IBSA- GUINEA-BISSAU

RURAL ELECTRIFICATION THROUGH SOLAR ENERGY SYSTEMS

A Roll-out of the Solar Energy Pilot Initiative Conducted by IBSA in 5 villages

Overall Strategic Goal: Life quality of IBSA´s beneficiaries improved.

Expected Outcomes: Community-based associations strengthened, decision-making positions filled by women, literacy courses followed by higher number of beneficiaries and different community activities implemented at night time

Expected Outputs: Installation of Solar Systems in 20 Villages for street lightening, schools and community centers (and health centers and water supplies, when existent).

Trained and better established Local Associations.

Executing Agency: United Nations Development Program (UNDP)

Implementing Partners: Ministry of Agriculture and Rural Development

Main Cooperating agencies: Members of Steering Committee

Summary

The roll-out of IBSA's pilot initiative aims at installing solar energy equipment in the 20 additional IBSA partner villages in Guinea Bissau. It will incorporate the lessons and experiences of the initial 5 villages. The project will also focus on strengthening the capacity of local associations of each village in order to help them gain a stronger sense of ownership over solar energy activities. CEL will be in charge of manufacturing the solar equipment, which will be conducted according to the necessities of each village. A team of 5 national technicians, who were previously trained in India on Solar Energy, will be in charge of installation.

Programme Period:	19 months
Atlas Award ID:	
Start date:	June 2011
End Date	December2012

Total resources	US$ 596.305 USD
Total IBSA contribution:	US$ 596.305 USD

Agreed by (Executing Entity):

On behalf of	Signature	Date	Name/Title
UNDP	_____	_____	_____
Min. of Foreign Affairs, International Cooperation and Communities:	_____	_____	_____
Min of Agriculture: and Rural Development	_____	_____	_____

CONTENT

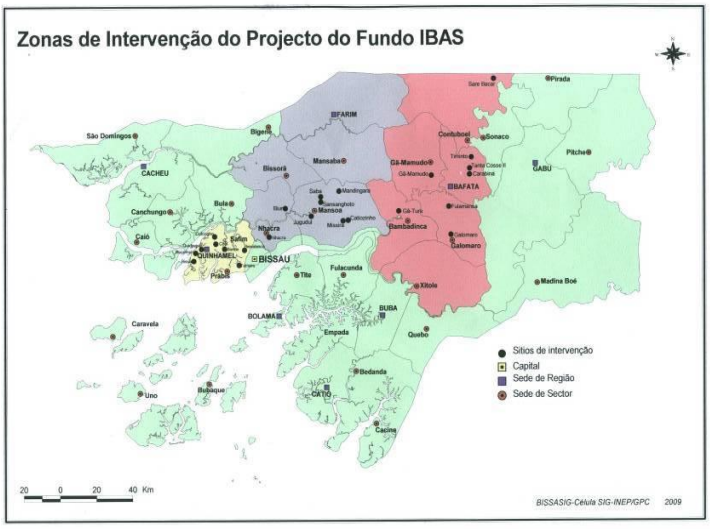
Part I. Context analysis

A. Situational Background: Country and Project

Guinea Bissau is located in West Africa with an area of about 36.000 sq. Km, predominantly made of coastal plain landscape. Guinea Bissau, as a state, is a Unitary Republic and has Portuguese as the official language and Creole as the national and most spoken language. It is amongst the poorest in the world, ranked 173 of 182 countries in the world, according to UNDP´s Human Development Index. Absolute poverty reaches 2 out of 3 people, while extreme poverty affects one out of every 5 individuals. Women are most directly affected by poverty and are often excluded from being decision-makers on the development process of the country. Agriculture is the most important economic activity, contributing with 61.8% of its GNP (2005) and employing nearly 80% of the population.

In light of this reality, and in response to a request from the government of Guinea Bissau, the India, Brazil and South Africa Facility for Poverty and Hunger Alleviation decided to support nationally-led efforts to enhance livelihoods through agricultural development and the enhancement of other services to rural communities.

IBSA's first Project in Guinea-Bissau, titled *"Agricultural Development and Services to Rural Communities"*, was launched in 2005. During phase I (2005-2007), the project sought to strategically assist the development of sustainable management capacities in agriculture and cattle farming, so as to increase household income in beneficiary communities. Over 4,500 farmers were trained in modern agricultural techniques to improve rice cultivation and citrus fruits and mango production. IBSA partners assisted the introduction of new seeds species that improve yield and permit agricultural production even during Guinea-Bissau´s rainy season. They also provided training on water management and control.



Biombo (yellow), Oio (grey) and Bafatá (red)

Phase II was initiated in 2009 and will continue through 2011. The project currently aims at reinforcing the training on agricultural development techniques carried out during phase I. A functional literacy element reaching 600 women and youth, and the development of small agro-industries have been added. Phase II also added a solar energy component, to supply solar equipment to schools, health centers, community centers, central street areas and water pumps in five villages. A total of 24 villages, located in the Regions of Bafata, Oio and Biombo – some of the poorest in the country – are directly benefiting from IBSA´s activities.

Solar energy has brought about an undisputable positive impact in the lives of community members in the 5 villages where IBSA's pilot initiative on solar electrification was introduced. Beneficiaries have reported an enormous satisfaction with the equipments that are already functioning, especially streetlights. Streetlight poles have enabled villagers to be engaged in a variety of different activities at night, which were previously considered doable only during hours of daylight. This fact alone has brought a tremendous change in their lifestyle and in the way they manage their daily productivity. Up to this moment, the benefits of solar energy have been more visible in some villages than others. Bissa can be already used as a concrete success model: the community-based association has managed to raise approximately US$ 300 in a three-month-period, only through the use of a cell phone charging device powered by solar energy. Moreover, the number of individuals attending school has increased to a very large extent, now that

classrooms are available at night. Finally, people have regular access to computer and internet.

It is important to emphasize the importance of the Secretary of State of Energy for the sustainability of solar energy in each village. Before installation was launched, 5 technicians from this institution participated in a capacity-building course that was held in India and conducted by specialists from Central Electronics Limited (CEL). Training served as a great opportunity for the national technicians to improve their knowledge on solar energy as well as to familiarize themselves with solar equipment. These technicians have so far participated directly in the installation of the equipment and are considered key elements for ensuring its regular and appropriate maintenance, especially through the capacity-building of local communities on how to manage the equipment.

B. Area of Intervention: Existing IBSA Partner Communities

Phase I of IBSA's project in Guinea-Bissau covered a large number of villages across the country. However, following recommendations from phase I evaluation, phase II was designed to strategically target 24 villages in the three most impoverished regions: Oio, Bafata and Biombo- thereby providing comprehensive support and follow-up to its interventions, so as to enhance impact and sustainability.

From these 24 villages currently within IBSA´s intervention area in Guinea-Bissau, a total of 20 are yet to benefit from IBSA support to acquire and install solar energy systems[1]. These villages are, however, directly involved in all other activities implemented by IBSA's project. A sense of trust and respect has been established between community members and the Project Coordination team and in most cases, IBSA is the only project acting in the area. The most sound strategy at this time is to roll-out the successes of the pilot solar energy component to these remaining 20 partner communities.

[1] One of the 5 selected villages for the Solar Energy pilot initiative (Safim) is not directly part of IBSA´s intervention area. Mr. Sharwan Sangal, Executive Director of CEL - *consultant who elaborated the first Solar Energy Document* - had suggested that Safim should be included because it had all the required facilities for solar energy installation (hospital, school, administrative office, community center and water pump).

Proposed villages for Phase II of Solar Energy Component

REGION	**VILLAGES**
BIOMBO	ILONDÉ
	BUCOMOL
	TAMARA
	CUFUNGHO
	BISSALANCA
	COOL
	QUIDJOGRO
OIO	NHACRA
	JUGUDUL
	BIUR
	SABA
	CATIOZINHO
	SANSAGHOTO
	MISSIRA
BAFATA	GALOMARO
	FULAMANSA
	CARABINA
	TANTA COSSE II
	TIMINTO
	SARE BACAR
TOTAL VILLAGES	TWENTY (20) VILLAGES

Each village is comprised of a relatively consolidated community based association that functions as their local representative body. While a few associations have a more organized structure, – *some, for example, have already created a statute and are seeking to be legally recognized* - **most are still in their initial stages of development. All associations experience great difficulty in raising funds.** In most cases, community members are required to provide their respective association with a monthly contribution, which is sufficient to cover only extremely basic necessities, such as the payment of an incentive for school teachers (daycare or elementary school, depending on the case), for women who help other women while giving birth and for the purchase of civil construction material, such as cement. It is rare to find associations that have a facility that can be used as some sort of office, for official meetings or other important community activities. **Although women are largely represented in all associations, it is still difficult to find them in decision-making positions.**

Functional literacy courses are being conducted in practically all 24 IBSA partner villages; some with the direct support from IBSA, others as a result of the communities´ own efforts. Although the literacy component has been welcomed by most project beneficiaries, it is important to note that **if an individual desires to attend courses, he or she has to interrupt approximately two hours of his/her daily work.** Despite having their income diminished by such interruption, many villagers have still opted to join these activities, seeking to become functionally literate. **For others, however, the idea of having two hours of work ´removed´ is simply unfeasible and for that reason, they have decided not to participate in literacy training.**

None of the 20 villages that this project will electrify currently have light during nighttime. Most community activities are finished before 7 pm, when villagers usually gather around their households. **Health Centers are in place in only two villages**, which means that in most cases, villagers travel to the center that is located the closest to their village in order to be treated. Two villages already have a solar powered system for water (provided by another project) and **five use wells that are in conditions to benefit from solar water pumping equipment**. Thirteen villages, however, lack any type of water bore structure, which makes the installation of solar energy systems for water extraction unfeasible*.

*The Guinean government is currently working on a project that will focus on the access of drinkable water at a national level and on another related to the construction of health units in villages that have not yet been benefited by one. Once these facilities have been installed in IBSA´s intervention villages, IBSA should definitely consider installing solar energy in them.

Part II. Strategy

C. Project Strategy: Roll-out of IBSA's Solar Energy pilot initiative

The roll-out of IBSA's pilot initiative aims at installing solar energy equipment in the 20 additional IBSA partner villages in Guinea Bissau. It will incorporate the lessons and experiences of the initial 5 villages. For example, participatory formulation processes will provide partner communities with a greater role in the selection of the solar energy systems that are most meaningful to them, the security instruments to ensure their safety, and the organizational arrangements to support their sustainable management. Similarly, the currently existing infrastructure and peculiarities of each roll-out village is being taken into consideration in the selection of the type and amount of equipment it will install.

The first activity to be implemented in the roll-out of the pilot initiative on solar energy systems will focus on awareness-building and the mobilization of the members of local associations of each of the 20 villages. A key element for the success of the Solar Energy roll-out will rely on the capacity of community-based associations to exercise ownership and effective management of solar activities within their villages. It is therefore unquestionably necessary that they are well-organized and fully committed to this cause before any other step in taken.

IBSA's project will therefore provide support for capacity development and for participatory formulation and management activities. Workshops will be held in the Regions of Biombo, Oio and Bafatá, with the participation of 5 representatives (3 female) from each community association. The facilitators of these seminars will include local NGOs that are located in each region, Mr. Agostinho Lopes – president of the association from Bissa, which is an IBSA role model on local ownership and self-initiative -- and female beneficiaries from the TOSTAN project.[2]

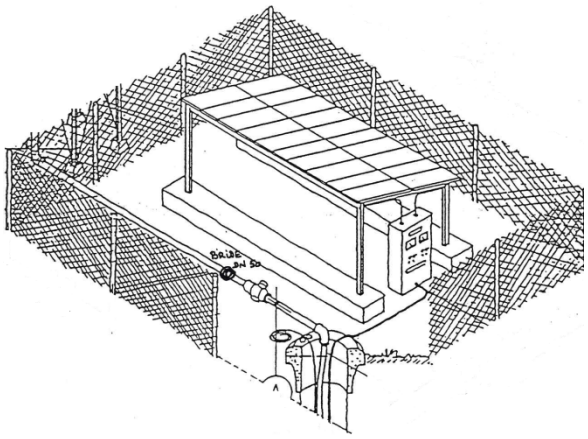
These women were trained on solar energy by the Barefoot College in India and returned to Guinea-Bissau with valuable skills. Their knowledge and experience will be used for increasing the involvement of IBSA´s female beneficiaries in solar

[2] Guinea-Bissau's local partner of the Indian NGO Barefoot College.

equipment activities, as well as for the enhancement of local ownership of the project. During these workshops, topics such as counterparts from communities, creation of Solar Energy Management Commissions, theft prevention and inclusion of women in decision-making positions within these Commissions will be discussed.

After the conclusion of these participatory workshops, the IBSA Coordination team (with the help of the local NGOs) will visit each village in order to hold consultations and similar workshops with local associations and beneficiaries in general. Each community will be requested to jointly present a list with the names, positions and responsibilities (vigilance, maintenance, fund-raising, etc) of its Solar Energy Management Commission members. Communities will also present IBSA´s Project Coordination team with its counterpart and an Agreement will be signed between both parties, in the presence of villagers, local leaders and a member from the community´s corresponding Regional Governmental Direction. This will contribute to increase community awareness of their responsibility over the equipment that will be installed while it will also facilitate the interaction between communities and Regional Governmental Directions, which is central to fostering ownership of this activity.

After having the assurance that communities are sufficiently mobilized and committed, the project will initiate the preparation of all civil works that are necessary for the installation of solar equipment, with the direct involvement of the Secretary of State and Energy technicians that were trained during the pilot phase of this project and community members. Only after it is ensured that all necessary equipments, tools and materials that are required for installation are ready for use, the project will move on to transporting and installing solar equipment.



A detailed chronogram and plan for transportation and installation will be designed by the IBSA Coordination team, with the collaboration of the Ministry of Energy and Natural Resources/Secretary of State of Energy. Installation will be conducted by the 5 technicians from the Secretary of State of Energy who were trained by CEL in India. The female beneficiaries from TOSTAN, who were also trained in India, should also participate in the installation process in some of the villages, in order to encourage the engagement of a larger number of women in the activity.

D. Expected Outcomes

By bringing solar energy into these 20 villages, IBSA will be contributing to the **improvement of quality of life** amongst beneficiaries in many different levels. First, the Solar Energy roll-out will be directly linked to the development of communities' local associations and their ownership in regard to the project. Each association will be required to create Management Commissions – ***having women as decision-makers*** –, which will be in charge of monitoring all solar energy activities within their corresponding zone. **Local associations** will be also required to demonstrate a more concrete commitment to the project by **providing their own counterpart** - which might be, for example, the construction of a community center. It is also important to emphasize that solar energy will enable local associations to **increase their ability to raise funds**, especially with the introduction of solar powered cell phone charging devices, which have already proved to be considerably profitable in the village of Bissa.

Secondly, solar energy will enhance one of IBSA´s most successful activities in the field, which is Functional Literacy Courses. By having the opportunity to study at night, **a much larger number of beneficiaries will be able to become functionally literate**. Moreover, those who are already attending classes will be able return to what used to be their daily productive routine, since they will no longer have to interrupt their work during the day. Thirdly, the roll-out will benefit villages that have the bore-wholes required for the installation of solar water pumping systems and public facilities where to place refrigerators for the conservation of medication and vaccines. Lastly, solar street lights and portable lanterns will **enable villagers from all communities to implement a variety of**

activities during night hours. This will not only help create a greater sense of cohesion amongst community members but it will most importantly **provide hope, a sense of progress and an interest in consolidating peace and accomplishments** to those communities.

E. Monitoring and Evaluation

Management Commissions from each local association will play a fundamental role in monitoring and evaluating solar energy activities. They will collect regular information on the functioning of solar equipment and on the work implemented by those responsible for vigilance and maintenance, among other. This information will be given to IBSA´s Coordination team and included in IBSA´s quarterly reports. IBSA's Coordination team will also visit beneficiary villages on occasion. A more comprehensive evaluation of the overall impact of the roll-out will be elaborated after a careful analysis of all information provided throughout the year and will be attached to IBSA´s annual project report.

F. Management Arrangements and Partnership Strategy

The Project will be executed by UNDP and have the Ministry of Agriculture and Rural Development as its implementing partner. IBSA Coordination Team will continue with a National Project Coordinator, an Administrative Assistant, a Driver and an UNV. The Project´s Steering Committee will have the same members as in IBSA´s Phase II: Indian Honorary Council, Brazilian Embassy, South African Embassy, Ministry of Foreign Affairs, International Cooperation and Communities, Ministry of Agriculture and Rural Development and Ministry of Natural Resources and Energy/Secretary of State for Energy.

The Ministry of Energy and Natural Resources and Energy/Secretary of State of Energy will play a fundamental role in this project through the work of its 5 national technicians. They will be responsible not only for the installation of the equipment but also for ensuring that community members are appropriately capable of maintaining the solar equipment. One local NGO from each region will lead the workshops on community awareness and ownership and will continue working with those communities directly in the field in order to follow-up on their progress. The

organization TOSTAN will also be an important partner for community mobilization and for the encouragement of women participation through the involvement of their 5 female beneficiaries who were trained in India. Regional Governmental Directions will be involved during mobilization, installation and maintenance in order to increase their sense of responsibility over the equipment and also foster a greater interaction with local communities. Lastly, local community associations will be responsible creating Local Management Commissions (with a detailed list of names and functions), for providing a counterpart (according to their local reality) and will be required to sign an agreement demonstrating their commitment with the project.

Central Electronics Limited (CEL), a public company of the Republic of India, will serve as implementing partner for this project, provided that it has already participated in the pilot phase of this solar energy initiative and that both beneficiaries and national technicians have provided IBSA´s Coordination Team with a positive feedback on the qualities of its equipment, personnel and services. CEL is responsible for manufacturing and delivering the equipment, a signed Project Cooperation Agreement between both parties, similar to the Agreement used in Phase I, will be used. Cost-recovery payments will be released, as per the agreement, in different installments, as the manufacturing, delivery and reception of the equipment in Bissau are concluded. An approximate period of 5 months will be required between the signing of the Agreement and the arrival of all equipment in Bissau.

All stakeholders for this project will be given due credit for their engagement in this initiative. IBSA partners will be provided with visibility and recognition for their instrumental role supporting this project. Credit will be given to IBSA partners during public engagements by the project, particularly in interactions with the media, public and academic appearances and presentations, relations with the villages, the government of Guinea-Bissau, project visitors and other institutions. Solar Energy systems installed through this project will be labeled IBSA or bear IBSA’s logo. Other efforts will be made where appropriate to provide visibility to IBSA and the South-South cooperation elements of this project.

Part III: Results framework

Expected outcome:

Outcome: L**ife quality of beneficiaries improved** (e.g. community-based associations, strengthened, decision-making positions filled by women, literacy courses followed by higher number of beneficiaries and different community activities implemented at night time).

Indicators and baseline:

1. Improvement in management skills, self-initiative and capacity to raise funds of local associations.
2. Number of women in decision- making positions in villages.
3. Number of beneficiaries attending literacy courses.
4. Variety of different activities implemented during night hours (previously considered ´unproductive hours´).

Baseline:

. Local associations lacking structure, management and fund raising skills.

. Low number of women in decision-making positions within villages.

. Many beneficiaries not able to attend literacy courses during the day because of work.

. Communities not able to conduct activities at night.

Partnership strategy: Besides the leading role of the Ministry of Agriculture and Rural Development, the Ministry of Energy and Natural Resources/Secretary of State of Energy should play a key role in the Component, especially with the participation of the 5 national trained engineers in the installation process. CEL is nominated as the implementing partner for provision of solar systems. Local NGOs from each region, female beneficiaries from TOSTAN and the president of the local association from Bissa will also contribute by encouraging the participation of women in solar energy activities and helping enhance local associations.

Project title and ID (ATLAS Award ID):

Project objective:

Installation of Solar Energy Systems in 20 villages.

Develop capacity of local associations to take ownership of the project.

INTENDED OUTPUTS	OUTPUT TARGETS FOR (Months)	INDICATIVE ACTIVITIES	RESPONSIBLE PARTIES	INPUTS AND BUDGET

1. Solar Energy Systems installed in 20 villages. **Indicator:** **A.** Solar Energy equipment installed in 20 villages. **Baseline**: 20 villages with their solar energy potential not explored at all. **General Management Services (GMS)** **Subtotal**	1.1. Solar equipment as per specification manufactured. 1.2. Solar equipment shipped to Bissau. 1.3. Civil works implemented in all 20 villages. 1.4. Equipments cleared at customs and storage at safe place. 1.5. Solar Equipment transported to villages and installed.	1. 1. Manufacturing of solar equipment as per specification. 1.2: Shipment of equipment by sea to Bissau. 1.3. Under take civil works. 1.4. Customs clearance and safe storage. 1.5. Transportation and Installation of solar equipment. 1.6 Monitoring and Evaluation. 1.7.Miscelaneous 1.8. Contingencies	1.1. EL 1.2. EL 1.3. NDP/ IBAS Coordination Secretary of State of Energy, Community Members. 1.4. NDP/IBAS Coordination 1.5. NDP/ IBAS Coordination Secretary of State of Energy 1.6. BAS Coordination Secretary of State of Energy, Community Members.	**261,220** **25,000** **100,000** **15,000** **35,000** **15,000** **5,000** **56,075** **35,860** **548,155 USD**

2. Capacity of local associations to take ownership of the project developed. **Indicator:** **B.** 100 Local Association members trained on Mobilization, Sensitization and Pro-activism. **Baseline:** Local Associations lacking proactive behaviour and contact with Regional Governmental Bodies. **General Management Services (GMS)** **Subtotal**	2.1. 100 beneficiaries from local associations trained on Mobilization, Sensitization and Pro-activism. 2.2. 20 villages visited: (Solar Energy Management Commissions formed, Counterpart from Communities formalized, Document signed in the presence of Regional Governmental Direction).	2.1. Seminars on Mobilization and Sensitization with members from local associations of 20 villages. 2.2. Visit to villages (establishment of Solar Energy Management Commission, approval of counterpart from communities and signing of Agreement with local associations, in the presence of Regional Governmental Direction member). 2.2. Miscellaneous	2.1. UNDP/IBSA Coordination Team/Local NGOS/Secretary of State of Energy, TOSTAN/ Bissa Local Association. 2.2. UNDP/IBSA Coordination Team/Local NGOS/Secretary of State of Energy, TOSTAN/ Regional Governmental Directions. .	**20,000** **20,000** **5,000** **3,150** **48,150 USD**
TOTAL				**596,305 USD**