



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: MEDIUM-SIZED PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

PART I: PROJECT INFORMATION

Project Title:	Promoting SLM practices to restore and enhance carbon stocks through adoption of Green Rural Habitat initiatives		
Country(ies):	Senegal	GEF Project ID:	5802
GEF Agency(ies):	UNEP	GEF Agency Project ID:	01283
Other Executing Partner(s):	UNFCCC Focal Point of the Department of Environment and Gazzeted Areas (DEEC), Ministry of Environment and Sustainable Development	Re - Submission Date:	12 th June 2014
GEF Focal Area (s):	Land Degradation/ Climate Change	Project Duration(Months)	36
Name of parent programme (if applicable):	n/a	Agency Fee (US\$):	125,365

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Trust Fund	Indicative Grant Financing (\$)	Indicative Co-financing (\$)
LD-3: Integrated Landscapes: Reduce pressure on Natural Resources from competing land use in wider landscape	GEF TF	794,521	3,700,000
CC-5: Promote Conservation and enhancement of carbon stocks through sustainable management of Land-Use Change and Forestry	GEF TF	525,114	2,500,000
Total project costs		1,319,635	6,200,000

B. INDICATIVE PROJECT FRAMEWORK

Project Objective: To support scaling up of SLM practices in land use planning and promote technology that enhance carbon stock, reduce emission either from forest destruction for services or building materials production and generate revenue for local communities through increase productivity and green jobs.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
1. Scaling up SLM practices and enhancing Carbon Stock to boost productivity	TA	Increased land productivity and sequestration potential through development and implementation of	3 Municipal Lands uses plans (3) with good SLM practices , poverty and environment initiatives and	GEF TF	400,000	1,700,000

		<p>local policy frameworks which integrate SLM practices and carbon stock enhancement</p>	<p>Carbon stock monitoring and enhancement, developed and implemented to support conservation and promotion of ecosystem services</p> <p>At least two Integrated Natural Resources Management (INRM) Technologies with improved livelihood potential (e.g. Voute Nubienne, Agroforestry) developed, adopted and disseminated</p> <p>3 SLM practices (Agroforestry, water harvesting technics controlled grazing) demonstrated to improve productivity, reduced erosion and enhanced carbon stock</p> <p>3NGO /or CBO, Local Extension services and rural development local administration personnel and 120 private individuals including from rural areas are capacitated to promote and disseminate INRM technics (e.g. Voute Nubienne) and green job.</p>			
2. Green and energy efficient rural housing	TA/INV	Stakeholders adopt Proven energy efficient housing	70 VN communities buildings as demonstration sites	GEF TF	700,000	3,500,000

		technology and INRM practices	in 3 pilot municipalities constructed for demonstration 168,750 VN constructed under community revolving funds to support INRM to ensure 16,875,000 kg of CO2 sequestration potential maintained and green jobs created.			
3. Knowledge management and advocacy	TA	Adequate awareness and policy support for INRM	Policy brief to promote INRM developed and disseminated 1 National and 3 regional forums on rural habitat and INRM Guideline for upscaling of VN and sustainable natural resources management	GEF TF	99,666	700,000
Sub-Total					1,199,666	5,900,000
Project management cost				GEF TF	119,969	300,000
Total project costs					1,319,635	6,200,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	DEEC/Ministry of Environment and Sustainable Development	In-Kind	50,000
National Government	Ministry of Environment and Sustainable Development	Cash	500,000
National Government	Directorate of Forest and Fisheries/ Ministry of Environment and Sustainable Development	In - kind	20,000
National Government	Ministry of Habitat	In - kind	20,000
GEF Agency	UNEP	In- Kind	200,000

Local Government	Cadre de Concertation des Collectivités du Département de Podor (CDC-Podor),	In-kind	50,000
Local Government	Cadre de Concertation des Collectivités du Département de	In-Kind	50,000
Local Government	Cadre de Concertation des Collectivités du Département de	In – Kind	50,000
Local Government	Conseil Régional de Fatick,	In-Kind	50,000
Local Government	Conseil Régional de Saint Louis	In-Kind	50,000
Local Government	Conseil Régional de Thiès	In-Kind	50,000
CSO	AVN	In-Kind	150,000
CSO	AVN Projects	Cash	500,000
CSO	Le Partenariat Saint Louis Région (PSLR),	In - Kind	50,000
Multilateral (WB)	Programme of sustainable and participative use of traditional and substitution energies (PROGEDE)	Loan	3,000,000
Bilateral (JICA)	Capacity building for the control of land degradation et promoting of their valorization in degraded soils zones	Cash	1,290,000
Private Sectors	Individual Bricklayers (120)	In - kind	120,000
Total Co-financing			6,200,000

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY

GEF Agency	Type of Trust Fund	Focal area	Country Name/Global	Grant amount (\$) (a)	Agency Fee (\$) (b)	Total (\$) (a + b)
UNEP	GEF TF	LD	Senegal	794,521	75,479	870,000
UNEP	GEF TF	CC	Senegal	525,114	49,886	575,000
UNEP	GEF TF					
Total Grant Resources				1,319,635	125,365	1,445,000

E. PROJECT PREPARATION GRANT (PPG)

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant

<ul style="list-style-type: none"> No PPG required (up to) \$50k for projects up to and including \$1 million 	Amount Requested (\$)	Agency Fee for PPG (\$)
	50,228	4,772

PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF

GEF Agency	Type of Trust Fund	Focal area	Country Name/Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
UNEP	GEF TF	LD	Senegal	27397	2603	30000
UNEP	GEF TF	CC	Senegal	22831	2169	25000
UNEP	GEF TF					
Total PPG Amount				50,228	4,772	55,000

PART II: PROJECT JUSTIFICATION

A. PROJECT OVERVIEW

A.1. Project Description

The Global environment problems, root causes and barriers

In Senegal, more than 60% of the population derived their daily substance from natural resources particularly from land resources. Already visible negatives changes are being observed on land and vegetation productivity and many research activities have indicated that the root causes are linked with population increase, unsustainable agricultural practices and pastoral systems, the rainfall patterns and destruction of vegetation cover. The latter is primarily due to important wood exploitation both for fuel wood and services including rural house construction, charcoal production which currently represents 60% of the 4 million Cubic meter of wood exploited annually. In addition, the climate change is already impacting the countries and the key signs include severe and recurrent droughts, siltation of surface and underground waters, increase in coastal erosion, modification of fish populations, reduced agricultural productivity etc. The loss of agricultural productivity is currently experienced in groundnut production zone with annual rate of 3 to 5% for the millet and groundnut within 10 years¹.

In urban areas 94% has no access to a sustainable home². 30% of the entire population (and 50% in rural areas) are roofed with ligneous resources (wood, thatches)³; the other 50% uses imported materials (tin, cement). The national demand for housing is estimated at 200 000 with an annual increase of 10 percent⁴. Taking into consideration the fact that to build a simple dweller, 4 to 5 trees need to be sawn, housing result in increased deforestation. Other available option related to the use of imported tin or cement for building results in generating Green House Gas emissions - due to their production, their transportation, but also their use as CO2 emissions from residential buildings and commercial and public services reached 0, 44 million metric ton in 2005⁵. According to a McKinsey study, the highest return rate on investment for climate mitigation relies in the building sector in Africa, were the annual demand for construction materials is growing 8% a year⁶. *“The building and construction industry is considered a key player in sustainable development, with the potential to significantly impact society and the environment”* (Shelter Initiative for Climate Change Mitigation – UN-Habitat/UNEP). According to the National Second Communication for climate change, 2010, the mains problem related to mitigation in building sector is the energy efficiency but also the related industrial process which is linked to emission in cement production (through the clinker) and SO2 emitted by the clay use in cement production. Therefore any technology which will lead to the reduction of cement utilization will lead to emission reduction for the country. The Voute Nubienne technology will contribute toward both the objective of energy efficiency though reduced of power need for electricity and the reduced of avoidance of cement in construction sector. The building need in the project sites is estimated at 168,750 housing units. This demand is an

¹ Vulnerability of agricultural production to climate change in Senegal DEEC, 2001

² Based on UN-DESA figures, found in the UN-Habitat report on Senegal 2008-2009: There are no such detailed studies for the 60% (almost 8 million) of people living outside « urbanized areas ». <http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2713>

³ AVN's market observations on the field in 2013, and last report in Senegal National statistics, 2002,

http://www.ansd.sn/publications/rapports_enquetes_etudes/enquetes/RGPH3_RAP_NAT.pdf ;

⁴ Centre for Affordable Housing Finance in Africa (<http://www.afrbiz.info/content/housing-supply-in-senegal>)

⁵ IEA Statistics © OECD/IEA, <http://www.iea.org/stats/index.asp>

⁶ Africa 2050 – Growth, Resource Productivity and Decoupling. Mark Swilling

equivalent of 810,000 tons of Co2 emission.

The Second National Communication indicated also that LULUCF is still not a source of emission for the country when all the related LUCUCF actions are combined, however the sequestration potential is drastically reducing mainly due to forest fires and bush burning. The country will therefore gain more in establishing a system that will allow reversing the tendency and establishing monitoring system for a long term monitoring and that will be achieved through the Land Used Plan planned to be developed in this project.

The project sites⁷ are the regions of Thies , Saint Louis , Fatick, Matam , Tambacounda , Diourbel , and Luga , which are characterized by soil depletion , degradation of plant cover, a decrease in rainfall and crop yields, non- regeneration of agroforestry parks, extensive land clearing , overgrazing, bush fires , and soil salinization . These land degradation factors have led to a greater vulnerability, lower income for local communities, food insecurity and an increased poverty of the populations who generally use unsustainable methods of natural resources exploitation for their daily survival or are forced to migration. High population growth and the long years of drought have greatly contributed to the weakening of the environment resilience and deepening poverty. The rural habit need in the project sites is estimated at 168,750 units during the four (4) years of project duration. These will not only impact the vegetation cover but also increased emission as result of cement production and transportation in these need will have to be covered by the current habitat practice which strongly rely on use of cement.

Key barriers to the sustainable use of natural resources include lack of alternative production practices which combine the objectives of poverty reduction through increase productivity and reduction of pressure on natural resources particularly land and forest resources. It is in line with double conflicting objectives that the National Strategy for Economic and Social Development recognizes as national challenge achieving economic development and poverty reduction without compromising the integrity of natural resources.

The baseline scenario and associated projects

Senegal has completed and submitted in 2010 its Second National Communication to climate Change. Key emission sectors as highlighted in the communication are: a) energy sector which account for 95% of co2 emission in 2000, b) industrial process which include cement production with 4%; c) forestry sector with 1%. Furthermore, the country, with support of GEF through UNEP is developing its National Action Plan to Combat Desertification in line with the UNCCD 10 Years Strategy (2008-2018). The draft NAP which actually under the national validation process has identified in Axe 1: Amelioration of national institutional and legal Frameworks; the integration of SLM in national and local policies and strategies. In the Axe 2, the NAP also is planning the restoration of production systems in Groundnut Basin.

The project will build on the following baseline activities:

- The estimated 168,750 Voute Nubienne buildings which is the estimated request in the project site over the 4 years project period. Given the 2.8 tons of co2 avoided per Noute Nubienne, these will give a total estimate of 472,500 tons of CO2 avoided. Furthermore, as 1 Voute Nubienne constructed saves at least 4 trees, the total number anticipated in project area will lead to safeguarding 675000 trees. Using the 25 kg of CO2 sequestration potential of Tropical Tree, we will have an estimate of at least 16,875,000 kg of CO2 sequestration potential.
- The JICA financed project on “Capacity building for the control of land degradation and promoting of their valorization in degraded soils zones”. The project objective is to build the capacity of key stakeholders on land degradation monitoring and land valorization. This project will serve an important baseline for this GEF project as it will create enabling capacity condition for the im-

⁷ The adopted approach related to geographical location of the project is that the MSP will consider three priorities regions during the first phase and an up scaling option will be adopted for extending the experience and lessons learn to the rest of the region during GEF6.

- plementation of the communal land use plans that will come out from the project in targeted municipalities.
- Programme of sustainable and participative use of traditional and substitution energies (PROGEDE), the project will contribute to increase in a sustainable way the availability of diversified energy sources. This project will be complementary to the GEF project as it will contribute to the implementation of the Municipalities land use plan and will contribute to the objective of the revenue generation for local communities.
 - Electricity Demand Control Programme (2009 – 2020): The programme aims at reducing the investment cost during the period. The project will complement this programme by supporting reduction of energy demand in building either through reduced demand for heating as the VN has cooling effect or no energy need during construction as at all the stage of the construction green power is used that is human power for construction works.
 - UNDP through the Typha project titled “facilitating development of local thermal isolation materials using Typha plant” is experiencing rural energy efficiency in rural habitat. The project aims at promoting energy efficiency in building technics in urban and rural area. The project focuses on a specific material (brick with Cattail/Typha) which has not yet been technically or economically validated on the field and yet has not shown additional advantages compared to Stabilized Soil Blocks or Simple Adobe. Furthermore, the project does not take into account the roofing technique itself, focusing only on adding thermal insulation materials to concrete or tin roofs. The current project will complement this project in addressing a global economic analyze of these new building technology, but also will address the issue of roofing in the sense of how the Voute Nubienne roofing can be incorporated in typha project approach.
 - *Association Voute Nubienne (AVN) dissemination program in West Africa: The 5 years (2012-2017)* with 4, 2 million € financing (1 million for Senegal) focuses on 12 regions in 3 West African countries (Mali, Burkina, Senegal). The programme objective is to contribute to the implementation of national orientations to allow access to adapted habitat through removing barriers to VN market as it contributes to local economy, jobs and green development creation and mitigation of climate change through energy efficiency in building sector. The programme is supported financially by various donors who include French Global Environment Fund (FFEM), French Development Agency (AFD) and Foundations. In order to address the ecological and social challenges related to housing problem, several programs tried to introduce new materials such as Stabilized Soil Blocks - SSB (using thus local materials like earth), with sometimes high financial implications. Little progress has been achieved with this technic due to the fact that SSB is not appropriate to large scale dissemination. The major technical challenge for housing is not about the bricks composing the walls, it is about erosion thus it is a question of external plaster: how to protect the walls from rain, how to make sure that the walls (and roofs) are well insulated. In arid and semi-arid areas in Africa, adobe is perfect: it is basically the single building material (with rocks) which can show proof of evidence of lasting 3500 years (Rammesseum Luxor, Egypt), and several projects have shown in West Africa 25 years of examples of sustainability (DWF in Niger) but without dissemination (not due to the material – adobe - but to the complexity of the architecture and the training outside market reality – training centers). The VN will be working toward addressing these challenges related to dissemination and capacity building at appropriate levels.

Since 2011, “Le Partenariat”⁸ and AVN have been developing a dissemination programme of the Nubian Vault building technique in northern Senegal. Each project has as a common denominator to fit into the process of sustainable development and eco-citizenship. For the implementation of its programme in northern Senegal, AVN is associated with “Le Partenariat”, which ensures the

⁸ Created in 1981, the French NGO “Le Partenariat” intervenes on the one hand as part of the cooperation agreements between local authorities of the Nord Pas de Calais (Nord Pas de Calais Region and North Department) and local authorities of the Saint-Louis Region in Senegal and, on the other hand as an NGO by raising funds from the international cooperation (AFD, EU, State of Senegal, private funds...).

mobilization of local actors (both institutional and private), the visibility of the project among local authorities and partners, the dissemination of the technique among the population (promotional meetings at village level to explain the Nubian Vault technique, monitoring and market stimulation) and the construction of community buildings (health, education, etc.). The approach and the positioning of “Le Partenariat” permit to integrate the notion of sustainable housing into regional development programmes (Regional Council of Saint Louis, Regional Development Agency of Saint Louis, Cooperation Framework in the Department of Podor). Currently localized in Saint-Louis Region, this partnership aims to extend to Matam and Louga Regions in the coming years.

The proposed alternative scenario

In summary, the key environment problems that project will be addressing are: a) loss of agricultural productivity which is currently being experienced in groundnut production zone with annual rate of 3 to 5% for the millet and groundnut within 10 years, and b) increased carbon emission and reduction of sequestration potential resulting from i) destruction of vegetation cover to satisfy wood demand for services including rural housing and ii) increased demand for construction material particularly cement with consequent emission from production and transportation. To support the Government of Senegal to tackle these problems and root causes, the project will intervene at local policy level (in line with current priority identified in the country NAP under validation) to link SLM practices and land use plans and at systemic level by piloting key SLM practices and rural housing technology which at the same time will generate income for local communities through green job, ensure improvement of carbon stocks and avoid emission and improve land productivity. The project objective therefore is to support scaling up SLM in land use planning and promote practices and technology that enhance carbon stock, reduce emission either from forest destruction for services or building materials production and generate revenue for local communities through increase productivity and green jobs.

The project activity toward reducing emission from building and energy sector is related to the promotion of Voute Nubienne which will be an alternative to cement production and utilization. According to Procarpo 2011, the production of cement on its own, accounts for 5% of the world CO₂ emission. It is followed by the transportation of the building materials. The needs for heating and air conditioning represent the most part of energy consumption. Furthermore, at the stage of disposal, stoking and recycling of building material the environmental impact is not negligible. The clay, use in Voute Nubienne, is a natural resources mostly available and can be used as construction material. Its use needs less energy and transport as in most case near the construction site. It needs less energy for maintenance and the disposal is almost not harmful on the environment. The alternative to cement provided by clay in building industry cannot be neglected

The project objective will be achieved through the following components, outcomes and outputs:

Component 1: Scaling up SLM and enhancing Carbon Stock. Building on the baseline activity of NGO “Le Partenariat”, which support integration of sustainable housing in the Regional Council Development Plans, through this component, the foundation for a Sustainable Integrated Natural Resources Management will be achieved by supporting the municipalities to either promote integration of Integrated Natural Resources Management (INRM) in existing Local Development Plan or support develop of Local Development Plans which integrate natural resources management. The natural resources management in these plans will emphasize on promoting practices which will enhance soil

fertility and enhanced rangelands management. These practices will include agroforestry which will focus on introducing nitrogen fixing species and thereby will lead to reduction of fertilizers which consequent reduction in GHG. The species will be also selected using the dual objective of great sequestration potential and enhancement of soil fertility. This approach is in line with the priority mitigation actions identified in the second national communication. Furthermore, water harvesting technologies which will enhance vegetation cover thus increasing sequestration potential and controlled grazing will be developed, adopted and disseminated. The controlled grazing has the potential of increasing biomass production and control of animal foot print, all these will contribute to mitigating climate change and will increase land productivity. The policy support and institutional and individual capacity building will create an enabling environment for the INRM. This component will mutually be reinforcing with component 3 and will provide framework for the execution of component 2. The following outcome and outputs will be delivered by this component. The component will build on the ongoing municipal development actions plans and will support the country to implement the UNCCD/NAP and the National Communication on climate change as requested by Act 3 of Decentralization Decree.

Outcome 1.1: Increased land productivity and sequestration potential through development and implementation of local policy frameworks which integrate SLM practices and carbon stock enhancement

Output 1.1: 3 Municipal Lands uses plans (3) with good SLM practices, poverty and environment initiatives and Carbon stock monitoring and enhancement, developed and implemented to support conservation and promotion of ecosystem services

Output 1.2: At least two Integrated Natural Resources Management (INRM) Technologies with improved livelihood potential (e.g. Voute Nubienne, Agroforestry) developed, adopted and disseminated

Output 1.3. 3 SLM practices (Agroforestry, water harvesting techniques controlled grazing) demonstrated to improve productivity, reduced erosion and enhanced carbon stock

Output 1.4: 3 NGO /or CBO, Local Extension services and rural development local administration personnel and 120 private individuals including from rural areas are capacitated to promote and disseminate INRM techniques (e.g. Voute Nubienne) and green job.

Component 2: Green and energy efficient rural housing. The project will build on the current experience with UNDP Typha project and will complement this project in two ways: a) economic analysis of available techniques of building particularly at rural level to come up with more accessible techniques both in terms of cost and capacity of local individual to use the technology; ii) analyze of how the Voute Nubienne technology will provide solution for the roofing aspect which is not talked with the typha project. Also the project will also help to address the shortcomings related to dissemination and capacity building at appropriate levels. To support INRM at local and municipal level there should be incentives via pilot demonstration to show case but also by providing opportunities to create a system that will facilitate access to financial resources based on established criteria that will give due consideration to linking incentive with adoption of INRM. The anticipated actions in this component will help to achieve three specific objectives i) demonstration, adoption and dissemination of Voute Nubienne building technologies as it is environmentally friendly since it provides GHG sequestration and avoidance potential, but also contribution to energy efficiency in building, ii) support local entrepreneurship and poverty eradication as it is anticipated the Voute Nubienne building technique will create a new set of local entrepreneurship with possible financial private sector involvement; and iii) social wellbeing by providing descent habitat in local level with low or no cost in energy use The system to be established will be sustainable and integrated into the global local institutional capacity building envisaged in component 1. The following outcome and outputs will be delivered through the component.

Outcome 2: Stakeholders adopt Proven energy efficient housing technology and INRM practices

Output 2.1: 70 VN community's buildings as demonstration sites in 7 pilot municipalities constructed to

Output 2.2: 168,750 VN constructed under community revolving funds to support INRM to ensure 16,875,000 kg of CO2 sequestration potential maintained and green jobs created

Component 3: Knowledge management and advocacy. The sensitization will be an important role in adoption of the VN technic and also the mainstreaming of INRM in local and national production sectors. The project will support the awareness and advocacy through engaging both the public and policy makers. It is foreseen that the Government of Senegal by the end of project will revise its policy on habitat to facilitate access to more citizens but also to integrate natural resources management in building industry. The project will support this effort by developing policy brief and organization national and local forums to address the issue in order to come up with key recommendation and action toward that direction. The component 3 will help to achieve the following outcome and outputs:

Outcome 3: Adequate awareness and policy support for INRM available

Output 3.1: Policy brief to promote INRM developed and disseminated

Output 3.2: 1 National and 3 Municipal forums on rural habitat and INRM

Output 3.3: Guidelines for upscaling of VN and sustainable natural resources management

The incremental cost reasoning and expected baseline contributions

Without GEF: The government of Senegal in collaboration with AVN will continue the promotion of VN habit model in order to satisfy the need for habit for many Senegalese. Environment consideration will be less address due to lack of incentive and capacity to mainstream INRM in habit sector. The communities based infrastructural development will be slow as the cost of building using cement and iron sheet will be a limiting factor. The local economy will continue to rely on agricultural production and other pressure on natural resources as no other alternatives are available. The habitat model will continue to be based on cement and iron sheet for roof with the necessity to cater for electricity to ensure ventilation and reduce excess heat in this area of Sahel where temperature can rise as much 45 degrees. The Government and JICA through the project on "Capacity building for the control of land degradation and promoting of their valorization in degraded soils zones" will continue to focus on capacity building on specific sites. System approach and policy level intervention may not be achieved at local level.

With GEF: The GEF alternative will allow the mainstreaming of INRM in building industry and give opportunity to reduce deforestation for building materials, reduction of natural resources unsustainable use as result of awareness and mainstreaming in local developments plans. The VN model promotion will not only help to save the trees and avoid emissions, but it will also provide mean for adapted habit type which will avoid GHG emissions as result of electricity usages for cooling the houses. The promotion of VN will also provide green jobs opportunities thereby reduce pressure on natural resources for alternative livelihood. The SLM practices to be promoted will support efforts to boost soil fertility thereby increasing revenue for local communities and reduced rural poverty. The soil fertility activities (component 1) to be supported by GEF will include agroforestry practices with specific species selection to meet both the soil fertility improvement and the potential for carbon sequestration. The water harvesting technologies will be promoted and intensify as it has potential for increasing land cover thus enhanced sequestration potential but also and creating local condition for vegetation growth. The rotational grazing will be promoted to ensure adequate regeneration of grasslands but also efficient use of grazing areas to boost livestock production. All the later mentioned technics will be supported by local stakeholders capacity building to ensure understanding of these technics but also create enabling condition for adoption and thus for durability. The GEF involvement will build on JICA supported project on capacity building base

on site specific situation and will contribute to develop institutional and individual capacities in integrating natural resources management including SLM in development sectors through the local Land Use Plans which in long run will lead to policy changes favorable to biodiversity conservation, fighting adverse effects of climate change and combating land degradation from deforestation and erosion. The Voute Nubienne promotion (component 2) will remove the barriers to dissemination and will provide opportunity for development of green job which will not only has social and economic impacts but also create opportunity for the country to test alternative methods of mitigation measure accessible to local community and has the potential of responding to the increasing need for habitat. The GEF support will therefore support this objective in ensuring efficiency in energy in building sector but also promoting efforts aiming at conserving carbon stock at local level and avoid emission in building material production.

Global environmental benefits

The project will help achieve important environmental and social benefits. The environmental benefits that will arise from the project will include:

- Energy efficiency in building sector through the use of Voute Nubienne Technology as it has a cooling effect and reduces need for electricity for building cooling. Considering the Senegal statistics on energy use which estimate 133kg CO₂ equivalent per year use for ventilation using fans and 176kg CO₂ equivalent for Air Conditioning, the estimated CO₂ emission which will be avoided as result of the GEF support to promote 168,750 Voute Nubienne units, will be 897,750 to CO₂ equivalent for the 4years project duration and if we consider air conditioning I t will be up to 537,300 tons equivalent Co₂. The project will generate therefore important GEB in term of emission reduction particularly from the 9.8% share of the national building sector; 25% shares of the administrative buildings. The Government plan to have local administrative building with Voute Nubienne will be a very welcoming development in mitigating effect of climate change in the country. The approach will be disseminated and scale up in the country and in the region.
- As the project will supporting 168, 750 of Voute Nubienne over the 4 years project period this will correspond to 472,500 tons (2.8 tons/VB) of CO₂ avoided and 12% of energy need which may otherwise be covered by electricity, are satisfied..
- Conservation, restoration, enhancement and management of carbon stocks in arid areas of Senegal by ensuring Integrated Natural Resources Management is mainstreamed in Local Land Use plans;
- GHG emissions avoided as result of deforestation/trees cuttings to satisfy the need for rural construction materials. It is estimated that the project with 1,730 VN to be constructed more than 4,844 tons of CO₂ emission will be avoided
- The literature would appear to provide broad support for more specific assertions that security of tenure regardless of form; protected status (with better outcomes when combined with multiple use and/or indigenous territories); community-level management (local involvement/autonomy in rule-making); strong and established local institutions; positive economic incentives to justify the investment in forest management; support from NGOs; and supportive national policy. are associated with better forest outcomes⁹. The Land Use Plans which will be developed with project support will ensure the above mentioned conditions and therefore will contribute to ameliorate forest condition and consequently the carbon stock.
- The Voute Nubienne technology is an opportunity for the country to develop an report linkage between energy, forestry and LULUCF sectors which is a good opportunity for the country to deal with various sectors as allow by Land Use consideration under the UNFCCC convention. The project will support piloting of SLM practices in the three regions and significant ha (exact number will be provided at CEO endorsement) of land will benefit good management practices.

⁹ Evidence Linking Community- Level tenure and forest condition: An annotated Bibliography, Clima and Land Use Alliance, Februry, 2014.

- Capacity will be built at institutional and individual level to monitor and restore carbon stocks to avoid emission and encourage carbon sequestration through afforestation activities

Social benefits from the project will include:

- Increase number of local communities to have access to descent habitat
- Local economy will be boosted as result of removal of barriers to expansion of the habitat market
- Capacity of individuals to alternative livelihood options
- Increase income for local communities as result boosting the productivity through dissemination of good agricultural practices like mulching to avoid drought

More quantifiable environment and social benefit from the project will be provided at CEO endorsement.

Innovativeness, sustainability and potential for scaling up

The most important innovativeness of this project is the attempt a new approach for supporting the country to reduce GHG emission and avoiding indirect emission through in one hand providing alternative to cement and tin production and transportation for building sector and in other hand avoiding deforestation by promoting in the building sector the use of wood as construction material. The later particularly being also important support maintenance of soil productivity through conservation of forest cover. The market-based diffusion of NV buildings is another innovative approach that AVN as the key partner will be bring in in this project. AVN trains and conduct public awareness campaigns to recruit local champions (keys) to familiarize villagers with the advantage of NV construction with regard to green job and GHG emission potential both for indirect sequestration through deforestation avoided and emission evited through the alternative provided for cements and tin production and transportation.. AVN helps masons meet potential clients. Clients pay the mason for his services and the client in-kind contribution from his family usually making the mud bricks and serve as manpower during the construction thereby reducing the cost to the client. AVN does not build for people nor make or take payments to or from clients or masons, nor does it finance construction. So there is no unsustainable charity aspect to the work; the expansion of NV building is market driven. The ultimate goal is self-sustaining, autonomous markets that expand without AVN's help, thereby creating adequate condition for sustainability and scaling up to the nearby communities.

The project innovation is also the use of mitigation measures to achieve multiple GEB as the project will be using agroforestry practices to enhance carbon stock which will increase sequestration potential, reduced soil erosion and increase agricultural and land productivity. This approach advocated by IPCC particularly on LULUCF sector is a positive shift in the region not as practice, but as a mean of GHG mitigation measures.

Another innovation/sustainability approach of the project is the use of the Local Community involvement strategy. The methodology of the dissemination program of the Nubian Vault construction technique foresees the mobilization and involvement of local partners including local authorities (regional councils, municipalities, rural communities, intermunicipal groups), regional development agencies (RDA), State decentralized services and community based organizations (CBO) through information and awareness activities and by empowering them in the implementation of the projects. The aim is to accompany and enhance the ongoing decentralization process in Senegal. The implementation of the project in Senegal, as one of the leading countries in the subregion in terms of regional development dynamism, is an opportunity for project scaling up at regional level particularly in countries like Burkina Faso and Mali where the VN is already establishing. Also given recent interest from Niger, the technology is likely to be extended in large scale in the region. The Government of Senegal through the Ministry in charge of Environment is highly expecting positive results from the project and has the plan to make the dissemination and scaling up as one of the national priority in order to achieve the triple objectives of environment conservation, fighting rural poverty and provision of descent rural habitat. This high level commitment is a great potential for scaling up the project results.

A.2. Stakeholders

The key stakeholders of the project can be grouped in four categories:

- The Government Technical Ministries mandated to the development and implementation of policies related to environment sustainability and housing;
- The International and local CSO who are actively contributing to environment sustainability through implementation of sustainable activities in area of environment and rural habitat development. These CSO are supported by international donors funding agencies.
- The local partners including the Regional Councils;
- Private sectors which may play an important role in alternative livelihoods development options.

The table below gives an overview of the project stakeholders. Comprehensive stakeholders mapping will be conducted during the PPG and a public participation plan will be presented at CEO endorsement.

Stakeholders	Mandate	Possible role in the project
Climate Change National Focal Point, Department of Environment and Gazzetted states (DEEC)	The DEEC is in charge of development and implementation of Government policies in the area of sustainable development. The department also acts as the national Focal Point Institution for climate change. It is also the host institution of the GEF operational Focal Point of the country	Will ensure the global project coordination. In particular it will ensure all relevant Government technical departments are effectively involved in the project and they are playing their expected role. They will enter agreement with UNEP for the project execution. They will sign MoU with AVN and key technical departments for the execution of specific activities of the project within their mandate. DEEC as the National Focal Point for the UNFCCC will ensure that the contribution of the Voute Nubienne to the GHG is well documented and capture in national emission monitoring and reporting. The DEEC will also support partnership mobilization and facilitate project activities with the Regional/local entities. The DEEC will facilitate resources mobilization for the project and ensure that all relevant partners provide their cofinancing letter as appropriate.
Department of Eaux et Forets	Responsible of development and implementation of national policies in area of forest managements and Protected Areas. It hosts the national focal point for UNCCD.	Technical responsibilities in the implementation of activities related to Sustainable Land Management.
AVN	French NGO promoting the VN technologies to support adequate habitat in rural area and contribute to revenue generation for local business.	Will take the lead in execution of all activities related to the development, dissemination and execution of activities related to Voute Nubienne. They will play an important role in partnership and resources mobilization of the

		<p>project. They will lead the cooperation with Regional Council with the support of DEEC and other national partners.</p> <p>Through AVN cofinancing from FFEM, AFD, etc. will be ensured as these cofinancing are those of the projects implemented by AVN with financing from above mentioned donors.</p>
CFBTP (Centre de formation métiers du bâtiments et des travaux publics Potentiel)	Professional training in the building	Provide professional and continued training on building
National Département of Habitat	In charge of development implementation of national policies on habitat	Will be part of the project partner and will be advising on rural housing. It will be member of the project steering committee.
Regional Councils of Thies, Fatic, Diourbel et de Saint Louis	Develop and implement local policies of the region and mobilize resources for local development	Institutional partner for the deployment of the VN technologies in their respective region
“Le Partenariat”	<p>Created in 1981, NGO intervenes on one hand as part of the cooperation agreements between local authorities of the Nord Pas de Calais (Nord Pas de Calais Region and North Department) and local authorities of the Saint-Louis Region in Senegal and, on the other hand as an NGO by raising funds from the international cooperation (AFD, EU, State of Senegal, private funds...). “Le Partenariat” is designed for implementing development projects in support of local authorities on the following themes: education, health, nutrition, local governance, environment and sustainable development. Since 2011, “Le Partenariat” and AVN have been developing a dissemination programme of the Nubian Vault building technique in northern Senegal. Each project has as a common denominator to fit into the process of sustainable development and eco-citizenship.</p>	<p>Le Partenariat” intend to take part in this project through the construction of institutional buildings and awareness of institutional partners</p> <p>“Le Partenariat”, will support the mobilization of local actors (both institutional and private), the visibility of the project among local authorities and partners, the dissemination of the technique among the population (promotional meetings at village level to explain SLM practices and the Nubian Vault technique, monitoring and market stimulation) and the construction of community buildings (health, education, etc.).</p>
National CSO: Enda Energy, etc.	Actives in implementation of the project on ground.	Will support capacity building and awareness raising of local

		communities and will serve as executing partners of the activities related to SLM with municipalities and local communities under the supervision of the Directorate of Forestry.
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A.3. Risks

Risk Statement	Level	Mitigation
Water shortage during construction	Low	The necessity to complete the buildings before the end of rainy season. The awareness raising and capacity building activities will include this in the programme.
Degradation of wetlands biodiversity as result of mud extraction for VN construction	Low	Ensure that the mud as construction materials is collected at the right time. The awareness raising and capacity building activities will include this in the programme
Annual building maintenance to ensure durability	Low	The users will be sensitized accordingly for the use of adequate protection measures
Establishment of good quality building	Low	Good monitoring activities by AVN and adequate measures to ensure client satisfaction
Political decision against the methodology as result of lobbying from the cement and iron sheet dealers	Moderate	Sensitization of public and opinion leaders on the benefits of the VN.

A.4. Coordination

A complete project implementation and institutional arrangement will be developed during the PPG. DEEC as the project executing agency with support from UNEP will ensure that the project develops synergy and collaboration and when necessary ensure economy of scale, with the following projects:

- UNDP/GEF project on energy efficiency through the use of Thypha as isolator.
- UNDP/GEF SPWA-BD: Participatory Biodiversity Conservation and Low Carbon Development in Pilot Eco villages in Senegal.
- WB/GEF project GGW Sahel and West Africa Program in Support of the Great Green Wall Initiative

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1.National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAs, NAPs, NBSAPs, National Communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.: (1)

The project is in line and will contribute to some national policies, plans and programmes. It contributes to the Second National Communication priority mitigations measures as follow

Second National Communication mitigation priorities measures	Project contribution
1. Energy Sector: a. The management of the energy demand in sectors of electricity, domestic fuel and transport,	Output 1.1. in relation to domestic fuel management through consideration of practices that provide alternative for fuel wood in Land Use Plan
b. The management of supply through the implementation of and strengthening of action aimed at optimizing the energy supply systems,	Output 1,2. The VN Technologies as an energy saving technic will reduce energy uses for Air Conditioning
2. Industrial processes : Developing combined technologies options),	Output 1.2: Technologies (e.g. Voite Nubienne) for INRM and carbon stock and rural livelihood, developed, adopted and disseminated
3. Agricultural sector a. Promoting new land management methods, b) Promoting the burial of crop residues instead of incineration and c) Promoting Agroforestry)	Output 2.3: 3 SLM practices demonstrated to improve productivity, reduced erosion and enhanced carbon stock Output 1.2: Technologies (e.g. Voite Nubienne) for INRM and carbon stock and rural livelihood, developed, adopted and disseminated Output 1.3: 3NGO and/or CBO, and 120 individuals are capacitated to promote and disseminate INRM technics

The project particularly addresses the root cause of key emissions sectors of the country as:

Emissions sources	Project contribution
Bush fire	The Act 3 of the decentralization makes it mandatory to the municipalities to develop land use plan that integrate bush fire control The projet through output 1.1 will support development of land Use Plans that integrate bush fires control
Cement production and transportation	The VN technology use clay as alterative construction material therefore it will contribute in the reduction of emission which may result in the use of cement.
Energy need in Building for cooling	The VN as it has a cooling effect electricity will not be use for Air Conditioning and thus reduce the emission as result of energy use for cooling.

The study on Technology Transfer in energy efficiency in building sector, the mitigation measures

subjected are related to lighting, air conditioning and heating. VN technology provides opportunities for cooling the building and avoid the air conditioning. As the project will promote the technology particularly in government building, the project will contribute to this technology transfer objective.

The project will also contribute to the following national policies :

- National Environmental Action Plan
- National Sustainable Development Strategy
- Law n° 2001-01 of 15 January 200, related to Environment Code
- The Identified priorities in the NAP under validation process: Annexes 1 to 4.

B.2. GEF Focal area and/or fund(s) strategies, eligibility criteria and priorities: (0.5)

The project will contribute to the GEF LD objective 3: Integrated Landscapes: Reduce pressure on Natural Resources from competing land use in wider landscape. This contribution will be achieved through the integration of INRM in Regional/local development plans but also the implementation of good SLM practices to restore, enhance and restore carbon stock. The project will also provide financial incentives toward adoption of SLM practices. The project will also contribute to objective 5 of the GEF5 climate change strategy CC-5: Promote Conservation and enhancement of carbon stocks through sustainable management of Land Use Land-Use Change and Forestry. The INRM mainstreaming in local development plan will help to restore, enhance and manage the carbon stock to avoid deforestation but also to conduct afforestation activities to increase the carbon stock. The Voute Nubienne that will be promoted will help to avoid GHG emission from the cutting of trees which will be otherwise used as construction materials. The avoidance of the use of cement and iron sheet will also contribute to the GHG emission as the production and transportation to the end users involved utilisation of fossil fuel thus GHG emission.

B.3. The GEF Agency's comparative advantage for implementing this project: (0.5)

UNEP has a history of working with Senegal on various GEF and non-GEF activities. UNEP has worked with the Government of Senegal on national GEF projects and various Enabling Activities, across all Focal Areas and on 19 regional GEF projects covering all GEF focal areas. On UNCCD implementation, UNEP has supported the country during the PRAIS project. Currently UNEP is supporting the Government of Senegal in the implementation of the UNCCD Enabling Activity related to the NAP alignment and reporting. UNEP is also currently supporting the Government of Senegal in the implementation of Montreal Protocol through Ozone Programme. On climate change, UNEP supported the development of NAPA and national communications.

The project is fully in line with the UNEP role of catalyzing the development of scientific and technical analysis and advancing environmental management in GEF-financed activities. UNEP provides guidance on relating the GEF-financed activities to global, regional and national environmental assessments, policy frameworks and plans, and to international environmental agreements.

More specifically, the project lies within the following areas recognized by GEF as areas where UNEP has a comparative advantage:

- *Sound science for national, regional and global decision-makers*, notably by strengthening science-to-policy linkages and by strengthening environmental monitoring and assessment;
- *Technical assistance and capacity building at country level*, notably by strengthening technology assessment, by demonstration and through innovation, and also by directly developing capacity;
- *Knowledge management*, including through awareness raising and advocacy.

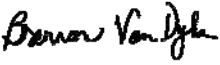
The project is consistent with the objectives and expected outcomes of the current UNEP Medium Term Strategy and fits under the Ecosystem Management, Climate Change and Environmental Governance sub-programs.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mariline Diara	Director Department of Environment and Gazzeted States	MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT	03/06/2014

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yy yy)	Project Contact Person	Telephone	Email Address
Brennan VanDyke, GEF Coordination Office UNEP		June 12, 2014	Adamou Bouhari Task Manager Biodiversity and Land Degrdation UNEP/GEF	+2542076 23860	Adamou.Bo uhari@unep. org