



UNDP Project Document

UNDP-GEF Medium-Size Project (MSP)

Council of Ministries of Bosnia and Herzegovina

United Nations Development Programme

PIMS No. 3880
Atlas Award 00046049
Project ID 00054633

PIMS 3880 BOSNIA AND HERZEGOVINA BIOMASS ENERGY FOR EMPLOYMENT AND ENERGY SECURITY PROJECT

While Bosnia and Herzegovina is very well endowed with biomass energy resources, and the rural population is highly dependent on wood (particularly in the form of firewood), information related to the biomass energy sector was extremely scarce in past. Current data regarding biomass residues or waste are good and relatively new. The annual increment is calculated to be 9.49 million m³, which corresponds to 3.0 % of the total standing volume (317.5 million m³). Annual allowable cut is calculated at 7.44 million m³ and actual harvesting at 4.43 million m³. Although annual growth seems high, annual wood increment is constrained by inadequate local forest management practices.

Despite the large potential for biomass energy, a number of interrelated market barriers combine to restrict the self-sustaining growth of this market. During project preparation, and in consultation with a wide range of stakeholders, the following barriers were identified:

- Availability of financing,
- Business models and management skills,
- Awareness.

The project objective is to avoid emitting 80,000 tonnes CO₂eq over 15 years, by retrofitting or installing biomass-fired boilers in BiH.

The GEF MSP will be closely integrated into the UNDP SRRP Forestry for Employment Project “Regeneration of the Forestry and Wood-Processing Cluster in the Srebrenica Region”, and relevant interventions from both projects have been included below.

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Acronyms

\$	US Dollar
APR	Annual Project Report
BiH	Bosnia and Herzegovina
BOOT	Build, Own, Operate, Transfer
CEO	Chief Executive Officer
CO	Country Office
CO ₂	Carbon Dioxide
EU	European Union
FSP	Full Scale Project
GEF	Global Environment Facility
GHG	Greenhouse Gas
kW	Kilowatt
M&E	Monitoring and Evaluation
MOFTER	Ministry of Foreign Trade and Economic Relations
N/A	Not applicable
OP	Operational Programme
PDF	Project Development Facility
PIR	Project Implementation Review
PM	Project Management
PMU	Project Management Unit
PPG	Project Preparation Grant
PW	Person Week
TA	Technical Assistance
TA	Technical Assistance
TPR	Tripartite review
UNDP SRRP	UNDP Forestry for Employment Project “Regeneration of the Forestry and Wood-Processing Cluster in the Srebrenica Region”
UNDP	United Nations Development Programme
USD	US Dollar
WB	World Bank

SECTION I: ELABORATION OF THE NARRATIVE

PART I: Situation Analysis

While Bosnia and Herzegovina is very well endowed with biomass energy resources, and the rural population is highly dependent on wood (particularly in the form of firewood), information related to the biomass energy sector was extremely scarce in past. Current data about biomass residues or waste are good and relatively new (they have been collected through EU/FP6/ADEG project in 2004, based on forest and agricultural statistics, and surveys (in forest management companies, economy chambers, and wood processing industry). The annual increment is calculated to 9.49 million m³, which corresponds to 3.0 % of the total standing volume (317.5 million m³). Annual allowable cut is calculated to 7.44 million m³ and actual harvesting to 4.43 million m³. Although annual growth seems high, annual wood increment is constrained by inadequate local forest management practices.

Space heating is required in most parts of the country during winter. In the residential sector almost three-quarters of the population use an autonomous heater / boiler to heat their homes (73%), while 22% of households are connected to district heating systems in the main urban centres¹. The main fuel for household heating is coal or wood while gas and electricity are uncommon. However, about 13% use electricity as a secondary heating source. In contrast, heating in schools and municipal buildings is dominated by oil and diesel (77%), and electric heating as the main source of heat is significant (21%). This situation is the result of decisions in municipalities to switch to electric boilers after the war, when electricity prices were heavily subsidized and electric supply agreements offered other social and political benefits. Power prices are rapidly increasing in BiH since the country signed the Energy Community Treaty², and this creates an opportunity for biomass to be a least cost heating alternative.

PART II: Strategy

Project Objective

The project objective is to avoid 80,000 tonnes CO₂eq over 15 years, by retrofitting or installing biomass-fired boilers in BiH.

The GEF MSP will be closely integrated into the UNDP SRRP Forestry for Employment Project “Regeneration of the Forestry and Wood-Processing Cluster in the Srebrenica Region”.

The proposed project will enhance local experience and awareness of biomass energy providing a firm foundation for these issues to be addressed in the context of larger initiatives to address energy, forest and business policies and legislation.

The project aims to start with the education sector for a number of strategic reasons:

- Schools are financed by municipalities and can easily be aggregated into purchasing groups;
- Most schools have old and outdated boiler systems in need of repair or renewal. The schools sector is politically important to the government as a means to attract emigrants back to BiH; and
- Most school boilers are medium-sized oil- or diesel-fired units to which biomass is a competitive alternative.

¹ WB, June 2001: Bosnia and Herzegovina Living Standards Measurement Survey

² In 2005, BiH is a signatory of the legally binding Energy Community in South East Europe Treaty, which obliges them to have cost recovery electricity tariffs, and liberalize non-household energy markets by January 2008.

There are a total of 2,300 schools, and estimates indicate that if 500 schools enter the scheme by 2020, the project could stimulate CO_{2e} savings of 40,000 tones. There is also immediate potential for replication in other municipal buildings, such as hospitals with autonomous heating systems with further relevance to medium sized businesses, particularly those in rural areas. The project estimates potential savings of 200,000 tones in CO_{2e} by 2020 from all these areas of potential replication or 80,000 tones using a GEF causality factor of 40%.

Heat service contracting (Build, Own, Operate, Transfer – BOOT)

The project makes use of heat service contracting in the form of BOOT as a way of addressing the financing barriers of municipalities. There are two biomass boiler producers in Bosnia and Herzegovina making systems for household and small scale applications (up to about 1 MW_{th}). These are “NARODNO GRIJANJE” based in Sarajevo, which employs 180 people and was established in 1996, and “TOPLING” based in Prnjavor with 97 employees and established in 1993. Both companies operate fully commercially and have both local and international markets (Serbia and Montenegro, Croatia, Kosovo, Romania, France and Italy). Narodno Grijanje has existing experience of providing biomass heat service contracts for the hotel industry and both companies have experience in both technology and fuel supply, with both expressing their intention to develop the heat service contracting market. The companies appear to be of sufficient scale and financial status to provide this service within the context of the present GEF project if the market demand and fuel supply barriers are overcome.

PART III: Management Arrangements

The project will be directly implemented by UNDP BiH office, in line with its special mandate for direct project implementation. The project will be implemented using the same approach as for the Srebrenica Regional Recovery Programme, the proven modality of Direct Implementation (DIM) that have been applied and fine-tuned in recent years. DIM will be applied in a way to take into account potentials for maximum cost-effectiveness and tailored flexible capacity development of local governments and institutions.

The Country Office (CO) will hold the overall responsibility for the production of outputs/implementation of activities envisaged. The management of project funds will be carried out according to UNDP financial rules and regulations, based on a work plan with a detailed budget. A Project Manager, an Administrative Assistance will be hired through a competitive advertisement, and will work under close supervision of the UNDP CO Program Officer on Energy and Environment. The Project Management Unit will ensure day-to-day management and oversight for the project as a whole, and will be responsible for project achievements and the reporting on the resources allocated. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the UNDP CO with support from UNDP/GEF.

The overall coordination of the project will be the responsibility of a Project Board (PB) whose mandate will be to:

- Provide strategic guidance to the project;
- Support project implementation, including bottlenecks resolution;
- Monitor project implementation, discuss and assess project results.

The PB will meet every three months or more frequently if necessary. It will be composed of the representatives from responsible ministries, municipalities and UNDP Country Office in BiH.

Project revisions that involve changes to project goal, or substantial modification of project outputs, will be agreed in writing by members of the Project Board by calling an ad hoc session, or by collecting

(including through email) written opinions of the PB members. Revisions will then have to be approved by UNDP/GEF Regional Technical Advisor for Biodiversity.

Coordination with other related initiatives:

The proposed GEF project will be implemented together with relevant activities under the UNDP SRRP Forestry for Employment Project and indirectly with the World Bank Forest Development and Conservation Project through its explicit co-operation strategies with SRRP. Co-operation with forest-sector activities will be ensured via the UNDP-SRRP Forestry for Employment Project.

Discussions have been held with the EBRD, which is exploring establishing a credit line for water, energy efficiency and renewables in the Balkans, and avenues for co-operation are being assessed. The proposed UNDP GEF activities will be highly complimentary to any such credit line if and when it is established.

In order to accord proper acknowledgement to GEF for providing funding, a GEF 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.”

PART IV: Monitoring and Evaluation Plan and Budget

See attached MSP (PART I: Project Information/ G. Describe the budgeted M&E Plan)

PART V: Legal Context

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Bosnia and Herzegovina and the United Nations Development Programme, signed by the parties on 7 December 1997. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

The UNDP Resident Representative in Bosnia and Herzegovina is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and

SECTION II: STRATEGIC RESULTS FRAMEWORK, SRF AND GEF INCREMENT

See attached MSP (Annex A: Project Results Framework)

SECTION III : TOTAL BUDGET AND WORKPLAN

Award ID:		00046049									
Award Title:		PIMS 3880 BiH Biomass MSP									
Business Unit:		Bosnia and Herzegovina (BIH10)									
Project Title:		PIMS 3880 BiH Biomass MSP									
Project ID:		00054633									
PIMS		3880									
Implementing Partner (Implementing Agency)		UNDP – Direct implementation									
GEF Outcome/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Market demand for biomass energy is increased	UNDP	6200 0	GEF	71300	Local consultants	77,200	38,000	18,400	2,400	136,000	
				71200	International consultants	19,400	19,400	19,400	21,800	80,000	
				72800	Equipment	-	60,000	120,000	120,000	300,000	
				74500	Miscellaneous	-	1,000	10,000	3,000	14,000	
				71600	Travel	4,625	5,400	4,625	5,400	20,050	1
Total Outcome 1						101,225	123,800	172,425	152,600		
OUTCOME 2: Sustainable biomass fuel supply markets strengthened and expanded	UNDP	6200 0	GEF	71300	Local consultants	15,000	5,000	-	-	20,000	
				Total Outcome 2						15,000	5,000
OUTCOME 3: Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy				71300	Local consultants	39,000	27,000	31,000	27,000	124,000	
				71200	International consultants	7,050	7,050	16,050	11,850	42,000	
				72100	Contractual services - companies	30,000	30,000	30,000	30,000	120,000	
				74500	Miscellaneous	6,750	6,750	6,750	8,750	29,000	
				71600	Travel	5,100	4,525	4,650	4,525	18,800	2
Total Outcome 3						87,900	75,325	88,450	82,125		
PROJECT MANAGEMENT	UNDP	6200 0	GEF	71300	Local consultants	14,750	14,750	14,750	14,750	59,000	
				72100	Contractual services - companies	1,000	1,000	1,000	1,000	4,000	
				Total Management						15,750	15,750
PROJECT TOTAL						219,875	219,875	276,625	250,475	966,850	

1: Travel costs are requested so that project consultants can travel to the 20 biomass demonstration sites to help with the design and planning.

2: Travel costs are requested to conduct project surveys, since postal and phone surveys are not as effective

Summary of Funds: ³

GEF	219,875	219,875	276,625	250,475	966,850
Narodno Grijanje in-kind		100,000	100,000	100,000	300,000
UNDP in-kind/cash	330,525	330,525	330,525	330,525	1,322,100
TOTAL					2,588,950

³ Summary table should include all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc.

SECTION IV: ADDITIONAL INFORMATION

PART I : Approved MSP



REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project THE GEF TRUST FUND

Submission Date: 21 March 2007
Re-submission Date: 6 December 2007
Re-submission Date: 10 June 2008
Re-submission: 28 August 2008

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 3257
GEF AGENCY PROJECT ID: 3880
COUNTRY(IES): Bosnia and Herzegovina
PROJECT TITLE: Bosnia and Herzegovina Biomass Energy for Employment and Energy Security Project
GEF AGENCY(IES): UNDP
OTHER EXECUTING PARTNER(S): N/A
GEF FOCAL AREA(S): Climate Change
GEF-4 STRATEGIC PROGRAM(S): Modern Energy from Sustainable Biomass
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: N/A

Expected Calendar	
Milestones	Dates
Work Program (for FSP)	n/a
GEF Agency Approval	10.2008
Implementation Start	7.2009
Mid-term Review (if planned)	7.2011
Implementation Completion	11.2012

A. Project framework

Project Objective: The key project objective is the reduction of CO₂ equivalent emissions by an accumulated total of 80,000 tonnes over 15 years, by installing or retrofitting biomass boilers. These activities aim at the creation of sustainable markets for biomass energy. Domestic benefits include job creation, reduced emissions, and improved quality of heating.

Project Components	Indicate whether Investment, TA, or STA	Expected Outcomes	Expected Outputs	GEF Financing*		Co-financing*		Total (\$)
				(\$)	%	(\$)	%	
1. Market demand	TA	Outcome 1: Market demand for biomass energy is increased	Output 1.1: Biomass energy systems procured in education sector (pilot niche buyer cluster), key technologies demonstrated in a highly visible way; Output 1.2: Model biomass fuel specifications and heat delivery contracts (service contracts) prepared; Output 1.3: Transaction support through technical, social and legislative expertise; Output 1.4: Business models (heat service contracting) improved and replicated	550,050	65%	300,000	35%	850,050

2. Wood-fuel supply	TA	Outcome 2: Sustainable biomass fuel supply markets strengthened and expanded	Output 2.1: Access to investment capital and effectiveness in forest and wood-processing sectors increased; Output 2.2: Sustainable supply of legally harvested timber increased	20,000	2%	1,163,100	98%	1,183,100
3. Market Demand Stimulation	Investment & TA	Outcome 3: Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy	Output 3.1: Baselines are established, and reliable data on local costs and benefits of biomass energy is available for policy development work; Output 3.2: Advocacy capacities in biomass energy enhanced; Output 3.3: Project findings used to inform policy development, and build business and finance capacities, establishing conditions for scaling up; Output 3.4: Community understanding and acceptance of biomass energy and energy efficiency enhanced through school educational programme	333,800	87%	50,000	13%	383,800
4. Project management				63,000	37%	109,000	63%	172,000
Total project costs				966,850		1,622,100		2,588,950

* List the \$ by project components. The percentage is the share of GEF and Co-financing respectively to the total amount for the component.

** TA = Technical Assistance; STA = Scientific & technical analysis.

B. Financing Plan Summary For The Project (\$)

	Project Preparation*	Project	Agency Fee	Total at CEO endorsement	For the record: Total at PIF
GEF	0	966,850	96,685	1,063,535	0
Co-financing	0	1,622,100		1,622,100	0
Total	0	2,588,950	96,685	2,685,635	0

* Please include the previously approved PDFs and PPG, if any. Indicate the amount already approved as footnote here and if the GEF funding is from GEF-3. Provide the status of implementation and use of fund for the project preparation grant in Annex D.

C. Sources of confirmed Co-financing

including co-financing for project preparation for both the PDFs and PPG.

Name of co-financer (source)	Classification	Type	Amount	%
GEF Agency(ies)	Impl. Agency	Grant	1,322,100	82%
Private Sector [‡]	Private sector	Investment	300,000	18%
Total co-financing			1,622,100	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

[‡] Private sector cofinancing, which is an important part of market creation, can only be reliably secured during project implementation. In the experience of UNDP any private sector co-financing secured during project preparation will either not materialize or not represent real costs because it is by necessity identified without market competition.

D. GEF Resources Requested by Focal Area(s), Agency(ies) or Country(ies)

N/A

* No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

E. Project management Budget/cost

Cost Items	Total Estimated Person Weeks (PW)	GEF (\$)	Co-financing (\$)	Total (\$)
Local consultants *	456	59,000	109,000	168,000
International consultants*	-	-	-	-
Office facilities, equipment, vehicles and communications**		-	-	-
Travel**		-	-	-
Annual audit		4,000	-	4,000
Total PM Budget		63,000	109,000	172,000

* Provide detailed information regarding the consultants in Annex C.

** Provide detailed information and justification for these line items.

F. Consultants working for technical assistance components:

Cost Items	Total Estimated Person Weeks (PW)	GEF (\$)	Co-financing (\$)	Total (\$)
Local consultants *	856	280,000	160,000	440,000
International consultants*	98	122,000	180,000	302,000
Total TA Budget		402,000	340,000	742,000

Provide detailed information regarding the consultants in Annex C.

G. Describe the budgeted M&E plan:

General

The project will be monitored and evaluated in line with UNDP rules and procedures, and the GEF guidelines for monitoring and evaluation. The report formats to be used are those given in the UNDP/GEF Information Kit on Monitoring and Evaluation. The project indicators along with mid-term and final targets, as given in the Project Planning Matrix in Annex B are the benchmark against which Monitoring and Evaluation will take place and a number of specific Monitoring and Evaluation activities are also explicitly identified in the relevant outcomes and outputs. Building on experience and best practice from UNDP and GEF projects of other agencies it is proposed to establish a Monitoring and internal Mid-term Evaluation contract spanning the project period, and an independent Final Evaluation.

The planned Monitoring and Evaluation activities include joint preparation by the project management unit (PMU) and the M&E contractor of an *Annual Project Work Plan* which will describe in detail the provision of inputs, activities, and expected results for the project in a given year or for the life of the project, indicating schedules and the persons or institutions responsible for providing the inputs and producing results. The work plan will be updated and revised each year by the Project Manager in the *Annual Project Report (APR)*.

A yearly *tripartite review (TPR)*, which, although not mandatory is deemed to be useful for the implementation of this project, is the highest policy-level meeting of the parties directly involved in the

implementation of a project and will include the Department of Energy in MOFTER, the UNDP, and the PMU.

The reviews of financial status, procurement data, impact achievement and progress in implementation will be reported in an annual *Project Implementation Review (PIR)*.

A *semi-independent internal mid-term evaluation* and an *independent final evaluation* will be carried out to assess effectiveness, efficiency and timeliness of project implementation and highlighting issues requiring decisions and actions.

An annual *project audit* will be provided by the Project Management Unit containing certified annual financial statements relating to the status of UNDP/GEF funds, including an independent annual audit of these financial statements, according to the procedures of the UNDP. A legally recognized commercial auditor will conduct the audit. During the course of the project there are three audits (in the second quarter of years 2, 3 and 4), and a fourth to be conducted after the close of the project.

Monitoring team

A small team consisting of local and international expertise will be formed to lead the impact monitoring tasks within this project. The consultants will be required to:

1. Develop, in consultation with the project manager and other experts the practical tools and schedules required to collect data specified in the project logframe
2. Agree with project stakeholders in the information collection requirements, and securing their agreement to provide the required monitoring data
3. Coach project stakeholders in data collection and ensuring that reliable data is collected
4. Carry out baseline surveys and studies including GHG emission baselines, awareness and perceptions, and capacity surveys
5. Prepare annual GHG emission reduction overviews
6. Carry out impact surveys on awareness, perceptions and capacity before the mid-term and final project evaluations.

INDICATIVE MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET (NOTE: M&E COSTS ARE INCLUDED IN THE OVERALL BUDGET, AND ARE THUS NOT ADDITIONAL)

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
Inception Workshop	<ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF 	2,000 USD	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> ▪ Project Team ▪ UNDP CO 	None	Immediately following IW
Ongoing baseline and impact monitoring, including semi-independent internal mid-term evaluation	<ul style="list-style-type: none"> ▪ An M&E team will be hired consisting of one local and one international expert 	52,000 (local expert) 24,000 (intl. expert)* 10,000 (survey costs)	40% of the time of the international expert and the national expert will be allocated to Year 1 of the project, with an additional 20% allocated to each subsequent year. Travel and DSA costs for the

		*including travel and DSA	international M&E expert will be allocated at 50% in Year 2 of the project and 50% in Year 4.
APR and PIR	<ul style="list-style-type: none"> ▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF 	None	Annually
TPR and TPR report	<ul style="list-style-type: none"> ▪ Government Counterparts ▪ UNDP CO ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit 	None	Every year, upon receipt of APR
Steering Committee Meetings	<ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNDP CO 	None	Following Project IW and subsequently at least once a year
Final External Evaluation	<ul style="list-style-type: none"> ▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team) 	9,000 USD	At the end of project implementation
Terminal Report	<ul style="list-style-type: none"> ▪ Project team ▪ UNDP-CO ▪ External Consultant 	None	At least one month before the end of the project
Audit	<ul style="list-style-type: none"> ▪ UNDP-CO ▪ Project team 	4,000 USD (average \$1,000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	<ul style="list-style-type: none"> ▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives 	None (average one visit per year)	Yearly
TOTAL INDICATIVE COST [†]			
<i>Excluding project team staff time and UNDP staff and travel expenses</i>		101,000 USD	
†These costs are included in the overall GEF budgets and are thus not additional			

PART II: PROJECT JUSTIFICATION

A. Describe the project rationale and the expected measurable global environmental benefits:

This project removes market barriers to the adoption of sustainable biomass energy services in rural areas of Bosnia and Herzegovina through market transformation, enhancing job creation, community poverty reduction and local energy security.

Focusing on the Srebrenica region covering the Municipalities of Srebrenica, Bratunac and Milici, the project addresses barriers in policy and legislation, finance, business and management skills, awareness, and technology through a comprehensive barrier removal strategy that addresses biomass supply including forest management and demand-side biomass technology deployment. The project will co-operate closely with the UNDP-SRRP Forestry for Employment Project to provide a model for addressing sustainable biomass supply. The GEF project uses an innovative niche market buyers-group approach (procurement) to increase sales volume, supported by heat service contracting (Build, Own, Operate, Transfer – BOOT), where technology suppliers carry both investment and operational risk and it represents best practice in building local ownership of project successes, enhancing sustainability and replicability.

Situation analysis

Biomass resources

While Bosnia and Herzegovina is very well endowed with biomass energy resources, and the rural population is highly dependent on wood (particularly in the form of firewood), information related to the biomass energy sector was extremely scarce in past. Current data about biomass residues or waste are good and relatively new (they have been collected through EU/FP6/ADEG project in 2004, based on forest and agricultural statistics, and surveys (in forest management companies, economy chambers, and wood processing industry). The annual increment is calculated to 9.49 million m³, which corresponds to 3.0 % of the total standing volume (317.5 million m³). Annual allowable cut is calculated to 7.44 million m³ and actual harvesting to 4.43 million m³. Although annual growth seems high, annual wood increment is constrained by inadequate local forest management practices.

Heat demand in BiH

Space heating is required in most parts of the country during winter. In the residential sector almost three-quarters of the population use an autonomous heater / boiler to heat their homes (73%), while 22% of households are connected to district heating systems in the main urban centres⁴. The main fuel for household heating is coal or wood while gas and electricity are uncommon. However, about 13% use electricity as a secondary heating source. In contrast, heating in schools and municipal buildings is dominated by oil and diesel (77%), and electric heating as the main source of heat is significant (21%). This situation is the result of decisions in municipalities to switch to electric boilers after the war, when electricity prices were heavily subsidized and electric supply agreements offered other social and political benefits. Power prices are rapidly increasing in BiH since the country signed the Energy Community Treaty⁵, and this creates an opportunity for biomass to be a least cost heating alternative.

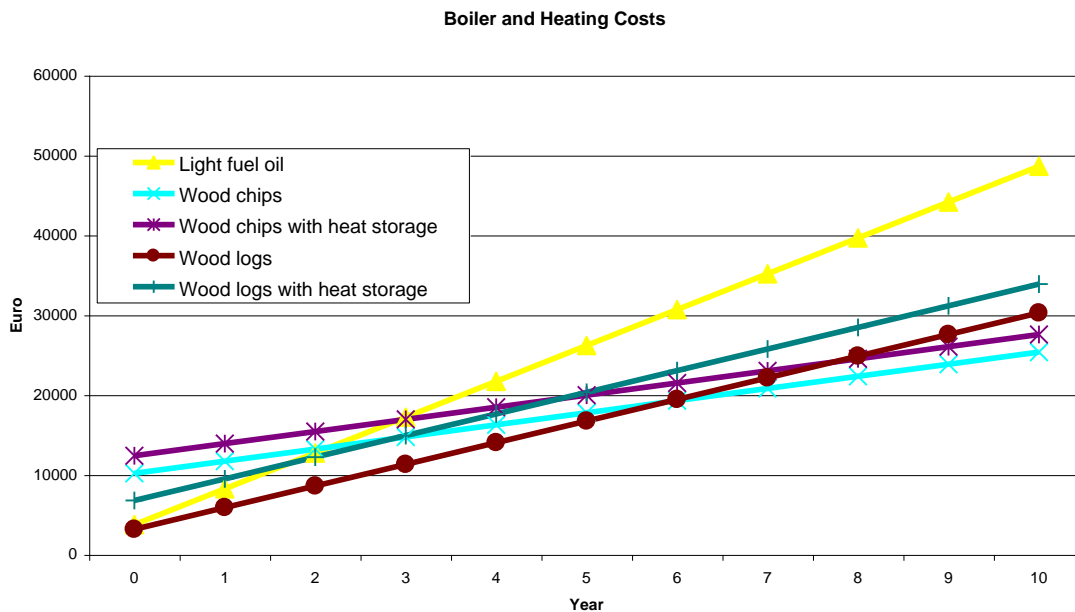
⁴ WB, June 2001: Bosnia and Herzegovina Living Standards Measurement Survey

⁵ In 2005, BiH is a signatory of the legally binding Energy Community in South East Europe Treaty, which obliges them to have cost recovery electricity tariffs, and liberalize non-household energy markets by January 2008.

Biomass energy market role and potential

Investment and operating costs are shown graphically below over a 10-year operation period assuming constant prices for 60kW heating systems. Fuel prices are expected to rise to those of the European Union in the medium term and these prices have thus been used in the analysis. Significant increases in these prices are not expected in the medium to long term given locally available resources. Fossil fuel prices are tied to world market prices.

Figure 1: Investment and operating costs for a typical school heating system⁶



It is evident from the graph that even the most costly biomass energy system is cost effective after 3 years compared to light fuel oil currently used by a majority of schools.

Institutions and legislation

Bosnia and Herzegovina was split into two entities – the Federation of Bosnia and Herzegovina and Republika Srpska; Each entity has its own ministries governing environment and energy issues, in addition Bosnia and Herzegovina Ministry of Foreign Trade and Economic Relations (MoFTER) coordinates economy, environment, and energy policy development. At the entity levels the Ministry of Energy, Mining and Industry of the Federation of Bosnia and Herzegovina and the Ministry of Economy, Energy and Development of the Republika Srpska are responsible for energy. The Project site is in the Republika Srpska.

The World Bank in their 2004 *'Infrastructure and Energy Strategy'* pointed out that Bosnia and Herzegovina “pays a heavy economic price for the excessive fragmentation and decentralization of infrastructure and energy service delivery firms and government oversight responsibilities.” They further identify a “confusing fragmentation of government oversight across several Entity-level ministries, as well as Coordination Councils” with “new regulatory agencies... ..also in the process of being created along separate Entity lines.” Legislation is being developed with support from the UN and EU, and World Bank support for a “Study of the Energy Sector in BiH”, (which includes biomass and other renewable sources and their role in the energy sector). This project aims to support the development of

⁶ A more detailed break-down in costs can be found in table 3 and 4, Annex D.

this strategy by: gathering reliable cost data on biomass energy; analyzing the costs and benefits of different policy options and advocating for the environmental and socially sustainable options.

Forestry and wood industry in Bosnia and Herzegovina are under the responsibility of the entities, which have their own regulations and administrations. Bosnia and Herzegovina has neither a system of collecting nor facilities for processing wood residues nor the relevant legal regulations. Existing approaches to forest management are insufficiently integrated and coordinated, resulting in gaps in forest protection systems (from insects, fire, etc.), establishment and protection of national parks (protected areas), planning of roads for forest exploitation, incentives for protection and exploitation of forest resources, planning for demining of some forest areas, planning of harvesting, and there is virtually no coordination in many parts of the country between forestry and the wood processing industry.

Under its planning codes, BiH classifies 8 categories of agricultural land according to soil type. Two categories are protected from conversion to other uses making up 20% of all agricultural land, while use of the other six categories can be changed. Land use planning laws do not therefore protect agricultural land from use for biomass production, however forest management being promoted by the World Bank will increase yields and be able to meet demand for biomass in the foreseeable future.

The proposed project will enhance local experience and awareness of biomass energy providing a firm foundation for these issues to be addressed in the context of larger initiatives to address energy, forest and business policies and legislation.

Pilot niche buyer group – education sector

The project aims to start with the education sector for a number of strategic reasons:

- Schools are financed by municipalities and can easily be aggregated into purchasing groups;
- Most schools have old and outdated boiler systems in need of repair or renewal. The schools sector is politically important to the government as a means to attract emigrants back to BiH; and
- Most school boilers are medium-sized oil- or diesel-fired units to which biomass is a competitive alternative.

There are a total of 2300 schools, and estimates indicate that if 500 schools enter the scheme by 2020, the project could stimulate CO_{2e} savings of 40,000 tonnes. There is also immediate potential for replication in other municipal buildings, such as hospitals with autonomous heating systems with further relevance to medium sized businesses, particularly those in rural areas. The project estimates potential savings of 200,000 tonnes in CO_{2e} by 2020 from all these areas of potential replication or 80,000 tonnes using a GEF causality factor of 40%.

Heat service contracting (Build, Own, Operate, Transfer – BOOT)

The project makes use of heat service contracting in the form of BOOT as a way of addressing the financing barriers of municipalities. There are two biomass boiler producers in Bosnia and Herzegovina making systems for household and small scale applications (up to about 1 MW_{th}). These are “NARODNO GRIJANJE” based in Sarajevo, which employs 180 people and was established in 1996, and “TOPLING” based in Prnjavor with 97 employees and established in 1993. Both companies operate fully commercially and have both local and international markets (Serbia and Montenegro, Croatia, Kosovo, Romania, France and Italy). Narodno Grijanje has existing experience of providing biomass heat service contracts for the hotel industry and both companies have experience in both technology and fuel supply, with both expressing their intention to develop the heat service contracting market. The companies appear to be of sufficient scale and financial status to provide this service within the context of the present GEF project if the market demand and fuel supply barriers are overcome.

Barriers to biomass energy

Despite the large potential for biomass energy a number of interrelated market barriers combine to restrict the self-sustaining growth of this market. During project preparation, and in consultation with a wide range of stakeholders, the following barriers were identified:

- Availability of finance,
- Business models and management skills,
- Awareness.

Finance barriers

- The high capital cost of biomass energy systems is a major barrier to the increased use of these systems despite significantly lower operating costs, and rapid investment payback. *This barrier is addressed through Outcome 1 which addresses supply chains for products and financing, and in particular the procurement activities of Output 1.1: Biomass energy systems procured in education sector (pilot niche buyer cluster), and the development of model contracts and other transaction oriented activities under Output 1.2 (Model biomass fuel specifications and heat delivery contracts prepared)*
- There are significant other priorities for public and private funds such as after the war's country reconstruction, food security, poverty, and local financial resources are consequently scarce. This means that investment decisions favour minimizing investment costs at the cost of operating costs. *This barrier is addressed in particular Output 3.1 (Reliable data on local costs and benefits of biomass energy is available for policy development work), and in the cost reduction activities under outcome 2 (Supply chains for products and financing are strengthened and expanded).*
- Since there are very few biomass energy projects there are no economies of scale in all stages of project development and execution, thus making biomass energy more costly. *This barrier is directly addressed in the niche procurement activities under Output 1.1 (Biomass energy systems procured in education sector (pilot niche buyer cluster)), and transaction facilitation and support of Outputs 1.2 and 1.3 (Model biomass fuel specifications and heat delivery contracts prepared, Transaction support through technical, social and legislative expertise).*

Business and management skills barriers

- There is limited experience in the implementation and operation of biomass energy projects. *This barrier is addressed through Outcome 1 to promote the sale and use of biomass equipment.*
- Limited spatial distribution of suppliers limits access to renewable energy technologies (hardware). *By focusing activities in a well defined area in which significant forest sector activities are to be implemented, and the use of niche marketing and bulk procurement of Output 1.1, allows for economies of scale, and replicable business models (Output 1.2) to be developed and refined.*

Information, knowledge and awareness barriers

- There is very limited availability and access to existing renewable energy resource information. Data frequently does not exist, and a central information point is lacking – information is scattered between sectors; e.g. public sector, private sector (including consultancy firms), development assistance, R&D centres and academia. *This barrier is addressed through Output 3.1 (Reliable data on local costs and benefits of biomass energy is available for policy development work) in which locally specific data on the potential for biomass energy will be developed, and disseminated under Outcome 3 (Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy)*
- Where information on economics, market development, marketing, and technical issues does exist it is distributed between organizations that do not co-operate. *Awareness raising and capacity building is addressed through knowledge built through Outcome 3 (Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy)*
- There is a lack of awareness of modern options for biomass energy. Knowledge on for example the fact that life cycle costs of the biomass energy technologies are often competitive or even lowest cost options is mostly absent. *Addressed through Output 1.1 and knowledge building under Outcome 3.*
- There is a perception is that the traditional use of wood and charcoal must be reduced, so biomass energy is seen as something to be discouraged. *This barrier is addressed through awareness and school education activities under Output 3.1 and Output 3.4 (School energy saving programme supports investments).*
- Limited technical capacity to design, install, operate, manage and maintain renewable energy based modern energy services, mainly as a result of lack of past activities in this field. *This barrier is addressed by practical project experiences in other outputs of Outcome 1.*

Objective, Outcomes, and Outputs/Activities

Project Objective

The project objective is to avoid 80,000 tonnes CO₂eq over 15 years, by retrofitting or installing biomass-fired boilers in BiH.

The GEF MSP will be closely integrated into the UNDP SRRP Forestry for Employment Project “Regeneration of the Forestry and Wood-Processing Cluster in the Srebrenica Region”, and relevant interventions from both projects have been included below.

Outcome 1: Market demand for biomass energy is increased

Under outcome 1, clusters of buyers will be established to make standardized procurement requests, improve access to capital, and improve fuel planning and purchasing, and to develop and negotiate a ‘joint’ heat service contract model (based on BOOT, Build, Own, Operate and Transfer approaches). The intended results of this is that groups of buyers will be able to increase the sales of biomass systems by being large enough to (a) influence boiler product design and build specifications and produce boilers more suitable and cost-effective for typical users (mid-sized boilers for institutional users); (b) make heat service type contracts worthwhile; (c) stimulate the organization of fuel supply.

End-term outcome level indicators are:

- 20 small scale biomass energy projects operating in the project area giving 5,837 tCO₂e in direct emissions reductions
- direct emission reductions
- Business model replicated in at least 2 other regions

Equipment procured through this outcome will be co-financed by the private sector through the proposed heat service contracts. Other activities are financed by the GEF.

Output 1.1: Biomass energy systems procured in education sector (pilot niche buyer cluster), key technologies demonstrated in a highly visible way

Technology procurement is a process whereby a group of consumers forms a buyers group that seeks to influence manufacturers to develop and produce products that meet the group's requirements. The group offers to purchase a sizable amount of the new technology if it can in fact be manufactured according to the purchasing group's specifications. In the European Union (notably in Sweden), and a number of other countries, procurement approaches have been used to influence manufacturers to produce new energy saving or renewable energy technologies which are either experimental or unavailable. In Bosnia & Herzegovina, the approach is proposed, where technologies exist (there are two local producers of biomass boilers), but where volumes are such that fuel supply and technology delivery do not benefit from economies of scale.

Fundamentally, technology procurement programmes are based on cooperation between purchasers and manufacturers. To support and strengthen the durability of the market transformation, procurement purchasers sign a two-part General Agreement in which they agree to install the product, and agree that the accepted or revised specifications of the new product will become their organizations' standard for future purchases. This helps to ensure that subsequent purchases of similar equipment be of an equal or better standard and that savings are persistent. This may be relevant in the case of Bosnia and Herzegovina in some niche markets (eg. public sector markets such as schools). The activities are best carried out in close co-operation with an experienced procurement organisation, local or international.

While the technology procurement programme will address the barrier of scale in creating a market for biomass energy, there are still two key barriers that may inhibit demand or biomass energy.

First, there is a perceptual barrier in the minds of many potential purchasers of biomass energy as somehow 'informal' or less technologically advanced than natural gas. This is primarily due to the lack of biomass-fired boilers in the country. As result, there is a certain degree of skepticism of the potential for biomass energy and increased risk aversion on the part of purchasers and financiers. Second, it can be difficult to minimise risk in fuel purchasing without having a "critical mass" of buyers. A sufficient number of buyers can leverage supply contracts that make wood fuel more affordable while providing the volume of purchasing sufficient to make fuel supply economically attractive to fuel wood suppliers.

The technology demonstration will address both of these barriers by ensuring a demand for fuelwood and demonstrating to end-users and potential financiers that biomass is a clean and modern energy option that is highly appropriate for BiH.

5,837 tCO₂e are estimated to come from the installation of new boilers in 20 schools. In cases where boilers are retrofitted (less than 10% expected), this will half the cost and therefore double the emissions reductions. However retrofits are expected to last half as long, ultimately yielding the same emissions reductions per dollar. However the more schools that are retrofitted means the more schools that can be included in the project. 20 schools will be kept as a target. If this number is exceeded it will be to the credit of the project.

Activities:

1.1.1 Form a purchasers group within the three municipalities and the education sector

In the project area there are 24 Primary Schools with common heating needs and currently high costs. The purchasers group formed within the three municipalities and the education sector will learn from the cost-benefit analyses from Output 3.1, and participate in other awareness raising and capacity building activities under Outcome 3.

1.1.2 Hold discussions with the selected buyers group and work with them to specify the features and requirements of the biomass systems

1.1.3 Develop and present a Request for Proposals from service providers and/or manufacturers.

The RFP process will take place through an open competitive bid in two stages. Interested companies or consortia will be asked to participate in a pre-qualification process, after which a small number of qualified companies or consortia will be invited to bid. The company submitting the most attractive bid as measured by the evaluation criteria will then be asked to negotiate over the final terms.

The evaluation criteria will at the least include local job creation potential in the project area.

1.1.4 Develop terms of reference for selection, a detailed application procedure, and a protocol for disbursing funds for support of several demonstration sites.

All 24 primary schools that are participating in the three municipalities will be eligible for participation in the demonstration scheme. The applications will use the detailed assessments of the biomass systems developed by the buyers group and the final terms as negotiated with biomass technology suppliers as the financial and technological baseline for the applications. Evaluation criteria for selection will be based on the cost effectiveness of emissions reductions and heating costs. In addition, the project team will determine the most effective means of disbursing support to the projects, including the path of the funds (i.e., whether funds will be disbursed directly to vendors or to the purchasers) and the timing of disbursement (i.e., in a series of tranches based on certain performance criteria).

1.1.5 Identify the most appropriate body to evaluate applications for the demonstration projects.

1.1.6 Convene the screening group to allocate demonstration funds across the potential projects according to the terms of reference developed. The screening group will include the project financed international and national biomass technology experts, the relevant decision-maker from the receiving school.

1.1.7 Disburse funds to support the demonstrations consistent with the guidelines developed

Output 1.2: Model biomass fuel specifications and heat delivery contracts (service contracts) prepared

Sound business development depends on robust and reliable legal and contractual frameworks. Under this output, efforts will be made to develop standardized, generic specifications, formats and contracts, which may be used in Bosnia & Herzegovina, including performance contracting.

Activities:

1.2.1 Develop functioning contractual and tendering models that attract cost effective biomass energy investments

- 1.2.2 Tailor standard technical and financial evaluation methods to project conditions, building on existing software packages such as RETScreen
- 1.2.3 Prepare local versions of bankable proposals for biomass energy for investment decisions
- 1.2.4 Prepare standard best practice approaches to participatory community consultation for biomass project development
- 1.2.5 Develop biomass fuel specifications
- 1.2.6 Develop and demonstrate sustainable forest biomass fuel certificates (based on Forest Stewardship Council principles)

Output 1.3: Transaction support provided through technical, social and legislative expertise

Making use of the need created under the niche market procurement of Output 1.1, and the contractual and procedural methods developed under Output 1.2, Output 1.3 aims to make available a pool of technical, social and legislative experts to support investment developments and support the transaction process. In addition it is intended that this pool of experts will provide a technical review and coaching of local experts contracted under other outcomes on the basis of need. While such an expert pool have proven to be hugely effective in some UNDP-GEF projects (eg. Biodiversity in Latvia), in other countries the expert pool has found that very little use is made of their skills. To enhance the likelihood of effective use of this pool it is highly important that there is open and frequent communication between the PMU, UNDP, Steering Committee, and the expert group. To this end, activities under Output 1.3 aim to institutionalise these interactions.

Activities:

- 1.3.1 Conduct tender for framework contract of technical expertise
- 1.3.2 Develop annual work-plans using a participatory approach in which the expert pool defines their detailed coming activities in consultation with local stakeholders
- 1.3.3 Deliver expert services as required

Output 1.4: Business models (heat service contracting) improved and replicated

The business model used for delivery of biomass energy systems implemented during this project will be further refined through an analytical evaluation. The successes will be captured in a detailed case study, which will form the basis of work to replicate the business model in other regions of Bosnia and Herzegovina.

Issues which will be addressed by the contracted consultants during this output, and which are of key importance to enhance fair market competition and eliminate anticompetitive support, include:

- ensuring the role of the donor supported PMU activities focus on awareness raising and when supporting marketing provides equal access to all market players offering good quality products, so as not to distort competitive forces through donor funded marketing accessible only by one commercial player,
- ensuring that the private sector shares appropriate market risk and doesn't have this covered entirely by grants from donors,
- ensuring equal access of competent private sector players to available government and donor risk sharing,
- ensuring that interest rates adequately reflect risk and that this is not simply covered by the donor or banking credit lines in sinking and unsustainable funds.

Activities:

- 1.4.1 Contract a business development expert on a competitive basis to support activities under this output
- 1.4.2 Analyse and evaluate business models used and areas for improvement
- 1.4.3 Prepare case study reports for dissemination to business and policy communities

Outcome 2: Biomass fuel market and supply chain strengthened and expanded

Outcome 2 focuses on business and management skills and market oriented supply chains, revenue structures, delivery infrastructure, and identification of appropriate incentives. Under this outcome the project will tackle barriers to the market for the supply of biomass fuel, including efficient delivery infrastructures, sustainable forest certification for wood fuel. Ultimately the outcome aims to improve business models and replicate successful approaches to reach a significantly larger market.

The majority of outcome 2 is financed by the UNDP Forestry and Employment project with the exception of Activity 2.2.12 on fuel certification procedures, which is financed by the GEF.

Output 2.1 Access to investment capital and effectiveness in forest and wood-processing sectors increased

Entirely co-financed by the UNDP Forestry and Employment project the output will provide advice on, and access to, finance and investment capital and create a medium-term “Job Creation Tax Incentive Mechanism” through a “cash refund” from UNDP/SRRP to local fiscal authorities. This mechanism is innovative and enables observations at the municipal revenue interfaces, while avoiding political and rent-seeking interferences. UNDP/SRRP and the municipalities (defined as the UNDP/SRRP Tax Credit Authority) who will define the types of expenditure that qualify for the fiscal incentive.

Activities:

- 2.1.1. Organize and conduct contact group meetings in Bratunac, Srebrenica and Milici for cluster sectors, to develop business partnerships
- 2.1.2. Train national and international organization staff members in working with the private sector
- 2.1.3 Recruit young multilingual local people to staff local Economic Development Offices to promote investment in the region
- 2.1.4. Contact local banks and investment partners, and based on discussions select viable proposals from clusters for development and financing.
- 2.1.5. Populate a database of foreign company twinning partners, ready to support Bosnian entrepreneurs with their business development, and filter cluster applications for partnership.
- 2.1.6. In consultation with local tax credit authorities, review options and establish a job incentive tax incentive.

Output 2.2 Sustainable supply of legally harvested timber increased

Activities:

- 2.2.1 Establish forestry and wood processing cluster forums. The activity will involve finding office space for the clusters, staffing the forum with administrative and management capabilities, developing a strategy for cluster development.
- 2.2.2 Equip the forum with technical library facilities, market databases and provide the clusters with professional advisors.
- 2.2.3 Build cluster member knowledge and skills in accession EU requirements affecting business, small business financial management systems, business and marketing plans, and on proposal writing.
- 2.2.4 Improving market knowledge, including study tours to Italy and Germany to forest sector companies, trade shows and forest trade networks, and monthly experts briefings from key advisors.

- 2.2.5. Brief local forest enterprise managers on different approaches to forest certification; develop an approach to assess compliance
- 2.2.6. Review and revise local management unit guidelines and operational plans for forest protection (including environmental safeguards in road construction, eligible activities in buffer zones, and harvesting limitations), around international best practice.
- 2.2.7 Co-finance 20 km of forest road construction, and build the capabilities of local forest enterprises in road construction to meet independent forest certification standards.
- 2.2.8 Help Local Forest Enterprises identify priority areas for mine clearance and co-finance the clearance of 100Km of mined areas.
- 2.2.9 Establish a small training center and develop a training scheme and qualify local chainsaw operators to enable forest certification.
- 2.2.10 Amend Local Forest enterprise tendering procedures to hire only certified harvesting operators.
- 2.2.11 Develop fuel certification procedures based on international best practice

Outcome 3: Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy

The awareness of end-users within niche markets of the availability, costs, and benefits of biomass energy systems is low and will be raised, and efforts made to empower suppliers to identify and capitalize on homogenous market sectors for their products to drive market growth. Community understanding and acceptance of biomass energy and energy efficiency enhanced through school educational programme

Targeting the niche market of schools with a comprehensive outreach effort (combining the technical demonstrations in Outcome 1 with the awareness-raising and education benefits in the activities described below) has several benefits. It will maximise value for money, build on already existing knowledge and materials (local or foreign), and strengthen local private sector and NGO training and advocacy capacities to create awareness, build skills, and transfer knowledge, rather than to attempt isolated awareness raising by the PMU itself. In this way the approach will be highly consistent with the UNDP-SRRP aims to “strengthen the capacity of civil society and individual citizens to voice and advocate for their needs or rights effectively in dialogue with local governance”, and supports partnership formation, strength of civil society, transparency, sustainability, volunteerism and responsiveness to local needs of civil society. The approach has the intention of building capacities among organizations and citizens to advocate and lobby at all levels.

Overall biomass energy policies and legislation provides the framework within which business operates. Under this outcome support to policy development will be given at both a local and national level aiming to provide reliable information to policy-makers on the costs and benefits of biomass energy for policy development work, and improved capacity for biomass energy stakeholders to explain needs and constraints to policy-makers. Policy development is an inexact science. The strategy used here aims to facilitate the policy development process through targeted activities and studies built on demonstration and piloting of approaches in the Srebrenica region, supported by awareness raising; and particularly the strategy for the energy sector in BiH sponsored by the WB and national legislation development sponsored by the UN and EU. The impact indicator for awareness raising activities will be based on statistical surveying of intended stakeholder groups at the beginning of the project, at the middle, and at the end (see Project Planning Matrix). In addition, a comprehensive monitoring and evaluation program will be used to assess lessons learned and inform policy on an ongoing basis. The project will be in the best position to influence policy-makers and stakeholders while the steering committee and project team are still in place able to apply findings.

The majority of outcome 3 is financed by the GEF with UNDP and GEF co-financing for output 3.4.

Output 3.1: Baselines are established, and reliable data on local costs and benefits of biomass energy is available for policy development work

A comprehensive monitoring and evaluation program will be used to assess lessons learned and inform policy on an ongoing basis. This project will place special emphasis on ensuring that good practices and potential barriers to implementation identified. The project will be in the best position to influence policy-makers and stakeholders while the steering committee and project team are still in place able to apply findings and address bottle-necks through high-level mechanisms such as the tri-partite review and local-level meetings.

From the limited existing experience in Bosnia and Herzegovina, it appears that manufacturers may be willing and able to enter into performance contracts, and deliver heating system equipment combining solar hot water and biomass energy. Matching of delivery mechanisms, institutional capacity and best arrangements, and the niche market needs will be carried out, to ensure sustainability, replicability and value for money.

It is proposed that a long-term monitoring and evaluation expert (potentially a small consortium of local and international expertise) will be contracted for the entire project to provide a reliable and consistent monitoring of project impacts under all three outcomes.

Aligning policy development with potential results and value for money, detailed and independent cost-benefit analysis will be carried periodically throughout the project based on the real measured project impacts under Outcome 1.

Activities:

3.1.1 Contract monitoring and evaluation experts

3.1.2 Develop, in consultation with the project manager and other experts the practical tools and schedules required to collect data specified in the project logframe

3.1.3 Carry out baseline surveys and studies including GHG emission baselines, awareness and perceptions, and capacity surveys

3.1.4 Prepare annual GHG emission reduction overviews

3.1.5 Carry out impact surveys on awareness, perceptions and capacity before the mid-term and final project evaluations.

3.1.6 Collect and compile cost-benefit analysis data from renewable energy in the European Union, the Balkans, and transition economies

3.1.7 Undertake cost-benefit analysis of biomass energy investments supported by the project, including assessment of local benefits such as employment creation, environmental benefit, energy security, weighed against the costs of biomass energy.

Output 3.2: Advocacy capacities in biomass energy enhanced

The biomass energy sector is small and weakly organized. The aim of this output is to create a local biomass energy association bringing together stakeholders from the forestry, wood-processing, fuel supply, biomass processing equipment, combustion equipment and service industries.

Activities:

3.2.1 Create a comprehensive database of interested stakeholders

3.2.2 Hold planning workshop involving all stakeholders, and election of administrative structure for local biomass energy association

- 3.2.3 Facilitate participation at international biomass energy association for key stakeholders
- 3.2.4 Arrange local in-country promotional events

Output 3.3: Project findings used to inform policy development, and build business and finance capacities, establishing conditions for scaling up

Awareness raising / marketing will be subcontracted to a competent national private sector organisation. There is a significant lack of awareness and knowledge of policy makers in energy and related sectors (environment, industry, employment, rural development, health, education). Potential local and global benefits from biomass energy are not generally well known amongst those responsible for the development of enabling policies and business activities.

It is proposed that capacity building will be carried out in the form of a four practical training modules, including competence testing, of one-week each, over a one-year period. The training modules, focused on practical biomass energy project development, will be based on existing material from other countries (eg. the COGEN3 project from SE Asia, RETScreen, Business Plan guidebooks, Biomass training from Austria, Germany, etc.) and translated to local conditions. During the first year of project implementation training will focus on “Training of Trainers”, with a (adapted and improved) course delivered by local trainers in subsequent years.

Activities:

- 3.3.1 Contract awareness / marketing subcontractor
- 3.3.1 Prepare awareness, risk perception and capacity surveys and scoring systems
- 3.3.2 Survey awareness, risk perception and capacity levels of sample of potential policy makers, businesses, forest and wood cluster members, and end-users at start of project (or before supply of product)
- 3.4.3 Revise existing training courses, training of trainers, delivery of training material on an annual basis
- 3.4.4 Survey awareness, risk perception and capacity levels at mid-term and end of project

Output 3.4: Community understanding and acceptance of biomass energy and energy efficiency enhanced through school educational programme

As has been pointed out in the situation analysis biomass energy is generally seen as ‘informal’, associated with poor village life, un-modern, and associated with dirty, polluting, and labour-intensive practices. In order to bring about a change in these attitudes, information on modern biomass energy is needed at the most fundamental levels of society. An effective approach, which has been shown by UNDP to have the potential for long-term sustainability is through educational programmes in schools. This can be achieved at a relatively low cost by building on existing international best practice.

Under this project output, in co-operation with the International SPARE programme, high-quality educational and methodical materials with practical tasks as used in the GEF project in Northwestern Russia, as well as other high from other countries in which SPARE is operating, will be adapted to the local situation, and made available as a resource to teachers in the project area and through Bosnia and Herzegovina. Teachers training and support will also be included, and a national network of participating schools will be established and enabled to join the activities of the “SPARE” Programme, an educational initiative on energy and environment for children of age 10-15. Schools from the project area will be able to compete in a national and international SPARE ‘Energy Saving’ competition.

Activities:

- 3.4.1 Facilitate dialogue with state, entity and canton level stakeholders responsible for education and retraining of teachers to support the local level school activities

3.4.2 Translate and adapt school educational and methodology materials already developed under the GEF – SPARE project activities, including incorporation of local information on the practical benefits and opportunities of biomass energy in schools in Bosnia and Herzegovina

3.4.3 Conduct teacher awareness raising and training together with existing institutions for re-training of teachers

Experience from SPARE internationally has shown that it is most effective to start the education programme in local elective school programmes and use elements in different existing subjects. Based on practical experience from a few schools, the interest from national bodies can be built, and impacts made on curricular and official programmes.

3.4.4 Organise local exhibitions, roundtables and school competition to present school activities for a wider audience

3.4.5 Co-ordinate meetings with international SPARE programme

The project logical framework is given in Annex A.

GLOBAL ENVIRONMENTAL BENEFITS

The key project objective is the reduction of CO₂ equivalent emissions by an accumulated total of 80,000 tonnes over 15 years, by installing or retrofitting schools with biomass boilers. Domestic benefits include job creation, reduced emissions, and improved quality of heating.

B. Describe the consistency of the project with national priorities/plans:

Bosnia and Herzegovina currently has no specific energy policy or strategy. In February 2005 Bosnia and Herzegovina Council of Ministers adopted the Terms of Reference for Drafting the Energy Strategy of the country, with financial support from the World Bank, and resulting in the publication of the “Bosnia and Herzegovina Energy Study”.

The Mid-term Development Strategy of Bosnia and Herzegovina has emphasized environment protection and energy savings. It calls for the energy sector reform under nine goals. Among these are integration with international markets, improvement of energy efficiency, market liberalization, protection of the environment and increase the use of renewable energy sources.

The National Environmental Action Plan (NEAP) also proposes energy efficiency measures through technology restructuring, better use of energy resources, maximize the use renewable energy, and balanced consumption of domestic and foreign energy resources, etc. These strategies are high level policy documents which have yet to be developed into concrete strategies.

The forestry sector is identified in the country Poverty Reduction Strategy Paper as having one of the greatest development potentials in the country.

Providing homes for the displaced population and reconstruction of the public sector is one of the priorities on the Government’s agenda. The Government recognizes the need to include energy efficiency opportunities in these activities. For example, the latest Bosnia and Herzegovina Strategy for Economic Development as well as the PRSP put emphasis on energy saving as the indivisible part of the solution for fighting poverty.

Bosnia and Herzegovina is a pre-accession country; i.e., it is seeking membership in the European Union (EU) in the medium term. The key governing document between the Balkan countries including EU and

the EU agreed in October 2005 is the Energy Community Treaty. Several of the clauses of this document mention the importance of Kyoto Protocol participation, energy efficiency, and wider use of RES. As Bosnia and Herzegovina moves closer to EU, it will have to transpose EU legislation on energy efficiency, in which one the key directives is the Directive on Energy Performance of Buildings, requiring strict observance of energy efficiency standards.

C. Describe the consistency of the project with GEF strategies and strategic programs:

This project removes market barriers biomass energy for heating, hot water and electricity in rural areas of Bosnia and Herzegovina by:

- *Addressing biomass demand through niche buyers groups initially focusing on the education sector,*
- *Strengthening and expansion of supply chains for products and financing, and*
- *Awareness raising and capacity building targeting policy makers, financial sector, fuel and technology suppliers and niche markets*

The project concentrates on the creation of an enabling environment for renewable energy, providing support to the creation and sustaining of biomass energy markets and thus strongly supports Strategic Program 4: Promoting Sustainable Energy Production from Biomass and strategic objective 6 under GEF-4 "Promoting Renewable Energy for Rural Energy Services".

The sustainability of the project stems from the market creation approach used in this project, including the following logic:

- Initial calculations indicate that biomass can be least cost, particularly in rural locations in BiH;
- The project will raise awareness to convince buyers, suppliers and policy-makers of the benefits of biomass in BiH;
- The project will support buyers in procurement of competitive biomass systems that meet local needs but cost less than alternatives;
- Finally, the project will draw upon these real experiences to demonstrate the benefits of biomass to policy-makers and to develop a policy environment that will favour further use of biomass throughout the country.

D. Outline the Coordination with other related initiatives:

The proposed GEF project will be implemented together with relevant activities under the UNDP SRRP Forestry for Employment Project as described below and indirectly with the World Bank Forest Development and Conservation Project through its explicit co-operation strategies with SRRP. Co-operation with forest-sector activities will be ensured via the UNDP-SRRP Forestry for Employment Project.

Discussions have been held with the EBRD⁷, which is exploring establishing a credit line for water, energy efficiency and renewables in the Balkans, and avenues for co-operation are being assessed. The proposed UNDP GEF activities will be highly complimentary to any such credit line if and when it is established.

E. Describe the incremental reasoning of the project:

⁷ Meetings held with Zihnija Hasovic, EBRD/TMG BAS Programme in the Central European Initiative Member States, National Programme Director, Bosnia & Herzegovina (September 2005), EBRD London Peter Hobson, Senior Banker & Renewable Energy Co-ordinator, Energy Efficiency & Climate Change, and Mark Hughes, Principal Environmental Specialist.

In the presence of barriers to a functioning market in biomass energy in Bosnia and Herzegovina, significant investment in this sector is unlikely to take place. Overall CO₂ emissions for the country will continue to grow at a modest rate as a result of demand and dependence on oil and coal. In the baseline CO₂ emissions in the school sector decrease from the present level by 1,400 tonnes over 15 years as a result of a modest switch to natural gas.

The proposed GEF activities tackle the identified barriers to the widespread and market-based growth of modern biomass energy. These activities contribute to the following project outcomes:

- *Outcome 1: Market demand for biomass energy is increased*
- *Outcome 2: Sustainable biomass fuel supply markets strengthened and expanded*
- *Outcome 3: Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy*

The project impact on the baseline under the alternative has been estimated and details of calculations are given in Annex I. Market barriers are substantially reduced, resulting in increased uptake of biomass energy in households, institutions and businesses and reduced GHG emissions.

Significant GHG emission reductions are attained. CO₂ equivalent emission reductions over a 15-year period as a result of this project are projected to be 80,000 tonnes.

Domestic benefits include reduced air pollution, improved energy security and job creation.

F. Indicate risks, including climate change risks, that might prevent the project objective(s) from being achieved and outline risk management measures:

Risks	Type	Likelihood	Remedial actions
1. Lack of ongoing, long term political and government support for improved biomass energy sector	Exogenous	Medium	Government commitments in this area have been confirmed on the highest level and they have been committed over some time to biomass energy although financial resources have been limited. Ongoing consultations and ownership of project development and implementation, with key government stakeholders will take place throughout the project.
2. Poor cooperation between government stakeholders	Endogenous	Medium	Highly participatory project development and implementation strategy, with specific incentives to key institutions
3. Inadequate project implementation	Endogenous	Medium	Careful selection of project team members and the M&E to be put in place is required. The project design aims to minimize institutional bureaucracy through careful apportionment of activities between government and private sector.
4. Use of inappropriate technologies	Endogenous	Low	Using technologies with a satisfactory track record and use of experienced contractors will be required. The project focuses on market forces and no technology subsidies from GEF funds increases the chances of rational value-oriented investment decisions.
5. the private sector will participate in the project	Exogenous	Medium	Private sector partners were consulted during project and the project has letters of interest from these partners. Furthermore the project has been designed to put USD 300,000 in GEF funds to generate interest and from the private sector through procurement of their equipment.

G. Explain how cost-effectiveness is reflected in the project design:

The project builds on lessons learnt by UNDP through other biomass projects in the region, aiming to maximize private sector involvement in a competitive environment to enhance cost effectiveness.

Relevant projects supported by GEF and implemented by UNDP on biomass energy are listed below. Key challenges and lessons learnt coming out of this substantial portfolio of projects include the following:

- Dealing with complexity – it is extremely challenging to work with many and diverse stakeholders, and this is a major obstacle for most bioenergy projects. The Bosnia and Herzegovina project focuses on a relatively small project area where allow for these interactions to be arranged on a manageable area, before being replicated in other areas.
- Identifying commercially viable options – while there are many options, commercial viability is generally very locally specific, and depends on many factors. In this project the initial focus will be on the education sector, where lessons can be learnt before replication.
- Selecting and motivating appropriate options – there is a tendency to make early demonstration / market creation activities atypical; special circumstances, extra fancy / expensive equipment, doing everything in one project (e.g. new district heating network + energy efficiency + new boilers + pelletizing + innovative

financing, etc. all in one project). In the Bosnia and Herzegovina project, since local stakeholders will cover in part or in total the investment costs, the risk of inappropriate selection of equipment based on a large concessional fund will be avoided.

- Competitive approaches in investment project design – ensuring projects remain competitive – avoiding demonstration-phase monopolies. The Bosnia and Herzegovina project, by ensuring that business logic is not removed from the investment decisions (frequently resulting from grants or soft loans for investments) the competitiveness approach will be maximized.

To enhance cost-effectiveness the project seeks to work initially in a limited area in which UNDP already has ongoing activities, thus minimizing start-up and operating costs. Ensuring close co-operation with these ongoing and future activities will maximize the potential impact of the GEF project. The GEF project uses an innovative niche market buyers-group approach (procurement) to increase sales volume, supported by heat service contracting (Build, Own, Operate, Transfer – BOOT), where technology suppliers carry both investment and operational risk and it represents best practice in building local ownership of project successes, enhancing sustainability and replicability.

Based on the estimated CO₂ equivalent emission reductions over a 15 year period as a result of this project of 80,000 tonnes (see Annex I), the cost per tonne is approximately 12 USD/tonne.

PART III: INSTITUTIONAL COORDINATION AND SUPPORT

A. Project Implementation Arrangement:


The project will be directly implemented by UNDP BiH office, in line with its special mandate for direct project implementation. The project will be implemented using the same approach as for the Srebrenica Regional Recovery Programme, the well proven modalities of Direct Implementation (DIM) that have been applied and fine-tuned in recent years. DIM will be applied in a way to take into account all the potentials for maximum cost-effectiveness and tailored flexible capacity development of local governments and institutions.

The Country Office (CO) will hold the overall responsibility for the production of outputs/implementation of activities envisaged. The management of project funds will be carried out according to UNDP financial rules and regulations, based on a work plan with a detailed budget. A Project Manager, an Administrative Assistance and Chief Technical Advisor will be hired through a competitive advertisement, and will work under close supervision of the UNDP CO Program Officer on Energy and Environment. The Project Management Unit will ensure day-to-day management and oversight for the project as a whole, and will be responsible for project achievements and the reporting on the resources allocated. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the UNDP CO with support from UNDP/GEF.

PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:

N/A

PART V: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.	
 John Hough Deputy Executive Coordinator UNDP/GEF	Project Contact Person Geordie Colville
Date: 28 August 2008	Tel. and Email: geordie.colville@undp.org Tel: +421 2 59 337 408

Annex A: Project Results Framework

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Project Objective			
<p>The overall project goal is a sustainable reduction of GHG emissions through a transformation of the biomass energy market in Bosnia and Herzegovina.</p>	<p>End-term targets: schools with retrofitted or new biomass boilers totalling 5,837 tCO₂e in direct emissions reductions</p>	<p>Annual reports from PMU (giving investment programme status, retrofitting progress, and reductions in tonnes CO₂) submitted to UNDP office.</p> <p>Mid term and terminal evaluations of use undertaken via user survey to assess experience and technology performance</p>	<p>Political and ethnic stability in Bosnia and Herzegovina continue to develop in a positive manner.</p> <p>Financial regulations in Bosnia and Herzegovina stay conducive to business expansion in both entities</p> <p>Positive macroeconomic indicators; inflation rate stays below 10%.</p> <p>Local governments recognize the project as an opportunity for themselves and for their communities</p> <p>Scale-up of appropriate business models to other regions in Bosnia and Herzegovina is viable and introduces additional competition into the market.</p>

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Outcomes			
Outcome 1: Market demand for biomass energy is increased	End-term targets: 20 schools with retrofitted or new biomass boilers totalling 5,837 tCO ₂ e in direct emissions reductions Business model (heat service contracting) replicated in at least 2 other regions Mid-term targets: 20 new small scale biomass energy projects under advanced planning (engineering design stage) / construction in the project area	PMU reports PMU reports PMU reports	Procurement processes successfully enable cost reduction & municipalities actively participate
Outcome 2: Sustainable biomass fuel supply markets strengthened and expanded	End-term targets: 250 tonnes (approx 900 m ³) per year of sustainably sourced (certified) biomass fuelwood (chips or logs) supplied to project boilers at a competitive price Perceptions of fuel supply risk reduced by 50% based on ‘consumer confidence’ survey. Competition in fuel supply for the 20 biomass boilers exists, signified by supply offers covering 150% of needs Mid-term targets: Wood-processing companies in the project area show real interest in wood fuel supply to local markets, with MOUs covering 200% of fuel required by demonstration projects, with at least 5 companies participating	PMU reports Survey reports Reports from Energy Service companies on the status of fuel supply PMU reports, copies of MOUs	Stakeholders in the wood-processing sector in the project area participate in SRRP project activities Ongoing support from government and concerned stakeholders
Outcome 3: Policy makers, financial sector, fuel and technology suppliers and niche markets are convinced of benefits and market opportunities for biomass energy	End-term targets: Survey shows high level of awareness, including use of project outputs, and increased capacities. “Biomass energy awareness and capacity score” quadrupled in project area (see Output 3.3) Mid-term targets: Survey shows improving awareness and capacities of users - “biomass energy awareness and capacity score” doubled in project area over start of project baseline	Survey reports Survey reports	Ongoing support from government and concerned stakeholders

Project Strategy	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Outputs			
Output 1.1: Biomass energy systems procured in education sector (pilot niche buyer cluster), key technologies demonstrated in a highly visible way	End-term targets: Minimum orders for 20 biomass energy systems from the municipal / education sector in the project area for biomass boilers totalling 5,837 tCO ₂ e in direct emissions reductions. Mid-term targets: Growing market for modern biomass energy systems, RFP issued from buyer's group, and a minimum of 3 competitive bids	PMU reports PMU reports	
Output 1.2: Model biomass fuel specifications and heat delivery contracts (service contracts) prepared	End-term targets: Contractual models developed have been used during output 1.1 Mid-term targets: Contractual models have been developed for biomass supply, delivery of energy services to niche market stakeholders, participation of local communities in biomass energy decision-making, and local guidance for the preparation of bankable proposals.	Copies of model contracts Copies of model contracts	
Output 1.3: Transaction support through technical, social and legislative expertise	End-term targets: Technical support given to 20 new and retrofitted small scale biomass energy projects that are now operating in the project area totalling 5,837 tCO ₂ e in direct emissions reductions Technical support given to replicate business model in at least 2 other regions Mid-term targets: Technical support given to 20 small scale biomass energy projects totalling 5,837 tCO ₂ e in direct emission reductions that are at the advanced planning (engineering design stage) / construction stage in the project area	PMU reports PMU reports	
Output 1.4: Business models (heat service contracting) improved and replicated	End-term targets: Business model replicated in at least 2 other regions	PMU reports	

	<p>Mid-term targets: Lessons learnt from pilot region have been assessed and systematized, ready for replication</p>	Copy of lessons learnt analysis and business model / systemization	
<p>Output 2.1: Access to investment capital and effectiveness in forest and wood-processing sectors increased</p>	<p>End-term targets: 130 new jobs in wood-processing industries 816 jobs in industries supporting the forest cluster Tax incentive scheme developed and implemented 15 proposals prepared and submitted by wood processing companies to financiers</p>	SRRP project reports	
<p>Output 2.2: Sustainable supply of legally-harvested timber increased</p>	<p>End-term targets: One forum (with strategy and infrastructure) established Library and database established within the forum Twelve technical briefings to forum members Thirty people have completed study tours Fuel certification procedures have been developed and are being used in the project area</p>	Copies of project reports from the SRRP activities	
<p>Output 3.1: Baselines are established, and reliable data on local costs and benefits of biomass energy is available for policy development work</p>	<p>Suppliers use results of cost-benefit analyses in marketing of relevant products Municipal / education sector in the project areas makes use of studies to make decisions about potential investments. Mid-term targets: Analytical case studies on costs and benefits of modern biomass energy have been prepared GHG and other baselines have been determined so that project impacts may be accurately assessed.</p>	<p>Copies of brochures referring to results of studies Minutes from meetings of niche market group Copies of reports</p>	<p>Government support for action on biomass energy, job creation and energy security continues Regulations developed by stakeholders are adopted by government</p>
<p>Output 3.2: Advocacy capacities in biomass energy enhanced</p>	<p>End-term targets: The biomass energy association is active, has established brand recognition and has paying private sector members</p>	Copy of statutes of the association Reports of activities	

	Two trade show / international biomass energy association representations have taken place Three in country promotional events held Mid-term targets: Establishment of biomass energy association underway	Reports and photographs from events Reports and photographs from events Copy of statutes of the association Reports of activities	
	One in-country promotional event held	Reports and photographs from events	
Output 3.3: Project findings used to inform policy development, and build business and finance capacities and establish conditions for scaling up	End-term targets: Average “biomass energy awareness and capacity score ⁸ ” quadrupled in project area Mid-term targets: Average “biomass energy awareness and capacity score” doubled in project area	Results of survey Results of survey	
Output 3.4: Community understanding and acceptance of biomass energy and energy efficiency enhanced through school educational programme	End-term targets: Implementation of education programme in schools in the project area Mid-term targets: Agreement with the local, entity and state level stakeholders on developed curricula Teacher training course successfully completed by teachers from project region	Results of PMU reports Results of PMU reports	

⁸ The system for scoring, including weighting of factors, will be determined during project execution (activity 3.1.1). Scores will be assigned based on results of the start of project survey, and compared to that in the end-term survey. Factors that are likely to be used include:

- Copies of awareness raising material received (yes=1, no=0)
- Stakeholder has passed on the information they have received (yes=1, no=0)
- Stakeholder can cite cases where they personally have used the skills gained (yes=2, no=0)
- Stakeholder can cite cases where they have implemented lessons in their day to day activities (yes=3, no=0)

Thus, per surveyed stakeholder, if the first three factors have been met but not the fourth then the score for that stakeholder would be 4 (1 + 1 + 2).

For capacity the factors to be used may include:

- User has received direct training and passed required competence test (yes=1, no=0)
- Evidence of application of lessons learned from training (yes=2, no=0)
- User has implemented local capacity building plan (yes=2, no=0)

Annex B: Responses to Project Reviews

(from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF)

- a) Convention Secretariat comments and IA/ExA response
- b) STAP expert review and IA/ExA response (if requested)
- c) GEF Secretariat and other Agencies' comments and IA/ExA response

Comment	Response
<i>Program Designation and Conformity</i>	
1. The description of the policy conformity needs to be updated in accordance with the development of the GEF4-CC strategy.	Section C: DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS has been updated to reflect GEF4-CC strategy.
2. Proposal still uses outdated references to GEF strategy (e.g., page 17 refers to OP6 and "rural renewables" as a strategy). (10 Jan 08)	The text on page 17 has been updated to reflect current GEF programming strategies.
<i>Design</i>	
1. In general, the proposal needs to be more succinct by focusing on the concrete activities to be implemented by the project. In particular, the section of project design needs to be more focused on the activities (e.g. it is very difficult to identify the linkage between the detailed background information and the components of the project. It is also very unclear which parts of the activities will be funded by GEF resources).	The section Part II: A. DESCRIBE THE PROJECT RATIONALE AND THE EXPECTED MEASURABLE GLOBAL ENVIRONMENTAL BENEFITS has been entirely redrafted and focuses on the activities. Within each outcome activities funded by the GEF are explicitly identified.
2. Please clarify which activities are supposed to be funded by GEF resources and how much will be allocated for them in the project design section. Moreover, "indicative activities" needs to be fully justified in terms of GEF eligibility since some of them seem baseline activities (e.g. "Planning workshop", "Participation at international biomass energy association", "Development of functioning contractual and tendering models", "Tendering for framework contract" and "Contracting on competitive basis" and "School educational program")	This has been clarified in the text. The activities "Planning workshop", "Participation at international biomass energy association", "Development of functioning contractual and tendering models", "Tendering for framework contract" and "Contracting on competitive basis" and "School educational program" are clearly incremental not baseline in that 1) they would not take place without the GEF project, and 2) they focus entirely on achieving the project outcome.
3. Please clarify how each outcome or output relates to the targeted measure (retrofitting or installing biomass-fired boilers in schools).	This is described in detail in section Part II A, and should also be evident from the logical framework given in Annex A. Logically, addressing Market Demand (component 1), Fuel Supply (component 2), and Awareness / Capacity (component 3), will result in achievement of the project outcome.
4. Please clarify how the project target (the reduction of 80,000 tons CO ₂ eq over 15 years) can be estimated.	This is described in detail in ANNEX I: IC MATRIX AND BASELINE CALCULATION
5. Please describe clearly the way to ensure that the project will not cause any adverse effect on sustainable forest management.	Component 2 focuses entirely on this issue.
6. Please attach a list of abbreviations and acronyms.	Added as Annex K
7. It is expected that a streamlined timetable specifying the	Added as Annex M. Implementation of all GEF funded

<p>following elements is attached:</p> <ul style="list-style-type: none"> - Which activity is expected to be funded by GEF financing? - How much GEF financing is expected to be allocated to each activity? - What is the timeline of each activity? - Which organization is responsible for each activity? (10 Jan 08) 	<p>activities will be the responsibility of the PMU.</p>
<p>8. Please explain statistically and quantifiably the project sustainable supply of the timber, reflecting the project target (potential savings of 200,000 CO₂e by 2000 [sic]): How large an amount of timber is supposed to be supplied to achieve the project target? (10 Jan 08)</p>	<p>One can assume that a 50kW boiler of the type that might be used in a typical school consumes approximately 14 tonnes of wood chips per year, or the equivalent of 42m³ in logs. Even assuming the replication of the project to the extent that 2500 schools and other facilities are using biomass boilers to produce heat (and that – as a result -- 200,000 tonnes of CO₂e are mitigated), the total annual demand for logs would be 105,000m³, or 1.4% of the annual allowable cut of 7.44 million m³ noted in situation analysis in this document.</p> <p>It should also be noted that as wood chips will also be produced from waste wood, the actual direct demand for forest wood will be smaller than this estimate.</p> <p>Finally, it should also be noted that several specific activities in the project safeguard the sustainability of the fuel supply. Under Output 2.2 (Sustainable Supply of Legally Harvested Timber Increased), Activity 5 develops an approach to assess compliance with forest certification practices, Activity 10 establishes a small training center and qualifies local chainsaw operators to enable the certification process, and Activity 12 develops fuel certification processes based on international best practice.</p>
<p><i>Sustainability (including financial sustainability)</i></p>	
<p>Please describe how practically institutional including financial sustainability will be secured (i.e. the logic described in the proposal seems sketchy expectation.).</p>	<p>This has been clarified in Part II C. The project uses a market creation approach addressing market barriers.</p>
<p>Who will be responsible for the management including running costs of the installed or retrofitted biomass boilers? (10 Jan 08)</p>	<p>Under the BOOT (build, own, operate, transfer) financing arrangements, the biomass technology providers will be responsible for the management and running costs of the boilers for a period of time that will be specified in the contract with the purchasing collective (based on standard practice, this period of time is expected to exceed the length of the project period). When the period of operations agreed upon under the purchase agreement expires, the biomass boilers will be transferred either to the purchasing collective or to the individual entities depending on the heat services agreement that is ultimately signed during the course of the project.</p>
<p><i>Replicability</i></p>	
<p>Please show the replication plan including timetable and clarification of "all these areas of potential replication".</p>	<p>This is addressed in output 1.4</p>
<p><i>Stakeholder Involvement</i></p>	

Please attach a list of stakeholders including potential civil society organization and groups of citizens to be involved in the project.	This is described in Annex L
<i>Monitoring and Evaluation</i>	
Please specify the M&E work plan with a specific budget allocation, timetable and indicators.	Given in Section G: "DESCRIBE THE BUDGETED M&E PLAN". Indicators are described in detail in the project logical framework in Annex A.
Please show specific budget allocation in the M&E plan. (10 Jan 08)	The table in Section G has been updated to include the allocation of the expenses for national and international M&E staff, including travel and DSA, during project implementation.
<i>Financing</i>	
For all consultants hired to manage project or provide technical activities, please attached a description in term of their roles and functions in the project, and their position titles in the organisation, such as project officer, supervisor, assistants or secretaries, in addition to the staff weeks described	Added as Annex C
The cost of office facilities, equipment, vehicles and communication needs to be specified	Annex E identifies costs by category.
The cost (GEF: \$12,000) of travel needs to be fully justified or eliminated	The costs of travel has been reduced and justified in Annex E
The letters of all Co-financiers need to be attached.	Attached in Annex F
The commitment letters from the private sector need to be attached. (10 Jan 08)	Attached in Annex F
Please focus on the core commitments and linkages relating to the proposal, since the current descriptions of the project seems too broad.	This section is no longer included in the new GEF CEO Approval Request Template

COMMENTS AND RESPONSE TO MADE BY GEFSEC REVIEW OF JUNE 2008.

Comment	Response
There is an issue concerning the development of indicators and the use of the GEF-methodology to measure direct, post-project direct, and indirect carbon-related benefits of the project. As this project clearly will have only two types of CO2 benefits (direct and indirect), then we want to actually see the assumptions deployed and the resulting estimates as targets. The information provided in the Request is insufficient; for instance in p.10 the referred project objective is the avoidance of 80,000 tn CO2 over 15 years by retrofitting or installing biomass-fired boilers in schools, while in p.49 this figure corresponds to the GEF- attributable indirect emission reduction impact over the country (and not only in the school sector). Also in p.50 there is a reference to direct emission reduction of 623 tn CO2 over 4 years, which cannot be linked to the presented life-cycle direct impact of 5,837 tn CO2.	<p>The GEF spreadsheet for calculating impact is now attached with the proposal. It also includes an additional spreadsheet showing details assumption about direct emission reductions, and for 40,000tCO2 in indirect impact from the uptake by 500 schools of biomass boilers. The remaining indirect impact includes 160,000tCO2 resulting from the uptake of biomass boilers by other sectors, on the assumption that school conversions will have a 4 time multiplier stimulus on other sectors (160,000 X 0.4).</p> <p>The figure 623 tCO2 was calculated for emissions during the 4 yr life of the project. P 50 now refers to 5,837 tCO2 to avoid confusion, covering the life of the investments.</p>
Also for the record, the GEFSEC comment (informal communication through e-mail) concerning the number of	The number of schools (20) has been re-inserted. The budget assumes costs for new boilers only (\$600,000 – ½

<p>applications in schools and their cost is not answered by removing any reference to the number of targeted schools and linking the project targets to direct emission reductions; contrariwise, such treatment redoubles the concerns about the justification of equipment costs and obfuscates the estimation of direct emission reductions. It is highly recommended to submit the spreadsheet that is available to measure project's carbon-related benefits according to the GEF methodology and incorporate its results in the document in a more consistent manner.</p>	<p>from GEF, giving a cost of \$30,000 per boiler). Retrofit is estimated to be half the cost of a new boiler (including producer gas unit and pipe upgrades). In most cases schools are expected to opt for a new boiler since existing boilers are over 20 yrs old in most cases and not worth retrofitting. Added to this a retrofit requires additional space for the producer gas unit, which is often not available.</p> <p>The savings from either retrofitting or new boilers are estimated to be similar if not exactly the same. A retrofitted boiler, while half the cost, is estimated to last half the life (7 years), yielding the same emissions per dollar. The main difference is that the more retrofits completed the more schools that can be included in the project. The number of schools will not be changed from 20. Instead any schools included beyond the 20 target will be regarded as a credit to the project. This text has been included in the proposal for clarification.</p> <p>The GEF spreadsheet is now included with calculations and assumptions.</p>
<p>Project design and framework are, in general, sufficiently clear. The number of installations and their environment benefit should be clarified.</p>	<p>The number of installations (20) has been re-inserted in the project. The life time emission reductions from these installations are estimated to be 5,837 tCO₂.</p>
<p>NRM (A.K. 12 June 2008) Project design should be improved by referring to any possible linkage between the project and any land use planning in the country. Also it should be clarified whether biomass production areas might compete with food production in the current case.</p>	<p>Agricultural land is classified for planning by soil class. Classes I to VI can be converted to other uses. Classes VII & VIII can not be converted to other uses. Classes VII and VIII make up 20% of land under agriculture. Land use planning laws will themselves not prevent conversion therefore of land from agricultural use, but a sound forest management plan will promote yields which are estimated to be in excess of demand in the foreseeable future.</p>
<p>According to the last re-submitted Request Document, PM financing allocation regressed in the one submitted by April 14th. So we have to repeat that it should be justified why PM cost is equally covered by GEF and co-financing, while the co-financing is larger than GEF funding. Assuming that the total PM costs do not exceed the amount of \$172,000 and the ratio between GEF financing and Co-financing for the rest of the project components is 1/2.67, then GEF financing for PM should not exceed the amount of \$64,322, and Co-financing for PM should not exceed the amount of \$107,678.</p>	<p>The UNDP CO has agreed to take an additional USD 20,000 of the project management costs. These changes have been made to the budgets and an additional letter of cofinancing confirmation is provided by UNDP.</p>
<p>In general they are adequate, but especially for the investment activity (procurement of biomass systems) the details about the number of systems to be procured will determine the adequacy of the relevant co-financing.</p>	<p>20 systems will be installed or retrofitted.</p>

Annex C: Consultants to be hired for the project

Position Titles	\$/Person Week	Estimated PWs	Tasks to be performed
For Project Management			
<i>Local</i>			
Project manager	600	192	<ul style="list-style-type: none"> • Preparation of detailed work plans for the project. Overall co-ordination, management, monitoring of the project implementation; • Organize and supervise workshops, study tours, field visits, international missions, and training needed during the project; • Identify national experts and institutions to work for the project, participating in their selection; • Supervise the administrative assistant and maintain partnership with the local liaison officer; • Prepare periodic progress reports (including quarterly report, APR) of the project as per UNDP and GEF requirements, as described in the Monitoring and Evaluation section of the document; • Control expenditures and ensure an adequate management of the project budget; • Identify and mobilize resources for the post-project implementation in line with the replication plan of the project; • Coordinate project activities with other relevant technical assistance program in BiH; • Undertake any other duties in connection with project activities to ensure its effective implementation which are within his/her competence as the Project Manager; • Act as representative of the project at national and international meetings; • Ensure smooth activities of project Steering Committee, and timely implementation of project reporting requirements.
Admin assistant	200	192	Administrative assistance
Book keeper	200	72	Bookkeeping
<i>International</i>			
none			
For Technical Assistance			
<i>Local</i>			

Biomass technology	500	208	Analysis of cost effectiveness and biomass energy benefits; Preparation of technical materials; Local tailoring of RETSCREEN (or equivalent); Biomass energy standards development / best practice - local; Explain biomass energy to local stakeholders; Development of case studies for policy work; Preparation, revision and delivery of national training; Biomass fuel certification systems development
Business development	500	208	Development of biomass actor databases; Develop manual on best practice (possibly translating, developing QM work from Slovenia); Develop objective cost-benefit analysis; Development of fund application procedure; Analysis of business models and recommendations on business development and creation of business systems
Legal advisor	1000	24	Legal drafting and review of general agreements; Support niche with local legislation, application for building permits, etc; Draft and review agreements, support tender process
M&E	500	104	M&E design and implementation support (local)
Marketing	500	104	Preparation of market materials; Design and implement promotion activities (marketing expert)
Forestry expert	500	208	Advice for forest and wood-sector to support clusters; National training on forest management & business skills; Advice on forest certification, protection, etc; Twinning partner database development; Job Tax incentive preparation
International			
Biomass technology advisor	3000	15	Analysis of cost effectiveness and benefits (international comparison & peer review); Biomass energy standards development / best practice - international; TA to buyers group - technical
Forestry advisor	3000	60	Support to cluster strategy development; Advice on forest and wood-sector development; Advice on forest certification, protection, etc.
M&E expert	3000	8	M&E design and implementation support (international)
End-term evaluation expert	3000	3	End-term evaluation
Marketing advisor	3000	8	TA to buyers group - social and marketing of biomass
Legal advisor	5000	4	TA to buyers group - legal issues

Sub-contracts

USD 120,000 has been set aside for Outpt 3.3 under Outcome 3. The nature of this subcontract is described below. Awareness raising / marketing will be subcontracted to a competent national private sector organisation. There is a significant lack of awareness and knowledge of policy makers in energy and related sectors (environment, industry, employment, rural development, health, education). Potential local and global benefits from biomass energy are not generally well known amongst those responsible for the development of enabling policies and business activities.

It is proposed that capacity building will be carried out in the form of a four practical training modules, including competence testing, of one-week each, over a one-year period. The training modules, focused on practical biomass energy project development, will be based on existing material from other countries (eg. the COGEN3 project from SE Asia, RETScreen, Business Plan guidebooks, Biomass training from Austria, Germany, etc.) and translated to local conditions. During the first year of project implementation training will focus on “Training of Trainers”, with a (adapted and improved) course delivered by local trainers in subsequent years.

Annex D: status of implementation of project preparation activities and the use of funds

Not applicable

- A. Explain if the ppg objective has been achieved through the ppg activities undertaken.
- B. Describe if any findings that might affect the project design or any concerns on project implementation.
- C. Provide detailed funding amount of the ppg activities and their implementation status in the table below:

<i>Project Preparation Activities Approved</i>	<i>Implementation Status</i>	<i>GEF Amount (\$)</i>				<i>Co-financing (\$)</i>
		<i>Amount Approved</i>	<i>Amount Spent To-date</i>	<i>Amount Committed</i>	<i>Uncommitted Amount*</i>	
	(Select)					
	(Select)					
	(Select)					
	(Select)					
	(Select)					
	(Select)					
	(Select)					
	(Select)					
Total						

* Uncommitted amount should be returned to the GEF Trust Fund. Please indicate expected date of refund transaction to Trustee.

Annex E: Total Budget and Work Plan

Award ID:		00046049							
Award Title:		PIMS 3880 CC MSP: BiH Biomass							
Project ID:		00054633							
Project Title:		PIMS 3880 CC MSP: BiH Biomass							
Implementing Agency:		UNDP Country Office Bosnia & Herzegovina, DEX execution							
GEF Outcome/Atlas Activity	Responsible Party (Implementing Agent)	Source of Funds	Atlas Budgetary Account Code	ERP/ATLAS Budget Description/Input	Amount (USD)	Amount (USD)	Amount (USD)	Amount (USD)	Total (USD)
					Year 1	Year 2	Year 3	Year 4	
OUTCOME 1: [Atlas activity]	UNDP	GEF	71300	Local consultants	77,200	38,000	18,400	2,400	136,000
			71200	International consultants	19,400	19,400	19,400	21,800	80,000
			72800	Equipment	-	60,000	120,000	120,000	300,000
			74500	Miscellaneous	-	1,000	10,000	3,000	14,000
			71600	Travel*	4,625	5,400	4,625	5,400	20,050
			sub-total	101,225	123,800	172,425	152,600	550,050	
OUTCOME 2: [Atlas activity]	UNDP	GEF	71300	Local consultants	15,000	5,000	-	-	20,000
				sub-total	15,000	5,000	-	-	20,000
OUTCOME 3: [Atlas activity]	UNDP	GEF	71300	Local consultants	39,000	27,000	31,000	27,000	124,000
			71200	International consultants	7,050	7,050	16,050	11,850	42,000
			72100	Contractual services - companies	30,000	30,000	30,000	30,000	120,000
			74500	Miscellaneous	6,750	6,750	6,750	8,750	29,000
			71600	Travel*	5,100	4,525	4,650	4,525	18,800
			sub-total	87,900	75,325	88,450	82,125	333,800	
Project Management	UNDP	GEF	71300	Local consultants	14,750	14,750	14,750	14,750	59,000

[Atlas activity]		72100	Contractual services - companies	1,000	1,000	1,000	1,000	4,000
			sub-total	15,750	15,750	15,750	15,750	63,000
			TOTAL	219,875	219,875	276,625	250,475	966,850

*Travel Justification: Outcome 1: Travel costs are requested so that project consultants can travel to the 20 biomass demonstration sites to help with the design and planning. Outcome 2: Travel costs are requested to conduct project surveys, since postal and phone surveys are not as effective.

Annex F: Required Attachments

- a) Report on the Use of Project Preparation Grant (if used)

No project preparation grant was requested from the GEF for this project proposal.

b) Country Endorsement Letter (RAF endorsement letter if BD or CC project)

BOSNA I HERCEGOVINA
MINISTARSTVO VANJSKE TRGOVINE I
EKONOMSKIH ODNOSA



БОСНА И ХЕРЦЕГОВИНА
МИНИСТАРСТВО СПОЉНЕ ТРГОВИНЕ
И ЕКОНОМСКИХ ОДНОСА

BOSNIA AND HERZEGOVINA
MINISTRY OF FOREIGN TRADE AND ECONOMIC RELATIONS

GEF OPERATIONAL FOCAL POINT

Broj: 06-03-~~50~~-10730/06
Sarajevo, 14.12.2006. godine

TO: Ms Monique Barbut,
GEF Chief Executive Officer

CC: Mr. Christine McNab,
UNDP BiH Resident Representative a.i.

Dear Ms Barbut,

In my capacity as GEF Operational Focal Point I would like to strongly endorse the project concept and request for MSP for the project "*Bosnia and Herzegovina Biomass Energy for Employment and Energy Security Project*".

The project stems from national priorities identified under the National Environmental Action Plan which lists use of biomass for energy as one of the important activities according to priority areas.

The project will further promote efforts of BiH under the United Nations Framework Convention for Climate Change.

Due consultations took place between project proponents and the GEF Operational Focal point at the design phase.

As GEF Operational Focal I understand that this project is a priority to be financed from the 2006-2009 "GEF Resource Allocation Framework Climate Change Window", a group allocation which includes Bosnia and Herzegovina.

I hope the Global Environment Facility will find it possible to allocate the requested funding for this project.

Sincerely yours,

Senad Oprašić, PhD

GEF Operational Focal Point

Adresa: Musala br. 9, 71000 Sarajevo, Tel./fax: ++387 33 552-365

c) Confirmed letters of commitments from co-financiers (with English translations)



Ref.no: EE/B/08/01

Sarajevo, 25 August 2008

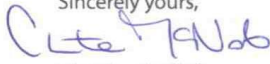
Dear Ms. Barbut,

SUBJECT: Co-financing of the Medium Sized Project: *Biomass Energy for Employment and Energy Security in Bosnia and Herzegovina*, PIMS 3880

I would like to express the full support of the United Nations Development Programme Country Office Bosnia and Herzegovina for the implementation of the Medium Sized Project (MSP) *Biomass Energy for Employment and Energy Security in Bosnia and Herzegovina*, PIMS number 3880, and to commit a cash contribution, to the value of USD 1,302.100, as support for its implementation. This money will be made available by the *Srebrenica Regional Recovery Programme (SRRP)* for complementary activities within the forestry sector which will contribute to the achievement of the objectives of the MSP-Biomass project. A further USD 20,000 will be provided from the UNDP Country Office core funds as a contribution to project management.

The activities to be financed by the SRRP include the development and strengthening of relevant policies and the legal framework for the sustainable biomass energy business; strengthening and expansion of the supply chain for forestry products, and financing of activities in the MSP target area. The UNDP Environment Portfolio Team consisting of the Portfolio Manager and the National Officer will be responsible for a significant part of the project management tasks as a direct contribution by the Country Office to the co-financing of the project management costs, additional to the USD 20,000.

Thank you for taking the time to consider this submission.

Sincerely yours,

Christine McNab
UNDP Resident Representative

TO: Ms. Monique Barbut
Chief Executive Officer
Global Environment Facility

Narodno Grijanje - Mini toplane

Matični br: I-25340

Id.br.4201075370008 Br.Sudskog Rješenja: UI I-1722/05



BiH - 71 000 Sarajevo, Tukovi 64 b

Tel.: +387 33 625 175 Fax: +387 33 711 850

TO MR Yannick Glemarec
UNDP-GEF Executive Coordinator


Co financing for " Bosnia and heregovina Biomass energy for Employment and Energy security" priject

„Narodno Grijanje Mini Toplane“, is a private company based in Sarajevo, working in the biomass energy sector in Bosnia and heregovina. As such, we have great interest in the proposend UNDP – GEF project on Biomass Energy for Employment and Energy Security that is being proposed by the UNDP.

The proposed project will contribute to the building of local biomass energy markets through procuremant and service contract models, and it is our intention, assuming that necessary financial and ekonomik Conditions are met, to invest in this sector. Under the right conditions our investments in biomass heat supply systems supported by this project could total USD 300,000.

We look forward to the possible partnership with you in this project.

Yours sincerely


Grozdanic Besim

Narodno grijanje-Mini toplane
HVB central profit Banka, Žr.nr.:1291069403197025

Unofficial translation

Company letterhead (Narodno Grijanje Mini Toplanje)

Mr Yannick Glemarec
UNDP-GEF Executive Coordinator

Co-financing for “Bosnia and Herzegovina Biomass Energy for Employment and Energy Security”
Project

“Narodno Grijanje”, is a private company based in Sarajevo, working in the biomass energy sector in Bosnia and Herzegovina. As such, we have great interest in the proposed UNDP-GEF project on Biomass Energy for Employment and Energy Security that is being proposed by the UNDP.

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We look forward to the possible partnership with you in this project.

Yours sincerely

d) Agency Notification on Major Amendment and provide details of the amendment, if applicable.

Annex I: IC Matrix and Baseline Calculation

System Boundary

The geographical boundary of the proposed project is the national territory of Bosnia and Herzegovina.

The Baseline

In the presence of barriers to a functioning biomass energy market, significant investment in modern biomass energy would not take place. This baseline will be characterised by:

- Continuing dependence on oil and coal for heating of municipal buildings and institutions in the majority of cases
- A gradual move to natural gas as a source of heating as the gas network is expanded into the main medium-sized cities that can economically be supplied by system extensions⁹.
- A negligible growth in the use of biomass energy for heating of municipal buildings and institutions.

Bosnia and Herzegovina has 1858 primary schools and 397 secondary schools. A heating system of approximately 60kW_{th} is required to heat a typical school, and requires 6400 litres of diesel per year based on a typical heating season. Of all schools approximately 90% currently have their use their own autonomous heating system (the other 10% are connected to district heating networks), and of these roughly 1% use natural gas, 0.3% coal, 77% diesel and 21% use electricity for heating. According to best available data under the baseline we can estimate that 10% of municipal institutions and buildings currently using fuel oil, coal or electricity for heating to switch to natural gas by 2020.

Under the baseline, CO₂ emissions in schools would reduce slightly over the next 15 years. The calculated reduction is shown in the figure below:

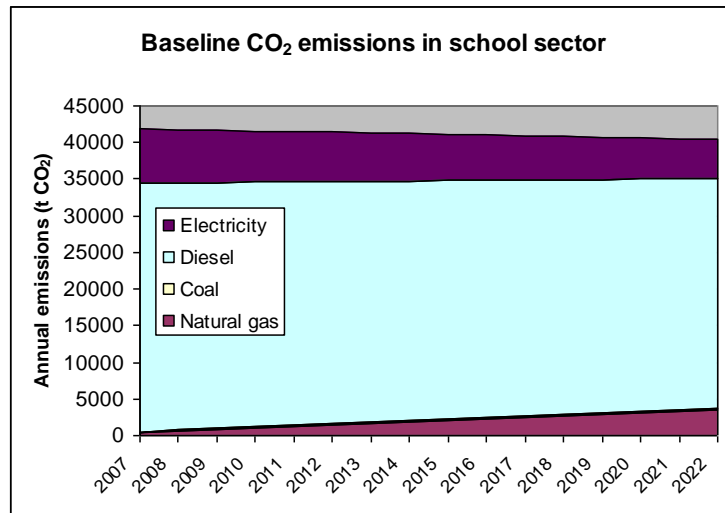


FIGURE 2: BASELINE CO₂ EMISSIONS IN THE SCHOOL SECTOR

⁹ Current natural gas consumption is approximately 300 million cubic metres (US EIA, data for 2004). After the war, several studies on the gas sector in Bosnia and Herzegovina were conducted, which included the forecasts of the future natural gas demand. Some studies focused on development of gas demand, while the other on the security of supply, and these approaches led to differing results. The most of the studies forecast natural gas demand up to 1 Gm³/year by 2010 due to the capacity of the existing gas infrastructure. In the long run, by 2020 respectively, consumption is predicted to be in the range from 1.5 to 3.0 BCM (Ramboll, WB 2001). These forecasts depend mainly on solving the very important issue of security of supply. However, *actual development of gas consumption in the last years shows stagnation or lower growth than previously foreseen.*

The GEF Alternative

The proposed GEF activities tackle the identified barriers to the widespread and market-based growth of the modern biomass energy sector, through the implementation of the project activities.

The project impact on the baseline under the alternative is shown below. The impact equates to a cumulative 40,000 tonne CO₂ emission reduction in the school sector over 15 years. Including other sectors such as heating of municipal buildings, and industrial uses, the total cumulative CO₂ emission reduction is an estimated 200,000 tonnes over 15 years.

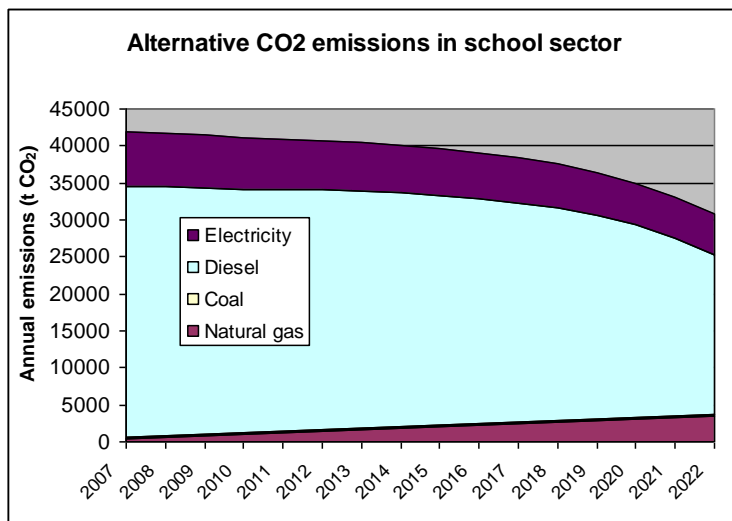


FIGURE 3: PROJECT ALTERNATIVE EMISSION SCENARIO IN THE SCHOOL SECTOR

Market barriers are substantially reduced in the alternative, resulting in increased energy efficiency and use of renewable biomass and consequent reduced GHG emissions.

Global Benefits

The project activities result in a reduction of approximately 5,837 tonnes of CO₂ equivalent in (15 year) life-cycle savings from investments made during the four-year project period. In 2020 cumulative indirect and direct emission reductions from the project have been estimated to lie between 23,348 and 80,000 tonnes of CO₂. The reader is referred to the detailed “baseline and emission calculations” which follows the incremental cost matrix below for more details on the calculation methodology used.

Additional benefits

This project will bring many additional domestic benefits to Bosnia and Herzegovina. These include

Environmental benefits:	Reduced local emissions through improved combustion efficiency
	Reduction in discarded wood-waste
	Reduced eutrophication of rivers and lakes
Social benefits:	Increased employment opportunities in biomass sectors
	Increased energy security for vulnerable communities
Economic benefits:	Job creation
	Reduced budget expenditure on energy
	Improved energy security

Costs

Costs are shown in the incremental cost matrix below.

Simplified Incremental Cost Matrix

Component	Baseline	Alternative	Increment
Global Environmental Benefits	Barriers limit investment in modern biomass energy. In the baseline CO ₂ emissions in the school sector decrease from the present level by 1,400 tonnes over 15 years as a result of a modest switch to natural gas.	Market barriers are substantially reduced, resulting in increased uptake of modern biomass energy and reduced GHG emissions. In the GEF alternative, CO ₂ emissions over 15 years by an estimated 80,000 tonnes over the country as a whole in all sectors in addition to the baseline reductions from switching to natural gas.	Significant GHG emission reductions are attained. CO ₂ equivalent emission reductions over a 15 year period as a result of this project are projected to be 80,000 tonnes.
Domestic Benefits	Under the baseline domestic benefits are limited	Domestic benefits include job creation, reduced emissions, and improved quality of heating.	Domestic benefits include job creation, reduced emissions, and improved quality of heating.
TOTAL Cost	Total baseline costs: USD 0 million (nominally taken as zero since costs for natural gas uptake are expected under both baseline and alternative)	Total project costs: USD 2,588,950	Total Incremental costs: USD 2,588,950, of which: USD 986,850 requested from GEF USD 1,602,100 other sources

BASELINE AND EMISSION CALCULATIONS

Background

This calculation is based on the project- level calculation formula provided by the GEF for direct, direct post-project, and indirect CO₂ reductions. The field data was gathered during implementation of the project. Detailed estimations of emission reductions have been carried out in the school sector, and extrapolated into the municipal heating and industrial sectors. The following figures were used as inputs into the emission reduction estimations:

Number of schools:	2300
Schools with autonomous heating systems (%):	90
Fuel usage (%):	
Natural gas	1.3
Coal	0.3
Diesel	77.4
Electricity	21.0
Typical heating system, based on average schools size (kW _{th}):	60
Fuel requirements (litres diesel / yr in typical heating season, 80% η):	6400
Emission factors (kg CO ₂ / GJ):	
Natural gas	56
Coal	96
Diesel	76
Electricity (based on coal generation without CHP)	76

According to best available data under the baseline we can estimate that 10% of municipal institutions and buildings currently using fuel oil, coal or electricity for heating to switch to natural gas by 2020.

Using the above figures, projections of fuel use by school in the baseline case can be estimated.

Under the project alternative, 20 heating systems for schools will be converted to biomass fuel within the project area. After the end of the project, based on the barrier removal which will have taken place within the project, the number of schools using modern biomass energy will increase, over 15 year, to 500 units, following a simple growth trend.

The school sector is expected to provide a strong stimulus to market transformation, and bring about emission reductions in other sectors amounting to a total country-wide reduction four times that within the school sector.

Direct reductions

The direct reductions that can be attributed as a result of this project are expected to be 5,837 tonnes (life-cycle savings from investments made during the 4 year project period) as a result of increased uptake of modern biomass energy in the school sector. There are no Direct Post Project investments anticipated (no revolving fund or guarantee fund is created).

Indirect emission reductions – top down

Starting from resources, and based on assessments carried out in preparation for the project a conservative minimum impact on the energy consumption and GHG emissions has been developed. The GHG emission reduction is estimated to reach an indirect cumulative total of 40,000 tonnes of CO₂ by 2020 in the school sector, and over the country by 160,000 tonnes. Using a GEF causality factor of 40% since the project impact is considered to be “modest”, the attributable indirect emission reduction impact is 80,000 tonnes CO₂.

Indirect emission reductions – bottom up

Based on a replication factor of 4 and the direct impact of 5,837 tonnes we expect an additional indirect reduction of 23,348 tonnes.

Calculations

The outcome of calculations are shown in the following table:

Sources of reduction	Emission reductions (tonnes CO ₂)	GEF factor	Total (tons CO ₂)
Direct	5,837	1	5,837
Indirect – top down (10 yrs)	200,000	0.4	80,000
Indirect – bottom up (10 yrs)	5,836	3	17,510
TOTAL			23,347 to 85,837

Note: in the above table the top-down indirect emission calculations include the project period, whereas the bottom-up figures do not.

Annex J: Summary of UNDP SRRP Forestry for Employment Project

“Regeneration of the Forestry and Wood-Processing Cluster in the Srebrenica Region” (extract from the project document)

Part I. Project Summary, Strategy and Funding

The forestry sector is identified in the country Poverty Reduction Strategy Paper as having one of the greatest development potentials in Bosnia and Herzegovina. Forestry and wood processing has historically been a major industry in the Srebrenica region, and it remains a critical but vulnerable sector in the municipalities of Bratunac, Milici and Srebrenica. It is currently unable to meet sustainable production levels, invest in modern equipment or demonstrate sustainability. Due to disruption and disintegration of forest monitoring programmes during the war, the legality of forest operations is often questionable, and negative environmental and biodiversity impacts are occurring. Therefore the cluster is failing to deliver its potential for sustainable economic development and not delivering adequate employment opportunities, particularly for returnees.

To become an effective and competitive sector, improvements are required at critical points along the supply chain. Prior work by SRRP on cluster mapping and stakeholder analysis¹⁰ has identified the key interventions necessary for these improvements to be realized, and ensured that activities are needs-based, have stakeholder and beneficiary support, and are executable.

¹⁰ Preliminary Assessment of Regional Business Clusters: Srebrenica, Milici, Bratunac, Business Humanitarian Forum, SRRP; UNDP/SRRP Involvement in the Forestry Sector – a Participatory Approach to Resources-Based Management UNDP/SRRP; Forestry Public Goods Search Conference Minutes, 13th November 2003, UNDP/SRRP (See Annex 3).

As well as regenerating the cluster in the region, the project will have a wider impact nationally and regionally through shared activities with the World Bank Forest Conservation project.

UNDP/SRRP's prior work in the forestry and wood-processing sector, working with government, civil society and private sector stakeholders, will facilitate a rapid and effective deployment of both staff and activities. SRRP has developed an effective relationship with key actors and beneficiaries in the municipalities, and has conducted background consultancy missions, search conferences and key informer meetings and group analysis with stakeholders.

The intervention is both needs and results-based. The participatory work with stakeholders has allowed the real problems, issues and challenges for the forestry and wood-processing sector to be reliably identified and interventions strategically targeted to produce real results and immediate impact. Strategically important partners have been involved in the project design, key being the forest enterprises, the regional inspection unit and the Srebrenica Business Centre.

The development of a new forestry and wood-processing cluster forum is a central part of the strategy. The forum will be centered in Srebrenica, with municipal 'hubs' based in Bratunac and Milici. Wide experience from Europe and elsewhere has shown that this model of cluster support, with a dedicated cluster facilitator and forum, has by far the greatest impact on positive cluster innovation, growth and competitiveness. The forum will provide a mechanism for coordinating support, capacity building and innovation knowledge to the cluster, promoting effective growth and maximizing employment opportunities.

Cost-Effectiveness

This is a short-term project with both immediate and longer-term benefits. Many of the benefits will show up in the increased income streams generated by the larger, more innovative, competitive and profitable sector over the next decades. However, within the 24 months, UNDP/SRRP will be able to show significant direct improvements.

Part II. Project Objective and Results

The UNDP/SRRP's Economic Development Component's **overall objective** is to create conditions for sustainable economic growth aimed at reducing poverty. Two of the immediate objectives are to support business development services and to enable the sustainable economic use of natural resources and better land management. This proposal supports both of these, and has been designed to be consistent with European forest and environmental policies and with the principles underpinning UNDP/SRRP.

The Project **Objective** is:

To increase the efficiency, competitiveness and sustainability of the forestry and wood-processing cluster *through targeted horizontally and vertically integrated interventions* along the supply chain, generating employment opportunities for returnees.

By doing so, the project will improve the productivity and viability of forestry and wood processing companies and organizations, providing both sustainable employment opportunities and environmental benefits. The project objective will contribute to the UNDP Country Programme intended outcome: sustainable reintegration and recovery of war-affected populations.

The project's **Results** were developed through a series of meetings and discussions with stakeholders and target beneficiaries. These consultations and assessments supplemented UNDP/SRRP's institutional knowledge and extensive experience in environmental and business development.

The following *intermediate results* were defined:

Result 1: Improved competitiveness and innovation levels in the sector through cluster support and development, resulting in higher levels of employment.

Result 2: Increased and sustainable supply of legally harvested timber and enhanced quality sawlogs available to the sector through improved operations and capacity building.

Result 3: A higher level of sustainability and viability of forest management through improved operations and activities.

The project is designed to work with beneficiaries within a 'forestry and wood processing cluster forum'. It has been shown that for cluster support to be effective it is essential that there is a cluster vision, strategy, support office and facilitator, within a forum or similar structure¹¹. Initial focus will be with the 26 target companies and organizations already contacted during the cluster mapping exercise. The forum will grow to include approximately 40 companies and organizations, throughout the supply chain.

As well as stimulating economic development and providing employment opportunities, the project will also have direct environmental benefits. Results 2 and 3 are designed to improve the efficiency and quality of forest management by implementing *sustainable forest management*. This will be achieved through improving implementation practices, introducing systems to monitor the forest condition, and providing a solid foundation for independent forest certification.

The **target beneficiaries** are:

- Returnees and residents securing jobs as a result of the project activities:
 - 130 trained chainsaw operators,
 - 8 chainsaw trainers,
 - 180 new employees in wood-processing sector,
 - 816 jobs in industries supporting the cluster (transport, legal, service industries, gov't support services), and
 - Total new jobs created estimated at 1,224
- The families of those securing employment – 4,896 persons (assuming average of 4 persons per family).

Other benefits accruing to the direct and indirect beneficiaries include:

- Employment outside of the region (furniture manufacture, transportation, export services etc.),
- Improvement in business management and sustainability of LFEs and wood-processing industries,
- Increased economic activity in sector resulting in medium and long-term employment (beyond the immediate employment indicated above),

¹¹ For example, "The Development of the cluster concept – present experiences and further developments", C. Ketels, 2003, Harvard Business School; EU specifically, "Innovative hot spots; SMEs and clusters, C. Nuwelaers, 2003, Innovation and Technology Transfer, CORDIS.

- Sustainable management of the forest resource providing sustainable employment opportunities, and
- Watershed management protection benefiting the inhabitants of the Danube watershed.

The table below shows the cost benefit of the proposed donor investment.

UNDP/SRRP Forestry for Employment	Direct Cluster Job (Supported or created by the Project)	Cluster Support Jobs (Transport, service industries, government support, etc.)	Total Number of Jobs
Direct and Indirect Job Creation Donor Opportunity Cost (Client target: 35% Bosniacs and 45% Serbs)			
Chainsaw operators	130	(at 2 support jobs for every direct cluster job)	1,224
Trainers	8		
New jobs in wood processing	270		
Total	408	816	

SRRP Activity Result 1: Improved competitiveness and innovation levels in the sector through cluster support and development, resulting in higher levels of employment.

1.1 Cluster forum development

The main focus of activities will be the development and implementation, monitoring and review of a cluster forum coordinating sector support and developing capacity. The economic theory of cluster support has been developed and practiced for more than twenty years, and there is now a body of sound empirical evidence that, when applied correctly, this approach can have a significant positive impact on economic development, innovation and employment opportunities. Cluster support relies (or should rely) on a pre-existing cluster of industries demonstrating vertical integration with some form of strategic advantage. Therefore the sector cluster is already in a position to maximize opportunities. Cluster support identified limitations on the clusters growth and development, and attempts to address these in a coordinated and sustainable manner, promoting innovation and new ideas. Cluster support lies at the heart of many EU supported regeneration programmes, including regional development, objective 2 and objective 3 support.

Cluster support differs from traditional sector support by focusing on vertical and lateral linkages between companies and organizations, as well as the traditional sectoral focus on horizontal linkages. The differences in approach are shown below:

Advantages of the cluster approach compared to the traditional sectoral approach	
Sectoral approach	Cluster approach
Promotion of groups with similar network positions	Promotion of strategic groups with chiefly complementary and non-similar network positions
Focus on the final product of industry	Broader focus which incorporates customers, suppliers, service providers and other specialized institutions
Focus on direct and indirect competitors	Integration of neighboring industries in order to take advantage of common technologies, skills, information, customers and distribution channels
Reservations about cooperation with rivals	Usually no direct competition amongst participants: instead, common requirements

	and limitations
Limitations of dialogue with government actors primarily to subsidies, protection and the restriction of competition	Joint dialogue on a broad spectrum of joint proposals to increase productivity and competitiveness. Formation of a forum for constructive and efficient dialogue between the private sector and government
Attempts to differentiate within existing development guidelines	Attempt to find synergies and new combinations
<i>Based on Porter (1997) and Roelandt & Hertog (1999)</i>	

Cluster support has been used with good effect in EU and transition countries, and is being increasingly applied in transition countries (focusing on their individual requirements).¹²

Within the Srebrenica region the forestry and wood-processing sector is the most logical sector to provide cluster support for. The sector has been very economically active and productive in the past, and maintains important vertical integration linkages. The sector is still active (though not at pre-war levels), and is in need of focused support and capacity building, rather than starting from the beginning. The sector is also important for employment. Forestry and wood processing industries have historically been key employers in the region, and are still viewed as essential by residents (see table below).

Pre-war Employment Statistics per Forestry Sub-sector and Municipalities*					
Forestry Sub-sectors		Municipalities			
		Bratunac	Milici **	Srebrenica	Total
Management	Planting	7	21	45	73
	Managing	10	23	50	83
Utilization	Cutting	92	47	100	239
	Logging		23	50	73
	Sale/Distribution		1	3	4
Primary Wood Processing	Sawing	385	150	182	717
	Humidifying/ Drying		25	40	65
	Finishing		160	210	370
Secondary Wood Processing	Management	10	10	65	85
	Sales		5	5	10
Total		504	465	750	1719
* <i>Data collected by the Srebrenica Business Centre from the Forestry Enterprises.</i>					
** <i>Difficult data to assess since Milici was part of Vlasenica in the pre-war time.</i>					

A key factor in the success, or otherwise, of cluster support approaches has been shown to be a forum, a dedicated facilitator and an active committee. Wide experience from Europe and elsewhere has shown that this model of cluster support has by far the greatest impact on positive cluster innovation, growth and competitiveness. In consultation with search conference stakeholders¹³ and other target beneficiaries, the project team will develop TORs for the cluster forum facilitator. The facilitator will be from the region, and already familiar with, an active in, the sector. This position is critical, as the drive, local knowledge

¹² A GTZ working paper 'Promoting Cluster Approaches for EU Association and Accession Countries' provides good background, including using a cluster approach in transition countries: www.gtz.de/eu-clusters.

¹³ SRRP has conducted 3 search conference and consultation events with the forestry and wood-processing sector, which will form the basis for the initial cluster membership.

and ability of forum facilitators has been shown to be one of the critical factors in the success of cluster support initiatives. The forum will have a small administrative office based in Srebrenica, and have municipal ‘hubs’ based in Bratunac and Milici. The municipal hubs will be ‘virtual’, with web-pages on the cluster web-site and with local meetings and events¹⁴. The forum will act as a resource and coordination centre for the cluster, where cluster members can turn to for support, guidance and assistance. It will act as a conduit for project activities, but is designed to be permanent, not just for the duration of project activities. The recurring costs of the cluster will be minimal, and should be able to be supported by contributions from cluster members in the long-term. The cluster will provide technical support, business management training and support, and opportunities for deepening market and marketing knowledge. The training and capacity building activities will be needs-based and tailored to directly meeting the needs of the cluster members.

Specific activities to support this are:

- 1.1.1 *Forum infrastructure* - Forum office, staffing and strategy.
- 1.1.2 *Technical support* - Technical library and database, access to professional advisors and regular seminars/presentations, Chain of Custody audits for FLEGT.
- 1.1.3 *Business management skills* - Accession requirements for business, financial management systems, business and marketing plans, proposal writing.
- 1.1.4 *Improving market knowledge* - Study tour to Italy and Germany including company visits, trade shows and Forest Trade Networks; monthly ‘export briefings’ from key advisors.

1.2 Investment capital and effectiveness

The Forestry for Employment Project shall use the Forest Enterprise Cluster Mapping Study as the basis of the next phase of its work in the three sub-regional areas examined in the study. UNDP/SRRP and its partners will provide business development services and shall ensure that their personnel meet high standards of qualification, technical and professional competence necessary for the achievement of this activity result I.

The two mechanisms for assisting the cluster with improved financing are business finance and job creation tax incentive. These will be closely tied with assisting with the preparation of proposals to build long-term capacity within the cluster and individual companies.

Business Finance Mechanism

The cluster forum will provide advice on, and access to, finance and investment capital. This will be supported and closely linked with capacity building activities. One of the focal problems identified by beneficiaries and stakeholders limiting the growth of the cluster is access to finance. This is due to both finance being difficult to secure and a lack of capacity in forecasting revenues and expenditures, thereby writing effective business and marketing plans or proposals for financing (see 1.1.3).

The cluster forum shall organize Contact Group meetings in each of the four cluster sectors examined in the Project Forest Enterprise Cluster Mapping Study. These meetings will include foreign and domestic

¹⁴ This model is widely used by EU regional development agencies for cluster support – a central forum for the region with sub-regional hubs which organize specific events run, for example, at a hotel or conference centre in evenings in local towns or villages.

organizations with which UNDP/SRRP already has established contacts, organizations for which the Project's research indicates an important partnership potential, and the management teams of the companies selected and vetted as a result of the process, or other companies in the area that the Project may subsequently determine can benefit from the meetings. The purpose of the meetings will be to develop potential partnerships¹⁵ between and among suitable candidates wherever possible. The meetings can be organized in the Srebrenica, Bratunac and Milíci areas, or in Geneva, or in any other appropriate location agreed by the participants.

As partnership development progresses in the areas examined by the Forest Enterprise Cluster Mapping Study, the cluster forum shall make recommendations to Donors as to the priorities to be established for its efforts, using success/failure probability criteria outlined in the Forest Enterprise Cluster Mapping Study and/or developed during the partnership creation process.

The cluster forum shall continuously evaluate the factors relevant to each partnership creation effort to include foreign investor interest, financing prospects, business plan development and possible related longer-term investment opportunities in the region. The cluster forum will regularly provide Donor with feedback and recommendations on further steps regarding the project in light of the evaluations made. In addition to the responsibilities outlined above, the cluster forum shall also:

1. Undertake a training program for relevant national and international organization staff members on the topic of "Working with the Private Sector";
2. Work with forest stakeholders to recruit and train young multi-lingual local people to staff local Economic Development Offices in cities in the region, plus support them in efforts to visit major cities and business groups to present their case for regional investment;
3. Work with forest stakeholders and other entities to create linkages with banks and investment funds, which would make small-to-medium sized loans to local entrepreneurs to establish job-creating local businesses, with an independent Board to review and approve proposals for such loans; and
4. Establish a databank of candidate "foster partners" for local entrepreneurs. These would be well-established international companies in various business sectors that are ready to undertake a support relationship with an entrepreneur in Bosnia.

The cluster forum shall, on the basis of the selected company reports mentioned in the Forest Enterprise Cluster Mapping Study (Annex 5), undertake additional screening with due diligence to determine which company(s) are best suited for partnerships with foreign or domestic organizations. Due diligence will include the following specific activities:

Interviews with suppliers,

Interviews with company majority owners (if different from the management team),

¹⁵ Although only the potential partners can guarantee the establishment and success of any possible partnership, the Project will work within its mandate to assist the partnership candidates in assembling the appropriate elements of their partnership, to include searching for financial support, suggesting marketing strategies, and putting the partnership in touch with other elements that might help the partnership succeed. In doing so, however, UNDP Bosnia and Herzegovina will neither invest any funds of its own nor become a part of the partnership management team.

Review of financial statements and company strategy with the management team, and

Elaboration of a partnership plan with the management team (after an analysis of growth constraints).

Job Creation Tax Incentive Mechanism

While the forest industry is extremely slow in recovering, employment opportunities continue to be uneven and not supplying the demand from urban and rural areas. As experienced, short-term direct expansion subsidies to enterprises may not create formal job opportunities; neither have they provided data on the potential of local municipal revenues in the medium-term. UNDP/SRRP proposes to use tax incentives in order to increase competitiveness of the domestic industry while following their impact on local government revenues.

UNDP/SRRP is cautious in not developing negative impacts that might erode local fiscal revenues¹⁶. Rather, than introducing municipal tax deferral and waiver mechanisms, UNDP/SRRP suggests introducing a medium-term Job Creation Tax Incentive activity that would be operated on a “cash refund” basis from UNDP/SRRP in collaboration with local fiscal authorities. Such a mechanism is innovative and enables observations at the municipal revenue interfaces, while avoiding political and rent-seeking interferences.

The rationale behind this activity is in relation with the most common problem local forest entrepreneurs face: lack of access to investment capital to operate and expand their current work. In addition, the war contributed to large enterprise asset losses that have been multiplied by an economic embargo from the international community. Most assets used before the war are now more than depreciated if not stolen or destroyed and current loan product offerings for asset acquisitions are not designed to target forest entrepreneurs’ needs. Moreover, demands for wood products are outsourced in other municipalities, which cause two perverse effects: First, a reduction in revenue collection for the municipalities who do not have the financial means to provide the needed road infrastructure investments. Second, a limitation in the number of jobs available in these municipalities.

In coordination, UNDP/SRRP and the municipalities (herein defined as UNDP/SRRP Tax Credit Authority) also need to define the types of expenditure that qualify for the fiscal incentive. At this point, there might be mainly three tax credit options that should be discussed and studied as shown in Table 1 below: Job Creation, Job Retention and Training.

UNDP/SRRP Tax Incentive Options and Designs for Backward Cash Refund¹⁷			
Program Description	Rate/Terms	Benefits	Eligibility
Job Creation Tax Credit Provides corporate cash refund entity income tax	UNDP/SRRP Tax Credit Authority determines eligibility and terms.	Refundable RS franchise or income tax credits that minimize	Businesses that create at least 5 net new full-time positions at a facility in UNDP/SRRP

¹⁶ It is important to note that UNDP/SRRP does not want to promote a solution that will go against fiscal austerity policy promoted by the Central Government and the multilateral financial institutions, the World Bank and the International Monetary Fund namely.

¹⁷ **Backward Fiscal Cash Refund:** a tax incentive that is based on the previous fiscal exercise and reimbursed in cash (bank transfer). The calculation method of this incentive is allocated to a certain portion of taxes incurred as defined by the fiscal authority.

<p>credit for forest enterprises that expand or locate in the project area.</p>	<p>Business must demonstrate to the Authority that the tax credit is a major factor in its decision to go forward with the project.</p> <p>Local community must also provide financial support for the project.</p> <p>USD 300,000 in credits available annually with no single business receiving more than USD 30,000 per year.</p>	<p>expenditures to encourage business expansions and/or relocations in UNDP/SRRP targeted Municipalities.</p>	<p>targeted Municipalities and pay a minimum of 125% of federal minimum wage.</p> <p>In special circumstances company could create as few as 1 new full-time position paying at least 400% of the federal minimum wage.</p>
<p>Job Retention Tax Credit</p> <p>Provides corporate social benefit or entity income tax credit for forest enterprises that commit to retain a significant number of full-time jobs.</p>	<p>UNDP/SRRP Tax Credit Authority determines eligibility and terms.</p> <p>Credits awarded to companies that can demonstrate the tax credit is a major factor in its decision to retain jobs in UNDP/SRRP targeted areas.</p> <p>USD 100,000 in credits available annually with no single business receiving more than USD 10,000 per year.</p>	<p>Non-refundable corporate franchise or entity income tax credits to minimize the costs of maintaining an operation in one UNDP/SRRP targeted Municipalities.</p>	<p>Businesses that currently employ at least 100 full-time employees and make a fixed investment of at least USD 250,000.</p> <p>Corporations, partnerships, limited liability companies and other pass-through entities.</p>
<p>Training Tax Credit</p> <p>Provides tax credits for employers that train existing employees who are at risk of losing their jobs primarily due to skill deficiencies.</p>	<p>USD 100,000 in credits available annually with no single business receiving more than USD 10,000 per year.</p>	<p>Non-refundable tax credits to help businesses offset costs of training incumbent workers and improving the business' competitive position.</p>	<p>Businesses must conduct an eligible training program to correct identified skill deficiencies in its existing workforce.</p> <p>Training for management personnel is generally prohibited but considered on a case-by-case basis.</p>

1.3 Advocacy

An important achievement of this result is the formation of the forestry and wood-processing cluster hub that will represent and promote the regional activities of the sector at the national level. Both informal discussions with forestry and wood processing companies and organizations, and stakeholder analysis exercises at the search conferences, have indicated a strong desire to create a forum whereby common issues and constraints can be discussed and acted upon, and where a regional ‘voice’ for the industry can be heard. The forum will also play a role in speaking on behalf of the cluster’s needs and in raising issues with policy-makers that would improve the viability of the sector (e.g. unfavorable taxation regulations). Another benefit derived will be the ability to improve market coordination between the cluster members.

The forum will undertake advocacy initiatives on behalf of its membership. Specific issues that are likely to be pursued include lobbying government and local administration to reduce import taxes on machinery and equipment, and ensuring that health and safety requirements for employees are reasonable and enforced effectively. The aim of the advocacy approach is to strengthen the position of the sector at the regional level, although the impact will be wider than just regional. In order for the forum to be able to do this effectively, training will develop the capacity, effectiveness and confidence of the forum facilitator and committee to represent the cluster at the highest level.

The forum will work with the cluster members to promote the forestry and wood-processing sector through media and events. Key activities will be trade-show representation within Europe and in-country promotional events. There are important annual trade-shows for the forestry and wood-processing sector in Europe, most notably in Hannover, Germany. Representation and effective lobbying is likely to raise the profile of the region significantly, and result in a greater level of international trade and export. The forum will also be able to link in with EU supported trade delegations, and support international timber buyers and processors in coming to the region to identify potential trade opportunities. The forum will also represent the region at national promotional events, strengthening awareness of the regions possibilities for forest and timber products, and promoting internal trade.

The promotional and advocacy roles of the cluster forum allow activities to be undertaken that are beneficial to the cluster as a whole, but that would be economically unfeasible for an individual member to coordinate and activate. This demonstrated another key strength of the cluster approach, whereby the profile of the sector as a whole is raised, providing indirect benefits to all companies and organizations within the sector.

Specific activities to support this are:

- 1.3.1 *Advocacy skills development* – Develop capacity, effectiveness and confidence of the forum to represent the cluster at the highest level.
- 1.3.2 *Promotional events* – Trade show representation, trade delegations, in-country promotion, and promotional material.

Activity Result 2: Increased and sustainable supply of legally harvested timber and enhanced quality sawlogs available to the sector through improved operations and capacity building.

2.1 Expansion of operable areas

The local Forest Enterprise Units¹⁸ (LFEs) are all operating seriously below capacity, harvesting on average 70% of the Annual Allowable Cut (AAC). The production level is likely to decrease further in the near future, due to a lack of access to significant areas of sustainably utilizable resources. This has the dual effect of limiting the growth of the processing sector (a USAID report states that in the RS there is already an overcapacity of sawmilling provision, even assuming the AAC is being realized) and increasing the harvesting pressure on the accessible resource, possibly leading to over utilization and subsequent resource and environmental degradation (i.e. unsustainable levels of harvesting, as suggested by recent World Bank commissioned research).

Operable forest areas are limited by two key variable factors, both resulting from the war: forest roads and mined areas.

Investment in forest road infrastructure was seriously disrupted during and immediately after the war, and in some cases directly damaged by wartime activities (for example bridge destruction). The gradual expansion of the road network as expressed (and required) by the management plans did not occur, and the roads deteriorated. This has resulted in a forest road network of ca. 7-8 km/1000ha, compared with an average in Europe of ca. 25 km/1000ha. This is identified by the LFEs as the single most significant issue for forest management and timber production. The LFEs find it hard to put additional resources into extra road-building activities: they are viewed as a short-term expense and difficult to justify greater road construction than in the management plan. The project will use the opportunity for co-financing road construction to build increased capacity within the LFEs for road developments, key amongst these will be assessing and limiting the environmental impact of roads. Assessment work during proposal preparation identified the environmental aspects of road construction to be poor, and breaching existing guidelines. The LFEs will be provided with capacity building support in European best practice for forest road construction. Prior to any co-financing, LFEs will prepare, with assistance from the project, a proposal for the road construction which contains a Cost-Benefit Analysis, including a basic social and environmental impact assessment, including mitigating measures. This will further build capacity in planning and appraisal of activities, and is a required precursor for independent forest certification. In this way both the capacity for sustainable economic development/increased employment opportunities is combined with direct environmental benefits. It is anticipated that the project will co-finance 20km of road construction across the 3 LFEs.

During the war substantial areas of the public forest resource, managed by the LFEs, were mined. Much of this area remains inaccessible to date, further limiting the operable area from which products can be harvested. This has again been identified as a serious limitation by the LFEs. As it is costly to clear mines, the project will work with the LFEs to develop a mechanism for identifying priority areas for de-mining. This will be based on a cost-benefit analysis, but will also include an analysis of social and environmental benefits¹⁹. The cost-benefit analysis will include the quality and productivity (assumed, as the areas are inaccessible for inventory) of the forest, and the assumed shrapnel damage (shrapnel makes sawlogs difficult, or impossible, to mill). The project will co-finance mine clearance operations, 100ha of mined land will be cleared across the 3 LFEs.

Specific activities to support this are:

2.1.1 Road development - capacity building in European best-practice for forest roads, Cost-Benefit Analysis, including social and environmental impact assessment and road construction co-financing, based on maximizing impact

¹⁸ Forestry Enterprise "Drina" Srebrenica; Forestry Enterprise "Jasenik" Bratunac; Forestry Enterprise "Milici" Milici.

¹⁹ The lack of access to mined areas creates the potential for negative environmental impact in the case of pest outbreaks or fire. Social benefits include re-opening areas for NTFP collection for local people.

- 2.1.2 *De-mining* - identifying priority areas for de-mining, Cost-Benefit Analysis for de-mining specific areas, co-financing de-mining operations

2.2 Environmental harvesting support

The harvesting capacity in the region is limited, and the quality of harvesting is low. This affects:

- Site damage (damaged residual trees, reducing future productivity)
- Soil disturbance and rutting (due to using heavy extraction equipment at wet times)
- Yield (snapped and damaged trunks)
- Health and safety

Much work has been conducted in Europe and elsewhere in training harvesting teams in environmental best-practice and safe operating methods. Most countries operate a certification scheme whereby chainsaw and harvesting operators need to be qualified and demonstrate their qualifications. This ensures that operators are trained in, and aware of, environmental, health and safety best-practice.

This activity will establish a training scheme in the region, using commonly recognized European qualifications that will enable the LFEs to use trained harvesting operators. This is, again, a pre-requisite for independent forest certification. Capacity for training will be developed in the area through training of trainers: experienced chainsaw operators will be trained in the training scheme and how to assess competence; these will subsequently train harvesting operators. A small training centre will be established in the region, working with the LFEs, providing capacity for training, both within and out-with the region. The project will work with the LFEs in the Srebrenica region to develop an accredited harvester system, whereby only certified trained harvesting operators will be employed under tender contracts. The LFEs throughout RS will be encouraged to adopt a policy of using trained harvesting contractors, and ensure that this is stipulated in harvesting agreements.

Specific activities to support this are:

- 2.2.1 *Establish an accredited environmental training scheme* – based on qualifications recognized and accepted in EU.
- 2.2.2 *Establish a harvesting training centre* – providing regional and RS capacity for training
- 2.2.3 *Training of Harvesting trainers and operators* – 8 trainers and 100 operators will be trained.

2.3 Legality measures and transparency

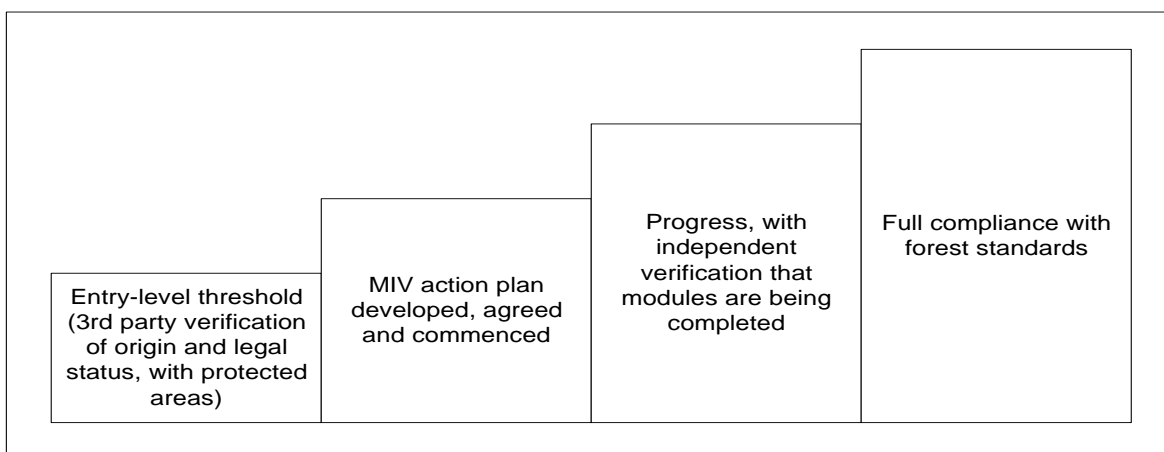
This activity aims to ensure that the legal origin of timber produced from the LFE resources is clear and beyond doubt (again, a pre-requisite for certification). It is currently unclear how much timber is ‘illegally’ sourced, or its legality cannot be confirmed. ‘Illegality’ of timber covers the following common occurrences:

- Illegal logging (e.g. without concession license, over-cutting compared to prescribed management plans, cut from land where cutting not authorized by the owner, or the owner has no authority, logging buffer zones)
- Extra-organizational sales/permits (corrupt foresters)
- Use of out of date logging permits or licenses
- Timber smuggling
- Misclassification or under-grading of timber
- Transfer pricing
- Illegal processing
- Petty or grand corruption

It is generally accepted that during the war and for a few years afterwards illegal timber harvesting, covering most of the above types of illegality, were common. Estimates are little more than hearsay, but 40% illegal production is commonly stated. This has dramatically dropped, and estimates now put this at 10-20% (again, the source of these figures is unclear). According to LFEs in the Srebrenica region, most illegal cutting is now for locals own use (firewood, building, and small-scale selling) rather than organized timber cutting going into the supply chain. However, at present there is no means to verify this.

A long-term goal of the regional LFEs is independent performance-based forest certification. Although obtaining certification is probably outside the timeframe of this project²⁰ there are approaches that can form important ‘pathways’ to full-certification. A recent approach is Modular Implementation and Verification (MIV) of forest management. MIV is a tool for the application of a phased approach to meeting forest management standards and certification. It has been designed as a practical tool to help forest managers improve the quality of their forest management to the level required by responsible forestry standards. The forest standards are broken up into a number of predefined ‘modules’ each contain some requirements of the standard. Each module can be addressed separately. Therefore the forest manager can slowly address the standards in a step-wise manner, with successes along the way, until all modules are addressed, and standards are complied with and, if required, certification is obtained. The LFEs would establish an action plan where all of the key elements of fulfilling a responsible forestry standard are within modules and set out on a time line. Verification of progress is based on an assessment of each module being adequately addressed, making the improvement process easy to monitor. The process is illustrated below:

²⁰ The World Bank Forest Development and Conservation Project is supporting a National Standards Working Group to develop forest standards for Bosnia and Herzegovina. This process commonly takes *ca.* 5 years, and a similar timeframe probably applies to an LFE becoming certified.



Progress towards demonstrating legality and introducing a process of stepwise continual improvement are important from both an environmental and economic perspective. The environmental significance is clear, with responsible environmental forest management being implemented. The economic significance is two-fold. Firstly, legality of timber maximizes taxation revenues for LFEs and the government, directly contributing to economic development. Secondly, due to serious concerns over the legality of wood, the EU is moving towards member country procurement policies that require a demonstration of legality²¹. Forest Law, Enforcement, Governance and Trade (FLEGT) is an EU initiative aimed at, eventually, ensuring that all wood-based products that enter the EU are from demonstrably legal and responsibly managed sources. The Balkan area, particularly Bosnia and Herzegovina and Serbia, are high on the list of countries of concern (particularly with the Italians and Germans, who are major importers). It is likely that it will become increasingly difficult to trade sawn wood with the EU over the coming years.

The project will address issues with the first ‘steps’ on the route to full certification. LFEs will be supported in their progress towards certification through a number of inter-linked sub-activities. A detailed understanding of forest standards, MIV approaches, chain of custody and certification requirements will be provided to the LFEs and cluster members, through training, study tours and scoping visits. Mechanisms to demonstrate legal compliance will be developed and implemented. This will require working with LFEs on transparency requirements. Transparent control mechanisms based on traceability will be developed, involving the following:

- A reliable and effective inspection system
- A mechanism for timber tracking (physical and document based)
- Transparent and auditable accounts and sales/purchase records
- Legal redress against offenders

Systems will need to be in place for independent verification of compliance with legality requirements. We will build on existing inspection systems. This will include training existing inspectors in performance based auditing and updating their skills.

Progress with MIV requires national level progress in forest management standards, and in producer group formation. The project will contribute to the developments, through engagement with national

²¹ It is estimated by ECE-FAO that illegal timber production globally costs governments €10-15 billion per annum in lost revenue.

standards development, and through providing ‘field-tested’ experiential learning and case studies to the national standards working group.

Specific activities to support this are:

- 2.3.1 *Awareness raising* – FLEGT, MIV, certification issues and requirements.
- 2.3.2 *Scoping visits* – to determine what actions and changes are needed for independent certification.
- 2.3.3 *Study tours* – to Croatia and Germany to look at transparent management systems and approaches to third party certification.
- 2.3.4 *Training and support for inspectors* – Updating the skills of the existing forest inspectorate, and identifying where it needs strengthening.
- 2.3.5 *Improve LFE systems and transparency* – systems review and development, including auditing, traceability and chain of custody.

Activity Result 3: A higher level of sustainability and viability of forest management through improved operations and activities.

3.1 Develop approaches that value and protect environmental forest functions and biodiversity

Forests in Bosnia and Herzegovina cover ca. 45% of the land area. Forests are important for employment, economic development, timber production and fuelwood. They are also the source of a range of non-timber and indirect benefits. Forests are important for recreation and health, non-timber forest products (NTFPs), tourism and watershed protection for the Danube system. The country PRSP identified the potential contribution forestry can have to local livelihoods and the importance of maintaining forest biodiversity. The recent National Environmental Action Plan (NEAP) identifies the improvement of environmental management and the protection of biodiversity as priorities. Within the RS both the Law on the Protection of Nature and the Law on Forests stipulate a range of requirements to protect forests and biodiversity. It is critical that any economic development strategy ensures that the indirect benefits and ‘non-use’ values are protected and maintained. There are two key issues with maintaining forest functions and biodiversity: local level management practices; and entity and state-level approaches to forest conservation and biodiversity. It is important not to concentrate solely on developing protected areas and zones for special management practices. It is equally important to ensure that the management and operational practices of productive forest management areas are designed to maximize biodiversity value and ensure full forest functionality, otherwise these areas may seriously deteriorate, losing biodiversity value and causing siltation and sedimentation problems, and losing watershed functionality. If these areas are not focused on the protected areas may become islands of high biodiversity.

At the Local Forest Management Unit level there are guidelines to protect forest function and biodiversity (such as environmental roading requirements, buffer zones, harvesting limitations etc.), but these are neither fully compliant with current international good-practice, nor fully implemented in practice. The project will identify specific problems with standards and implementation, and work with LFEs to address these issues. This will involve reviewing management and operational plans, operational guidelines and practice notes, and management practices. We will then work with the LFEs to improve guidelines, implementation and supervision of activities. This will result in a direct improvement in environmental performance of forestry operations in the region. The impact will be widened beyond the region by feeding this information back to the National Standards working group with recommendations.

Bosnia and Herzegovina and RS have very few protected areas. There are currently 31 protected areas (mostly small) and 1 national park. Ca. 0.55% of the territory is formally protected. The RS has committed to expand protected areas in order to increase protection on the unique landscape and biodiversity in the entity. It is important that these initiatives are supported and coordinated at a national level, and the World Bank Forest Development and Conservation Project has activities addressing this. This project will liaise closely with these developments and, where appropriate, use selection criteria to identify potential protected areas, and provide feedback on the selection criteria.

Specific activities to support this are:

- 3.1.1 *Improving forest management practices affecting forest function and biodiversity* – based on scoping visits of activity 2.3.2, and assisting with operational changes.
- 3.1.2 *Protected area identification and testing of selection criteria* – local level testing of WB components 3a and 3b.

Annex K: List of abbreviations

\$	US Dollar
APR	Annual Project Report
BiH	Bosnia and Herzegovina
BOOT	Build, Own, Operate, Transfer
CEO	Chief Executive Officer
CO	Country Office
CO ₂	Carbon Dioxide
EU	European Union
FSP	Full Scale Project
GEF	Global Environment Facility
GHG	Greenhouse Gas
kW	Kilowatt
M&E	Monitoring and Evaluation
MOFTER	Ministry of Foreign Trade and Economic Relations
N/A	Not applicable
OP	Operational Programme
PDF	Project Development Facility
PIR	Project Implementation Review
PM	Project Management
PMU	Project Management Unit
PPG	Project Preparation Grant
PW	Person Week
TA	Technical Assistance
TA	Technical Assistance
TPR	Tripartite review
UNDP SRRP	UNDP Forestry for Employment Project “Regeneration of the Forestry and Wood-Processing Cluster in the Srebrenica Region”
UNDP	United Nations Development Programme
USD	US Dollar
WB	World Bank

Annex L: Stakeholder involvement

Numerous stakeholders have been involved in project development through individual meetings as well as in multi-stakeholder planning meetings. The project builds on a UNDP trust fund project supporting energy efficiency in housing reconstruction. Detailed discussions with local stakeholders from civil society, research, private sector, government, and the donor community, were held, and all stakeholders were encouraged to make inputs to project development. These people will be directly and indirectly involved in project implementation:

USAID CCA

Mr. John Cantrill
Mr. Steve Dennison

EBRD

Mr. Josip Polić, Municipal Environmental Infrastructure, Sarajevo (phone call)
Mr. Zihnija Hasović, TMG BAS Programme

Embassy of Spain

Mrs. Eva Suárez Leonardo, Project Manager
Mr. Esad Đukanović, Project Manager

Chambers, ministries, administration authorities

Mr. Boško Kenjić, Advisor, Ministry of Foreign Trade and Economic Relations - MOFTER (Bosnia and Herzegovina)
Ms. Biljana Trivanović, Advisor, MOFTER (Bosnia and Herzegovina)
Mr. Jure Sesar, assistant to Minister for Forestry, Federation Ministry of Agriculture, Water (FBosnia and Herzegovina)
Mr. Pero Balotić, Assistant to Minister for Forestry, Ministry of Agriculture, Forestry and Water Management of RS (RS)
Mrs. Radmila Kostić, Ministry of Environment (part of Ministry of Town Planning, Housing, Communal Services, Civil Engineering and Ecology) (RS)
Mrs. Šemsa Alimanović, Chamber of Commerce of FBosnia and Herzegovina, Forestry and Wood Industry (FBosnia and Herzegovina)
Mr. Lazo Šinik, Branch Association Secretary, Chamber of Commerce of RS, Forest Association (RS)
Mr. Dragan Kovačević, Senior advisor for Forestry, Institute for Statistics of RS (RS)
Mrs. Alma Maličbegović, REZ, Regional Development Agency for Central Bosnia and Herzegovina Region (FBosnia and Herzegovina)

Universities of Sarajevo

Dr. Faruk Mekić, Faculty of Forestry in Sarajevo (FBosnia and Herzegovina), Dean
Dr. Branimir Jovanović, Faculty of Forestry in Sarajevo (FBosnia and Herzegovina)

Companies

Mr. Besim Grozdanić, “Narodno Grijanje”, Sarajevo (FBosnia and Herzegovina), Director
Mr. Zahid Bešović, Hotel “Maršal”, Bjelašnica (FBosnia and Herzegovina), Director
Mr. Danilo Agostini, “Topling”, Prnjavor (RS), Director
Mr. Nedeljko Ilić, R&D centre “Srpske šume” (RS)

PART II : Terms of References for key project staff and main sub-contracts

See attached MSP (Annex C: Consultants to be hired for the project)

SIGNATURE PAGE

Country: Bosnia and Herzegovina

UNDAF Outcome(s)/Indicator(s): **Strengthened accountability and responsiveness on BiH Government to pro-active citizens**

Expected Outcome(s)/Indicator (s): **4.2. Strengthened national capacity in sustainable environmental management**

Expected Output(s)/Indicator(s): **4.1.2 National capacity developed in fields of EE, sustainable energy services, biodiversity conservation and sustainable land management**

Implementing partner: **UNDP**

Programme Period: 2008 – 2012 Programme Component: Energy and Environment Project Title: Biomass energy for employment and energy security project PIMS 3880 Award: 00046049 Project ID: 00054633 Project Duration: 4 years Management Arrangement: Direct implementation
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Total Budget	2,588,950
Allocated resources:	
• UNDP (parallel projects)	1,322,100
• GEF	966,850
In kind contributions	
• Private sector	300,000

Agreed by:

Date

Bosnia and Herzegovina Ministry of Foreign Trade and Economic Relations:

Mladen Zirojević, Minister

Implementing partner UNDP:

Christine McNab, UNDP Resident Representative