



United Nations Development Programme
Country: SERBIA
PROJECT DOCUMENT¹

Project Title: Second National Communication to the UNFCCC for Serbia

UNDAF Outcome(s):	Outcome 2. Sustainable Development and Social Inclusion Enhanced
	Outcome 2.5: Improved mechanisms to protect the environment, ensure sustainable management of natural resources, and mitigate and/or adapt to the impacts of global climate change on social, economic, and ecologic systems
UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:	Environment and Sustainable Development
Expected CP Outcome(s):	<u>CP Outcome 2.5</u> : Improved mechanisms to protect the environment, ensure sustainable management of natural resources, and mitigate and/or adapt to the impacts of global climate change on social, economic, and ecologic systems
Expected CPAP Output (s)	2.5.4.2 Improved national response to adapt to and mitigate the impact of global climate change, and adhere to relevant international conventions
Executing Entity/Implementing Partner:	Ministry of Environment, Mining and Spatial Planning of Serbia
Implementing Entity/Responsible Partners:	UNDP CO Serbia

¹ For UNDP supported GEF funded projects as this includes GEF-specific requirements

Brief Description

This project aims to enable the Republic of Serbia to prepare, produce and disseminate its Second National Communication (SNC) to the Conference of the Parties (CoP) of the UN Framework Convention on Climate Change (UNFCCC) according to Decision 17/CP.8 and other guidance provided. The SNC will update and strengthen information provided regarding national circumstances, greenhouse gas inventories, climate change mitigation (including developing a cadaster of NAMAs), vulnerability to climate change and steps taken to adapt to climate change, and information on public awareness, education, training, systematic research and observation, and technology transfer.

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Table of Contents

List of Acronyms	5
List of Annexes	6
1 Situation Analysis	7
1.1 Legal and Policy Context	7
1.2 Context and Significance of the SNC	11
1.3 Project Rationale	12
2 Strategy.....	13
2.1 Country Ownership	15
2.2. Project Objectives	16
2.1.1 Project Development Objective:	16
2.1.2 Project Immediate Objective:	16
2.2 Project Outcomes/Outputs	16
2.2.1 Outcome 1: Updated GHG inventory prepared and capacity to collect this information on an on-going basis for future NCs enhanced.....	17
2.2.2 Outcome 2: Updated report on measures to mitigate GHG emissions prepared and capacity to collect this information on an on-going basis for future NCs strengthened.	18
2.2.3 Outcome 3: Updated assessment of climate changes, vulnerability to CC, and measures to adapt to CC prepared; capacity to collect this information on an on-going basis for future NCs strengthened.....	20
2.2.4 Outcome 4: Updated information in other areas required under the UNFCCC (education, training, public awareness, research and systematic observation, networking and capacity-building, and technology transfer) prepared and all project-related information synthesized in the publication of the SNC	22
3 Project Results Framework:	25
4 Total budget and work plan	30
5 Management Arrangements	38
5.1 Institutional arrangement.....	38
5.2 Project Implementation Arrangements:	38
5.3 Audit Clause	39
5.4 Use of intellectual property rights	40
6 Monitoring Framework and Evaluation	41
6.1 Monitoring and reporting	41
6.1.1 Project Inception Phase	41
6.1.2 Monitoring responsibilities and events	42
6.1.3 Project Reporting	43
6.1.4 Independent evaluation.....	44
6.1.5 Learning and knowledge sharing	45
6.1.6 End of Project	45
6.1.7 Communications and visibility requirements	45
6.1.8 M& E workplan and budget.....	46
7 Legal Context.....	47
Annexes.....	48
Annex A. Risk Analysis	48
Annex B. Agreements	49
Annex C. Summary Report of the Self-Assessment Exercise and INC Consultations.....	50
C.1. Methodological approach.....	50
C.2. Findings of the evaluation of issues in the INC which can be addressed in the SNC...50	
C.2.1. Comments on Chapter 2: National Circumstances.....	50

C.2.2.	Comments on Chapter 3: Greenhouse Gas Inventory Information	50
C.2.3.	Comments on Chapter 4: Vulnerability Assessment, Climate Change Impacts and Adaptation.....	53
C.2.4.	Comments on Chapter 5: Climate Change Mitigation:.....	56
C.2.5.	Comments on Chapter 6: Research and Systematic Observations	58
C.2.6.	Comments on Chapter 7: Education, Training and Public Awareness.....	58
C.2.7.	Comments on Chapter 8: State of the implementation of the UNFCCC	58
C.2.8.	Comments on Chapter 9: Financial, technological and capacity building needs...	58
C.3.	Findings from the stakeholder consultations and national capacity self-assessment...	59
Annex D.	Terms of Reference for Key Project Personnel	64
D.1.	ToR for National Project Manager	64
D.2.	ToR for Project Assistant	65
D.3.	ToR for International Expert on Vulnerability and Adaptation issues to CC	65
D.4.	ToR for the National V&A Expert Coordinator	66
D.5.	ToR for International GHG Inventory Expert.....	67
D.6.	ToR for National GHG Inventory Expert Coordinator.....	68
D.7.	ToR for International Mitigation Expert on CC issues	69
D.8.	ToR on National CC Mitigation Expert Coordinator	70
D.9.	ToR for Climate Change Policy Expert.....	70
D.10.	ToR for Capacity building on CC related issues Expert	71
Annex E.	Special Clauses	72
SIGNATURE PAGE	73

LIST OF ACRONYMS

AWP	Annual Work Plan
BAU	Business as Usual
CDM	Clean Development Mechanism
CFCs	Chlorofluorocarbon
CHP	Combined Heat and Power
CMP	Meeting of the Parties to the Kyoto Protocol
COP	Conference of Parties
DNA	Designated National Authority
EC	European Commission
EE	Energy Efficiency
ETS	Emissions Trading System
EU	European Union
GEF	Global Environment Facility
GHG	Greenhouse gas
HCFCs	Hydrochlorofluorocarbons
INC	Initial National Communication
IPCC	Intergovernmental Panel on Climate Change
JICA	Japan International Cooperation Agency
LULUCF	Land Use, Land Use Change and Forestry
M&E	Monitoring and Evaluation
MEMSP	Ministry of Environment, Mining and Spatial Planning
MIE	Ministry of Infrastructure and Energy
mm/a	Millimetres per year
NAMA	Nationally Appropriate Mitigation Action
NIM	National Implementation Modality
PAC	Project Advisory Committee
PB	Project Board
PBM	Project Board Meeting
PC	Project Coordinator
PIU	Project Implementation Unit
PM	Project Manager
PV	Photovoltaic
RENA	Regional Environmental Network for Accession
RCU	Regional Coordination Unit
RS	Republic of Serbia
SNC	Second National Communication
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
V & A	Vulnerability and Adaptation
WMO	World Meteorological Organisation

LIST OF ANNEXES

Annex A: Risk Analysis

Annex B: Agreements

Annex C: Summary Report of the Self-Assessment Exercise and INC Consultations

Annex D: Terms of Reference for Key Project Personnel

Annex E: Special Clauses

1 SITUATION ANALYSIS

Serbia is located at the Balkan Peninsula in south-eastern Europe and covers an area of 88,361km². It shares borders with Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, the Former Yugoslav Republic of Macedonia, Montenegro and Romania. Serbia's terrain ranges from rich, fertile plains of the northern Vojvodina region, limestone ranges and basins in the eastern part, to ancient mountains and hills in central and south-east Serbia. The mountains of the Republic of Serbia can be divided into: the Rhodope Mountains, the Carpathian–Balkan Mountains and the Dinaric Alps. The rivers belong to the basins of the Black-, Adriatic- and Aegean Sea. Three rivers are navigable along the whole length through the Republic of Serbia: Danube, Sava and Tisa. The longest river in the country is Danube. According to a census from 2002, the Republic of Serbia has a population of 7,120,666. The territory of Serbia is divided into the following five statistical regions: Vojvodina, Belgrade, Šumadija and Western Serbia, Southern and Eastern Serbia, and Kosovo and Metohija.

Most of the Republic of Serbia has a temperate continental climate. A continental climate prevails in the mountainous regions, whilst the climate at the south-western borders, towards the Mediterranean Sea, is continental to subtropical. According to measurements taken in the period 1961 to 1990, mean annual air temperatures are between 3 °C at altitudes above 1,500 metres and 12 °C in the lowlands. The coldest month is January, the hottest one is July. Lately, annual temperatures have increased, up by 0.7 °C/year in almost all parts of the Republic of Serbia, except the south-eastern part of the country. The lowest amount of annual precipitation, under 600 mm/a, is characteristic for Vojvodina and parts of Kosovo. Precipitation in the Sava region as well as in the Great Morava and South Morava valley regions, ranges between 600 and 700 mm/a, in the mountainous areas between 800 and 1000 mm/a, and above 1,000 mm/a on some mountain peaks in south-western parts of the Country. Most of the territory, except the eastern and southern part, was characterized by a minor negative annual precipitation trend with decreases in the number of days with rain but increases in the number of days with intensive precipitation.

1.1 Legal and Policy Context

The official date of Serbia's ratification of the United Nations Framework Convention on Climate Change (UNFCCC) is March 12, 2001² and the Convention entered in force on June 10, 2001. Serbia has ratified the Kyoto Protocol, which entered in force on 17 January 2008, as a non-Annex I Party. The Ministry of Environment, Mining and Spatial Planning is the National Focal Point for the implementation of the UNFCCC and the Kyoto protocol. Since the ratification and application of the UNFCCC and the Kyoto Protocol, considerable efforts have been made in establishing legal, institutional and policy frameworks aiming to fulfil the commitments outlined under the Convention and the Protocol.

As a non-Annex I Party to the UNFCCC, Serbia has no commitments on the reductions of GHG emissions but in accordance with the Article 12 of Convention it is obliged to:

- prepare the national Communications to the COP of the UNFCCC;

² Serbia is a successor of the State Union Serbia and Montenegro, which was successor of Federal Republic of Yugoslavia that ratified the Convention in 1997; FRY was admitted to UN in late 2000.

- build awareness of climate change issues and increase the national consensus and willingness to take action;
- provide the international community with information on the inventory and trends of emissions from sources and removals by sinks of greenhouse gases;
- provide a profile of mitigation measures planned for the future;
- provide information on the potential vulnerability of its economy to projected climate change impacts, and on adequate adaptation measures for projected change;
- integrate climate change into the broader development planning process of the country and realign policies to take climate change into consideration;
- integrate climate change considerations into the planning and implementation of sector efforts and other national development plans, while developing public support for government and other initiatives in the field of climate change.

After UNFCCC ratification, effort has been made to set appropriate policy, institutional and legal framework to meet Convention commitments, including submitting the INC to the UNFCCC in 2010. The UNFCCC National Focal Point has been appointed, having a coordinating role for the climate change issue and related activities. UNFCCC National Focal Point has been making serious efforts to promote combating climate change, to contribute to achievement of the UNFCCC objectives and to improve intersectoral cooperation in order to ensure mainstreaming of climate change issues into sectoral documents and national development goals.

As a non-Annex I Party to the UNFCCC and the Kyoto Protocol, Serbia has participated in the work of Conferences (COP/CMP). While retaining a strong commitment to implement the UNFCCC, the country is facing a number of significant constraints, including an unfavourable economic situation and other consequences of the negative trends experienced during the recent past.

While the first set of environmental laws designed to combat climate change was adopted in 2004, considerable progress has been achieved with the beginning of the process of European Union (EU) accession and the harmonization of national legislation with that of the EU. Serbia's aspirations to become an EU member³ accession process to the EU act as a major driver for climate-change related action for both mitigation and adaptation. This is due to the fact that main principles of the relevant EU legislation are actually based on the principle of combating climate change. In response to the goals and preconditions of European partnership, but also recognizing the necessity of sustainable development in the process of economic recovery, over the last couple of years, climate change issues have been included to a greater extent in sectoral and development strategies.

Related to mitigation, Serbia is already contracting party to the Energy Community, meaning it has already committed to adopting the EU *acquis communautaire* related to energy. This includes implementing the following related EU directives directly related to GHG mitigation:

- Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants – which will require the introduction of pollution reduction measures on major power plants, especially lignite-fired plants in Serbia's case;
- Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport – which requires the increase in the availability and use of renewable fuels for transport;

³ Serbia officially applied for EU membership in December of 2009 and gained candidate status in October of 2011

- Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market – which requires that a certain percentage of electricity be produced from renewable energy;
- Directive 2010/31/EU on the energy performance of buildings – which sets standards for the requirement of labelling of EE in buildings and the implementation of EE measures in new and existing buildings which undergo major renovation;
- Directive 2006/32/EC on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC – which sets out the requirement for an indicative target of 9% energy savings by the 9th year of the application of the directive, which involves developing and implementing National Energy Efficiency Action Plans. The directive also describes mechanisms for improving EE and financing EE measures;
- Various other specific directives for labelling and EE standards of equipment and appliances.

Additionally, to the issues covered under the Energy Community, the EU *acquis* on the climate covers the EU emissions trading system (EU ETS), greenhouse gas (GHG) reductions for non-ETS sectors, fluorinated gases, ozone-depleting substances, vehicle efficiency standards, fuel-quality standards, carbon capture and storage plus monitoring and reporting of GHG emissions. Furthermore, the EU has issued guidelines and a framework on adapting to climate change – even though no official directives have been adopted.⁴

Overall with respect to the EU *acquis* on climate change, Serbia is still at an early stage. Some sector specific laws, such as on energy, waste or air, are contributing to climate change mitigation, while the policy on forestry includes certain adaptation measures. Some alignment has taken place with the legislation on the quality of petrol and diesel fuels, but this needs to be completed, including with respect to GHG emissions. The national airline JAT has prepared a monitoring plan requested by provisions of the EU ETS. The new Energy Law tightens up the legal provisions for more rational use of energy. Serbia is participating actively in the climate work under the Regional Environmental Network for Accession (RENA).

Table 1 outlines some of the major Serbian policies/strategies and their relation to climate change.

Table 1: Serbian policies and strategies directly linked to climate change

Policy/Strategy	Year adopted	Relation to climate change
Serbian National Sustainable Development Strategy ⁵	2008	Identifies climate change as a key risk and puts forward action items for mitigation and adaptation
National Environmental Protection Programme	2010	Identifies climate change as a key risk and puts forward action items for mitigation and adaptation. Activities related to mitigation are among the programme's priorities.
Energy Development Strategy until 2015 ⁶	2005	Describes BAU energy development scenario (linked with greenhouse gases). Increasing energy efficiency and the use of renewable energy

⁴ See http://ec.europa.eu/clima/policies/adaptation/index_en.htm for more.

⁵ <http://www.odrzivi-razvoj.gov.rs/uploads/documents/Nacionalna-strategija-odrzivog-razvoja-Republike%20Srbije-Finalni-Nacrt.pdf>

⁶ http://www.ssl-link.com/mre/cms/mestoZaUploadFajlove/Serbian_energy_strategy_-fianl__EN.pdf

		resources by 2015 are two of the five main priorities.
The Forestry Development Strategy ⁷	2006	Describes the importance of forests in climate change mitigation and the potential impact of climate change on forests in the economic development of this sector. Also includes the UNFCCC among the most important international obligations within the sector.
The Strategy for Scientific and Technological Development 2010 – 2015	2010	Identifies environmental protection and countering climate change, as well as energy efficiency, among the top seven priorities.
Law on Air Protection	2009	Regulates air quality management, as well as measures for prevention of pollutant emissions. Also provides basis for adoption of bylaws which will regulate oversight of GHG emissions and phasing out of ozone depleting substances.
The Strategy on Cleaner Production	2008	Introduces GHG emissions as one of the main sources of influence on the state of the environment at the national level.
Biodiversity Strategy of the Republic of Serbia for the period 2011 - 2016 ⁸	2011	Identifies climate change as a major issue to be dealt with in relation to biodiversity
The National Strategy for Incorporation of the Republic of Serbia into the Clean Development Mechanism – Waste Management, Agriculture, Forestry sector ⁹	2010	Lays out mechanisms, process, and priorities for Serbian involvement in the CDM. Its development involved a broad range of institutions and ministries. Also provides a description of the role of the Designated National Authority (DNA) ¹⁰ , which was legally established in 2008, as a multi-sectoral body. There are currently four projects registered under the CDM.
The First National Energy Efficiency Action Plan of Serbia ¹¹	2010	Outlines a number of energy efficiency measures to be undertaken during the period 2010-2012 in various sectors.
The National Strategy for Incorporation of the Republic of Serbia into CDM for Waste Management, Agriculture and Forestry sector ¹²	2010	Outlines how the Serbia CDM process works, how it works internationally, and potential areas within waste management, agriculture, and forestry (including biomass growth and energy usage) could be used for CDM projects.
The Law on Energy ¹³	2011	Outlines, among other things, the institutional framework of the energy sector in Serbia, including establishing a legal basis for support for protection of the environment, energy efficiency, and renewable energy.

⁷ <http://www.fao.org/forestry/16159-0f033f89b9da00ac3d5a3c81cda247f26.pdf>

⁸ <http://www.cbd.int/doc/world/rs/rs-nbsap-01-en.pdf>

⁹ http://www.ekoplan.gov.rs/en/upload-centar/dokumenti/razno/cdm_strategija_engleski_za_stampu.pdf

¹⁰ <http://www.ekoplan.gov.rs/DNA/>

¹¹ <http://www.energy-community.org/pls/portal/docs/986181.PDF>

¹² http://www.ekoplan.gov.rs/en/upload-centar/dokumenti/razno/cdm_strategija_engleski_za_stampu.pdf

¹³ http://www.edb.rs/propisi/zakon_o_energetici.pdf

The Law on Planning and Construction ¹⁴	2011	Outlines the framework for the implementation of spatial planning and construction in Serbia – including supporting sustainable development and energy efficiency.
The National Environmental Approximation Strategy	2011	Describes what is necessary for the transposition and implementation of the EU <i>acquis communautaire</i> in the field of environment

It is worth noting that, with regards to the CDM, Serbia is making quick progress, with the first four projects having been registered since November 2011. These include:

- Wind Farm Cibuk1 – up to 171 MW of wind power
- Wind Farm Plandiste 1 – up to 102 MW of wind power;
- Wind Farm Kosava 1 and 2 – up to 123 MW of wind power; and
- Reduction of Methane Leakages in the Gas Distribution Networks operated by the company JP Serbiagas – which involves the detection, measurement and repair of gas leaks.

The MEMSP has also set up a website with comprehensive information about the CDM for project developers and information about additional potential CDM projects within Serbia - http://www.ekoplan.gov.rs/DNA/index_en.html.

Further strategies on air protection and on biodiversity, together with the relevant action plans, are also being prepared. Serbia is currently assessing the financing needed for mitigation, including preparing the necessary financial plans. Additionally, a the first study has recently been completed which analyses the BAU and potential emissions reductions in a number of sectors up until 2020.¹⁵ This study can provide the basis for more advanced analysis during the SNC. Nationally appropriate mitigation actions up to 2020 for the energy efficiency sub-sector are also being developed and should be completed by mid-2013.

Additionally, Serbia is an Article 5 Party to the Montreal Protocol on substances that deplete the ozone layer. It has ratified all amendments to the Protocol and demonstrates a satisfactory level of compliance. Serbia associated itself with the Declaration adopted at the 22nd meeting of the Parties to the Montreal Protocol in November 2010 on the global transition away from HCFCs and CFCs.

1.2 Context and Significance of the SNC

The Initial National Communication (INC) of the Republic of Serbia is an important national strategic document which represents a basis for future actions, research and policies in the area of climate change, national capacity building and attainment of knowledge, and the sustainable development of the country, as well as the preparation of future national communications. The project of developing the INC began in 2008 and the INC was adopted and published in 2010 by the Ministry of Environment and Spatial Planning. The INC was developed with the assistance

¹⁴ http://www.ekoplan.gov.rs/srl/download-1282/upload-centar/dokumenti/zakoni-i-nacrti-zakona/zakoni/gradjevina/zakon_o_planiranju_i_izgradnji.pdf

¹⁵ http://www.ekoplan.gov.rs/srl/upload-centar/dokumenti/izvestaji/final_report_ghg_emissions_projections_and_reduction_measures1.pdf

of UNDP and with the involvement of dozens of Serbian experts from a wide range of disciplines – representing nine different research institutions. Additionally, stakeholders from a variety of sectors were involved in the development of the INC.

The INC highlights a number of issues including the following:

- The energy sector is the main contributor to GHG emissions in Serbia and also likely the sector with the greatest potential for mitigation;
- That different sectors and systems are already vulnerable to climate change and will certainly have to deal with many additional negative consequences and impacts in the future. These could have significant impacts on concrete actions related to sustainable development.
- That further research on both mitigation and vulnerability/adaptation in different sectors and systems is needed.
 - Related to mitigation, a programme for a short-term period is included. For its realization, revision as well as an upgrade of this mitigation analysis and preparation of a long-term mitigation strategy is needed.
 - Related to adaptation, the adoption of a more focused and detailed adaptation programme, for example, would be necessary.

During the process of the INC preparation, consistent and relatively good databases were developed and significant activities were undertaken to raise awareness and build capacity amongst various stakeholders – particularly within the public sector and research sector at the national level. A team of national experts (representatives from various research institutions) worked on the GHG inventory under the INC, under the coordination of the Institute for Nuclear Sciences Vinča and in cooperation with representatives of government institutions. For each sector, and additionally for the energy sub-sectors, the project had a team of 3 experts who were in charge of the acquisition, systematization, documentation and archiving of the data. The validation of the input data and the outputs was performed by specifically-appointed experts. The final quality control and the quality control of the sub-sector input data and calculations were performed during the integration of the results into the overall inventory of the GHG emissions for each year analysed using IPCC software. With the aim of ensuring the sustainability of the process, the databases produced during the process of preparation of the GHG inventory are located in the Environmental Protection Agency of the Republic of Serbia. However, the process of developing the INC demonstrated that future improvements in data collection and the inventory, more efficient inclusion of climate change issues into the educational and training system, and other improvements are needed.

During the process of drafting the INC, climate change problems became an object of broader interest. It is however still necessary to work on integration of climate change into national development strategies. For these reasons, the continued strengthening of national institutions as well as continued cooperation with UNDP/GEF, especially in preparation of the SNC, is necessary.

1.3 Project Rationale

Overall, this project will support environmental a multilateral environmental agreement, which is a stated national priority listed in the UNDAF, which has been agreed upon by the Government of Serbia and the UN as the strategic cooperation framework for 2010-2014 period. The

capacity development activities under this project and its particular emphasis on disseminating the SNC and its findings to policy-makers directly support the UNDAF Outcome 2 whereby the government meets the requirements of multilateral environmental agreements and adopts the environment as a cross-cutting issue in participatory development planning. This area of cooperation specifically focuses on enhancing the capacity of the government in the area of integrated resources management, and it explicitly mentions climate change mitigation and adaptation as an agency outcome.

Within this framework, this project will specifically enable Serbia to prepare its Second National Communication (SNC) to the Conference of Parties in accordance with Article 12 of the UNFCCC. Though the situation regarding national capacities has improved during the development of the INC, there is still need for improvement of capacities to implement the Convention, especially in the areas of:

- Preparation of GHG inventories and systematic reporting;
- Planning and implementation of measures to facilitate adequate adaptation to climate change, including improving the meteorological and hydrological observation and telecommunication systems, as the integral part of WMO/World Weather Watch and Global Climate Observing System;
- Planning and implementation of measures to mitigate climate change; and
- Raising public awareness, education and training, information sharing and networking.

Therefore, for the successful development of the SNC and improvement of national capacities to meet the requirements of the Convention for the future, Serbia requires new and additional GEF financial support as well as technical assistance.

The preparation of the SNC will support achievement of the national environmental objectives in several ways:

1. It will enhance the ability of Serbia to participate actively in addressing the global environmental threat of climate change;
2. It will develop capacity in climate change-related research and analysis that can support effective environmental policies and provide important data related to environmental challenges to sustainable development in Serbia that go beyond climate change; and
3. It will provide improved information and analysis for policies in key areas, such as water resources, agriculture, and forestry.

The project will also contribute to the development and enhancement of national capacities in fulfilling the country's commitments to the Convention on a continuing basis, as well as enhance general awareness and knowledge of government planners on issues related to climate change and limitation of greenhouse gas emissions, thus enabling them to take due consideration and mainstream climate change issues while programming the national development agenda and priorities.

2 STRATEGY

The immediate objective of the project is to assist Serbia in meeting the reporting requirements under Article 12 of the Convention, through the preparation of the Second National Communication (SNC).

The project will help Serbia to meet its obligations to the UNFCCC and improve national capacities to meet the requirements of the Convention. It will generate, analyse and communicate information relevant to the preparation and submission of the Second National Communication, including the compilation of a national greenhouse gas inventory, vulnerability assessment, mitigation and adaptation option analyses and other information necessary for the national communication.

Improvement of capacities and networking of national institutions and agencies will be undertaken through involvement in the project implementation, consultative meetings, planning and training workshops. This project will expose policy-makers, planners and researchers to participatory approaches to developing linkages between climate change and development.

Apart from the preparation of the national communication, the project is expected to strengthen information exchange, dialogue and co-operation among relevant stakeholders, including governmental, NGO, academic and private sectors.

At the same time, the project is aimed to further strengthen technical and institutional capacities in the Republic of Serbia to implement the Convention, and to assist the Government to integrate climate change issues into sectoral and national development priorities in a more efficient way. The project will furthermore contribute to an improvement of awareness of climate change, achievement of national consensus and willingness to take actions to mainstream climate change issues into relevant social, economic and environmental policies while developing public support for these initiatives. Special emphasis will be placed on the elaboration of national strategies to limit GHG emissions, taking into account long-term context, and the provision of guidance for assessing vulnerability to climate change as well as identifying, prioritizing, and shaping potential adaptation options into a coherent strategy that is consistent with national sustainable development and other priorities.

The project will further strengthen the capacity of Serbia to contribute to the ongoing climate change international negotiations under the UNFCCC, to analyse opportunities and obligations rising from new regional and international initiatives aiming to protect the global climate. All activities will be realized with the involvement of relevant stakeholders.

Taking into account that activities within the SNC represent a continuation and upgrade of the work done under the INC, the project will contribute to the fulfilling of major gaps and constraints identified in the process of drafting the INC. The long-term objective of this project is to enhance capacity building efforts, make efficient use of information compiled, and engage technical experts and institutions more effectively as a way to ensure the sustainability and continuity of activities.

The project outcomes will be achieved through a wide range of activities, including:

- Enabling systematic and institutionally embedded gathering of data on GHG emissions and preparation of the national inventories of greenhouse gases based on adopted methodologies of the IPCC;
- An assessment of options to adapt to the impacts of climate change, with special respect to climate change impact studies on agriculture, water resources and forestry;
- An analysis of potential options to limit GHG emissions and to enhance removals by sinks, taking into account long-term projections.
- Necessary financial and technological needs assessments will be conducted and priorities will be identified for climate change research, monitoring, education, training

and awareness raising, institutional strengthening and climate change policy development.

2.1 Country Ownership

The Government of Serbia and the various national stakeholders are very motivated to support and implement the project, as climate change issues are becoming more and more prominent in various sectors and at the top level. The project has potentially significant environmental implications for the country. These include supporting the formulation of a policy framework for integrating climate change concerns into the national development policies and programs, as well as laying the groundwork for adaptation measures and response strategies for impacts.

UNDP will extend its assistance to the Government of Serbia in a process that differs from the development of the INC. The overall management of the project will be entrusted to UNDP, while team leaders and companies will be hired for the GHG inventory/Mitigation analysis and for the Vulnerability and Adaptation analysis. These team leaders will work directly with Government Ministries and Institutes in contracting and supervising the implementation of the SNC research and analysis. This arrangement will build the capacity of the local authorities while helping to make sure that any capacity or technical gaps that Government identifies are bridged timely and effectively. Mostly local expertise will be employed to continue the process of capacity building undertaken during the preparation of the INC, based on the needs in the process of the preparation of the SNC. Where it is necessary, short-term international consultants will be engaged in order to assist more efficient implementation of the project.

UNDP has a strong comparative advantage in supporting the preparation of the SNC because of its key role at the country level in the field of climate change and because of its National Communications Support Programme, which has worked in partnership with more than 130 countries over the past decade, providing technical and policy support.

The international knowledge network provided by the National Communications Support Programme and the capacity-strengthening measures proposed in the project (particularly those that strengthen on-going data collection and analysis) will be fundamental in ensuring lasting results from the project.

The project implementation team will collaborate closely with the following initiatives:

- The project “**Capacity Development Project on Nationally Appropriate Mitigation Actions (NAMAs) in the Republic of Serbia**” that has been led by the Ministry of Environment, Mining and Spatial Planning (MEMSP). The objective of the project is the identification of appropriate mitigation actions in a measurable, reportable and verifiable way. This is to be achieved through an assessment of financial needs, timeframes and responsible institutions for each of these, in the energy efficiency sector. The project is financed by the Government of Japan with its implementation agency, Japan International Cooperation Agency (JICA).
- The project “**Feasibility study: Efficient ways for GHG emissions reduction under the post-Kyoto framework**”, that has been led by the MEMSP, is financed by the Kingdom of Spain. The main objective of the project is an assessment of costs for different options of GHG reduction, as well as an elaboration of the overall reduction potential within the country based on different factors.

- The project: **“Implementation of Energy Component of the National Strategy for Sustainable Development”**, financed by the European Commission (EC) (2011-2012) that has been led by the Ministry of Infrastructure and Energy (MIE). The project’s purpose is to build capacity in the energy sector which will lead to the implementation of the sustainable energy policy, implementation of the Kyoto protocol, rational use of conventional fuels and increased use of renewable energy sources.
- The G2G project Netherlands – Serbia: **“Development of Renewable Energy Framework in the Republic of Serbia”** of which the lead institution is the MIE, the purposes of the project are the development of a National Renewable Energy Action Plan (as identified by the Commission Decision 2009/548/EC of 30 June 2009), the establishment of a template for National Renewable Energy Action Plans (under Directive 2009/28/EC) and the development of a new mechanism for streamlining Serbian rules relating to procedures, permissions and licenses.

The project will also collaborate closely with the other relevant ongoing projects in the Republic of Serbia in order to enable an effective information exchange between the projects and full utilization of their results.

During the project’s implementation, links with relevant regional and international institutions will be created, and their experiences will be used when selecting methodologies and implementing specific activities.

Information related to the project will be presented in a consistent, transparent and comparable manner, taking into account national circumstances, as well as all other principal aspects from the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (COP Decision 17/CP.8).”

The Ministry of Environment, Mining and Spatial Planning will execute the project, while the project will be implemented in close collaboration with other relevant ministries and institutions, UNDP office staff and other stakeholders. Special emphasis will be placed on the sustainability of preparing national GHG inventories and monitoring of climate change impacts in different sectors. To the extent possible, permanent mechanisms to update the inventory and various studies will be established.

2.2. Project Objectives

2.1.1 Project Development Objective:

The project will strengthen institutional and human resources and technical capacity of Serbia to deal with climate change issues and to mainstream climate change concerns into sectoral and national development priorities.

2.1.2 Project Immediate Objective:

Second National Communication of Serbia to the UNFCCC developed, submitted and disseminated

2.2 Project Outcomes/Outputs

The following project Outcomes (Equivalent to Activities in ATLAS) followed by their related Outputs are expected to be achieved during this project:

2.2.1 Outcome 1: Updated GHG inventory prepared and capacity to collect this information on an on-going basis for future NCs enhanced

Under the INC, a GHG inventory of emissions by sources and removals by sinks was prepared for the years 1990, as the base year, and 1998, covering GHG emissions from the energy sector, industrial processes, waste, agriculture, land–use change and forestry.

During preparation of the SNC input data, GHG inventory from the INC will be revised and recalculated in order to reduce uncertainty. In accordance with requirements, the first year for which the SNC will prepare a GHG inventory of emissions by sources and removals by sinks will be the year 2000. During the course of implementation, the project will also result in GHG inventories for the ten-year period from 2000-2010 for areas and years for which there is available and appropriate data.

The national inventory in the INC was prepared according to the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories using Tier 1 Methods. The INC used the internationally recommended values for net calorific values and emission factors for all fossil fuels (solid, liquid and gaseous), except for the low calorific open pit mined lignite. In the SNC, Tier 2 methods will be applied for all sectors where applicable, according to availability and quality of data. This is especially relevant for emissions resulting from lignite – which has a significantly lower net calorific value and a higher emission factor value than the international standard values. As such, the country-specific emissions coefficient was calculated during the process of INC preparation and will be re-calculated during the preparation of the SNC.

The GHG inventory in the INC did not include halogenic hydrocarbons (HFC and PFC), or sulphur hexafluoride (SF₆). There were no records available of import or consumption of synthetic gases (*i.e.*, of the available amounts) in available official documents and, therefore, related emissions could not be estimated according to the international method. The SNC GHG inventory will try to include these gases as well.

Additional attention will also be focused on GHG emissions from LULUCF. This will include an up-to-date analysis of forestry resources, including species composition and growth rates. A preliminary attempt will also be made to estimate GHG emissions and removals from soils, which will be incorporated into LULUCF analysis.

The validation of the input data as well as the output documents will be performed by specifically appointed experts. The final quality control and quality control of the sub-sector input data and calculations will be performed during the integration of the results into the overall inventory of the GHG emissions, for each analysed year, using IPCC software (available at <http://ipcc2006.air.sk/>).

The methodologies to be utilised will include the most up-to-date recommendations by the IPCC Task Force on National Greenhouse Gas Inventories (See <http://www.ipcc-nggip.iges.or.jp/>).

Outputs for Outcome 1:

- 1.1. Activity data required by IPCC guidelines collected and analysed, data gaps filled and inventory and database improved where needed
- 1.2. Emission factors for key source categories recalculated
- 1.3. Improved analysis of net GHG emissions from LULUCF
- 1.4. GHG inventories for all sectors and all gases considered in IPCC '96 guidelines for the year 2000 – 2010
- 1.5. Contribution of different sectors to GHG emissions, procedures and arrangements for collection and archiving of data and role of institutions involved in preparation of GHG inventory described

2.2.2 Outcome 2: Updated report on measures to mitigate GHG emissions prepared and capacity to collect this information on an on-going basis for future NCs strengthened

In the INC a mitigation-related programme/action plan for 2012-2015 was proposed. The assessment of the GHG emissions limitation was based on:

- The detailed analysis of GHG emissions in 1990 and 1998;
- A preliminary analysis of GHG emissions (total, sectoral and per gas type) in 2007;
- The “Business as Usual” (BAU) scenario spanning 2012 and 2015; and
- The analysis of the legislative and strategic documents.

A major emphasis in the analysis, measures and plans was put on energy, in particular the power generation sector and the improvement of efficiency in coal-fired generation, which is the largest contributor to the total GHG emissions.

Within the SNC, the BAU scenario will be disaggregated according to sectors and will include greater consideration of social and economic trends explicitly described in the analysis. The BAU scenario will also explicitly address how requirements related to EU accession/Energy Community membership may affect trends in GHG emissions.

A mitigation programme/action plan until 2020 will be developed, and long-term potential options to limit GHG emissions and to enhance removals by sinks will be evaluated. These will draw from results from the new inventory, new studies about technical and economic potentials for GHG reduction, and national strategic documents under development, as well as other relevant documents.¹⁶

The analysis and results of mitigation possibilities from the INC will be reviewed, and possible mitigation strategies until 2020 will be analysed and described. The energy sector will continue to be the primary focus, but analysis will be expanded to include other sub-sectors, **potentially** including the following:

- Fuel switching (to e.g. natural gas or biomass);
- Improvement/installation of large hydro and small hydro;
- The installation of wind power;
- The installation of new biomass-fired CHP/co-firing;

¹⁶ http://www.ekoplan.gov.rs/srl/upload-centar/dokumenti/izvestaji/final_report_ghg_emissions_projections_and_reduction_measures1.pdf is a new study looking at BAU and potentials for GHG reductions.

- Fuels switching for transport (biofuels and improvements in traditional fuels);
- The installation of solar PV and solar water heaters;
- Energy efficiency (EE) improvements in existing commercial buildings;
- EE improvements in new commercial buildings;
- EE in existing residential buildings;
- EE in new residential buildings;
- EE and fuel switching in industry;
- Changes in modes of transport (including public transport, urban planning)

In addition to the energy sector, further analysis will be carried out about the potential for GHG mitigation related to the agriculture and industrial processes sector (related to cleaner production processes¹⁷).

Overall, the mitigation assessment will be extended to include an analysis of the barriers and opportunities for implementing the proposed measures. Each measure will be examined for its estimated technical potential for reductions, economic potential for reductions (including costs/benefits, marginal abatement costs, and potential financing sources), the timeframe for implementation, and whether changes in the existing related legal and institutional frameworks would be necessary for implementation. Additional consideration will be paid to any social or (non-GHG) environmental co-benefits.

The final result will be a developed GHG emission abatement action plan until 2020 – including identifying a cadastre of Nationally Appropriate Mitigation Actions (NAMAs) and potential areas for carbon finance interventions. Further analysis may be carried out for longer-term mitigation measures (beyond 2020).

The methodologies used in achieving this Outcome will be consistent with the internationally recommended methodologies. The software tools available for analysis which may be used can include LEAP software, RETSCREEN, and other similar tools.

Outputs for Outcome 2:

- 2.1. Business as Usual scenarios disaggregated according to sectors developed for each sector until 2020 considering social and economic trends with assumptions included in the analysis
- 2.2. Analysis of possibilities for GHG mitigation which were presented in the INC upgraded including the technical potential and economic potential for GHG reduction from changes in the Energy, Industrial Processes, Agriculture, Waste Management, and LULUCF sectors
- 2.3. Analysis related to renewable energy potential, energy consumption in industry, public sector and households extended
- 2.4. A GHG emission abatement action plan until 2020 developed – including identifying a registry of Nationally Appropriate Mitigation Actions (NAMAs) and potential areas for carbon finance interventions
- 2.5. Long-term mitigation possibilities analysed and proposed

¹⁷ See, for example, activities here: <http://www.cpc-serbia.org/eng/>

2.2.3 Outcome 3: Updated assessment of climate changes, vulnerability to CC, and measures to adapt to CC prepared; capacity to collect this information on an on-going basis for future NCs strengthened

The INC presents results of climate change projections obtained using the regional climate model EBU–POM for the Republic of Serbia. Projections for two periods in the future (2001–2030 and 2071–2100) were presented based on the A1B and A2 emissions scenarios. The main limitation of the climate change scenarios in the INC was that they were restricted only to the main climate change parameters. In the SNC, an upgraded version of the new regional climate model will be applied which will allow for the investigation of future climate parameters such as solar insolation, wind, humidity, and extreme weather events such as droughts and heavy rainfall events.

In addition to the projections of climate modelling into the future, the SNC will also analyse extreme weather events and climate variability for the extended period of 1950-2009 in order to gauge what weather events impact Serbia most, where these impacts occur, and whether there has been a trend associated with climate change. The meteorological series of data for the above period will be performed for 19 stations, including data quality control. The data will be analysed by months and years, measuring changes along several climate indexes.

Related to this, the climatological database CLIDATA which is housed within the Hydrometeorological Service of Serbia will be upgraded, and it will serve as the basis for developing a climatological yearbook. Although this activity is not directly connected to future climate scenarios, it will improve the availability of data and its utilization in a variety of analyses related to assessing current vulnerability.

In the INC, an assessment of potential impacts of the climate change on vulnerable sectors of the country – agriculture, forestry, water resources, natural ecosystems and human health -- was carried out, and adaptation measures for each sector were proposed. Some of basic problems and constraints were indicated. The SNC will focus particularly on vulnerability of hydrology and water resources, agriculture, and forestry.

- **Related to water resources**, this will include a quantitative analysis of extreme hydrological conditions in terms of climate change in terms of absolute size, spatial scale, duration and frequency. The SNC will analyse the impact of climate change on the quantitative characteristics of surface water systems and ground water, and it will examine trends in the frequency of floods and droughts. Analysis will include the expected impact of climate change on available water resources in different regions of the country. Particularly vulnerable areas and river basins will be subject to more detailed analysis. Databases of this information will be established, and detailed action plans related to hydrology and water resources will be developed. The processes of land degradation will be also taken into account.
- **Related to agriculture**, the vulnerability assessment in the agricultural sector that began under the INC will be extended in order to determine the influence of climate change on agricultural production in different geographical areas of the country more precisely. Since the agriculture sector is exceptionally vulnerable to extreme weather events (very hot days, floods, dryness), special attention will be devoted to expected changes in extreme weather frequency, intensity and distribution and its impact on the agro-climatic conditions of certain areas. The most vulnerable zones for agricultural production will be identified and appropriate adaptation measures will be proposed. These activities will contribute to better adaptation of agricultural production to climate

change, and proposed measures will identify the most suitable farming systems for actual and expected agro-ecological conditions. Finally, analysis related to food security and safety will be addressed.

- **Related to forestry**, taking into account the relationship between the potential impacts on forests and forest management and water management and agriculture, expected impacts of climate change on forests will be assessed. This will particularly focus on the suitability of climate parameters for different tree species and the possibilities of pests/diseases.

Having carried out this detailed analysis, the SNC will identify the direct links between the climate change scenarios, the physical impacts on the three sectors outlined above, and their socio-economic impacts. This socio-economic impact assessment will examine current socio-economic vulnerabilities, and projected vulnerabilities and damages due to climate change. The demographic and economic scenarios underpinning these assessments will be made clear, and the analysis will consider both direct and combined/indirect effects of climate change on the different economic/social sectors which are impacted by water resources, agriculture, and forestry. This will likely include the energy sector, infrastructure (roads and other potentially flooded areas), food and non-food crop production, and forest products production.

In the INC, a number of potential adaptation measures and related activities were proposed. Over the course of developing the SNC the project team will evaluate the progress of the implementation of adaptation-related measures and activities proposed in the INC. Furthermore, building on the physical impact and socio-economic impact studies carried out during the SNC preparation period, the project team will conduct stakeholder consultations and evaluation of potential “no regrets” and “low regrets” climate-proofing/adaptation measures. The evaluation of these potential measures will include estimated cost-benefit analysis, an examination of time-frames for implementation, which parties should be responsible for implementation, and potential sources of funding. These aspects will be important for the ranking of prioritised potential adaptation measures.

As part of the preparation of the SNC, the project team will identify opportunities for the effective integration of adaptation measures into national strategies – such as the energy strategy, agricultural strategy, forestry strategy, etc. This will at first take the form of an analysis of existing national strategies in order to gauge areas where incorporation of climate change adaptation/climate proofing would be beneficial. It will also involve outreach to the organisations/ministries developing future sector-level strategies to ensure that climate change adaptation issues are considered.

Finally, the project team will carry out activities amongst stakeholders to raising awareness regarding adaptation and vulnerability to climate change. This will take the form of stakeholder workshops and the distribution of booklets and leaflets.

Outputs for Outcome 3:

- 3.1. Climate change scenarios revised by using a regional climate model¹⁸
- 3.2. Changes in climate for the period 1950-2009, extreme weather events and climate variability analysed

¹⁸ Including information on projected frequency of extreme events (especially precipitation, droughts, and heat waves), and snow-fall, solar insolation, and humidity.

- 3.3. Climatological database CLIDATA and data on extreme meteorological and hydrological events and disasters improved
- 3.4. Quantitative and – where possible – geographically disaggregated vulnerability assessments of hydrology and water resources, agriculture and forestry, including identification of level of vulnerability and the most vulnerable areas reviewed.
- 3.5. Impacts of climate on socio-economic conditions in the most vulnerable sectors analysed and described
- 3.6. Development via stakeholder consultations of a prioritised list of no regrets/low-regrets climate-proofing/adaptation measures for the hydrology and water resources sector,¹⁹ agriculture²⁰ and forestry sectors, including cost-benefit analysis, timeframes, responsible parties, etc.
- 3.7. Opportunities for effective integration of adaptation measures into national strategies identified
- 3.8. Activities for raising awareness (workshops, booklets, leaflets) on adaptation and vulnerability realized

2.2.4 Outcome 4: Updated information in other areas required under the UNFCCC (education, training, public awareness, research and systematic observation, networking and capacity-building, and technology transfer) prepared and all project-related information synthesized in the publication of the SNC

The INC addressed many of the issues that will be re-examined in Outcome 4 of the project. The information on the national circumstances that was gathered in the INC will be updated. This will especially involve including the most up-to-date information on socio-economic and political issues in Serbia – making it up to date until at least 2010. Results from the last census, as well as data generated from projects that were finalized since the census or are ongoing projects, will be analysed, as will other relevant national documents. Information related to national circumstances: i.e., Serbia's geography, climate, natural resources and socio/economic conditions, which may affect the country's ability to deal with mitigation and adaptation to climate change, will be collected and analysed.

Updated information on the integration of the UNFCCC requirements in the national legislation and strategic documents will also be addressed. This will include an analysis of national and regional laws, regulations, projects, programmes and strategy documents related to climate change. In particular, the current process of approximation of national legislation to the EU *aquis communautaire* has taken into account climate change issues in a number of areas. These updated areas will be included in the SNC.

Information on the financial and technical capacity needs and constraints associated with the implementation of the UNFCCC will be included. National institutional arrangements, which are coordinated by Serbia UNFCCC National Focal Point for the initiation and coordination of activities to implement the UNFCCC, are largely functioning. The main difficulties in fulfilling the Convention commitments are linked to funding issues, as well as institutional and human resources capacity constraints. Currently, the main barriers to strengthening capacity and ensuring the sustainability of various programmes related to climate change are the unavailability of financial resources and the absence of a systematic approach to

¹⁹ Especially related to flooding, water-logging and hydro-electric power production

²⁰ Especially related to drought, seasonal shifts of climate variables, flooding, and changes in pests/vermin

implementation. During the preparation of the SNC, a detailed assessment of financial, technical, and organisational needs will be carried out. Much of this information will be available from the analysis from Outcomes 1, 2, and 3 of the project. Additional information is already available as a result of the National Capacity Self-Assessment which is currently being completed.²¹

In addition to the financial and technical needs for implementing the UNFCCC, the SNC will also provide a detailed examination of the technology, financial, and capacity needs for addressing mitigation and adaptation priorities. This section will build upon the analysis carried out under Outcomes 2 and 3 which will analyse the investment and institutional needs related to mitigation and adaptation measures – as well as prioritising them. It is envisioned that a list of concrete projects will be developed for which Serbia can apply for international funding or fund through internal resources.

A section of the SNC will also be compiled which details the national plans and programmes on systematic observation, climate research and forecasting capacity. This will be directly linked with the activities in Outcome 3 of the project (climate changes, vulnerability and adaptation).

Analysis will be carried out to assess the needs, gaps and priorities for education, training and public awareness. This will include an assessment of ongoing educational and training activities at various levels related to climate change issues. It will also examine the treatment of climate change issues in the media. Finally, public awareness levels and education levels will be assessed through a public survey which will use methodologies and questions comparable to those of the EU.

Within this outcome, the SNC will be prepared, translated and edited, submitted, and disseminated (including a limited amount of printed copies).

Additional outreach will be carried out to decision-makers to raise awareness related to the issues and findings of the SNC. It is envisioned that 2-page “policy briefs” for each of the main sectors will be prepared and distributed, seminars and workshops will be carried out, etc.

Outputs for Outcome 4:

- 4.1. An updated chapter on National Circumstances with data up to date until at least 2010
- 4.2. Information in regard to climate change related legislation, integration of UNFCCC requirements in legislation and strategies updated
- 4.3. Information on financial, technical capacity needs and constraints associated with the implementation of the UNFCCC provided
- 4.4. Technology, financial and capacity needs²² for mitigation and adaptation assessed – along with detailed information on costs for programmes and potential sources of income

²¹ Under the GEF Enabling Activity Project “Serbia and Montenegro National Capacity Self-Assessment,” the Government of the Republic of Serbia has received financial support to conduct a capacity self-assessment for Global Environment Management (necessary for the implementation of the three UN Conventions – biodiversity, desertification and climate change). The results of this project will be used in the SNC, as will the results of other relevant projects that have been implemented by different stakeholders.

²² For specific sectoral actors involved with activities related to climate change

- 4.5. National plans and programmes on systematic observation, climate research and forecasting capacity described
- 4.6. Needs, gaps and priorities for education, training and public awareness²³ identified and programmes proposed
- 4.7. SNC prepared, translated and edited, submitted and disseminated
- 4.8. Awareness raising activities, especially among decision-makers realized

²³ Including via a public survey

3 PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: 2.5.4.2 Improved national response to adapt to and mitigate the impact of global climate change, and adhere to relevant international conventions
Country Programme Outcome Indicators: Improved mechanisms to protect the environment, ensure sustainable management of natural resources, and mitigate and/or adapt to the impacts of global climate change on social, economic, and ecologic systems
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one) Improved mechanisms to protect the environment, ensure sustainable management of natural resources, and mitigate and/or adapt to the impacts of global climate change on social, economic, and ecologic systems
Applicable GEF Strategic Objective and Program: Climate Change Enabling Activity
Applicable GEF Expected Outcomes: Human and institutional capacity of recipient countries
Applicable GEF Outcome Indicators: Countries and institutions supported by the GEF

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective[1] (equivalent to output in ATLAS): Second National Communication of Serbia to the UNFCCC developed, submitted and disseminated	Preparation and submission of the SNC	Serbia has completed its INC	The SNC will be endorsed and submitted to the UNFCCC.	UNFCCC documentation; government records	Risk: Insufficient attention to CC issues on the part of the Government due to other pressing concerns will hinder project implementation. Risk rating: Low Assumptions: Continued interest on behalf of Serbia in engagement in climate change issues
Outcome 1 (equivalent to activity in ATLAS): Updated GHG inventory prepared and capacity to collect this information on an on-going basis for future NCs enhanced	Level of data collected, analysed and existing gaps	Most data is collected and analysed, though there are existing gaps related to solvents, and synthetic gases	Activity data, required by IPCC guidelines, collected and analysed, data gaps filled and inventory and database improved where needed	* UNFCCC in-depth review data (if available) * Project documentation * External expert review (NCSP) * SNC	Risk: Insufficient data available to fill gaps Risk rating: Low for all years, though some years may not have all data Assumptions: Assumes good data sharing and building on the data and

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	Existence of country-specific and standard emissions factors	Serbia-specific emissions factor for lignite calculated with the rest using Tier-1 methodology	Emission factors for key source categories recalculated	* Methodological reports from the GHG Inventory	methods developed during the INC preparation
	Level of detailed analysis of the LULUCF sector	Net emissions due to changes in forest and other woody biomass stocks as well as forest and grassland conversion described	Improved analysis of net GHG emissions from LULUCF	* Methodological reports from the GHG Inventory * Databases on LULUCF	
	Years of compiled GHG inventories	GHG inventories completed for 1990 and 1998	GHG inventories for all sectors and all gases considered in IPCC '96 guidelines for the year 2000 – 2010	* Databases of GHG inventories * The GHG inventory chapter of the SNC	
	Implementation and sustainability mechanism for GHG inventories	Inventory carried out by Serbian research institutions with close cooperation with Serbian Env'tl Protection Agency (SEPA) /government authorities	Contribution of different sectors to GHG emissions, procedures and arrangements for collection and archiving of data and role of institutions involved in preparation of GHG inventory described	* Project documentation (including final evaluation)	
Outcome 2 (equivalent to activity in ATLAS): Updated report on measures to mitigate GHG emissions prepared and capacity to collect this information on an on-going basis for future NCs	Level of sophistication of the BAU scenario	BAU scenario developed for 2015 but not including social and economic trends	BAU scenarios disaggregated according to sectors developed for each sector until 2020 considering social and economic trends with assumptions included in the analysis	* Methodological reports from the mitigation analysis * The mitigation chapter of the SNC	Risk: Changing prices and conditions mean that mitigation analysis does not correspond to actual legislative and economic/financial conditions

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
strengthened	Level of information available on technical and economic potential of GHG reduction from various sectors	Analysis of possibilities for GHG mitigation presented, though not always including technical and economic potential and not from all sectors	Analysis of possibilities for GHG mitigation which were presented in the INC upgraded including the technical potential and economic potential for GHG reduction from changes in the Energy, Industrial Processes, Agriculture, Waste Management, and LULUCF sectors	* The mitigation chapter of the SNC * Any background papers prepared for the chapter	<p>Risk rating: Medium – it will be important to ensure that the BAU and mitigation measures are reflective of legislative restrictions and incorporate price/economic sensitivity to give a realistic range of values.</p> <p>Assumptions: Assumes no major economic upheavals during the period of analysis</p>
	Detailed analysis of new key sub-sectors carried out	INC does not include detailed analysis of potential for GHG reduction related to renewable energy, improvement of EE in industry, public sector and household EE measures	Analysis related to renewable energy potential, energy consumption in industry, public sector and households extended	* The mitigation chapter of the SNC * Any background papers prepared for the chapter	
	Level of detailed GHG abatement plan	INC includes analysis of potential technologies, including investment needs for some interventions	A GHG emission abatement action plan until 2020 developed – including identifying a registry of Nationally Appropriate Mitigation Actions (NAMAs) and potential areas for carbon finance interventions	* The mitigation chapter of the SNC * Project documentation	
	Existence of analysis of long-term mitigation possibilities	Potential long-term mitigation possibilities are not analysed	Long-term mitigation possibilities analysed and proposed	* The mitigation chapter of the SNC * Project documentation	
Outcome 3 (equivalent to activity in ATLAS): Updated assessment of climate changes, vulnerability to CC, and measures to adapt to CC prepared; capacity to collect	Level of analysis of projected climate change	Climate change scenarios analysed using a regional climate model but not analysing all parameters	Climate change scenarios revised by using a regional climate model	* The V&A chapter of the INC * Project documentation	<p>Risk: Difficult to identify, prioritise and plan for no regrets/ low regrets measures</p> <p>Risk rating: Medium – it will be necessary to</p>

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
this information on an on-going basis for future NCs strengthened	Analysis of previous climate for climate variability	Changes in climate for the period 1950-2004 examined but without looking at extreme weather events	Changes in climate for the period 1950-2009, extreme weather events and climate variability analyzed	* The V&A chapter of the INC * Project documentation	incorporate specialists and decision-makers from the various fields to ensure that all understand the concepts Assumptions: Assumes active participation and interest amongst stakeholders and experts
	Improvement of climate databases	Climatological database CLIDATA exists but without sufficient data on extreme meteorological and hydrological events and disasters	Climatological database CLIDATA and data on extreme meteorological and hydrological events and disasters improved	* The CLIDATA databases * Project documentation	
	Level of assessment of sectors vulnerable to climate change	Quantitative assessments carried out for many different sectors, but not geographically disaggregated	Quantitative and – where possible – geographically disaggregated vulnerability assessments of hydrology and water resources, agriculture and forestry	* The V&A chapter of the INC * Project documentation	
	Level of assessment of socio-economic vulnerabilities to climate change	Potential socio-economic impacts of climate change not assessed	Impacts of climate on socio-economic conditions in the most vulnerable sectors analysed and described	* The V&A chapter of the INC and/or any additional publication * Project documentation	
	Identification and prioritisation of adaptation options	A list of potential adaptation measures exists with barriers to implementation	Development via stakeholder consultations of a prioritised list of no regrets/low-regrets climate-proofing/adaptation measures	* The V&A chapter of the INC and/or any additional publication * Project documentation	
	Identification of possibilities for effective integration of adaptation measures into national strategies	Opportunities have not been officially identified, though there have been workshops and discussions, and climate change threats are mentioned in a number of sectoral	Opportunities for effective integration of adaptation measures into national strategies identified	* Project documentation (including final evaluation)	

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
		strategies			
	Methods used for raising awareness among stakeholders about adaptation and vulnerability	Some workshops carried out, but limited booklets and leaflets produced	Activities for raising awareness (workshops, booklets, leaflets) on adaptation and vulnerability realized	* Project documentation (including copies of booklets and leaflets)	
Outcome 4 (equivalent to activity in ATLAS): Updated information in other areas required under the UNFCCC (education, training, public awareness, research and systematic observation, networking and capacity-building, and technology transfer) prepared and all project-related information synthesized in the publication of the SNC	Level of detail and being up-to-date in National Circumstances	National Circumstances only covers up to 2000	An updated chapter on National Circumstances with data up to date until at least 2010	* The National Circumstances chapter of the SNC	Risk: No major risks identified Assumptions: No major assumptions
	Level of information regarding legislation, integration of UNFCCC requirements in legislation and strategies	The INC includes a good level of information available, but now out-dated	Information in regard to climate change related legislation, integration of UNFCCC requirements in legislation and strategies updated	* The appropriate chapter of the SNC	
	Level of information on financial, technical capacity needs and constraints associated with the implementation of the UNFCCC	The INC provides this information, and the NCSA also provides information on this, but it will be out-dated	Information on financial, technical capacity needs and constraints associated with the implementation of the UNFCCC provided	* The appropriate chapter of the SNC	
	Level of information provided on financial and capacity needs for mitigation and adaptation	The INC provides some information, but not detailed information on many costs for programmes and potential sources of income	Technology, financial and capacity needs for mitigation and adaptation assessed – along with detailed information on costs for programmes and potential sources of income	* The appropriate chapter of the SNC	
	Level of information provided on national plans and programmes on systematic observation, climate research and forecasting capacity	The INC describes national plans and programmes on systematic observation, climate research and forecasting capacity, but this will be out-dated	National plans and programmes on systematic observation, climate research and forecasting capacity described	* The appropriate chapter of the SNC	

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	Level of information provided on needs, gaps, and priorities for education, training and public awareness	Needs, gaps and priorities are identified along with proposed programmes, but this will be out-dated	Needs, gaps and priorities for education, training and public awareness identified and programmes proposed	* The appropriate chapter of the SNC	
	Publication of the SNC	INC has been prepared, translated, edited, submitted and disseminated	SNC prepared, translated and edited, submitted and disseminated	* The SNC * Project documentation	
	Implementation of awareness raising activities - especially among decision-makers	Awareness raising activities are taking place, but more can occur	Awareness raising activities, especially among decision-makers (workshops, seminars, booklets, etc.) realized	* Project documentation (including final evaluation)	

4 TOTAL BUDGET AND WORK PLAN

Project Work Plan

Activity #	Description	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GEF Outcome/ UNDP Activity 1:	Updated GHG inventory prepared and capacity to collect this information on an on-going basis for future NCs enhanced												
Activity/Output 1.1	Activity data, required by IPCC guidelines, collected and analysed, data gaps filled and inventory and database improved where needed												
Activity/Output 1.2	Emission factors for key source categories recalculated												
Activity/Output 1.3	Improved analysis of net GHG emissions from LULUCF												
Activity/Output 1.4	GHG inventories for all sectors and all gases considered in IPCC '96 guidelines for the year 2000 – 2010												
Activity/Output 1.5	Contribution of different sectors to GHG emissions, procedures and arrangements for collection and archiving of data and role of institutions involved in preparation of GHG inventory described												
GEF Output/ UNDP Activity 2:	Updated report on measures to mitigate GHG emissions prepared and capacity to collect this information on an on-going basis for future NCs strengthened												

Activity #	Description	Year 1				Year 2				Year 3			
Activity/Output 2.1	BAU scenarios disaggregated according to sectors developed for each sector until 2020 considering social and economic trends with assumptions included in the analysis												
Activity/Output 2.2	Analysis of possibilities for GHG mitigation which were presented in the INC upgraded including the technical potential and economic potential for GHG reduction from changes in the Energy, Industrial Processes, Agriculture, Waste Management, and LULUCF sectors												
Activity/Output 2.3	Analysis related to renewable energy potential, energy consumption in industry, public sector and households extended												
Activity/Output 2.4	A GHG emission abatement action plan until 2020 developed – including identifying a registry of Nationally Appropriate Mitigation Actions (NAMAs) and potential areas for carbon finance interventions												
Activity/Output 2.5	Long-term mitigation possibilities analysed and proposed												
GEF Output/ UNDP Activity 3:	Updated assessment of climate changes, vulnerability to CC, and measures to adapt to CC prepared; capacity to collect this information on an on-going basis for future NCs strengthened												
Activity/Output 3.1	Climate change scenarios revised by using a regional climate model												
Activity/Output 3.2	Changes in climate for the period 1950-2009, extreme weather events and climate variability analyzed												
Activity/Output 3.3	Climatological database CLIDATA and data on extreme meteorological and hydrological events and disasters improved												
Activity/Output 3.4	Quantitative and – where possible – geographically disaggregated vulnerability assessments of hydrology and water resources, agriculture and forestry												
Activity/Output 3.5	Impacts of climate on socio-economic conditions in the most vulnerable sectors analysed and described												
Activity/Output 3.6	Development via stakeholder consultations of a prioritised list of no regrets/low-regrets climate-proofing/adaptation measures												
Activity/Output 3.7	Opportunities for effective integration of adaptation measures into national strategies identified												
Activity/Output 3.8	Activities for raising awareness (workshops, booklets, leaflets) on adaptation and vulnerability realized												
GEF Output/ UNDP Activity 4:	Updated information in other areas required under the UNFCCC (education, training, public awareness, research and systematic observation, networking and capacity-building, and technology transfer) prepared and all project-related information synthesized in the publication of the SNC												

Activity #	Description	Year 1			Year 2			Year 3		
Activity/Output 4.1	An updated chapter on National Circumstances with data up to date until at least 2010									
Activity/Output 4.2	Information in regard to climate change related legislation, integration of UNFCCC requirements in legislation and strategies updated									
Activity/Output 4.3	Information on financial, technical capacity needs and constraints associated with the implementation of the UNFCCC provided									
Activity/Output 4.4	Technology, financial and capacity needs for mitigation and adaptation assessed – along with detailed information on costs for programmes and potential sources of income									
Activity/Output 4.5	National plans and programmes on systematic observation, climate research and forecasting capacity described									
Activity/Output 4.6	Needs, gaps and priorities for education, training and public awareness identified and programmes proposed									
Activity/Output 4.7	SNC prepared, translated and edited, submitted and disseminated									
Activity/Output 4.8	Awareness raising activities, especially among decision-makers (workshops, seminars, booklets, etc.) realized									
Project Management:	Project activities coordinated, ongoing communication with all stakeholders maintained, and quality of project activities monitored and evaluated									
PM1:	Activities and staff coordinated									
Activity PM 1.1	Develop working groups and finalise ToRs with the Government stakeholders which will carry out parts of the INC.									
Activity PM 1.2	Establish regular meetings for Team Leaders, Working Groups, Government stakeholders, and experts in each sector									
Activity PM 1.3	Identify and hire appropriate local and international experts to manage activities and conduct research									
Activity PM 1.4	Hold an inception workshop and finalize the timetable for all project outputs and activities									
Activity PM 1.5	Procure equipment and office facilities for the project as needed									
Activity PM 1.6	Conduct an initial overview of the data and parameters for project scenarios and research in order to ensure that scenarios, estimates, and other project research are internally consistent within the NC									
Activity PM 1.7	Coordinate training to be provided in project sectors, provide travel support, and oversee sharing of experience gained by individual experts during trainings and workshops in Serbia and abroad									
Activity PM 1.8	Oversee the implementation of the activities by Government stakeholders and by independent consultants/contracted organisations									

Activity #	Description	Year 1				Year 2				Year 3			
PM 2:	Communication among project experts, project stakeholders, and the general public coordinated												
Activity PM 2.1	Include project stakeholders and project experts in the Project Board and convene the committee at least twice a year (and additionally on an ad hoc basis as necessary)												
Activity PM 2.2	Prepare press releases and other information regarding the project status and findings as necessary and respond to press queries regarding the project												
Activity PM 2.3	Design and maintain a project website (probably at www.unfccc.me) updating information on a regular basis												
PM 3:	Project activities, outputs, and outcomes monitored and evaluated												
Activity PM 3.1	Compile documentation for the Annual Project Review (APR) that conforms to UNDP-GEF requirements and CO specifications												
Activity PM 3.2	File regular reporting documents as required by UNDP-GEF and/or UNDP Serbia, including Quarterly Operational Reports (QORs) and Project Implementation Reviews (PIRs) with corresponding updates in the Atlas Risk Log if necessary												
Activity PM 3.3	Compile a Lessons Learned Note on project implementation and the SNC preparation process to be distributed to government counterparts, to UNDP Serbia, and to other GEF-funded project teams in order to share experience and good practice in the preparation of NCs												
Activity PM 3.4	Describe thoroughly the activities carried out by the different actors within the process of developing the SNC												
Activity PM 3.5	Outline the roles which the various national institutions should take – along with detailed guidelines for carrying out those roles – for the production of future NCs and/or GHG inventories												

Award ID:	00064350	Project ID(s):	00081189
Award Title:	Second National Communication for Serbia to the UNFCCC		
Business Unit:	Environment and Energy		
Project Title:	Second National Communication for Serbia to the UNFCCC		
PIMS no.	4891		
Implementing Partner (Executing Agency)	Ministry of Environment, Mining and Spatial Planning of Serbia		

GEF Outcome/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Code	ATLAS Budget Description	Amount Year 1 (USD) second half of 2012	Amount Year 2 (USD) 2013	Amount Year 3 (USD) 2014	Amount year (USD) first half of 2015	Accumulative	See budget note	
Outcome 1												
Vulnerability and Adaptation to Climate change	UNDP	62000	GEF	71200	International Consultants	6,500	22,750	13,000	6,500	48,750	1	
				71300	Local Consultants							2
					CC Policy Expert	24,872	6,000	5,690	5,000	41,562	2	
					CC national Expert to support the V&A		10400	3,467		13,867	2	
				72100	Contractual services	15,200	25,200	25,200	10,000	75,600	3	
				72200	Equipment	3,500				3,500		
				74500	Misc.	1,950	1,950	1,950	1,950	7,800	4	
					Total Outcome 1	52,022	66,300	49,307	23,450	191,079		
Outcome 2												
Green House Gas (GHG)Inventory	UNDP	62000	GEF	71200	International Consultants	9,750	14,300			24,050	5	
				71300	Local Consultants							6

					National GHG inventory expert	10,872	10,872			21,744	6
					CC GHG support expert		3,467			3,467	6
				72100	Contractual services	16,667	33,333			50,000	7
				74500	Misc.	2,450	2,450			4,900	8
					Total Outcome 2	39,739	64,422			104,161	
Outcome 3											
Measures to Mitigate Climate change				71200	International Consultants		9,750	14,300		24,050	9
	UNDP	62000	GEF		Local Consultants						10
					CC Mitigation expert 1			3,466		3,466	10
					CC Mitigation expert 2		10,872	10,872		21,744	10
				72100	Contractual services		30,000	15,000	10,000	55,000	11
				74500	Misc.	2,450	2,450	2,450		7,350	12
					Total Outcome 3	2,450	53,072	46,088	10,000	111,610	
Outcome 4											
				71200	International Expert				14,400	14,400	13
				71300	Local Consultants	2,250	7,500	3,750	2,250	15,750	14
				71600	Travel	750	1,500	1,500	750	4,500	15
				74200	Audio, video and print production costs	1,500	2,500	3,500	1,000	8,500	16
					Total Outcome 4	4,500	11,500	8,750	18,400	43,150	
PROJECT MANAGEMENT											
PROJECT MANAGEMENT	UNDP	62000	GEF	71300	Local Consultants	8,000	16,000	16,000	8,000	48,000	17

				71600	Travel	333	667	667	333	2,000	18
					Total Management	8,333	16,667	16,667	8,333	50,000	
				PROJECT TOTAL		107,044	211,961	120,812	60,183	500,000	

Budget notes:

1. International consultant recruitment in total of 8 weeks, each 1500 USD
- 2a. Recruitment of Climate change policy expert in duration of 10 weeks x 700 USD and
- 2b. Recruitment of Climate change vulnerability and adaptation expert in duration of 60weeks x 750USD
- 2c. Recruitment of Climate change expert to support on the process of preparation of the Communication in duration of 48 weeks x 530USD
3. Engagement of a Consultant to provide services related to Climate change vulnerability and adaptation (International consultant, 10 weeks x 1200USD +local consultants 30 weeks x 550USD)
4. Miscellaneous expenses foreseen under this budget note include events, meetings, workshops to be organized
5. International GHG Inventory expert to be recruited in duration of 22 weeks x 1500USD
- 6a. National GHG inventory expert recruited in duration of 63 weeks x 700USD
- 6b. GHG emissions inventory analyst and database expert recruited in duration of 26 weeks x 460USD
- 6c. Recruitment of Climate change/GHG inventory expert to support on the process of preparation of the Communication in duration of 48 weeks x 550USD
7. Engagement of a Consultant to provide services related to GHG Inventory (International consultant, 10 weeks x 1200USD +local consultants 33 weeks x 545USD)
8. Miscellaneous expenses foreseen under this budget note include events, meetings, and workshops to be organized
9. International consultant on climate change mitigation policy, in duration of 16 weeks x 1500USD
- 10a. Recruitment of climate change local mitigation expert in duration of 60 weeks x 750USD
- 10b. Recruitment of Climate change mitigation expert to support on the process of preparation of the Communication in duration of 48 weeks x 550USD
11. Engagement of a Consultant to provide services related to GHG Inventory (International consultant, 12 weeks x 1200USD +local consultants 33 weeks x 540USD)
12. Miscellaneous expenses foreseen under this budget note include events, meetings, and workshops to be organized
13. International evaluation expert recruited in duration of 8 weeks x 1800USD
- 14a. Climate change policy expert, recruited in duration of 3 weeks x 750USD
- 14b. Expert on capacity building in climate change, recruited in duration of 15 weeks x 750USD
- 14c. Editor, 3 weeks x 750USD
15. Travel related to CC issues, to workshops or seminars, in international or local for a aiming to exchange the experience and progress in combating climate change issues (the budget is indicative, per year)
16. Costs related to production of reports, brochures, promo material and the final edition of the Second National Communication
17. Project manager, in duration of 144 weeks x 230USD and a Project assistant 136 weeks x 120USD
18. Travel related to CC issues, to workshops or seminars, in international or local for a aiming to exchange the experience and progress in combating climate change issues (the budget is indicative, per year) including local travel

Summary of
Funds:²⁴

	Amount Year 1 (USD) half 2012	Amount Year 2 (USD) 2013	Amount Year 3 (USD) 2014	Amount Year 4 (USD) half 2015	Total
GEF	107,044	211,961	120,812	60,183	500,000
Donor 2 (cash and in-kind) Government	12,850	25,700	25,749	12,850	77,149
TOTAL	119,894	237,661	146,561	73,033	577,149

²⁴ Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc...

5 MANAGEMENT ARRANGEMENTS

5.1 Institutional arrangement

UNDP is the Implementing Agency for this project. The project is fully in compliance with the comparative advantages matrix approved by the GEF Council. The project is also in line with two of the UNDP's priorities for Serbia: Sustainable Development and The Environment. Currently UNDP is supporting other projects in Europe and CIS, focused on supporting governments in the preparation of National Communications to UNFCCC. The proposed project is consistent with the UNDP's mandate on promoting environmental protection, while recognizing the need to sustainably manage resources through capacity building and encouraging broader multi-sectoral participation of stakeholders. Given UNDP's recognized role in capacity development and based on the fact that UNDP is the implementing agency for a large portfolio of GEF-funded climate change projects, the Government of Serbia has requested UNDP's assistance in the design and implementation of this project.

5.2 Project Implementation Arrangements:

At the national level, the project will be executed by the Ministry of Environment, Mining and Spatial Planning. The MEMSP will appoint a senior official to be the Project Coordinator (PC). The PC will ensure full government support of the project.

A Project Implementation Unit (PIU) will be established comprising permanent staff including: a Project Manager (PM), Project Assistant. The PIU will assist Ministry to perform its role as implementing partner. The PM will be recruited in accordance with UNDP's regulations to manage actual implementation of the project; and will be based in Belgrade. S/he will report to the UNDP Focal Point on Energy and Environment. The PM will be responsible for overall project coordination and implementation, consolidation of work plans and project papers, preparation of quarterly progress reports, reporting to the project supervisory bodies, and supervising the work of the project experts and other project staff. The PM will also closely coordinate project activities with relevant Government institutions and hold regular consultations with other project stakeholders. The PM will also closely coordinate project activities with relevant government institutions and hold regular consultations with other project stakeholders and partners, including UNDP's relevant projects. Under the direct supervision of the PM, the Project Assistant will be responsible for administrative and financial issues, and will get support from the existing UNDP administration.

Overall guidance will be provided by the Project Board (PB). This will consist of key national governmental and non-governmental agencies, and appropriate local level representatives. UNDP will also be represented on the PB. The PB will be balanced in terms of gender. The Project Board will be responsible for making management decisions for the project, in particular when guidance is required by the Project Manager. It will play a critical role in project monitoring and evaluations by assuring the quality of these processes and associated products, and by using evaluations for improving performance, accountability and learning. The Project Board will ensure that required resources are committed. It will also arbitrate on any conflicts within the project and negotiate solutions to any

problems with external bodies. In addition, it will approve the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans and also approve any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for project results, Project Board decisions will be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

Members of the Project Board will consist of key national governmental and non-governmental agencies, and appropriate local level representatives. UNDP will also be represented on the Project Board, which will be balanced in terms of gender. Potential members of the Project Board will be reviewed and recommended for approval during the UNDP Project Advisory Committee (PAC) meeting. The Project Board will contain three distinct roles:

- *Executive Role*: This individual will represent the project "owners" and will chair the group. It is expected that the Ministry of Environment, Mining and Spatial Planning will appoint a senior official to this role who will ensure full government support of the project.
- *Senior Supplier Role*: This role requires the representation of the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board will be to provide guidance regarding the technical feasibility of the project. This role will rest with UNDP Serbia represented by the Resident Representative.
- *Senior Beneficiary Role*: This role requires representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board will be to ensure the realization of project results from the perspective of project beneficiaries. This role will rest with the other institutions (key national governmental and non-governmental agencies, and appropriate local level representatives) represented on the Project Board, who are stakeholders in the project.

•
Project Assurance: The Project Assurance role supports the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. The Project Assurance role will rest with the UNDP Serbia Environment Focal Point.

The permanent core technical staff of the project will be a Chief Expert (PM) on Climate Change. S/he will supervise a team of national specialists, who will implement specific activities of the project at the national level.

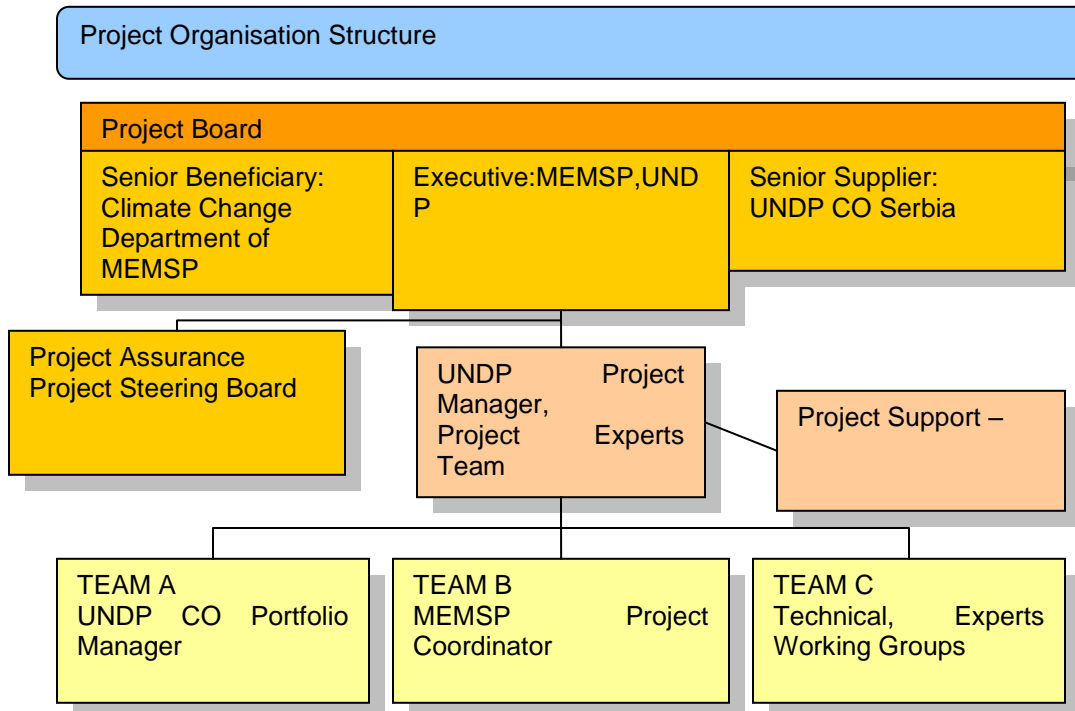
The PIU, following UNDP procedures on implementation of the National Implementation Modality (NIM) projects, will identify national experts and consultants, and international experts as appropriate to undertake technical work. The national and international companies may also be involved in project implementation. These consultants and companies will be hired under standard prevailing UNDP procedures on implementation of NIM projects. The UNDP Country Office will provide specific support services for project realization through the Administrative and Finance Units as required.

5.3 Audit Clause

Audit on project will follow UNDP Financial Regulations and Rules and applicable Audit policies.

5.4 Use of intellectual property rights

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated from the GEF logo if possible, as UN visibility is important for security purposes.



6 MONITORING FRAMEWORK AND EVALUATION

The project team and the UNDP Country Office (UNDP-CO) supported by the UNDP/GEF Regional Coordination Unit in New York and Bratislava²⁵ will be responsible for project monitoring and evaluation (M&E) conducted in accordance with established UNDP and GEF procedures. The Project Results Framework in Part 3 provides performance and impact indicators for project implementation along with their corresponding means of verification. The Tracking Tool will all be used as instruments to monitor progress in management effectiveness. The M&E plan includes: inception report, quarterly and annual review reports, and a final evaluation. The following sections outline the principle components of the M&E Plan and indicative cost estimates related to M&E activities. The project's M&E Plan will be presented and finalized in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

6.1 Monitoring and reporting

6.1.1 Project Inception Phase

A project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

A fundamental objective of the Inception Workshop will be to help the project team to understand and take ownership of the project's goal and objective, and to prepare the project's first annual work plan based on the logframe matrix. Work will include reviewing the logframe (indicators, means of verification, assumptions and expected outcomes), providing additional detail as needed, and then finalizing the Annual Work Plan (AWP) with measurable performance indicators.

The Inception Workshop will also inform the project team regarding UNDP project-related budgetary planning, budget reviews, and mandatory budget re-phasing. An overall objective of the workshop is that all parties understand their roles, functions, and responsibilities within the project's decision-making structures; and that reporting and communication lines and conflict resolution mechanisms are clear to all. Terms of Reference for project staff and decision-making structures will be again discussed to clarify each party's responsibilities during project implementation.

The Inception Workshop should address a number of key issues including:

- a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and other UNDP staff at the regional and headquarters level vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.

²⁵ The UNDP/GEF Regional Coordination Unit provides backstopping and guidance for UNDP Country Offices and is based in Bratislava, Slovakia with additional backstopping and guidance available for National Communications projects based in New York.

- b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- c) Provide a detailed overview of reporting, M&E requirements. The M&E work plan and budget should be agreed and scheduled.
- d) Detail the UNDP-GEF reporting and M&E requirements, with particular emphasis on the quarterly reports and Annual Review Reports, and final evaluations.
- e) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- f) Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the Inception Workshop.

An Inception Workshop Report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

6.1.2 Monitoring responsibilities and events

Project management (as described in section 5.2 above), project partners and stakeholder representatives will collaborate on the development of a detailed schedule of project review meetings to be incorporated in the Project Inception Report.

The schedule will include:

- (i) tentative time frames for Project Board Meetings and
- (ii) project related Monitoring and Evaluation activities.

The Project Manager will be responsible for day-to-day monitoring of implementation progress based on the Annual Work Plan and indicators. The Project Manager will inform the UNDP-CO of any delays or difficulties so that appropriate and timely corrective measures can be implemented. At the Inception Workshop, the Project Manager, project team, UNDP-CO, and UNDP-GEF Regional Coordinating Unit will fine-tune the project's progress and performance/impact indicators and will develop specific targets and their means of verification for the first year's progress indicators. Every year the project team will define targets and indicators as part of the internal evaluation and planning processes.

The Project Board Meetings (PBM) will be responsible for twice a year project monitoring. The PBM will be the highest policy-level meeting of the partners involved in project implementation. The first such meeting will be held within the first six months of the start of full implementation.

The Project Manager in consultation with UNDP-CO and UNDP-GEF Regional Coordinating Unit will prepare a UNDP/GEF Annual Review Report for submission to Project Board members and the Project Board for review and comments and for discussion at the PBM. The Project Manager will highlight policy issues and recommendations and will inform participants of agreements reached by stakeholders during the Annual Review Report preparation on how to resolve operational issues. Separate reviews of each project component will be conducted as necessary. Benchmarks will be developed at the Inception Workshop, based on delivery rates and on qualitative assessments of achievements of outputs. A terminal PBM will be held in the last month of project operations. The Project Manager will prepare a Terminal Report for submission to UNDP-CO and UNDP-GEF Regional Coordination Unit at least two months in advance of the terminal PBM to allow for review and to serve as the basis for discussions in the PBM. The terminal meeting will consider project implementation, achievement of project objectives, contribution to broader environmental objectives, actions needed to sustain project results, and ways that lessons learnt can feed into other projects being developed or implemented.

6.1.3 Project Reporting

The Project Manager in conjunction with the UNDP-GEF extended team will prepare and submit reports that form part of the monitoring process. The first six reports are mandatory and strictly related to monitoring; while the last two have broader functions such that their frequency and nature are project specific to be defined throughout implementation.

A Project Inception Report will be prepared by the PM immediately after the Inception Workshop. It will include a detailed First Year / Annual Work Plan divided in quarterly timeframes detailing activities and progress indicators guiding first year project implementation. This Work Plan will include dates of specific field visits, support missions from the UNDP-CO, the Regional Coordinating Unit (RCU), or consultants, and scheduling of the project's decision-making structures. The Report will also include a detailed project budget for the first full year of implementation based on the Annual Work Plan and the monitoring and evaluation requirements for the first year. The Inception Report will also detail the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project partners. The IR will also discuss progress to date on project establishment, start-up activities, and an update of changed external conditions that may affect project implementation. The finalized report will be circulated to project counterparts who will be given one calendar month in which to respond with comments or queries. The UNDP Country Office and UNDP-GEF Regional Coordinating Unit will review the document prior to circulation of the IR.

An Annual Review Report will be prepared by the Project Manager and shared with the Project Board prior to each annual Project Board meeting and will consist of the following sections: (i) project risks and issues; (ii) project progress against pre-defined indicators and targets and (iii) outcome performance. As a self-assessment by project management, the report does not entail a cumbersome preparatory process. At a minimum the ARR will follow the Atlas standard format for the Project Progress Report (PPR, although the country office may modify the format, as necessary) and will include a summary of results achieved relative to pre-defined annual targets, progress in meeting the Annual Work Plan, and achievement of intended outcomes via project partnerships. The ARR can also be used to spur dialogue among Project Board and partners.

Biannually: Questionnaires to indicate progress and identify bottlenecks as well as technical support needs will be carried out twice a year.

Quarterly progress reports: The project team will provide short reports each quarter outlining main updates in project progress. Reports will be submitted to the local UNDP Country Office and the UNDP-GEF Regional Coordination Unit.

UNDP ATLAS Monitoring Reports: A quarterly Combined Delivery Report (CDR) summarizing all project expenditures is mandatory and will be certified by the Implementing Partner. The following logs are to be maintained and updated throughout the project by the Project Manager: (i) The Issues Log captures and tracks the status of all project issues throughout project implementation; (ii) the Risk Log (using Atlas) captures potential risks to the project and associated measures to manage risks; and (iii) the Lessons Learned Log captures insights and lessons based on good and bad experiences.

Project Terminal Report: The project team will prepare the Project Terminal Report in the last three months of the project. This comprehensive report will summarize all activities, achievements, and outputs of the Project, lessons learnt, objectives met or not achieved, and structures and systems

implemented. The PTR will be the definitive statement of the Project's activities over its lifetime, recommending any further steps needed to ensure sustainability and replicability of the Project's activities.

Periodic Thematic Reports: The project team will prepare Specific Thematic Reports when called for by UNDP, UNDP-GEF, or the Implementing Partner. The written request by UNDP for a Thematic Report provided to the project team will clearly state the issue or activities that need to be reported on. These reports can deal with lessons learnt, specific oversight in key areas, or troubleshooting to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day to day monitoring of implementation progress will be the responsibility of the Project Manger, based on the project's Annual Workplan and its indicators. The Project Team will inform the Project Board of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

Periodic monitoring of implementation progress will be undertaken by the Implementing Partner through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Technical Reports are detailed documents covering specific areas of analysis or scientific issues in the project. As part of the Inception Report, the project team will prepare a draft Reports List that details which technical reports need to be prepared over the course of the Project and their tentative due dates. This Reports List will be revised and updated as necessary, and included in subsequent Annual Review Reports. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined research areas within the project framework. These technical reports will represent the project's substantive subject-matter contributions to be included in dissemination of results at local, national and international levels; and as such will be produced in a consistent and recognizable format.

Project Publications will crystallize and disseminate project results and achievements; can include scientific journal articles, informational texts, or multimedia publications; and can be based on selected Technical Reports or syntheses of a series of Technical Reports. The project team in consultation with UNDP, government partners and other stakeholders will determine if any of the Technical Reports merit formal publication and appropriate financial support.

6.1.4 Independent evaluation

An independent external Final Evaluation will take place three months prior to the terminal Project Board meeting and will focus on the same issues as the mid-term evaluation as well as on the impact and sustainability of results, capacity building, achievement of global environmental goals, and recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the UNDP-GEF Regional Coordinating Unit.

6.1.5 Learning and knowledge sharing

Project results will be disseminated within and beyond the project intervention zone via information sharing networks and forums including the UNDP/GEF networks that involve Senior Personnel of similar and related projects. UNDP/GEF Regional Coordination Unit has established an electronic platform for sharing lessons learned among project coordinators. The project will participate in relevant scientific, policy-based and other networks that can benefit project implementation via lessons learned; and will share its own lessons learned with other similar projects. Identification and analyses of lessons learned will be provided and communicated annually. UNDP/GEF will provide a format and assist the project team in categorizing, documenting and reporting on lessons learned.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

6.1.6 End of Project

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

6.1.7 Communications and visibility requirements

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at:

http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf.

Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF.

6.1.8 M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ Excluding project team staff time	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO, UNDP RCU 	None	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> ▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. 	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> ▪ Oversight by Project Manager ▪ Project team 	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG 	None	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> ▪ Project manager and team 	None	Quarterly
Final Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team) 	USD 14,400	At least three months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ local consultants 	0	At least three months before the end of the project
Visits to field sites	<ul style="list-style-type: none"> ▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives 	For GEF supported projects, paid from IA fees and operational	Yearly

Type of M&E activity	Responsible Parties	Budget US\$ Excluding project team staff time budget	Time frame
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		USD 14,400	

7 LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

ANNEXES

Annex A. RISK ANALYSIS

Risk	Rating	Mitigation strategy
Insufficient attention to CC issues on the part of the Government due to other pressing concerns will hinder project implementation.	Low	The project team will make sure to engage various Government stakeholders throughout the process.
Insufficient data available to fill gaps for the GHG inventory	Low	Data gaps will be filled in based on IPCC best practices, and – where not available at all for certain years – detailed descriptions of the steps taken to address these gaps will be described.
Changing prices and conditions mean that mitigation analysis does not correspond to actual legislative and economic/financial conditions	Medium	The BAU and mitigation measures will incorporate price/ economic sensitivity analysis to give a realistic range of values.
Difficult to identify, prioritise and plan for no regrets/ low regrets measures	Medium	It will be necessary to incorporate specialists and decision-makers from the various fields early in the process to ensure that all understand the concepts

Annex B. AGREEMENTS

Any additional agreements, such as cost sharing agreements, project cooperation agreements signed with NGOs²⁶ (where the NGO is designated as the “executing entity”, letters of financial commitments, GEF OFP letter, GEF PIFs and other templates for all project types) should be attached.

²⁶ For GEF projects, the agreement with any NGO pre-selected to be the main contractor should include the rationale for having pre-selected that NGO.

Annex C. SUMMARY REPORT OF THE SELF-ASSESSMENT EXERCISE AND INC CONSULTATIONS

C.1. Methodological approach

As part of the preparation of the SNC project document, consultations were held with UNDP experts and an international consultant engaged to examine the issues pertaining to the INC which could and should be addressed within the SNC. This included a detailed review of the INC as well as a review of background information on Serbia. This analysis identifies some of the places where potential improvements could be made during the SNC, but does not prioritise them.

Also as part of the preparation of the SNC project document a stocktaking exercise was conducted in order to increase the stakeholders' participation and identify priority activities for Serbia's SNC to the UNFCCC. As such, the SNC project proposal was prepared as a result of participatory and consultative stocktaking exercise as well as consultation process before and after it. The following sections describe both the result of the consultations with UNDP experts, the international consultant, and the various stakeholders in planning the priorities for the SNC project.

C.2. Findings of the evaluation of issues in the INC which can be addressed in the SNC

C.2.1. Comments on Chapter 2: National Circumstances

Data used for giving an impression of the national circumstances only given for the period 1990-2000, and this might not be the most representative period of time for the country. Very recent transformations in the country are not always properly captured especially under the vulnerability and adaptation assessments and mitigation analysis chapters. Though the idea was to cover the period that the GHG Inventory covered it is recommended that in the SNC the analysis under national circumstances is as up-to-date as possible (regardless of the GHG inventory dates covered).

Some sub-sections explicitly refer to climate change. Still, for many other sub-sections, the information provided has no immediate relevance to the country's ability to deal with climate mitigation and adaptation.

Though countries are invited to provide a description of existing institutional arrangements relevant to the preparation of NCs, this piece of information is missing in the text. It is partially present in the introduction and in the last chapter, so for the SNC, it may be beneficial to reorganize the text slightly and have this piece of information present in the national circumstances chapter.

The use of maps or tabular forms to represent data is very much encouraged, and would be desirable to include in the SNC.

C.2.2. Comments on Chapter 3: Greenhouse Gas Inventory Information

The GHG Inventory for the Serbian Republic was elaborated utilising guidance from UNFCCC/CP/2002/7/Add.2, Decision 17/CP.8 Guidelines for Non Annex I parties (hereinafter referred as the IPCC Revised 1996 Guidelines) and its corresponding software. The IPCC Good Practice

Guidance and Uncertainty Management (2000) and Good Practice Guidance for Land Use, Land-Use Change and Forestry-GPG for LULUCF, IPCC, 2003 were also used for the GHG inventory.

In all sectors the Tier 1 method was used for the calculations of GHG emissions. For the SNC, it would also be good to be specific about data sources for each type of emitter – especially if any Tier 2 methodologies are possible – as well as discuss the quality of the data sources.

The year 1990 was chosen the base year. According to the report “due to irregular working conditions in most sectors and years, and due to missing data, only data for the year 1998 are given”. Multiple years and trend analysis is not required from the non-Annex I countries for the SNC – it is only required to estimate 2000 and to re-estimate 1994 or 1990. However, for the SNC, if possible, it would be good to add additional years. The presentation of the trends would also be well-described in a graphical form comparing various years.

Gases Included in the report: Direct and indirect gases were reported for 1990 and 1998 in two separated tables.

The total and sectoral emissions and removed amounts of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) were reported for the base year 1990 and 1998. Indirect gases: non-methane volatile organic compounds (NMVOC), SO_x, carbon monoxide (CO) and oxides of nitrogen (NO_x) were also reported for 1990 and 1998.

Within the INC, “solvent and other product use” isn’t estimated due to a lack of available data. This can be a significant source of emissions. It is recommended that an attempt is made to estimate the emissions from solvents in the SNC for whatever years are possible. Additionally, information on HFCs, PFCs or SF₆ was not reported for 1990 or 1998 due to the fact that there were not records of import or consumption of these gases in the country. Estimates of these gases should be made if possible.

The calculations and report of GHG emissions included in the INC report covered the following sectors: Energy, Industrial Processes, Agriculture and Waste, Land Use Change and Forestry.

Related to agriculture, if possible (and relevant) it would be good to include CO₂ data. Furthermore, GHG emissions and removals from soils are not estimated. This is a growing area of analysis and could be very interesting in terms of the amounts of GHG and setting the stage for later market mechanisms to encourage more carbon in soils.

Emissions from International Bunker and CO₂ emissions from biomass are reported and not included in the national totals (reported as Memo items) – correctly as per guidelines.

Within the uncertainty analysis, the emissions of N₂O from agricultural soils (which is the 2nd biggest source of GHGs) are listed with 100% uncertainty. Is it possible to reduce this via better analysis? (see for example <http://www.sciencedirect.com/science/article/pii/S0016706110002004>). This may not be feasible within the SNC, though.

One technical issue to be consistent about is related to population growth. This socio-economic parameter will be especially important related to the BAU GHG scenario. For example, p. 68 mentions that there was an increase in GHG emissions from communal waste and waste water management (+27.9%) due to population growth, but the population was probably either steady or decreased during that time (though this is not clearly established elsewhere).

C.2.2.1. Inventory Planning and Data Sources and institutional arrangements

Sources of data:

The primary source of the data for the GHG inventory was the Statistical Yearbooks of the Statistical Office of the Federal Republic of Yugoslavia and the Statistical Office of the Republic of Serbia and the Customs Office. It is recommended to report if possible if these offices were the only sources of data for all sectors and subsectors included in the present report and also explain the quality of the data obtained from the above institutions.

Inventory Management:

Although Serbia's report explained that "With the aim of ensuring the sustainability of the process, the data bases produced during the process of preparation... are located in the Environmental Protection Agency of the Republic of Serbia" It is advisable to provide information about the procedures and arrangement established in order to sustain the process of data collection and archiving.

C.2.2.2. GHG calculations

As stated in paragraph 18 of the Decision 17/CP.8 Guidelines for Non Annex I parties the results of the calculation of fuel combustion using sectoral and reference approach for 1990 and 1998 was provided in Annex 3 of the report. The results show little discrepancies using the two methods and it would be interesting to explain the findings.

The total and sectoral emissions and removed amounts of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) were reported for the base year 1990. The GHG emissions (total, sectoral and net values) were also expressed in CO₂equivalent taking into account the 1995 IPCC global warming potential (GWP) values: 1 for CO₂, 21 for CH₄ and 310 for N₂O. Emission Factors

Regarding the methodology, the internationally recommended values for net calorific values and emission factors for all fossil fuels (solid, liquid and gaseous) were used, except for the low calorific open pit mined lignite. Serbian lignite, due to its characteristics, has a significantly lower net calorific value and a higher emission factor value than the internationally recommended values.

As the default factors for open pit mined lignite were not appropriate for Serbia the values used were accordingly calculated and documented in a separate annex this constitutes a very good practice as countries are encourage to use their own emission factors if possible.

C.2.2.3. Key sources and uncertainty

In order to establish priorities for allocating resources for preparation of future inventories and for ensuring completeness it is important to provide an adequate level of key source categories. Serbia undertook a key source analysis as indicated in the IPCC GPG and was reported in Annex 2. The table provides an overview of the key sources of emissions according to the gas species, classified according to their contribution to the total emissions in absolute terms and their contribution to total emissions in percentage terms, the cumulative total represented by the sources of emissions as they were summed, as well as the corresponding level of uncertainty for each source. It would be interesting to provide comments analysing the findings in terms of ways of reducing uncertainty and the impact of uncertainty on the estimated total.

C.2.2.4. Trends

A table analysing trends of the emissions and the removed amounts of GHG during the 1990-1998 was included in the report although, if possible, we encourage a brief summary of the findings to be included to provide a more in depth analysis of the findings. E.g. the implications of the trends in the economic activities and on the development process of Serbia.

C.2.2.5. Notation keys

According to the guidelines in preparing the tables Serbia has provided notation keys, all the estimated values were given in UNFCCC standardized form, including standard indicators as appropriate, for emissions by sources and removals by sinks of GHG: NO (not occurring) for activities that do not occur for a particular source/sink category in Serbia and NE (not estimated) for existing emissions and removals which were not estimated. It is advisable to explain why they did not estimate emissions from solvents and other product use.

C.2.2.6. Conclusions and Recommendations:

The report has followed the guidelines and shows that Serbia has made a significant effort to compile data from the period 1990-1998. We encourage the team that carries out the Inventory for the SNC to focus on the methodological as well as on the activity data collection. We would also encourage increasing and promoting the level of collaboration of institutions where data is stored for data collection, especially for the agriculture and LULUCF sector and other sectors or subsectors where data is not complete or missing.

We encourage the inclusion of conclusions of findings and future plans for the entire GHG Inventory chapter in the SNC.

For the SNC, we also encourage the team if possible to carry out a more in depth analysis of the findings for each sector analysing the trends and providing conclusions on the findings for each sector and each gas considered in the inventory.

If possible it is advisable to identify data gaps and to make the link with further improvement to be achieved through capacity-building in order to facilitate further requests for financial and technical assistance.

C.2.3. Comments on Chapter 4: Vulnerability Assessment, Climate Change Impacts and Adaptation

Overall, this chapter of the report presents a significant amount of new and important material related to climate change impacts in Serbia. Two major things that could be developed for the SNC include:

- A discussion of socio-economic impacts of current climate variability and future climate change would be helpful. There seems to be some physical modeling on which this can be based (and more modeling of the physical systems can be developed).
- Potential adaptation measures need to be analysed and prioritized according to costs, likely benefits, and whether they are “no regrets”, “low regrets” or potentially are very costly with doubtful benefits. This is particularly important for those projects listed on p. 85-86 of the INC.

It should be noted that some critical information in this chapter is presented in other parts of the NC, without a clear reference being made to these parts. In particular, information on data collection is

provided in Chapter 7 of the INC. It would be good to make references to all relevant pieces of information, even if this is being provided in other sections of the document.

C.2.3.1. Climate change scenarios

The climate change scenarios examined include an examination of recent trends in climate variables, as well as examining the A1B scenario for the period 2001-2030 and then the A1B and A2 scenarios for 2070-2100. Temperature and precipitation trends are examined.

It would also be perhaps useful to look at potential changes in wind patterns, projected frequency of extreme events (especially storms, precipitation, droughts, and heat waves), and snow-fall, solar insolation, and humidity. It's not known how feasible that is with the EBU-POM model, but it probably is.

In general not all of the vulnerability assessments are carried out in-depth. The agriculture and health sectors are an exception to this. The INC lists very many adaptation measures for the different sectors that have been taken into consideration. However, as a result of this lack of in-depth vulnerability assessments, the adaptation measures proposed in the per-sector studies appear to be very generic.

For the SNC, the vulnerability assessments should have a logical construction from:

1. Assessment of ongoing and future climate changes (climate and climate scenarios), to
2. The impacts on society and the economy of these changes (vulnerability assessment) and
3. A response to tackle these changes (adaptation measures).

Regarding the "challenges and obstacles" described in the INC, insufficient funds is always listed as a problem, but there are already very large subsidies in various areas – especially agriculture – that could potentially channelled towards "no regrets" or "low regrets" measures. For example, subsidies to farmers to grow trees to reduce potential flood damage could also lead to more stable river run-off and better hydro production, as well as be a better per/ha earner (in terms of the wood produced) for the farmers.

C.2.3.2. Hydrology and Water Resources:

For the SNC, a solid peer review by climatologists seems like it would be helpful. It seems that some of the model results are a bit strange and seemingly inconsistent. For example, the numbers on p. 74 indicate a 5-10% drop in precipitation by 2030 while p. 76 indicates a 15% drop in mean annual precipitation by 2020. Furthermore, p. 76 indicates a 12.5% drop in water discharge (this is assumed to be surface runoff by the reader, but it is not explicitly clear) by 2020. This seems like a drastic drop in 20-30 years (from 1960-1991). If the precipitation drop is actually 5-10%, it should be explained why water flows would drop even if precipitation isn't drastically different. In general, these comparisons could be clarified.

Further, regarding the quantitative assessment of drops in discharge of water resources, it would be good to break down these changes according to river basin (and if possible by season). This would assist in relation to hydropower potential issues.

Under "Strategic areas and measures of adaptation to climate changes in the water resource sector", the following is suggested which could be a part of the SNC process:

- Develop vulnerability map and map of flood risk
- Determine need for widening and deepening riverbeds and their additional cleaning
- Estimate ability of dams and other constructions, as well as city channel systems for flood control

- Improve the climate monitoring system
- Improve hydrological observation network
- Improve early warning systems for climate and hydrological extreme events
- Establish a data base on extreme meteorological and hydrological events and disasters
- Improve research in area of numerical modelling of hydrological processes (precipitation/snow–runoff for different time intervals)

It also may be of importance to look at the potential impact of climate change on hydropower production.

C.2.3.3. *Forestry*

This section is described in a qualitative way, and, if possible, physical modelling of the forest systems should be carried out (potentially using a GIS-based system linked to climate variables).

C.2.3.4. *Agriculture:*

Physical process (crop) modelling has been carried out for this section. It would be good to incorporate possible adaptation mechanisms into this modelling – as well as analyse the socio-economic impacts of the physical impacts.

If possible, it would also be good to disaggregate the analysis regionally (or according to climate zones) to identify the most vulnerable areas.

It would also be good to analyse the impacts of flooding (and potential flooding due to climate change) on the agriculture sector. It's probably quite large.

C.2.3.5. *Biodiversity and Natural Terrestrial Ecosystems*

There are no major comments on this section as it doesn't appear to be a priority for analysis and/or action. It should be noted that there may be EU-funded programmes to assist in this area (such as the LIFE+ programmes).

C.2.3.6. *Health*

This section is interesting in that it deals with diseases. Typically, health discussions deal with heat waves and cold spells as well. This would be a possibility for additional analysis – in particular analysing morbidity and mortality related to climate variables to identify when corrective action must be taken (though perhaps this already exists as, for example, a heat wave warning system?).

C.2.3.7. *Problems and Needs for Reducing Vulnerability to Climate Change*

It is unclear as to whether there are many “actionable” items within this section. In general, the recommendations that come from the SNC should probably have a specific action plan including information on who should do it (what institution), what specific purpose it will serve (where will it help Serbia deal with climate change) and how much it will cost.

C.2.3.8. *Project Proposals Dealing with Adaptation*

Overall, all of these projects need to have associated (approximate) costs, ideally the benefits, information on who should carry them out, a time frame, and an indication on whether they are “no regrets” or “low regrets”. In particular for adaptation funding mechanisms, a link between the expected physical impacts of climate change and the proposed adaptation project would be VERY helpful.

One note about the “challenges and obstacles” heading within each of the sections: insufficient funds is always listed as a problem, but there are already very large subsidies in various areas – especially agriculture – that could potentially channelled towards “no regrets” or “low regrets” measures. For example, subsidies to farmers to grow trees to reduce potential flood damage could also lead to more stable river run-off and better hydro production, as well as be a better per/ha earner (in terms of the wood produced) for the farmers.

Finally, as a general note, it may be good to add a section on impacts of climate change on energy consumption (related to increased cooling-days, changes in heating-days).

C.2.4. Comments on Chapter 5: Climate Change Mitigation:

As a precursor, note that ~66 million tonnes of GHG (from the GHG inventory) translates to ~9.1 tonnes GHG per capita. This is about the same as the EU average (9.4 tonnes GHG per capita in 2010²⁷). Thus, Serbia’s per capita GHG emissions are not that low. This is mainly due to lignite plants.

The following general notes have been observed:

- The first aspect that is noticeable about this chapter is that the drivers and assumptions for BAU scenarios in the various sectors are not fully explained. This would be helpful.
- Related to the BAU, especially as relates to energy, the Energy Community/EU requirements will potentially be a major driver for changing drastically the BAU case. These issues (and potential EU requirements) should all be reflected in the SNC.
 - For example, the Large Combustion Power Plants Directive will likely require filters on all lignite plants – which would then potentially reduce their efficiencies and at the very least require shut-downs for the periods of refurbishment.
 - Furthermore, the Energy Performance in Buildings Directive and appliance standards will have major impacts on energy efficiency standards.
 - Additionally, renewable energy requirements may have an impact.
- The feed-in tariff scheme is only very briefly mentioned on p. 91. More detail on this – including targets of total energy by source to be developed – would be welcome.
- In general, more information on the economic (and potentially social) aspects of the mitigation measures would be helpful. These are explored for the major thermal power plant investments in the annex, but not so for, for example, agricultural measures, forestry measures, etc. The use of software such as LEAP and RETScreen can facilitate this.
- This chapter in the SNC should have a focus on NAMAs and sectors where carbon finance possibilities may exist – which assist in economic development of Serbia. This will assist in garnering international support for the measures (and financing).

C.2.4.1. Energy

²⁷ http://www.eea.europa.eu/themes/climate/ghg-country-profiles/trends-and-projections-2011-cp/eu-27_tp2011_country_profile.pdf/at_download/file

The energy chapter is the most important for analysing mitigation potentials. The various aspects of the energy sector are generally delineated very clearly, though additional analysis and clarification could be helpful.

This section in the INC does not mention renewable energy except for small hydropower improvements (which are not quantified later in terms of costs). This is needs to be addressed in the SNC. For example, there are currently three CDM projects awaiting approval for wind power being developed (of 171, 123, and 102 MW).²⁸ There may be more RE projects being developed as well. Certainly there is additional hydro potential which may actually be enhanced due to forestation. Finally, biomass potential (especially cogeneration based on wood) is discussed at some points – but not put forward as an option for mitigation.

There is a suggestion to link the prices of heat and electricity with the prices of natural gas – which is done in some countries, but should be explained and justified thoroughly. I'm not sure it's wise as natural gas isn't the main source of electricity and thus its price is not connected to the price of generation. The Energy Community may have guidelines on this that must be followed related to competition and opening up of energy/ electricity markets. It does of course make sense to link electricity/ heat prices to the costs of production (whatever those may be).

The INC says that adverse economic conditions will limit the opportunity for EE in industry. However, if there are EE opportunities in industry they often assist in economic/ financial conditions. Indeed, many industries are uncompetitive if they do not implement them. The payback periods are often 1-2 years with very large negative costs (i.e. benefits). The analysis should benchmark Serbian industry against EU norms per, for example, tonne of product produced (e.g. in steel, cement, etc.). There are probably existing studies on this.

In the transport sector, it seems to indicate that no mitigation is possible – as too costly and too technologically demanding. This could be an area for further analysis, as the transport sector is generally an area of growing importance for GHG emissions and one where mitigation is possible via for example improving vehicle fleets, enhancing public transportation, changing fuel sources – for example to LPG – or better urban planning.

P. 99 talks about other sectors. This is referring to Public/Commercial, Residential and Agricultural sub-sectors under energy. Mitigation measures are mentioned briefly for these sub-sectors on p. 90 but it is a bit confusing because these are not mentioned again on p. 99. It says that GHG reduction measures are difficult to achieve in the analysed period but doesn't talk about what they would be.

Thermal rehabilitation in buildings, improving energy efficiency in newly built buildings, and improvement of energy management in buildings generally has great potential for GHG emissions reductions in general in Europe, and probably also in Serbia. In Serbia's National Energy Efficiency Action Plan (2010-2012 – p. 15 in the Serbian version), 0.3031 MToe are envisioned for saving by 2018 in this sub-sector – which would translate to ~710,000 tonnes GHG (710 Gg) reduced if this was only heat based on natural gas in district heating industrial boilers.

In any case, I think that additional clarity on measures to reduce GHG in these sub-sectors would be helpful in the SNC.

Fugitive emissions seem to go way up even though the trend between 1990 and 1998 is negative. This reinforces the point about needing to clarify the drivers of the BAU scenario. Also, the total amount

²⁸ <http://www.ekoplan.gov.rs/DNA/>

potentially reduced is less than a current CDM proposed project (~357,000 tonnes reduced in the INC and ~524,000 tonnes reduced in the CDM project - http://www.ekoplan.gov.rs/DNA/docs/Natsource_Serbian_PDD_v1_31may.pdf)

C.2.4.2. Industrial processes:

This section doesn't list anything. However, the Euro 5 directive may have a great impact on fuel refineries/ the BAU.

C.2.4.3. Agriculture:

This section talks about using biogas from animal wastes (heat generation or cogeneration of heat and power) on large cattle and pig farms, but doesn't include costs or associated MW outputs.

C.2.4.4. Forest Management:

This section talks about afforestation of areas not used intensively for agriculture in order to reduce emissions – 90,000 ha per year for 10 years – of which 9000 ha would be additional. The costs would be 30 EUR/tCO_{2e}. More on the reasons for this cost would be good to see.

C.2.4.5. Waste Management:

This section talks about landfill gas flaring and use for heat generation. It doesn't talk about quantities of energy produced – which would need to be decided upon according to the quantities of waste and the spatial characteristics of the landfill (where they are located and how far away they are from potential consumers of the heat).

C.2.5. Comments on Chapter 6: Research and Systematic Observations

There are no particular comments on this chapter.

C.2.6. Comments on Chapter 7: Education, Training and Public Awareness

In general, there is good information in this chapter about the education system and how it deals with environment/ climate change. More information – and recommendations – on operationalization of climate change sectoral actions would be helpful. For example, how the Faculty of Forestry could improve curricula to incorporate climate change issues to allow for the existing and future market/environment issues to be addressed.

There is also good information about training, public official awareness, public awareness, the role of NGOs, etc. However, additional information – and recommendations – on how exactly to improve these realms would be good.

C.2.7. Comments on Chapter 8: State of the implementation of the UNFCCC

There are no particular comments on this chapter. More information on regional cooperation related to climate change modeling and disaster risk reduction may be good to include.

C.2.8. Comments on Chapter 9: Financial, technological and capacity building needs

This chapter has some relatively good descriptions of what may be needed for GHG inventories and Adaptation analysis – though for operationalization more information would be helpful on who will carry out the projects, who will be the beneficiaries, partners, etc.

For the mitigation analysis, more analysis of investment costs, payback periods and marginal costs per tonne GHG reduced would be beneficial – i.e. analysis of other options for mitigation.

C.3. Findings from the stakeholder consultations and national capacity self-assessment

As has been noted, a stocktaking exercise was conducted in order to increase the stakeholders' participation and identify priority activities for Serbia's Second National Communication (SNC) to the UNFCCC. Therefore SNC project proposal was prepared as a result of participatory and consultative stocktaking exercise as well as consultation process before and after it.

The preparation process for this stocktaking exercise started on 23 December 2010. The management team consists of the UNFCCC Focal Point, staff of Climate Change Division, was established to carry out day-to-day coordination and management of the stocktaking exercise and oversee the preparation of the project proposal. The stocktaking exercise was carefully planned in cooperation with the national expert teams, in order to identify the best method for generating information essential for the preparation of the SNC project proposal. In addition, the open working group was created for more comprehensive consultations and self-assessment.

Stocktaking exercise, which was held in March 2011, was held during preparation of project proposal. In order to ensure the stakeholders participation, more than 30 experts and high-level representatives from governmental, non-governmental and academic institutions took part in it. Six main outputs and related activities have been discussed during the Stocktaking exercise (national circumstances, GHG national inventory, vulnerability & adaptation, measures for mitigation of climate change, gaps and financial needs and other information).

The main comments from stakeholders were related to data gaps and uncertainties, financial and technical/capacity needs and methodological issues. The most important issues, which were raised during the discussion, were the following:

- There is a need to update and recalculation of the GHG Inventory for the period included in the Initial National Communication;
- Information on uncertainty and the availability of data for years that should be included into GHG Inventory of the SNC;
- The period needs to be assessed for the climate change scenarios and the mitigation programme, taking into account unpredictability of economic development and relevant national strategic documents, especially for the long-term period;
- There is a need to present results on Measurement Reporting and Verification (MRV) manner and to enhance capacities to assess MRV;
- There is a need to further extend and upgrade of the analysis in the most vulnerable sectors;
- There is a need to improve inter-sectoral cooperation, in order to ensure that all relevant projects are taken into account as well as that all stakeholders has taken climate change into consideration according to the development priorities;
- There is a need to improve of capacity building and raising awareness process, since climate change issues are not only related to reporting to the UNFCCC.

The stocktaking exercise was based on the analysis of the Initial National Communication and process of its development. Main lessons learnt of the stocktaking exercise are:

- The national capacities for preparation of the SNC are currently advanced compared to during the period of preparation of the INC. Training to address capacity needs on national and local level will be an inevitable part of the activities within the SNC. In this regard, targeted training should be provided for different stakeholders, such decision makers, business sector, local communities, NGOs.
- Capacity building on national and local level for development of climate change related actions on measurable, verifiable and reportable (MRV) manner is needed. This will be one of the priorities during the process of preparation of the SNC, while modalities will be identified during this process.
- It could be very useful to maintain and strengthen established links with the countries from the region. It will contribute to enhancing national capacities through experience exchange, which will upgrade the quality of the analysis.
- Improvement of coordination between various projects, programs and studies will ensure quality of analysis, due to availability of new data and information, and with that faster implementation of the project for preparation of the SNC.
- More precise data and results will be achieved and implementation of proposed action will be ensured if the project activities will be based on process of development of new legislation and new sectoral and development strategies.
- Awareness related to climate change issues among the policy makers could be improved by establishment of the National Climate Change Committee. Members of this Committee will be high level officials of the Governmental institutions. Members of the Committee should have proactive role in exchange of information and contribute to better involvement of climate change issue into sectoral and development strategies.

The exercise resulted in a comprehensive list of stakeholders consulted, and extended roster of national experts working in the thematic areas of the NC. The main output of this exercise was identification of gaps and areas needing improvement/updating, and identification of new areas of work. It also contributed to identifying list of references, documents and available sources of information relevant to the climate change.

The results of this exercise as well as the following consultations are presented in each output planned in the SNC. The list of stakeholders and their possible role in the SNC is presented in the table below.

Table 2: The list of stakeholders and their possible role in the SNC

Name of institutions/ stakeholders consulted	Stakeholder interest, official position or mandate	Reasons for inclusion	Role in the self- assessment process
Ministry of Environment, Mining and Spatial Planning	Implementation of national policy in climate change and environment, mining, construction and spatial planning	UNFCCC National Focal Point; responsible for project document preparation, project implementation and submission of the SNC to the CoP	Identification of the gaps, constrains and needs
Ministry of Infrastructure and Energy	Implementation of national policy in transportation and energy	Integration of climate change issues into transportation, energy and sustainable development related strategies; Cooperation in climate change mitigation assessment and activity data collecting for GHG inventory preparation; Involvement in preparation of the INC	Consultation
Ministry of Agriculture, Trade, Forestry and Water Management	Implementation of national policy in agriculture, forestry and water management	Integration of climate change issues in agriculture, forestry and water management related strategies; Cooperation in climate change mitigation and adaptation assessment and activity data collecting for GHG inventory preparation; Involvement in preparation of the INC	Consultation
Ministry of Economy and Regional Development	Implementation of national policy economy and regional development	Integration of climate change issues in economy and regional development related strategies; Cooperation in climate change mitigation and adaptation assessment and activity data collecting for GHG inventory preparation; Involvement in preparation of the INC	Consultation
Ministry of Education and Science	Implementation of national policy in education and science	Integration of climate change issues in education and science related strategies; Cooperation in climate change mitigation and adaptation assessment and activity data collecting for GHG inventory preparation; Involvement in preparation of the INC	
Ministry of Foreign Affairs	Implementation of national policy related to the foreign	Involvement in negotiation process under the UNFCCC;	Consultation

Name of institutions/ stakeholders consulted	Stakeholder interest, official position or mandate	Reasons for inclusion	Role in the self- assessment process
	affairs;	Cooperation in identification of priorities related to multilateral and bilateral cooperation	
Ministry of Health	Implementation of national policy related to health	Integration of climate change issues in health related strategies; Cooperation in climate change mitigation and adaptation assessment and activity data collecting for GHG inventory preparation; Involvement in preparation of the INC	Consultation
Institute "Vinca"	Research concerning peaceful use of nuclear energy and classical aspects of physics, chemistry, biology, power engineering, environmental protection, electronics, etc.	Cooperation in climate change mitigation and adaptation assessment and activity data collecting for GHG inventory preparation; Involvement in preparation of the INC	Consultation
Republic Hydrometeorological Service of Serbia	Monitoring of state of weather, climate and water, National Meteorological and Hydrological center with WMO and other relevant international organization	Climate Change monitoring and research; Climate database construction for the assessment of Climate Change trends (scenarios) and climate projection for the current century; Cooperation in impacts, vulnerability and adaptation options assessments; Involvement in preparation of the INC	Consultation
Statistical Office of the Republic of Serbia	Implementation of national statistical program	Activity data collecting for GHG inventory preparation; Involvement in the preparation of GHG inventory; Involvement in preparation of the INC	Consultation
Serbian Environmental Protection Agency	Compilation of the GHG inventory	Activity data collecting for GHG inventory preparation; Involvement in the preparation of GHG inventory; Involvement in preparation of the INC; Reporting to the EEA	Consultation
Institute for Meteorology,	Implementation of national	Cooperation in climate change impact and	Consultation

Name of institutions/ stakeholders consulted	Stakeholder interest, official position or mandate	Reasons for inclusion	Role in the self- assessment process
Faculty of Physics, University of Belgrade	policy in the education and scientific research	mitigation assessment and GHG inventory preparation; Involvement in preparation of the INC	
Faculty of Forestry, University of Belgrade	Implementation of national policy in the education and scientific research	Cooperation in climate change impact and mitigation assessment and GHG inventory preparation; Involvement in preparation of the INC	Consultation
Faculty of Agriculture University of Novi Sad	Implementation of national policy in the education and scientific research	Cooperation in assessment of climate change impact on agriculture	Consultation
Faculty of Mechanical Engineering, University of Belgrade	Implementation of national policies in the education and scientific research	Cooperation in climate change adaptation assessment, climate change impact and mitigation assessment and GHG inventory preparation	Consultation
Faculty of Agriculture, University of Belgrade	Implementation of national policies in the education and scientific research	Cooperation in assessment of climate change impact on agriculture	Consultation
Public Enterprise “Electric Power Industry of Serbia - EPS”	Energy production and implementation of energy development strategy	Involvement in collecting the data needed for GHG inventory preparation; Involvement in preparation of the INC	Consultation
Petroleum Industry of Serbia (“Naftna industrial Srbije” a.d. Novi Sad (NIS a.d.) - exploration, production and refining of crude oil and natural gas, sale of a broad range of petroleum products	Company for Exploration, Production, Refining, Distribution and Trade of Crude Oil and Petroleum products and exploration and production of natural gas	Involvement in collecting the data needed for GHG inventory preparation;	Consultation
NGO Environmental Ambassadors, Serbia	NGO activities in environmental protection	Cooperation in awareness raising related to climate change	Consultation
UNDP CO	Implementation of UN Development Programme in support of sustainable development	GEF Implementing Agency	Consultation

Annex D. TERMS OF REFERENCE FOR KEY PROJECT PERSONNEL

D.1. ToR for National Project Manager

In consultation with the Project Board, the Project Manager (PM) is responsible for day-to-day management, co-ordination and supervision of the implementation of the above project. Specifically, his/her responsibilities are but not limited to the following:

- Supervises and ensures the timely implementation of the project relevant activities as scheduled in the working plan
- Prepares a detailed work plan for the project and draft terms of reference for the subcontracts (in consultation with the Project Board and UNDP);
- Compiles the scope and content of the overall SNC report and relevant sections in consultation with Team Leaders;
- Develops the scope of the work and TORs and other procurement documentation required to identify and facilitate recruitment of experts and consultants;
- Identifies and hire/subcontract the national experts and institutions (in consultation with the Project Board and UNDP);
- Supervise project support staff national consultants who are recruited to provide technical assistance
- Organizes and supervise the workshops and training needed during the project;
- Liaises with the relevant ministries, national and international research institutes, NGOs, and other relevant institutions in order to involve their staff in project activities, and to gather and disseminate information relevant to the project;
- Prepares periodic progress reports of the project;
- Control the expenditures and otherwise ensure adequate management of the resources provided for the project;
- Summarizes and synthesizes the results of the project;
- Identifies the follow up activities and mobilizes other resources at the extend possible;
- Identifies and ensures synergy of the SNC with other relevant ongoing / new projects.
- Finalizes the SNC along with government personnel and national experts;
- Ensures that the SNC process is in the line with guidance provided by the CoP of the UNFCCC and contributes to the improvement of the UNFCCC reporting process.
- Collaborates with all relevant stakeholders and the Project Board and other partners to ensure their involvement in the SNC

Qualifications and Experience

- Preferably master's degree in environment-related studies and other related disciplines;
- Good understanding of environment/development issues in Serbia as well as the three thematic areas under investigation;
- At least six to eight years' experience relevant to the project;
- Excellent communication (Written and Oral) Skills;
- Demonstrated experience in project management;
- Expertise in putting together results-oriented action plans;
- Demonstrated experience in working with government, donors and the United Nations system;
- Familiarity with international negotiations and processes under the UNFCCC preferred
- Familiarity with computers and word processing

- A demonstrated ability in managing projects, and in liaising and co-operating with all project personnel including government officials , scientific institutions, NGOs, and private sector;
- Excellent knowledge of English

D.2. ToR for Project Assistant

The Project Associate will work under the direct supervision of the National Project Manager and provide assistance to project implementation in the mobilization of inputs, the organization of training activities and financial management and reporting.

The Project Associate will be responsible for the following duties:

- Prepare all payment requests, financial record-keeping and preparation of financial reports required in line with NEX (NIM) financial rules and procedures
- Assistance to the recruitment and procurement processes, checking conformity with UNDP and the Government rules and procedures and managing process according to the specific execution arrangements regarding the SNC project
- Assistance to the organization of in-country training activities, ensuring logistical arrangements
- Preparation of internal and external travel arrangements for project personnel
- Maintenance of equipment ledgers and other databases for the project
- Routine translation/interpretation of project correspondence and drafting of correspondence as required
- Maintain project filing
- Other duties which may be required

Qualifications and Experience

- University Degree, some training in business and/or administration desirable
- At least five years administrative experience
- Good organizational skills
- Good computer skills, including spread-sheets and database
- Languages: High proficiency in English and Serbian

D.3. ToR for International Expert on Vulnerability and Adaptation issues to CC

The International Expert on Vulnerability and Adaptation (V&A) issues to CC should work in consultation with and under the guidance and supervision of the National Project Manager. Specifically, his/her responsibilities include but are not limited to the following:

- Provide input into the methodologies to be carried out by the V&A team of experts as coordinated by the National V&A Expert Coordinator for estimating climate change vulnerability and assessing adaptation options;
- Provide input on the modelling related to vulnerability assessments to be carried out by the V&A team of experts – including detailed input regarding the methodologies and results, suggestions for improvement, and the final results of the analysis;

- Identify gaps and provide recommendations for improvement in the analysis;
- Assist the V&A team of experts in revising the climate change scenarios by using a regional model;
- Assist the V&A team of experts in developing baseline social and economic trends for evaluating vulnerability;
-
- Provide recommendations during the process of prioritization of adaptation activities, including providing methodological input for how to carry out this prioritization, and information on the timeline and financial needs necessary for possible/proposed adaptation options;
- Assist the National V&A Expert Coordinator in compiling and finalising the chapter on V&A for the National Communication.

Qualifications and Experience

- An advanced degree in environment-related studies or another directly-related discipline;
- At least ten years of relevant research and work experience in climate change modelling, impacts, vulnerability and adaptation;
- Excellent communication skills (written and oral);
- Substantial experience with economic analysis and tools used to assess the potential costs of climate-related impacts and measures to address them;
- Working familiarity with relevant software and scenario development;
- Direct experience with the UNFCCC National Communications process related to V&A;
- Direct experience with the UNFCCC National Communications process of non-Annex I Parties is highly desirable;
- Fluency in English

D.4. ToR for the National V&A Expert Coordinator

The National Expert on Vulnerability and Adaptation (V&A) issues to CC should work in consultation with and under the guidance and supervision of the National Project Manager (PM). Specifically, his/her responsibilities include but are not limited to the following:

- Assist the PM in establishing the team of experts for performing the V&A on the basis of the roster of experts;
- Prepare a detailed work-plan for V&A on the basis of the overall project work plan;
- Provide periodic progress report to the PM on the V&A thematic area;
- Develop the scope of work and respective terms of reference for the team members;
- Assist the V&A team of experts in the data and information collection process for performing the V&A studies;
- Propose approaches (not concluded under stocktaking phase) to be used if necessary;
- Lead and oversee the development baseline climate and socio-economic scenario and impact of climate change;
- Organize the scheduled consultations/workshops and ensure their success – including awareness raising workshops and prioritization of adaptation options which will be a consultative process to develop “no regrets” and “low regrets” adaptation projects and options;
- Ensure synergy with other relevant projects;
- Ensure the timely and effective management of the activities as scheduled;

- Incorporate comments received from the review process;
- Draft the V&A Report and respective chapter of Serbia SNC along with the respective part of executive summary and policy summaries/brochures for awareness raising;
- Oversee the documentation of the studies made and archiving;

Qualifications and Experience

- An advanced degree the field of climate research and/or climate modelling
- A minimum of 3 years of working experience in the area relevant to adaptation;
- Substantial involvement in a preparation of an Initial National Communication is an asset (V&A);
- Good understanding of climate change and sustainable development issues;
- Demonstrated ability of analytical and drafting work;
- Demonstrable knowledge of climate modelling, etc.
- Familiarity with computers and word processing;
- Fluency in English and Serbian;

D.5. ToR for International GHG Inventory Expert

The International GHG Inventory Expert should work in consultation with and under the guidance and supervision of the National Project Manager. Specifically, his/her responsibilities include but are not limited to the following:

- Analyse the activity data required by the IPCC guidelines, support the GHG inventory team as coordinated by the National GHG Inventory Expert Coordinator to fill in the data gaps in the inventory and improve where needed;
- Support the GHG inventory team as necessary in utilizing IPCC Good practice to fill in the data gaps;
- Provide inputs and technical reviews of the measurement system that will be developed by the GHG inventory team;
- Prepare a series of recommendations for institutionalizing the data collection process and harmonizing the process with national statistics data collection process;
- Provide inputs and a technical review of the uncertainty assessment for the SNC;
- Provide inputs and a technical review of the proposed emission factors to be applied;
- Provide inputs and a technical review of the draft chapter on inventories to be used in the SNC;
- Identify specific training needs for enterprises or government agencies in data collection (particularly for identified key sources/emitters) and provide recommendations for training in data collection;
- Analyse the recalculated emission factors for key source categories;
- Conduct a thorough review of the prepared ten years inventory and the analysis carried out by the GHG inventory team;
- Assist the National GHG Expert Coordinator in compiling and finalising the GHG Inventory chapter for the National Communication.
-

Qualifications and Experience

- An advanced degree in energy or industrial -related studies or another directly-related discipline;
- At least ten years' experience relevant in GHG inventories development;
- Excellent communication skills (written and oral);
- Substantial knowledge of methodologies for inventories (IPCC Revised 1996 Guidelines and Good Practice Guidance)
- Working familiarity with relevant software, data collection systems, key source analysis, uncertainty assessment, and QA/QC planning.
- Direct experience with the UNFCCC National Communications process;
- Fluency in English

D.6. ToR for National GHG Inventory Expert Coordinator

The National GHG Inventory Expert Coordinator should work in consultation with and under the guidance and supervision of the National Project Manager (PM). He/she will also have support from an International GHG Inventory Expert. Specifically, his/her responsibilities include but are not limited to the following:

- Assist the PM in establishing the team of experts for performing the GHG inventory;
- Oversee train the trainers sessions on GHG inventory;
- Assist PM to organize GHG inventory relevant training and workshops;
- Prepare a detailed work-plan for GHG inventory exercise on the basis of the overall project work plan.
- Develop the scope of work and respective terms of reference for the team members;
- Provide support in the data collection process, including surveys;
- Provide support to the team to conduct the GHGs national inventory;
- Ensure the timely and effective management of the activities as scheduled;
- In consultation with the PM and international GHG inventory expert, select and implement the methodologies for the conducting of GHGs inventory;
- Identify gaps and key sectors for GHG inventory;
- Incorporate comments received from the review process;
- Draft a GHG Inventory with supporting technical documentation;
- Provide support in drafting the respective chapter of the SNC along with the respective part of executive summary.
- Provide coordination in updating the Manual of Procedures in the light of the new findings under the SNC exercise.
- Archive new data and estimates of new inventory.

Qualifications and experience

- An advanced degree in the field of energy, environment, industrial pollution or other field relevant to inventory preparation;
- A minimum of 3 years of working experience in the area relevant to inventories preparation;
- Good understanding of GHGs inventory process and demonstrable knowledge of IPCC and Good Practice Guidance;
- Demonstrated ability of analytical and drafting work;
- Familiarity with computers and data processing (EXCEL; ACCESS)
- Fluency in English and Serbian;

- Substantial involvement in the preparation of the Initial National Communication is highly preferred (GHG inventory and abatement analysis);

D.7. ToR for International Mitigation Expert on CC issues

The International CC Mitigation Expert should work in consultation with and under the guidance and supervision of the National Project Manager (PM). Specifically, his/her responsibilities include but are not limited to the following:

- Prepare a detailed work-plan for analysis of GHG abatement/ mitigation options on the basis of the overall project work plan;
- Assist the PM in establishing the team of experts for performing the Mitigation analysis;
- Work with the national Mitigation Expert Team under the coordination of the National CC Mitigation Expert Coordinator to analyse the GHG baseline and mitigation scenarios (including an analysis of likely technical potentials and a range of investment costs/marginal costs per tonne of abatement) until 2020 considering social and economic trends related to the following sectors:
 - Energy consumption and production – especially related to electricity production, industrial uses, the public sector and households;
 - Industrial processes;
 - Agriculture;
 - Waste management; and
 - Land Use, Land Use Changes and Forestry
- Work with the national mitigation experts to identify the barriers and opportunities for mitigation of related measures and programmes within the sustainable development programme till 2020 and perform prioritization;
- Revise the GHG emission abatement action plan till 2020;
- Work with the national mitigation experts to develop the baseline and mitigation scenarios in long term period (till 2050) for the abatement of GHG emission considering social and economic trends;
- Provide recommendations on the development of the briefing papers for policy makers, if necessary;
- Assist the National Mitigation Expert Coordinator in compiling and finalising the Mitigation chapter for the National Communication.

Qualifications and experience

- An advanced degree in the field related to energy, industrial-related studies or another directly-related discipline;
- At least ten years of relevant research and work experience in climate change mitigation;
- Excellent communication skills (written and oral);
- Substantial experience with cost-benefit analysis and tools used to assess policies and measures to mitigate climate change;
- Working familiarity with relevant software and scenario development;
- Direct experience with the UNFCCC National Communications process;
- Fluency in English

D.8. ToR on National CC Mitigation Expert Coordinator

The National CC Mitigation Expert Coordinator should work in consultation with and under the guidance and supervision of the National Project Manager (PM). Specifically, his/her responsibilities include but are not limited to the following:

- Assists the PM in establishing the team of experts for performing the mitigation analysis on the basis of the roster of experts;
- Support the preparation of a detailed work-plan for GHG abatement for the mitigation analysis on the basis of the overall project work plan;
- Provide periodic progress report to the PM on the mitigation analysis by thematic area;
- Develop the scope of work and respective terms of reference for the team members;
- Provide support in the data and information collection process.
- In consultation with the PM and the international mitigation expert decide on methodologies for the elaboration of scenarios for the various sectors;
- Lead and oversee the scenario development and update;
- Organize the scheduled consultations/workshops and ensure their success;
- Ensure synergy with other relevant projects;
- Ensure the timely and effective management of the activities as scheduled;
- Incorporate comments received from the review process;
- Draft the Mitigation Report and respective chapter of Serbia's SNC along with the respective part of executive summary and any brochures or other publicity materials to be developed.
- Oversee the documentation of the studies made and archiving.

Qualifications and experience

- An advanced degree in the field related to energy, industrial pollution, fuel quality or other field relevant to the project;
- A minimum of 3 years of working experience in the area relevant to mitigation;
- Good understanding of GHGs inventory process and projections;
- Demonstrable knowledge of IPCC 1996, IPCC GPG, relevant software , etc.
- Demonstrated ability of analytical and drafting work;
- Familiarity with computers and word processing;
- Strong proficiency in English and Serbian;
- Substantial involvement in the preparation of the Initial National Communication is an asset (inventory and abatement and analysis);

D.9. ToR for Climate Change Policy Expert

- Collect and analyse information related to national circumstances;
- Analyse the specific needs and concerns arising from the adverse effects of climate change, national development objectives, circumstance and programmes;
- Provide an information on financial, technical and capacity needs assessment and constraints associated with the implementation of the UNFCCC Convention;
- Based upon inputs from the respective input teams, and decided upon through a prioritization process which includes stakeholders, develop a list of projects with focus on the barriers and opportunities for future development of the GHG inventory, implementation and adaptation, mitigation related actions; Update the information in regard to climate change related legislation, integration of UNFCCC requirements in legislation and strategies

Qualifications and experience

- An advanced degree in, environmental management, energy or other field relevant to the project;
- A minimum of 7 years of working experience in the area relevant to the Climate Change;
- Substantial involvement in the preparation of the initial National Communication ;
- Good understanding of climate change and sustainable development issues in Serbia;
- Demonstrated ability of analytical and drafting work;
- Demonstrable knowledge of IPCC 1994 and 1996 guidelines,
- Familiarity with computers and word processing;
- Fluency in English and Serbian;

D.10. ToR for Capacity building on CC related issues Expert Coordinator

- Provide assessment on the technology, financial and capacity needs for mitigation and adaptation based on inputs from the respective input teams, and decided upon a prioritization process which includes stakeholders;
- ;
- Identify the needs and priorities for education, training and public awareness and prepare the related programmes;
- Revise the national plans and programmes on systematic observation, climate change and forecasting capacity;
- Organize trainings for the project staff in using selected software tools and electronic networks;
- Prepare the work programme on capacity building and awareness raising activities;
- Prepare the documents and training materials for all planned trainings/events and awareness raising activities;
- Organise seminars, trainings and workshops for stakeholders;
- Organise and coordinate the information exchange internationally and between participating institutions;

Qualifications and experience

- An advanced degree in environmental or other field relevant to the project;
- A minimum of 5 years of working experience in the area relevant to the Climate Change;
- Substantial involvement in the preparation of the initial National Communication Good understanding of climate change and sustainable development issues in Serbia;
- Demonstrated ability of analytical and drafting work;
- Demonstrable knowledge of IPCC 1994 and 1996 guidelines,
- Familiarity with computers and word processing;
- Fluency in English and Serbian;

Annex E. SPECIAL CLAUSES

Special Clauses. In case of government cost-sharing through the project which is not within the CPAP, the following 10 clauses should be included:

1. The schedule of payments and UNDP bank account details.
2. The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether any further financing could be provided by the Government. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.
3. The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.
4. UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.
5. All financial accounts and statements shall be expressed in United States dollars.
6. If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavours to obtain the additional funds required.
7. If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph () above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.
8. Any interest income attributable to the contribution shall be credited to UNDP Account and shall be utilized in accordance with established UNDP procedures.

In accordance with the decisions and directives of UNDP's Executive Board:

The contribution shall be charged:

- (a) [...%]cost recovery for the provision of general management support (GMS) by UNDP headquarters and country offices
 - (b) Direct cost for implementation support services (ISS) provided by UNDP and/or an executing entity/implementing partner.
9. Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.
 10. The contribution shall be subject exclusively to the internal and external auditing procedures provided for in the financial regulations, rules and directives of UNDP.

SIGNATURE PAGE

Country: Serbia

UNDAF Outcome (s)/Indicator (s): Link to UNDAF Outcome. If no UNDAF leave blank.

CPAP Outcome (s)/Indicator (s):

2.5.4.2 Improved national response to adapt to and mitigate the impact of global climate change, and adhere to relevant international conventions

CPAP Output (s)/Indicator (s):

Executing Entity/Implementing Partner: Ministry of Environment, Mining and Spatial Planning of Serbia

Implementing entity/Responsible Partner: UNDP CO Serbia

Programme Period:	<u>2011/2012</u>	Total resources required	<u>577,149 USD</u>
Atlas Award ID:	_____	Total allocated resources:	<u>577,149 USD</u>
Project ID:	_____	• Regular	_____
PIMS #	_____	• Other:	_____
Start date:	<u>June 2012</u>	o GEF	<u>500,000USD</u>
End Date	<u>June 2015</u>	o Government	_____
Management Arrangements	<u>NIM/NEX</u>	o In-kind	<u>77,149USD</u>
PAC Meeting Date	<u>End of March 2012</u>	o Other	_____
		In-kind contributions	<u>through Government</u>

Agreed by (Government):

Nebojsa POKIMICA

NAME

Date/Month/Year

SIGNATURE



Agreed by (Executing Entity/Implementing Partner):

NAME

Date/Month/Year

SIGNATURE

Agreed by (UNDP):

NAME

Date/Month/Year

SIGNATURE