAS project in which SEPA participates) and the mining waste cadaster (MoME).

119. While improving the state of land in Serbia, the Project will contribute to maintaining global environmental benefits by strengthening sound practices for land management and thereby reducing pressures to natural ecosystems, resulting in improved biodiversity conservation and climate change mitigation.

120. To achieve its objective of "**developing the instruments and mechanisms for integrated land use management, remediation, and capacity development to reduce pressures on land as a natural resource from competing land uses in wider landscape and to support reversal of land degradation"** the Project will tackle the identified gaps through the implementation of the following three components: (1) Enabling institutional, policy and scientific environment for long-term integrated land use management; (2) Landscape-level management of natural resources in Serbia; (3) Capacity building, awareness raising and sharing learned lessons with main stakeholders and wider public based on sustainable monitoring system.

121. It is important to note that without the project intervention, land resources in Serbia would continue to deteriorate thus leading to more complex and less manageable problems for future generations in Serbia, most likely with non-eversible effects and greater financial implications (please see the chapter 3.7. for more details on the status quo and alternative scenario offered by the Project).

122. The overall intervention strategy of the Project is summarized along its three main components, and the respective outcomes and outputs presented in Table 3 below.

Table 3 Project Intervention Strategy

Project Objective: Development of instruments and mechanisms for integrated land use management, remediation, and capacity development to reduce pressures on land as a natural resource from competing land uses in the wider landscape and to support reversal of land degradation		
Project Component	**Expected Outcomes**	**Expected Outputs**
1 Enabling institutional, policy and scientific environment for long-term integrated land use management (ILM)	1.1 ILM tools available to land users for an increased understanding of land degradation and remediation measures, based on identified environmental/ industrial hotspots and environmental and socio-economic risks	1.1.1. Pollution sources and land pressures from production sectors (spatial distribution, soil quality, pollutants) are identified and mapped 1.1.2. Environmental, social and economic risks of the production sectors related to land use patterns and soil quality are assessed and ILM tools developed on this basis
	1.2 Mechanisms and responsibilities agreed upon for the implementation and financing of remediation of identified priority sites.	1.2.1. Remediation priorities are established in accordance with Regulation 22/2010 and stakeholder consultations 1.2.2. Cadaster of environmental/industrial hotspots in Serbia with GPS database developed
	1.3 Developed/ enhanced policy framework for ILM in Serbia with the application of international policy recommendations such as the UNCCD process	1.3.1 An *Integrated Land Planning and Management Framework (ILMF)* for Serbia developed in accordance with the requirements of SSNRM and its implementation mechanisms
2 Landscape-level management of natural resources in Serbia	2.1. Principles for management of natural resources are agreed upon and allow multipurpose use of resources	2.1.1. A methodology compiled for implementation of ILMF practice at the local level 2.1.2. A package of trade-off measures developed and tested at community and local levels
3. Capacity building,	3.1. Strengthened capacities of major stakeholders for sustainable practices in	3.1.1 Support to the National Laboratory within SEPA for soil

awareness raising and sharing learned lessons with main stakeholders and wider public based on sustainable monitoring system	sectors competing for land area and natural resources	sampling and quality analysis is provided 3.1.2 Baseline information and methods established, and capacity strengthened for a monitoring and reporting system on soil quality and land degradation 3.1.3. Communication and outreach conducted in different regions of Serbia 3.1.4 Interactive hotspot map developed and made available to the public
	3.2. Ensured broad and high level commitment to expanding and replicating measures for integrated SLM; ensured public support for remediation and SLM of environmental/ industrial hotspots	3.2.1 A conference aimed at presenting best practices in integrated land management in Serbia and the region is organized 3.2.2. A platform for monitoring of impact on land degradation (physical, environmental, social and economic impacts) is created

3.1. Project rationale, policy conformity and expected global environmental benefits

123. The Project objective and activities are in line with the objectives set by the UNCCD 10-Year Strategy (2008 – 2018) and its main objective: “to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability". The Project will contribute to the achievement of the Strategic Objectives[15] (SO) of the 10-Year Strategy, particularly by contributing to: (SO1) to improve the living conditions of affected populations, and (SO2) to improve the condition of affected ecosystems.

124. The Project will contribute to the achievement of the Strategic Goal B of the UNCBD Strategic Plan for Biodiversity 2011-2020[16,] as well to reducing direct pressures on biodiversity and promote sustainable use, under the Aichi Biodiversity Targets 7 and Target 8.

125. GEF is the main financial mechanism for the implementation of UNCCD, and with a mandate to address land degradation. The Project is fully compliant with GEF Land Degradation Objective 3, within the Land Degradation Focal Area of GEF, and its key outcomes[17.]

[15] http://www.unccd.int/Lists/OfficialDocuments/cop8/16add1eng.pdf
[16] http://www.cbd.int/sp/targets/
[17] http://www.thegef.org/gef/sites/thegef.org/files/publication/English%20-%20Strategies-may2012-optimized.pdf

126. By promoting SLM practices the Project will help to reduce main threats to land and soil in Serbia, i.e. soil loss and damage due to industrial, mining, and power-producing activities and different forms of soil pollution (excessive use of agrochemicals, heavy metals, industrial pollution, etc.), and increase soil productivity, thereby generating environmental and social benefits.

127. The Project will contribute to maintaining global environmental benefits by strengthening sound practices for land management and thereby reducing pressures to natural ecosystems, resulting in improved biodiversity conservation and climate change mitigation.

128. The Project will lead to the remediation of degraded lands by Serbian authorities and the public and private sector in the long run, which will in return create environmental, social and economic benefits for local communities and threatened ecosystems. Furthermore, it will contribute to an overall increase in fertility and increased soil productivity, which is a major economic driver in Serbia. This is an additional social benefit to the rural population in Serbia, which comprises almost half of Serbia's population (48%), which is economically marginalized.

129. Health risks arising from soil pollution, and consequently the pollution of air and water will be reduced. Such benefits are especially important for women, who are exposed to pollution-related health risks more than men, since they still have a dominant role in the agricultural sector and rural livelihoods based on the use of natural resources. Such impact is also important on the regional level due to migration of pollutants through air and water to neighboring countries.

130. The Project will positively influence the access to environmental information and increase participation of all relevant stakeholders in decision making for SLM.

3.2. Project goal and objective

131. The Project objective is the **development of instruments and mechanisms for integrated land use management, remediation, and capacity development to reduce pressures on land as a natural resource from competing land uses in the wider landscape and to support reversal of land degradation**.

132. To achieve this objective, the Project will support activities through the implementation of the following three components: (1) Enabling institutional, policy and scientific environment for long-term integrated land use management; (2) Landscape-level management of natural resources in Serbia; (3) Capacity building, awareness raising and sharing learned lessons with main stakeholders and wider public based on sustainable monitoring system.

3.3. Project components and expected results

133. **Component 1. Enabling institutional, policy and scientific environment for long-term integrated land use management:** This component is designed to reach the following outcomes:
1: ILM tools available to land users for an increased understanding of land degradation and remediation measures, based on identified environmental/ industrial hotspots and environmental and socio-economic risks
2: Mechanisms and responsibilities agreed upon for the implementation and financing of remediation of identified priority sites;
3: Developed/ enhanced policy framework for ILM in Serbia with the application of international policy recommendations such as the UNCCD process.

134. The Component 1 is designed to deal with the identified gaps: (i) inadequate, fragmented and overlapping tools for the identification of soil pollution, inventory and systematic monitoring of the quality of land; and (ii) lack of human, and technical capacities to fully implement and maintain the cadaster of hotspots, which serves as a basis for determining remediation measures and legal responsibility for remediation.

135. *Target groups:* This component will be implemented with active involvement of main project partners, namely SEPA, MoAEP and MoME, with the support of CCI as a private sector representative, and other project stakeholders. The project will address the following key issues:

136. *(i) Development of ILM tools:* In order to identify pollution sources and land pressures from production sectors, (including spatial distribution of pollution, soil quality indicators and type of pollutants) the Project will support collection of initial data, and preparation of an assessment of industrial, mining, and power facilities that have the potential to contaminate land or cause other forms of land degradation on the territory of Serbia. The assessment will identify environmental/industrial hotspots based on national regulations and guidelines[18] dealing with the matter. The Project will carry out field-testing and soil sampling on at least 30 identified locations identified as priority hotspots.

137. In addition to the identification of pollution sources, the Project will consider associated environmental, social and economic risks arising from production sectors (e.g., mining, industry, energy and agriculture) and current land use patterns, while focusing on the locations of key identified hotspots and affected stakeholders. The methodology for assessment of environmental risks will be developed as part of this activity. It is expected that public institutions in Serbia will continue using this methodology in accordance with the existing legal provisions. The results of the environmental, and socio-economic risk assessments will be published and made available to the public and all stakeholders.

138. Based on results of the assessment of industrial, mining and power facilities and the assessment of environmental, and socio-economic risks, the Project will develop best practice tools and guidelines for ILM in Serbia.

139. *(ii) Identification of priority sites for remediation and remediation framework:* Remediation priorities will be identified in accordance with the Regulation 20/2010, and based on the outcome of stakeholder consultations. The list of hotspots and identified priorities for remediation will be presented to key stakeholders in Serbia, and updated based on the feedback from stakeholder consultations. A site hazard assessment (based on the results from the previous assessments) and a classification of sites will be prepared for consideration and official adoption by the Serbian Institutions (Government and Parliament).

140. A cadaster of environmental/industrial hotspots, together with the GPS database containing relevant attributes from collected data, will be prepared in accordance with the provisions of SSNRM and managed by SEPA.

141. *(iii) Development of policy framework for ILM in Serbia:* In order to enhance the existing policy framework, the Project will support the preparation of an Integrated Land Planning and Management Framework in accordance with the requirements of SSNRM. Building of such framework includes drafting the National Land Action Plan on ILM in consultation with the institutions responsible for other relevant sectors for

[18] Government Decision on Program for systematic monitoring of soil quality

land management, such as water management, energy sector, agriculture, forestry, transportation, as well as other institutions identified as important for preparing an integrated plan at the national level. This strategic document will be accompanied by a well-structured financing framework, with identified sources of funding and commitments for the implementation. It will be submitted to the Government of Serbia for adoption.

142. In order to enhance the policy framework for land protection in Serbia, the Project will support the establishment of a baseline for soil monitoring, including a baseline on concentration of heavy metals in soils. It will build capacities for data collection, monitoring and reporting within SEPA, in accordance with national and international standards. It is expected that SEPA will become the national focal point for data collection on soils in Serbia. SEPA will integrate all relevant soil and land information that are currently being collected by various institutions, into one information and reporting mechanism on condition of soil and land.

143. **Component 2. Landscape-level management of natural resources in Serbia:** Through this component the expected outcome will be: Principles for management of natural resources are agreed upon and allow multipurpose use of resources. This component will support the introduction of ecosystem management principles in natural resource management practices, to allow multipurpose use of resources. As this Project component is mainly focused on supporting local authorities and communities to adopt ILM practices, the Project will develop a methodology for the implementation of ILMF practices at local level. This includes development of a methodology and guidelines on land use management practices. Local authorities will be encouraged to mainstream recommendations from the guidelines into existing planning processes (e.g., spatial planning, local development strategies etc.). The Project will also develop a package of trade-off measures for land use that will be tested at the community level. For that purpose, two pilot municipalities will be selected in the Project inception phase. The selection of municipalities will depend on consultations with the main Project partners and the interest of individual municipalities as well as their possible additional co-financing for enhanced land use planning and trade-off measures package.

144. The Component 2 addresses identified gaps for ILM at the local level: (i) lack of knowledge and strategic guidance for local levels on SLM; and (ii) lack of coherence and harmonization of land use and land protection activities among different stakeholders and different institutions in charge of land issues vertically and horizontally.

145. *Target groups:* The project will be implemented in cooperation with targeted municipalities, private sector and local NGOs, with the support from the scientific community, SEPA, CCI and other stakeholders.

146. **Component 3. Capacity building, awareness raising and sharing learned lessons with main stakeholders and wider public based on sustainable monitoring system:** This component will enable achievement of the following outcomes:

1: Strengthened capacities of major stakeholders for sustainable practices in sectors competing for land area and natural resources;

2: Ensured broad and high level commitment to expanding and replicating measures for integrated SLM; ensured public support for remediation and SLM of environmental/ industrial hotspots.

147. This component will directly contribute to mitigating the barriers in obtaining support from major stakeholders, awareness and public support for land degradation issues. Hence, it will deal with the identified gaps in communication, access to information, and adequate scientific information to deal with the challenges of land degradation and ILM.

148. *Target groups:* The component targets the stakeholders on both, national and local level. It will be implemented with particular support of the scientific community, SEPA, as well as NGOs that can directly contribute to proactive stakeholder engagement and awareness raising. The component 3 will address the following issues:

149. *(i) Strengthening capacities of major stakeholders for sustainable practices in sectors competing for land area and natural resources:* The Project will support capacity building and certification of the National Laboratory for soil sampling and analysis of samples within SEPA. In order to accomplish that, a manual on the certification process and standards will be prepared. The National Laboratory will receive capacity building and training to introduce new analytical methods for soil quality monitoring. The staff will be assisted and trained during the certification process. Through project awareness raising activities, the private and public sector stakeholders will be informed about the benefits and opportunities to utilize capacities of the National Laboratory in order to obtain relevant and data from soil analysis, and apply them to their productive or remediation activities.

150. In addition to capacity building at the national level, the Project will implement a set of outreach measures in different regions in Serbia. The outreach will be comprised of meetings and other awareness raising activities with local community representatives, private sector representatives, and local and regional NGOs dealing with land degradation and other environment issues linked with land degradation. Thematic workshops and seminars on land degradation will be organized and focused on integrated planning, ecosystem management, and other relevant issues identified throughout stakeholder consultations. In order to build on the efforts from the Component 2 to develop tools and mechanisms for ILM and ecosystem management on local levels, training will be provided to local municipalities on integrating ILMF into local development and conservation agendas.

151. *(ii) Capturing lessons in multi-media format, with interactive tools for stakeholder engagement and monitoring:* In order to use the outputs and results of the Project for reaching a maximum number of stakeholders, and to increase the use of developed project materials for awareness raising, the Project will use multi-media materials and other collected information and materials to prepare a final publication meant for the wider public. Such materials will be also be used during presentation and promotion events supported by the Project, or in synergy with project partners or other similar initiatives. An interactive map with hotspots will be prepared and handed over to SEPA for display on its website and continuous updating. The website will also integrate additional tools for data collection and communication with the wider set of stakeholders through this online platform.

152. *(iii) Ensuring broad and high level commitment to expanding and replicating measures for integrated SLM:* Together with project partners, the Project will organize a conference aimed at presenting best practices for integrated land management in Serbia and the Western Balkans. The conference is meant to attract policy makers and scientists from Serbia and the region, as well as to attract international players who can support sharing of knowledge and practices for SLM, and to link land

degradation with other relevant environmental problems, such as climate change. As 2015 is being observed as the Year of Soils, the Project will use the opportunity to raise awareness on the importance of soil by organizing a celebration event and implementing other promotion activities in 2015.

153. As part of the support for SEPA capacity building within this component the Project will support initial operations of SEPA in its role of data collection focal point for land degradation issues in Serbia. It is expected that the SEPA will be able to publish collected data and monitoring results by the end of the Project, for which the Project will insure initial support and technical support to ensure sustainability of such a role.

3.4. Intervention logic and key assumptions

154. The Project will be conducted at national and local level in order to target the appropriate level of policy making. The Project will build upon and collaborate with on-going and planned national, regional and international initiatives that will support the main objective of the Project.

155. The Project Management and Implementation Unit and Project Steering Committee will play a key role in ensuring that close linkages between the Project and all relevant implemented or initiatives are established and maintained.

156. In order to avoid duplication and to reduce overlap with other initiatives, the Project will be informed by lessons learned from other projects and will complement national plans and programs of the country. It will employ the results and data produced by other projects and aim at close partnerships with similar initiatives, both at national and regional level.

157. During the preparation phase, an in-depth stakeholder analysis was performed. It took into consideration project-relevant initiatives and projects and potential partner organizations and agencies. Stakeholder analysis and engagement in the preparation phase lead to identification of strategic partners for project implementation and co-financing.

3.5. Risk analysis and risk management measures

158. The risks for project implementation are identified and assessed, along with mitigation measures for each identified risk.

Table 4. Identified Risks and Mitigation Measures

Risks	Level of Impact	Mitigation Measures
Lack of attention by National Government institutions because of other priorities (in particular negotiation with EU for integration)	Medium	The project will emphasize the advantages of its intervention not only toward meeting global goals (UNCCD 10Y Strategy) but also the EU acquis[19] and in particular its relevance for Chapter 27 negotiations (on environmental

[19] EU acquis (acquis communautaire) is the accumulated legislation, legal acts, and court decisions which constitute the body of European Union law, and therefore the constantly evolving common rights and obligations that are binding for all EU member states.

		integration)
Administrative challenges emerging during setting up policy platform for integrated land use management coordination between the sectors	Medium	The project will focus on previously identified goals regarding land use management, which are necessary to be implemented according to national strategic documents, such as NEAP.
Lack of valuable information on pollution source	Low	National partners will provide the resources to conduct sampling and testing of soil. The information collected and processed as part of other relevant projects and initiatives in Serbia will be used by the Project.
Lack of opportunities for practical community and local level approach to mitigation and trade-offs	Medium	One of the project activities is to ensure testing of community and local level mitigation and trade-off options.
Poor monitoring of environmental, social and economic impacts after the project implementation	Medium	The Project will strengthen capacities of major stakeholders for environmentally sound practices in sectors competing for land area and natural resources.
Weak public response	Low	Public outreach will be covering all regions in Serbia. Lessons learned will be captured in multi-media format (videos, manuals, guidelines and interactive maps) to ensure interaction and interest of the public.
Environmental/Climate change risks (e.g., extreme weather events – floods, droughts, fire)	Medium	The community trade-offs would be conducted in pilot municipalities, which will include some of the municipalities covered by the Recovery Needs Assessment conducted after May 2014 floods in Serbia. Disaster preparedness and response tools will be integrated in capacity building efforts on the local level.
Resistance of heavy mining and manufacturing industries	Medium	The Project will engage with private sector through awareness raising and capacity building, as well as through an active involvement of CCI as project partner, along with other public agencies to which the private sector is responsible, such as MoAEP.

3.6. Consistency with national priorities or plans

159. The Project is fully compliant and supports the implementation of main environmental legislation in Serbia treating land degradation, such as the Law on Environment, the Law on Agricultural Land/Soil, as well as relevant bylaws and several strategic documents adopted at the national level. This chapter summarizes the main legal requirements for determining the level of soil degradation, remediation measures and monitoring indicators that should be taken into account by Project supported activities.

160. The governing law specific to agricultural land only is the Law on Agricultural Land/Soil[20].

161. The Law on Environment[21] stipulates responsibility for rehabilitation/remediation of degraded environment by the private and legal persons who caused degradation (Article 16). Based on the law, the ministry in charge for environment determines the status and prescribes the measures for remediation for areas of national importance, while these responsibilities are carried out by the local government (cities or municipalities) for the areas of local relevance (Article 43).

162. Soil protection and sustainable use of land is accomplished through systematic monitoring of soil quality, and use of monitoring indicators for assessing the risks from degradation, as well as the implementation of remediation programs to mitigate the impacts of contamination and land degradation, whether they occur naturally or are caused by human activities (Article 22).

163. Parameters for identification of contaminated sites are defined by bylaws enacted in 2010, which is also a basis for future prioritization and detailed investigation of contaminated sites and hotspots in Serbia. The Regulation on systematic monitoring of soil quality[22] prescribes limits for concentration of hazardous substances that could indicate a significant contamination, and the values for remediation in soil and groundwater. According to this regulation, the inventory of contaminated sites is an integral part of EPIS administered by SEPA. Data collection and development of indicators related to soil erosion and organic carbon content in soil is adjusted to the Technical Guidelines for the collection of soil erosion and soil organic carbon data for Europe through EIONET (European Commission, Directorate General JRC, 2010). The Regulation on determining the status of endangered environment and priorities for remediation[23] determines endangered status of environment. Both bylaws will be taken into consideration during project implementation.

164. NEPP was adopted in 2010. It establishes the requirements for best practices for rehabilitation and remediation, and is the basis of environmental policy of Serbia. It also incorporates objectives and principles of EU environmental policy. NEPP's short-term and long-term objectives are defined in accordance with the Sixth Action Program of the EU. The medium-term goals of NEPP are the preparation of a list of locations of endangered environment, and setup of priorities for remediation within 20% of the territory of Serbia until 2020, as well as development of long-term strategy and action plans, in addition to a drought, degradation and desertification

[20] Official Gazette of Republic of Serbia, no.62/06
[21] Official Gazette of Republic of Serbia, no.135/2004, 36/2009, 36/2009 – other Law, 72/2009 – other Law and 43/2011 – decision of Constitutional Court)
[22] Official Gazette of Republic of Serbia, no.88/2010)
[23] (Official Gazette of Republic of Serbia, no.22/2010)

management program (p.109) which is addressed by the ongoing UNCCD NAP alignment process in Serbia. The long-term goals of this NEPP addresses remediation of contaminated sites from the list of priorities, rehabilitation of existing landfills that pose the highest risks to environment, as well as remediation of contaminated soil. The Waste Management Strategy (2010-2019) foresees preparation of a list of locations contaminated with hazardous waste, along with defining risks and priorities for remediation.

165. NEPP and SSNRM are harmonized regarding short-term and long-term measures. SSNRM envisages development of an action plan for sustainable use of land (pg.172) by 2014, remediation of contaminated sites from the priority list, including industrial complexes, and establishing the soil monitoring system by 2020.

166. SSNRM sets the following objectives for SLM:

- Reduction of permanent land loss,
- Reduction of agricultural land acidification,
- Maintenance of humus content and mitigation of organic matter losses within agricultural soils,
- Reduction of agricultural soils erosion,
- Prevention of alkalinity and/or secondary soil salinization,
- Remediation of degraded land (hot-spots), including establishment of regular monitoring,
- Improvement of agricultural land use,
- Support to organic agriculture,
- Introduction of the Code of Good Agricultural Practice for sustainable land management, and
- Support to applied research and implementation of measures to convert illegal landfills into productive land.

167. SSNRM also sets mandatory measures for technical and biological remediation of all mines on the territory of national parks and other protected areas, and is to be finalized by 2020.

168. The Project activities are in line with the proposed reforms of the land monitoring system listed in the NEPP (pp.130-218).

169. Serbia is currently undertaking the development of the National Action Program to Combat Land Degradation and Drought (NAP), which is in its final phase. This Project will benefit from the respective outcomes of the NAP alignment process. In addition to the national legislation and policy frameworks, the project is in line and supportive of Serbia's commitments to international agreements such as the UNCCD, CBD and FCCC, to which Serbia is Party to (UNFCCC: 2001; UNCBD: 2002; UNCCD: 2007). Further on, this project is completely in line with Serbia's UNDAF (2016-2020), and will contribute achieving Outcome 8 under Pillar IV – Environment, Climate Change and Resilient, contributing directly to Indicator 8.7 "Number of cadasters of environmental hotspots in the country".

3.7. Incremental reasoning

170. A tabular summary of the incremental reasoning for the project is presented below, based on the baseline analysis and the elaboration of the intervention strategy detailed in Sections 2 and 3 above. It compares the likely outcomes of the current baseline (business as usual scenario) with the expected outcomes of the alternative

scenario (with project interventions), thus distilling environmental benefits at global and national levels that can be attributed to the project as its incremental contribution.

Table 5: Incremental reasoning

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** (A – B)
Component 1: Enabling institutional, policy and scientific environment for long-term integrated land use management (ILM) **Baseline:** ▪ No systematic methods and approaches for identification, addressing and remediation of environmental hotspots ▪ Land use data based on information from 2006 ▪ Incomplete information on the contamination level, and current status of few potential hotspots (e.g., Kolubara and Kostolac mines) ▪ Loss of about 200,000 ha of fertile land due to industrial activities **Probable results:** ▪ Knowledge about ongoing LD, soil loss and contamination levels remains isolated and erratic ▪ Major environmental/industrial hotspots are not identified and surveyed ▪ Continued uncontrolled industrial contamination of fertile soils ▪ Soil loss levels remain high and unchecked ▪ Only isolated and random site remediation measures	▪ Relevant baseline data collected, and consolidated ▪ Environmental/industrial hotspots identified ▪ Environmental and socio-economic risks analyzed ▪ ILM methodologies and tools prepared and made available to all stakeholders and land users ▪ Priority sites for remediation identified and remediation measures coordinated ▪ Policy framework for ILM and land use planning in Serbia (ILMF)	**Local/national benefits:** ▪ Relevant LD data available and accessible ▪ Awareness on linkages between LD, soil loss and socio-economic risks and benefits ▪ Capacities for ILM planning and administration strengthened **Global benefits:** ▪ Improved knowledge on threats for regionally/globally important ecosystems and waterways ▪ Establishment of a closer linkage between economic and ecologic incentives for ILM and remediation efforts ▪ Experiences with establishing an ILM framework and mainstreaming ILM into sectoral policies

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** **(**A – B)
Component 2: Landscape-level management of natural resources in Serbia **Baseline:** ▪ Integrated land management is not practiced at national and/or local levels ▪ Spatial plan and sectoral strategies for national level exist, but these are poorly communicated, coordinated and implemented at local levels **Probable results:** ▪ Surveillance of industrial activities continues not to follow national regulations ▪ National policies and plans are neither implemented nor enforced ▪ Soil loss levels remain high and unchecked ▪ Release of pollutants remains high and uncontrolled ▪ Local and rural livelihoods are endangered and are stagnant at a low level	▪ Methodology for the implementation of ILMF practices at local level ▪ Development of a methodology and guidelines on land use management practices ▪ Mainstreaming of recommendations from the guidelines into existing local planning processes ▪ Trade-off measures for land use that will be tested at the community level	**Local/national benefits:** ▪ Reduced soil loss and contamination levels ▪ Remediation measures lead to improved local livelihoods **Global benefits:** ▪ Guidelines and methodology for locally adaptable land use management practices ▪ Experiences of mainstreaming national policies into local planning processes ▪ Reduced release of sediments and pollutants into international waters
Component 3: Capacity building, awareness raising and sharing learned lessons with main stakeholders and the wider public based on sustainable monitoring system **Baseline:** ▪ No national certification for soil sampling and analysis ▪ Limited capacities at national and local levels for ILM planning ▪ Reduced information exchange between academia, sectoral	▪ Improved laboratory analysis quality and capacities ▪ Training on tools and methodologies for ILM and land use planning ▪ Information platform for academia, public and private sector ▪ Interactive ILM mapping tools available to all land users ▪ Increased awareness	**Local/national benefits:** ▪ Laboratory capacities for soil sampling and analyses ▪ Improved planning capacities for locally adapted ILM **Global benefits:** ▪ Interactive mapping tools for ILM mainstreaming ▪ Guidelines and experiences in

Baseline Scenario B (Business As Usual)	**Alternative Scenario A** (with project interventions)	**Increment** **(**A – B)
authorities and the public ▪ Awareness for LD and related dangers is low at local authorities and the wider public **Probable results:** ▪ Reduced to non-existing capacities for soil analyses ▪ Lacking ILM planning capacities continue uncontrolled industrial activities ▪ Scarce and uncoordinated data collection, information exchange and knowledge production ▪ Continued negligence of environmental risks and health dangers	on ILM ▪ Monitoring platform for ILM impacts	establishing ILM monitoring platform ▪ Lessons learned on broad public engagement in ILM implementation

3.8. Sustainability

171. The Project is designed to pick up and reinforce the ongoing momentum for mainstreaming land degradation issues in Serbia. Using the recently established inter-ministerial soil committee housed in MoAEP, and the Strategy for Sustainable Natural Resource Management (SSNRM) of 2012, inter-agency coordination and collaboration will be strengthened horizontally and vertically, instead of establishing additional institutional mechanisms. Existing international standards, indicators, methodologies and tools will be utilized to support a systematization and harmonization of data collection, analysis and the transformation of assessment results into policy recommendations in support of local application. Close collaboration with local stakeholders will ensure that the project interventions are responsive to actual needs and designed to bridge existing gaps between national regulations and local requirements and planning processes.

172. These recent institutional improvements as well as the growing body of baseline and supporting activities demonstrate the willingness of the Serbian government and important stakeholders to invest into ILM. The project will underpin this momentum by providing a solid methodological and policy foundation, leading to coordinated and improved implementation of ILM measures, including site and soil identification and remediation priorities. Timely and coordinated remediation of soil degradation and pollution is not only environmentally but also financially sustainable, as it utilizes preventive measures instead of waiting for broader implications to happen before a reaction is determined.

173. The involvement of a broad pool of stakeholders in establishing interactive tools for integrated land management and an open platform for monitoring ILM impacts will

ensure that all affected land user groups have a stake in driving the project implementation and in designing and using its results. Capacitating and training these stakeholders – government bodies, the private sector as well as communities and their representatives – to understand each other's concerns and limitations, and for trust-building, negotiating and collaborative decision making, will institute a coordinated and continued partnership among resource users and beneficiaries, to last beyond the limits of the project.

Replication

174. One focus of this project is its integrated approach to LD and soil management in Serbia, which allows for a stronger capacity development of the main stakeholders, from users of ecosystem services to decision makers at all levels, using improved and updated methodologies and tools that are applicable in local circumstances and allow for monitoring impacts in the long term. These, and other specific activities, such as the development of spatial mapping tools, or the strengthening of local ILM planning capacities, are aimed at local application and allow for replication at higher levels, both governmental and geographical. All these tools will be applied keeping their replication potential in mind, both regionally and beyond.

175. All intervention and awareness/education activities (see Component 3) will allow for the monitoring of good practice and therefore lessons learned will help replication through communication at international level - this will be particularly achieved through international meetings and a conference, as well as the establishment of a platform for monitoring ILM impacts, amplifying the potential of examples to be replicated at international level in comparable cultural landscapes reaching far beyond the project.

176. A further replication opportunity of the project lies in forming knowledge networks, creating bridges that allow a streamlining of data to be used by local communities now and in the future. By connecting national public institutes with the private sector and local communities, replication is envisaged for future projects that propose an integrated approach both sectorally and on levels of governance, by adapting user-friendly tools that will enhance exactly this replicability.

3.9. Public awareness, communications and mainstreaming strategy

177. The Project aims to provide that knowledge and information regarding land management in Serbia are mainstreamed into public and private sectors responsible for the use and management of this natural resource. For that reason, the Project includes a separate component that will ensure public awareness and outreach.

178. Component 3 of the Project aims to develop capacity and awareness activities, and includes sharing of lessons learned with the main identified stakeholders and the wider public based on a sustainable monitoring system. This component will tackle an important constraining factor - limited public awareness on land degradation issues. Therefore, communication activities and public outreach will be executed in several regions of the Serbia and on different levels. The component will include three individual stages:

- Collection and dissemination of information and materials on the subject,
- Organization of an international conference with strong stakeholder participation, and
- Establishment of a platform for future sustainable collecting and sharing of information.

179. The Project consists of national and local level activities, which will contribute to mainstreaming the process and the participation and ownership. All Project stakeholders, including the Government and CSOs, will be encouraged to work closely for training, capacity development and information sharing on ILM.

180. It is expected that through awareness raising activities, the understanding and interest in ILM at all levels of society will increase.

3.10. Environmental and social safeguards

181. The project is expected to generate positive and long-term environmental and social impacts (see Results Framework objectives and outcomes, Appendix 4). Progress towards these will be measured through the GEF Tracking Tools (Appendix 14), and indicators specified in the Results Framework, as well as under the project monitoring and evaluation plan (Appendix 7). Detailed lists of environmental and social issues that are of concern to the GEF and UNEP are provided in Appendix 12.

Environmental safeguards

182. The Project aims to produce positive environmental and social impacts under all its three components. It will develop and improve the institutional, organizational and individual capacities of government bodies responsible for ILM and involve public and private entities in coordinated site remediation. The Project seeks to improve soil loss and soil conditions and create opportunities for conservation action through increased awareness and capacity development on LD and ILM.

183. The project is also expected to create indirect environmental benefits through improved ecosystem management and the potential for enhanced climate change mitigation opportunities through integrated land management (see also the detailed description of components 1 and 2 in Section 3.3).

Social safeguards

184. The Project design and implementation strategy respects internationally proclaimed human rights including dignity, cultural and intellectual property rights. Full stakeholder identification and consultation has occurred during the PPG phase, and a communication and outreach strategy is developed to assure appropriate dissemination and use of the project's results.

185. The Project is expected to significantly improve the capacity of targeted institutions and local stakeholders, and is expected to enhance other socioeconomic benefits in the long term, arising from improved soil monitoring, site recovery and remediation measures and improved land recovery opportunities, particularly for agricultural purposes.

186. In order to ensure that there are no disproportionate negative impacts to women or other disadvantaged or vulnerable groups, appropriate involvement of all social groups was ensured during the PPG phase, and will be continued throughout the project's implementation.

187. In addition, the ecosystem management principles in natural resource management practices will be supported throughout the Project, and they will underline gender sensitive activities, while recognizing and respecting the different roles that women and men may play in sustainable resource management and in society. Further consideration to promoting gender equality will be given in the capacity building and

awareness raising activities, while relying on the consideration of gender balance and equal opportunities.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

188. **UNEP Division of Environmental Policy Implementation (DEPI)** is the Implementing Agency (IA) of for the Project with following roles:

- Provide consistent and regular Project oversight to ensure and the achievement of Project objectives,
- Liaise between the Project and the GEF Secretariat,
- Apply UNEP policy and criteria to strengthen execution arrangements,
- Ensure that both GEF and UNEP policy requirements and standards are applied and met (technical, fiduciary, M&E),
- Ensure timely disbursement/sub-allotment to executing agencies, based on the agreed legal documents,
- Approve budget revision, certify fund availability and transfer funds,
- Organize mid- and end-term evaluations and audit,
- Provide technical support and assessment of the execution of the Project,
- Provide guidance if requested to main TORs/MOUs and subcontracts issued by the project,
- Follow-up with EA for progress, equipment, financial and audit reports,
- Certify project operational completion, and
- Co-chair the project steering committee.

189. The **Ministry of Agriculture and Environment Protection (MoAEP)** on behalf of the Serbian Government will provide political and institutional supervision. Its main responsibilities include:

- Coordinate project activities at national and local levels;
- Provide technical expertise through its personnel and networks;
- Provide guidance and coordination to other Serbian stakeholders;
- Facilitate access to sites and locations;
- Engage in and support soil sampling and analysis;
- Address logistical issues, e.g. through organization of meetings and provision of relevant facilities;
- Support project management and regular project reporting;
- Co-chair the project steering committee.

190. Based on the request by the Government of Serbia, **UNEP Vienna Programme Office** is the Executive Agency (EA) of the Project; its work will be supported by local presence in Belgrade. Its main responsibilities include:

- Oversee Project execution according to the agreed Work Plan, Budget and reporting tasks,
- Sign relevant legal Instrument to allow disbursement of funds by UNEP,
- Ensure technical quality of products, outputs and deliverables,
- Address and rectify any issues or inconsistencies raised by the IA,
- Support compilation and submission of progress, financial and audit reporting to IA,
- Participate in steering committee meetings.

191. UNEP Vienna Programme Office will take responsibility for the execution of the Project in accordance with project objectives, activities and budget, deliver the outputs, and demonstrate its best efforts in achieving the project outcomes. If such need arises, UNEP Vienna Programme Office will notify IA, in writing, the intention to modify agreed implementation plan and budget, and will seek approval. It will also rectify any issues raised by IA with respect to project execution in a timely manner, report to IA and comply with the administrative and financial procedures.

192. Additional UNEP Vienna Programme Office responsibilities include:

- Managing the financial resources and processing all financial transaction relating to sub-allotments,
- Preparing sub-project documents using appropriate legal instruments,
- Preparing all annual/year-end project revisions,
- Attending and facilitating inception workshops and steering committee meetings,
- Assessing project risks in the field, monitoring a risk management plan.

193. *The Project Steering Committee (PSC)* will provide a strategic direction and oversight to project management. PSC will be a multi-disciplinary and multi-sectoral body covering related land management and environment areas of practice. PSC will include representatives of relevant government agencies, including but not limited to, MoAEP key directorates representatives and SEPA, Ministry in charge of Land Planning; Ministries in charge of Mining, Industrial Development; UNEP/DEPI Task Manager, UNCCD Focal point, Representative of CSO, Representative of Research and Academic Institution will also take membership in PSC. It will meet at least once a year to review the progress, approve the Work Plan and Budget, provide direction and guidance, and assist in project implementation, as well as build synergies with other complementing initiatives. The EA will provide support services, as required. CCI will join PSC as an observer so as to establish a relay with the private sector.

194. Project partners: Partner organizations and scientific institutions from Serbia will be involved in the Project to provide expertise in environmental knowledge and information management, regular updates on environmental management in the country, staff time and experience in guiding and advancing the activities' implementation, support the Project with robust field data on environmental issues at stake, linking with stakeholders, including at local level for project implementation and for receiving stakeholder input and feedback.

195. Organizations and NGOs working in the area of LD will contribute to delivery of the Project outputs related to environmental data management and networking.

196. National and international consultancy services will be called in as required for specific tasks, such as needs assessments, development of an indicator framework, capacity building and training for key stakeholders, design of delivery models and financing mechanisms. Consulting services will be procured in accordance with applicable UNEP/GEF Guidelines.

197. PSC will be co-chaired by MoAEP and UNEP. UNEP Vienna Programme Office will attend and facilitate the PSC meetings. It will meet at least once a year or according to Project needs and will also have the opportunity to meet virtually and take decisions through electronic means.

198. *The oversight mechanism:* PSC, comprised of EA and the representatives of all main partners and stakeholders, is responsible for project oversight. Further monitoring and evaluation procedures, including regular reporting duties, are detailed in Appendix 7. EA can undertake field visits at any stage and is tasked to organize a mid-term review and terminal evaluation and audit of the Project.

SECTION 5: STAKEHOLDER PARTICIPATION

199. **Stakeholder consultations:** A series of meetings with various national stakeholders were held throughout July – December 2014. The objective of these meetings was mainly to consult identified stakeholders about the Project design and collect their views towards potential contribution to the project during the implementation phase. The table below summarizes the outcomes and points discussed during the meetings.

Table 6. List of consultative stakeholder meetings

Institution	Outcomes of the meeting/ Points discussed
MoAEP	▪ Prioritization of hot spots should include only state-owned properties that can be potentially privatized; ▪ Criteria for community trade-offs: 1-2 pilot projects in municipalities. ▪ Until recently, there was no Soil Service as such in the Ministry, but only few people working on the issue; however the “Soil Group” is getting larger and should be able to address project implementation in a clear manner ▪ Currently, the Law on Soil is being drafted
Royal Norwegian Embassy in Belgrade	▪ Interest in the project, no previous experience with similar partnerships, activities mainly related to water management
The World Bank, Serbia Country Office	▪ Bor Mining and Smelter complex was the only project implemented so far that might fit into the framework. However, 7 years after activities have not continued, the privatization of the industrial sites has been lagging behind.
SEPA	▪ SEPA agreed to define the criteria for prioritization of sites and for development of remediation plans; ▪ SEPA will be involved especially in Project Component 1 and the activities related to the development of cadaster of contaminated sites - out of 440 identified sites, around 180 are the industrial sites to be investigated over the estimated period of 10 months; ▪ One of the project outputs should include accreditation of the SEPA national laboratory for soil analysis; at the moment, SEPA is performing only sampling, preparation and sample storage. Analysis is then completed in FVC Institute Novi Sad under a Special Contract Agreement with SEPA. ▪ Additional possible outputs can be the preparation of the

Institution	Outcomes of the meeting/ Points discussed
	methodology for health risk assessment and SEPA newsletter published twice a year.
MoME	▪ The Ministry will share available data on mining companies, scope of their activities, pressures on the land and surface remediation; ▪ Erosion maps are under preparation and will be available either from the Ministry or the Geological Survey of the Republic of Serbia; ▪ Priboj and Prijepolje suggested as pilot municipalities for community trade-offs (an alternative can be one of the 27 municipalities covered by the RNA post-flood assessment). ▪ The UNEP/GEF project with a focus to develop a cadaster of industrial hot spots and the MoME project, which will develop the cadaster of mining waste are complementary and should create synergies.
GIZ office in Serbia	▪ Within its work, GIZ conducted workshops in 14 municipalities, out of which 3 pilot municipalities showed increased interest in consolidation of the land (Negotin, Paracin and Zitoradja); ▪ GIZ cooperated with SEPA in environmental assessments of the areas included in the aforementioned project.
Italian Ministry of Environment	▪ Through their development cooperation programme in the Balkans, they have assessed the pollution sources in Pancevo and prepared studies on possible remediation measures. ▪ The documentation will be made available to the project as co-financing and to ensure necessary follow up to Italian supported activities
Faculty of Agriculture, Department of Soil Science and Geology	▪ Previously designed pilot project to test the methodology developed by the Faculty of Agriculture, namely the systematic monitoring of the quality and state of land in wider area of the city of Belgrade is currently ongoing.
Embassy of the Czech Republic in Belgrade	▪ Czech EPA can provide expertise to build SEPA's capacities and thus support its accreditation; ▪ Czech co-financing of the Project should be made available through the outcomes of the Transfer of Czech Experience – Contaminated Land Management in Western Balkans project, i.e. "Dekonta Final Report".
Embassy of the Republic of Turkey in Belgrade	▪ Turkey as hosting country of the UNCCD COP will be extremely interested in following the project development also because the Balkans are a priority area for TIKA

Institution	Outcomes of the meeting/ Points discussed
	intervention.
Embassy of the Republic of Austria	▪ Austrian authorities (in particular Environmental Agency) have a long lasting cooperation with Serbia on environmental protection.
Embassy of Japan in Belgrade	▪ Japan cooperates with Serbia in 3 areas: economic and private sector development, environment, and education and medicine; ▪ The project with environmental focus supported by Japan was the provision of waste transport vehicles.
NGO Oasis	▪ NGO Oasis has already developed a small-scale project on awareness raising regarding land management, with focus on seminars in geographic or climate regions in Serbia; ▪ Suggestions on pilot municipalities for community trade-off activity: Western Serbia i.e. Ljubovija - Drina River floods frequently, and industrial and mining sites are in vicinity. They established cooperation with the local administration and communities during the previous project, funded by the Netherlands' government; ▪ A municipality in North Serbia - dominated by wind erosion, taking off high-quality agricultural soil from the surface; ▪ Eastern Serbia, Timok region - frequent droughts.
PSUCE Vojvodina	▪ The Secretariat is responsible for soil monitoring on the territory of Vojvodina province; ▪ In 2011 it published the Study on the State of Environment in Vojvodina 1998-2008, including the separate chapter on soil. ▪ Historical pollution hot-spots in Vojvodina are Novi Sad (Oil Rafinery), Vrbas and Great Backa Canal. Other issues that should be taken into account are the drillings ie. soil pollution, especially in case of eruption and release of underground-stored CO_2 ▪ One of the Secretariat's priorities is the development of Geoportal and the future need of staff trainings on how to present data
FVC Institute Novi Sad	▪ Laboratory for Soil and Agro-ecology has great experience and is well equipped to perform any kind of soil analysis. ▪ It cooperates both with SEPA and PSUCE Vojvodina ▪ In Serbia, lot of data is being collected in different institutions but not in a systematical manner; the enourmous number of data should be systemized and background calculation should be calculated using the

Institution	Outcomes of the meeting/ Points discussed
	unique model. ▪ The present national classification is not harmonized with the international WRB FAO classification. There is initial research in some institutions, but this great work is not coordinated and completed.
IHTM	▪ The Institute has long-standing experience in investigating pollution migration - researches have been carried out regarding transformation and migration of pollutants from their sources to the recipients. ▪ The Institute staff was involved in many scientific projects and COST actions, and has organized a number of scientific conferences. ▪ It has both the human and space/location capacities to support the project
Soil Institute, Belgrade	▪ The Institute has experience in working both with the Government and Private companies in soil analysis and research ▪ It has capacities and is interested in cooperating on the project
CCI	▪ The CCI has excellent communication channels with the private sector and offers capacity building, information dissemination and promotion of the private sector in Serbia and internationally. ▪ Interested in the Project and willing to serve as a partner by representing private sector interests and serving in PSC as observer.

200. **Stakeholder workshop:** Following the kick off meeting in July 2014, and all bilateral meetings with mentioned stakeholders, in November 2014, a validation meeting was held with the representatives of main stakeholders in order to discuss the project design, project activities and modes of implementation. All participants endorsed in principle the project documents prepared and thanked for the excellent coordination and communication flow during PPG phase.

201. **Stakeholder participation during the project implementation phase:** Following the national meetings and ensuing consultation within the partner countries, the following organizations and agencies have been identified to facilitate national activities during the Project implementation phase. These Project partners will support the implementation of Project activities according to their prior experience.

Table 7. Identified Project Partners

Institution/ organization	Responsibility
MoAEP	▪ Overview of project implementation and overall support to project management

	▪ Legal instruments
SEPA	▪ Support to the Ministry in the overview of project implementation, ▪ Responsible for the Inventory of Contaminated Sites and the hotspots cadaster ▪ Soil sampling and analysis
PSUCE Vojvodina	▪ Environmental monitoring on the territory of the Autonomous Province, ▪ Support in identifying industrial hot-spots
MoME	▪ Support through data on mining operations, their scope and impact (cadaster on mining waste and risk assessment) ▪ Linking with mining operations and the private sector ▪ Support capacity building and training at national and local levels
CCI	▪ Participation of the Project representatives into relevant branch associations meetings being regularly held by the CCI ▪ Offering capacity of regional offices for information, collection and dissemination ▪ Direct communication and interest representation of private sector and private companies of interest to the Project ▪ Promotion and dissemination of project activities and results within Sectoral Bulletins ▪ Support to capacity building of private sector (information channels, meeting space etc.)
IHTM	▪ Implementation of activities in Component 3 – organization of the conference, collection and dissemination of information and materials on the topic of land degradation
Institutes in Novi Sad and Belgrade	▪ Soil sample analysis, to support preparation of the cadaster

202. In order to ensure that there are no disproportionate impacts to women or other disadvantaged or vulnerable groups, appropriate involvement of all social groups has been ensured during the Project preparation, and will be continued throughout the Project implementation phase.

SECTION 6: MONITORING AND EVALUATION PLAN

203. UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process.

204. The project will be reviewed or evaluated at mid-term (tentatively in 01/2017 as indicated in the project milestones). The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools[24].

205. The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.

206. An independent terminal evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

    (i) to provide evidence of results to meet accountability requirements, and
    (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

207. While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.

208. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the EO when the report is finalized. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.

209. The direct costs of reviews and evaluations will be charged against the project evaluation budget.

210. The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the Task Manager. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

211. Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting

[24] For a short duration project, PIR will serve as the project Mid-Term Review (MTR)

project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

212. The GEF tracking tools are attached as Appendix 14. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the MTR and TE will verify the information of the tracking tool.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1. Overall project budget

	Project Preparation a	**Project b**	**Total c = a + b**	**Agency Fee**	**For comparison: GEF and Co-financing at PIF**
GEF financing	27,397	661,644	689,041	65,460	661,644
Co-financing	20,000	5,636,000	5,656,000	-	2,900,000
Total	47,397	6,297,644	6,345,041	65,460	3,561,644

Project framework

Project Components	**GEF Financing***		**Co-financing***		**Total ($)**
	($) a	**%**	**($) b**	**%**	**c=a+ b**
1. Enabling policy environment	260,000	11.45	2,010,000	88.55	2,270,000
2. Landscape level management of natural resources	179,852	07.56	2,200,000	92.44	2,379,852
3. Capacity development and sharing of lessons learned	161,643	12.27	1,176,000	87.73	1,337,643
4. Project Management	60,149	19.39	250,000	80.61	310,149
Total Project Costs	661,644	10.51	5,636,000	89.49	6,297,644

7.2. Project co-financing

213. The project leveraged sufficient financial support primarily from national public institutions, mainly presented as in-kind support within the project's co-financing scheme. However, it should be noted that main contributions earmarked as in-kind support include co-financing from other projects and initiatives implemented by these public institutions. As described in the section 2.7 of this document, a significant portion of these are actual cash and are already budgeted transactions for services and goods that the Project will benefit from through defined synergies and direct support to the project activities. Hence, the project cash co-financing is more significant than it might appear.

214. Raising support form bilateral and multilateral donors for this Project was attempted in the preparation phase. However, most bilateral donors present in Serbia are already strategically positioned to supporting other global environmental issues (e.g., (1) the Government of Norway supports waste management projects and initiatives; (2) the Japanese International Cooperation Agency (JICA) mainly supports direct climate change adaptation activities; (3) the Government of Sweden supports organic agriculture), which even more strongly re-affirms the urgency to obtain financial support from GEF, as the main financing mechanism for land degradation mitigation within UNCCD.

Cost to the GEF Trust Fund	661,644	10.51
Co-financing	5,636,000	89.49
Cash	*100,000*	*1.59*
Ministry of Agriculture and Environmental Protection	**50,000**	**0.80**
UNEP	**50,000**	**0.80**
In-kind	*5,536,000*	*87.91*
Ministry of Agriculture and Environmental Protection	**500,000**	**7.94**
Serbian Environmental Protection Agency	**3,250,000**	**51.61**
Ministry of Mining and Energy	**1,000,000**	**15.88**
Italian Ministry of Environment, Land and Sea	**500,000**	**7.94**
Institute for Field and Vegetable Crops	**100,000**	**1.59**
Institute of Soil Science	**66,000**	**1.05**
Chamber of Commerce and Industry of Serbia	**20,000**	**0.32**
Forestry and Environment Action - fea	**10,000**	**0.16**
UNEP	**90,000**	**1.43**
Total	**6,297,644**	**100**

7.3. Project cost-effectiveness

215. The project aims at reinforcing existing, but underutilized and uncoordinated institutional structures and policies related to land management in Serbia. Project funds will be invested in better linking sectoral policies, upgrading analytical and research capacities and in working at local level to improve management efforts and risk and remediation planning.

216. The project has a focus on integrated land management in industrial/environmental hotspots with the mid- to long-term aim of reconverting formerly industrially used lands into its original uses, mostly agricultural. Alleviating and remedying pollution that is not confined to these hotspots but has further pollution potential is a cost-effective approach in itself, as it reduces spill-out risks and associated consequential costs of environmental disasters. This is further enhanced by the capacity development measures and improvement of laboratory analyses for soil sampling that is built into the project implementation strategy.

217. Assisted execution through UNEP's regional office in Europe allows to keep project personnel costs very low, and GEF funds will instead pay for planning and implementing action on the ground, which contributes to both cost-effectiveness and sustainability of the project approach.

APPENDICES to this project document are to be found in separate files