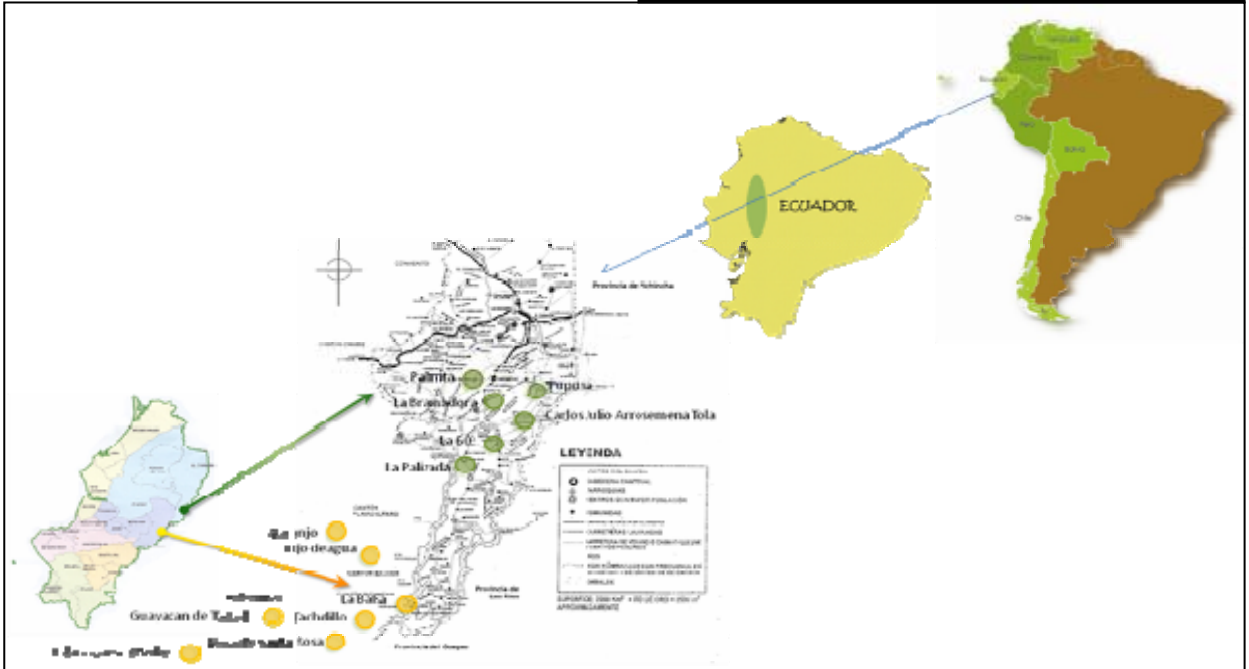
TECHNICAL ADVISORY NOTE (TAN)

PROJECT TITLE:

Rural Enterprise Development for Livelihood Enhancement: Developing the bamboo value chain in the littoral of Ecuador

INBAR

INTRODUCTION



Between 2003 and 2008, INBAR and local partners have implemented bamboo action research in several of Ecuador's least developed areas, with the aim of promoting bamboo as an alternative source of income for poor rural households. The programme has focused on developing and validating pro-poor, bamboo technologies in Latin America, disseminating research findings and best practices nationally and regionally, setting up micro-credit schemes and regulations for NTFPs, and developing market and trading initiatives for ARS-supported rural micro-enterprises.

More than 1,000 rural households, six microenterprises, students and teachers from four universities, six NGOs (technicians and representatives), 9 local governments and around 30 architects are participating and benefiting from different activities in the bamboo value chain, in micro-credit and in training in rural and urban areas.

The Context

INBAR's ARS is located across the districts of Manabí, Guayas, Santo Domingo and Los Ríos provinces, in Ecuador. In these areas, 62.7 % of the population live below the poverty line, with a basic lack of local, sustainable and relevant markets for poor rural communities being a major contributing factor. Before commencement of the ARS programme, underutilization and poor value addition for local bamboo resources meant that the large economic potential of these resources was going untapped, thus contributing to persistent rural poverty; in Asia, bamboo trade accounts for US$ 2.5 billion per year, whereas trade in Latin America is predominantly local and low in scale.

In order to promote the use of bamboo and develop more effective and pro-poor value chains, INBAR and its local partners have had to address a number of social, environmental, economic, and political issues. Firstly, in Ecuador, there is very little local awareness of bamboo's potential application and uses. Local producers also lack technical capacity to process and add value to their bamboo resources. These problems are also compounded by negative local perception of bamboo, caused by its association with slum housing and poverty in general. In the ARS, 90% of people live in bamboo housing compared to the national average of 30-35%. Due to these social factors, the bamboo trade has remained exclusive to a limited number of farmers. For example, according to CORPEI, Ecuador supplies a majority of the four million bamboo culms consumed in Chile each year. However, a very small number of private farms manage this value chain. At present, Ecuador has around 30,000 hectares of productive bamboo plantations and natural stands, with more than 6,000 hectares owned by private enterprises.

In Ecuador, there are also large strains on productive bamboo resources from national and international demand, as retailers often buy whole areas of bamboo without adopting sustainable management and harvesting procedures. Development of harvesting technologies has been a major component of the ARS programme.

Politically, bamboo also has a very low status in Ecuador, with the sector being largely informal. At present, the vast amount of produced; harvested, traded and exported bamboo is unrecorded in national statistics and forest inventories, thereby making it difficult to develop effective policies for poverty alleviation and overall development of the sector. This is compounded by national Government's emphasis on other crops, such as banana, coffee, cacao. Due to these political factors, small bamboo producers often find it difficult to gain access to credit financing, which is vital for upscaling and poverty alleviation.

ARS figures

- At least 338 households are participating actively in project activities (10% of which have women as head of households).
- Around 1,000 households are involved in the associative commercialization initiative.
- Main economic activities: agriculture (palm, maize, cacao, passiflora, banana), cattle breeding, day laborers.
- Land tenure: average land holding 1-10 hectares, with 0.5 to 1 ha of bamboo.
- Agro-forestry systems.
- Education: 75% of population has only some 2 to 3 years of elementary school
- Average income: USD 100 per month per household (of 4 to 6 persons)
- High migration, both temporal (large cities) and permanent (Europe)
- In the project area, 90% of the population lives in bamboo houses, versus 25-30% at the national level.
- Bamboo is used for domestic and environmental purposes (housing, agriculture, fishing, river bank protection, etc.)
- Bamboo is perceived to be related to poverty (because of the bamboo housing)
- Bamboo is sold to retailers (0,35 USD/culm at the farm versus 1,50 USD/culm in the major cities) and is used as a bank account.
- Retailers buy all bamboo natural stands (without sustainable management-harvesting practices)
- Demand bigger than offer (Peruvian market estimated 4 to 6 M of culms/year, Ecuadorian market estimated 2 M culms/year)
- National policies oriented to traditional crops (banana, coffee, cacao)
- Lack of knowledge and technology to add value to bamboo production, harvesting, transformation and commercialization
- Limited access to micro-credit and cash

MAIN RESEARCH PROGRAM COMPONENTS

Components:

1. Validation of technologies for bamboo propagation, cultivation, management, harvesting and transformation and methodologies for the generation and dissemination of knowledge.
2. One hundred and forty-four high-end bamboo products successfully designed
3. Linkages created with national and international markets, including fair trade partners, such as Altromercato CTM, Italy
4. Financial mechanisms developed to improve bamboo production.
5. Policies developed for bamboo management, harvesting and trading within the framework of the Ecuadorian forest policy.
6. Local capacities of at least 1500 farmers strengthened through technical and methodological training initiatives.
7. Dissemination of information at the national and regional level

CONDITIONS FOR REPLICABILITY

Upscaling

Within the ARS, grant potential exists to upscale development of local bamboo resources and create more sustainable rural livelihoods. In local and national markets, there is a growing demand for bamboo as a construction material, as well as for use in furniture, handicrafts and utensils production. For example, approximately 30 - 35% of the people in Ecuador live in bamboo housing, with 90% of people within the ARS region currently living in bamboo housing. Given that much of this housing is of poor quality, great scope exists for upscaling the use of validated pre-fabrication technology. At present, the NGO Hogar de Cristo in Ecuador builds and sells at least 100 prefabricated bamboo houses per day, but this falls well short of meeting overall demand. Furthermore, there are also a growing number of new shops in large cities like Quito and Guayaquil, selling alternative furniture, handicrafts and utilitarian products made of bamboo, most of which are currently imported. Finally, international demand for raw and processed bamboo, as well as final products, is also growing substantially in other Andean countries, the United States, Canada and Europe (CORPEI, 2005). Within the ARS programme, successful marketing links have already been established between microenterprises and retailers in Italy and France. Therefore, due to growing market demand, plenty of scope exists to upscale rural microenterprises within the ARS programme.

Recent changes in Government policy also encourage upscaled bamboo production. Since May 2007, the Ecuadorian Government has introduced a ban to stop illegal logging, which is linked to a new Strategy for Sustainable Forest Development developed by the Ministry of the Environment in 2006. This strategy includes a number of initiatives, which are in line with the INBAR ARS project, such as 1.) Stopping forest destruction through alternative productive activities, 2) Restoring degraded lands, and 3) Encouraging participation of civil society. INBAR and local partners have developed national regulations for NTFPs, and specifically for bamboo harvesting, which ensure the new ban does not affect bamboo production. These regulations are facilitating the implementation of national forest policies. Due to these policy changes, wood prices are increasing, with bamboo becoming a more cost effective alternative. Due to bamboo's increased market value, farmers are now also receiving higher prices. Before the project, the price of a bamboo culm was USD 0.35. The price has now risen to around USD 1, 50. Microcredit programmes were useful and necessary to take advantage of this opportunity. Given the increasing profitability of bamboo production, great potential exists for further upscaling.

Outscaling

Latin America has over 25 percent of the world's estimated 36 million ha of bamboo forests. The diversity of bamboo resources in Latin America is significant with over 429 bamboo species. Latin America has 39% of the species and 31% of the genera. In parts of Latin America there is a long tradition of bamboo production and use, it features prominently in architecture, furniture, agriculture, handicrafts, and art.

On the other hand, in Latin American countries, many local farmers and entrepreneurs lack awareness of bamboo's potential for livelihood development and environmental protection. These farmers lack the skills necessary to sustainably harvest and manage bamboo resources. Moreover, rural producers lack the technical capacity and knowledge to process bamboo.

However, growing interest in bamboo as an alternative natural product, as well as the opening up of international and domestic markets, is creating new opportunities. The information and knowledge generated from the ARS in Ecuador is also providing models for regional development in Latin America. For instance, it was calculated that a bamboo industry in Ecuador and Peru could potentially be worth USD 100 million per year within the next ten years. Lessons from the Ecuadorian ARS are already being shared with Peru, through a new INBAR ARS programme. In the future, this bamboo sector could create over 500,000 new jobs, primarily in poor rural areas. In countries such as China, Indonesia and the Philippines, the identification and strengthening of viable and pro-poor bamboo value chains has been shown to serve as an innovative alternative for livelihood and economic development. Therefore, there are many opportunities for developing the bamboo industry in the region.

EXISTING LINKAGES WITH OTHER IFAD INITIATIVES

The Ecuadorian ARS is one of many INBAR programmes supported under IFAD grants 518 and 774. Since 2001, INBAR has spent US$ 280,000 of IFAD funds in Ecuador, attracting co-financing of EUR 1,000,000 from the EC.

INBAR has also signed a memorandum of understanding with the Central Corridor IFAD Loan Project. Within the framework of this agreement, INBAR helped the Association of Ecuadorian bamboo growers APROGUADUA, which was set up with INBAR support in 2005, to develop a sub-project proposal for bamboo development in Ecuador. This project will be implemented by APROGUADUA between 2009 and 2011. INBAR will give technical support to APROGUADUA for project implementation. Other bamboo microenterprises setup during the development of the Ecuador ARS, such as ARTEBAMBU and BAMBU VIDA, will also participate in this sub-project.

BEFORE – PROCESS – AFTER

THE PROGRAMME IMPLEMENTATION

TARGET GROUPS AND OUTPUTS

Project target group:
The ARS target group were: Rural producers from the Littoral of Ecuador (At least 1000 producers), bamboo microenterprises (3), students, researchers and teachers from local universities and professionals from NGOs and different local institutions.

Institution involved during the ARS process:

Microenterprises:
APROGUADUA
ARTE BAMBU
BAMBUVIDA
Carlos Julio Handicrafts
Sacha Urku
Del Sur

NGOs
Hoga de Cristo
CEDERENA
SENDAS
Cabo San Francisco Foundation
Ecuabambu
FOMRENA

Universities:
National University of Guayaquil
Catholic University of Guayaqquil
Catholic University of Quito
Technical University of Manabi

Outputs:

Component 1:
(3 MINCAS) Technologies validated and documented (bamboo cultivation, management and building). (3) Technical reports on bamboo certification; modulation, packaging and finishing of bamboo products; and associative schemes to commercialize bamboo. (1) Methodology validated for the generation and dissemination of knowledge.

Component 2:

(144) designs for bamboo high-end products with identity and industrial design. Production of 45 bamboo products, 50% commercialized. (5) Branding processes for five bamboo microenterprises (Aproguadua, Bambuvida, Artebambú, Sacha Urku and Del Sur).

C
omponent 3:

(1) Microcredit mechanisms designed and implemented in the ARS. (8) Microcredit active initiatives moving around USD 300,000 and benefiting at least 500 households. (1) Document written explaining the microcredit initiative (SPI) Popular financial initiatives.

Component 4:

(1) Participative process for policy development already implemented with diverse stakeholders from various regions of the country. (1) Proposal-document for Non Timber Forest Products management and harvesting regulation, ready for Minister signing. Bamboo will be the model for other NTFPs within this regulation.

Component 5:

Around 5,000 students and teachers from four universities, six NGOs, nine local governments and 100 rural communities trained in technical and methodological tools to work with bamboo. Technicians and representatives from 22 countries have visited and participated in workshops implemented in the ARS in Ecuador.

Component 6:

An informative monthly newsletter is produced and sent to 5,000 e-mail addresses, published in four web pages and printed in three countries (16 to date). Twenty-five Workshops have been held at the national and regional level to share knowledge and experiences generated from the ARS programme.

IMPACTS

Tangible impacts

1. *Validation of technologies for bamboo propagation, cultivation, management, harvesting and transformation and methodologies for the generation and dissemination of knowledge.*

Reduction of bamboo plants prices
Before the project, bamboo plants were sold at high prices (US$ 3 to 4) and hardly found in the Ecuadorian market; current prices are around USD 0.25. This change was possible due to the wide dissemination of outreach materials produced by the ARS programme to people at different levels of the value chain (producers, retailers, technicians, etc.). These low prices have motivated people to buy and plant more bamboo in agro forestry systems, as well as commercial plantations. between 2003 and 2007, It is estimated that more than 7,000 hectares of bamboo were planted and at least 5,000 hectares managed by different institutions, social organizations and farmers in Ecuador (CORPEI and INBAR 2007).

Trained people vs. Bamboo quality
Around 1500 producers were trained in techniques and practices for sustainable bamboo management and harvesting enabling them to produce higher-quality culms that fetch better prices. Before the project, people used to sell bamboo natural stands to retailers at low prices, with culms selling for US$ 0.35. However, following capacity building in management and harvesting, individual culms now sell for between US$ 1.20 and 1.30. The project has also established direct linkages between producers and buyers, avoiding the need for retailers and increasing value addition at the community level.

Standardization of bamboo processes
Productive and processing processes were standardized along the country. For instance, propagation of bamboo through the technique of *"chusquines"* is known for technicians and producers especially in the coastal region due to dissemination of knowledge and training processes. Before the project several propagation techniques were used with different results, now the propagation of bamboo plants has been standardized with good results for everybody. The same process was applied for other topics such as bamboo management, harvesting and processing.

Bamboo used as an environmental alternative
Through the project, Bamboo has also been widely recognized by local governments, private enterprises and producers in Ecuador as useful crop for land watershed management. For instance, the Local Government of Manabí is implementing a forestry program for tree species in which bamboo is one of the most important species, more than 10,000 hectares are planned to be planted.

Methodological approach for generation and dissemination of knowledge
Local partners are making use of methodological approaches for the generation of knowledge through action research activities. INBAR was requested to share with technical team methodological tools for gathering and analysing of information as well as the documentation of processes and systematization of experiences. INBAR validated and adapted a methodological approach for action and social research processes which is being shared with different institutions in Ecuador and the region, for ex. Panama, Peru and Venezuela.

2. *Financial mechanisms to improve bamboo production.*

Before the project, financial mechanisms were not available in the ARS. People used to go to large cities to ask for micro-credits with negative results. Retailers were the traditional source of financial support, but these loans had high interest rates.

People in the ARS now own eight local micro-credit initiatives, generating around USD 300,000 to date. People organized themselves and agreed local rules for issuing micro-credit financing and guaranties. People ask for loans for bamboo management and harvesting and for other crops and all the arrangements for loans are solved at the local level.

In order to share micro-credit experiences with other communities, leaders from the ARS also take part in training activities in other projects, working with NGOS in the coastal region. This farmer to farmer training methodology has proven highly effective, for instance the local microcredit association *"Paraiso de Pupusa"* has trained people in communities of Santo Domingo de los Sachilas and at least 3 new microcredit initiatives were set up.

3. *Policy development for bamboo management, harvesting and trading within the framework of the Ecuadorian forest policy.*

   During the last two years, relevant Ecuadorian stakeholders from different regions have participated in workshops and meetings to discuss new regulation for including Non Timber Forest Products as part of the National Forest Policy. All the information collected and generated within the ARS was used as an input for these policy-making discussions. Following on from the successes of the programme, bamboo will now be the first NTFP test case to demonstrate how these vital forest resources can be applied to existing regulations.

4. *Strengthening local capacities through technical and methodological training initiatives.*

   At least 1,000 students, producers, teachers and professionals from Ecuador and other Latin-American countries have been trained through project activities and workshops organized by INBAR and partners.

   One example is the participation of three Peruvian students in an internship in the ARS. These students are now forestry engineers working in bamboo programmes in Peru. They have participated as bamboo specialist trainers in several workshops organized at the local level in Peru.

5. *Dissemination of information at the national and regional level*

   There are five main activities for the dissemination of information at the national and region al level.

   a. *Technical workshops* (25): these workshops have reached participants from various groups, such as producers, students, teachers and governmental workers.

   b. *Informative monthly newsletter* (electronic): 16 newsletters sent to more than 5,000 e-mail addresses, published in four web pages and printed in three countries.

   c. Visits to the ARS information center and ARS: several visits for personal consults at the information center (around 2,000) and for groups at the ARS (around 40) were organized between 2003 and 2008 to share information and develop direct links to farmers.

   d. *Technical assistance activities*: several consultancies in different countries have been implemented (Peru, Venezuela, Nicaragua, Panama).

   e. A Spanish version of the institutional web page: A Spanish INBAR website has improved dissemination of information among Latin American people, most of whom are Spanish speakers.

   From these dissemination activities, several local new initiatives have been started in the region. Examples are: Mexico (Local Government of Puebla and Puebla Foundation), Peru (NGO CICAP, Ministry of Agriculture, SENSICO and Ministry of Housing), Venezuela (Polar Foundation), Chile (The Forestry National Institute), Panama (NGO APASAN) and Nicaragua (Enterprise CO2 Bamboo).

Intangible Impacts

1. *Designing, production and promotion of high end bamboo products and developing of fair markets for bamboo products.*

Bamboo has been widely recognized by the Ecuadorian media and society as utilitarian resource for handicraft, furniture and housing uses. Within the ARS area and other areas, rural producers are now reliant on bamboo for

permanent income generation. Through the project, these producers are now able to make products at low production costs and reach markets, which pay good prices. CORPEI has now identified bamboo within a group of 14 potential products to be exported during the next 10 years.

Due to ARS programme initiatives, people from microenterprises, especially women, now have a new alternative for income generation. Traditionally, in the ARS, women have only engaged in domestic and childcare activities. Since 2003, men and women have set up bamboo microenterprises to add value to bamboo. Due to this activity, women have started to bring in extra household incomes, allowing them to decide how to invest money for the first time. In 2007, the microenterprise ARTE BAMBOO (only for women) hired their first male employing for harvesting and preparation of pre-processed bamboo.

Another example of the success of the programme can be seen in a drop in local households claiming government benefits. In Ecuador, people living under the poverty line receive a welfare payment of USS 30 per month (poverty bonus). However, ARS participants, who were previously part of this government program, are now actively choosing to engage in microenterprises instead of this benefit scheme.

CONSTRAINTS FACED DURING THE IMPLEMENTATION

Main difficulties faced during the process were:

Internal constraints

1. *A weak social base*: people living in the ARS arrived in the area 40 year ago as an effect of permanent dry conditions in southern Ecuador. Before the project, people were not organized and APROGUADUA was the first local organization for agriculture activities in the area created by 40 farmers in 2005. Most of the organizational initiatives were related with land tenure conflicts.

2. *Financial and logistic limitations:* most of the plans, projects and policies in Ecuador are oriented to finance traditional products and crops. Bamboo did not have a defined financial scheme in traditional banks. Farmers could not access private loans for bamboo production. This problem motivated farmers to participate in local financial initiatives promoted by the project; however, there are still financial and logistic limitations for INBAR to cover the whole ARS area.

Eternal constraints

1. *Political instability:* between 2003 and 2008, Ecuador had four different Ministers of Agriculture and environment, with different approaches and priorities. This slowed development of national policies for agriculture, NTFPs and bamboo.

Sustainability, Acceptability and Accessibility

All social organizations and microenterprises within the ARS have directorships and managerial staff. Local leaders have been trained in organizational management. Every organization had people trained in technical aspects for bamboo cultivation, management, harvesting and processing. Artisans and producers already trained in the ARS were asked to participate in a Farmer to Farmer training process with producers from Peru. Six artisans and producers from Ecuador trained Peruvian artisans to work with bamboo.

Local governments and other institutions work directly with local leaders in coordination with INBAR for future activities regarding bamboo development (projects and businesses). Local organization and microenterprises participated in several fairs and governmental initiatives promoting bamboo cultivation and production.

APROGUADUA will be the leader of a new project to be implemented by local organizations within the ARS to be funded by IFAD. This is the first project to be implemented directly by local organizations with technical support of INBAR.

Finally, APROGUADUA, on behalf of other local organization, has signed a contract with Hogar de Cristo for delivering bamboo culms for housing. 6,000 bamboo culms will be delivered every month. Benefits from this contract will be used to pay managers to take care of financial and technical aspects of bamboo production.

Gender dimension

Before the project, women were not participating in communal activities. Traditionally, women had household and childcare roles. In addition, only men worked in existing bamboo value chains. INBAR analyzed all the possibilities for involving women in project activities, creating handicraft and micro-credit initiatives to support their involvement.

Currently, APROGUADUA's manager is a woman (Lizette Arellano). She is the daughter of one of the APROGUADUA members. She is a business administration major and manages APROGUADUA's finances.

Women participation in decision-making processes and organizational frameworks is now 30%. Most of the leaders in the microcredit initiatives are also women.

LEARNING EXPERIENCES

We would like to summarize the main five learning experiences:

1. *Developing participatory proposals for farmers*

   Local knowledge was the starting point for action research activities with local participation. Traditionally, field research activities have been implemented within research facilities, with technicians in defined field sites. Under this model, information was gathered and disseminated to farmers (transfer of technology). Under this ARS program, activities were implemented in the farms and developed by farmers themselves, for instance in the community Carlo Julio Arosemena, farmers managed and harvested bamboo natural stands under good management practices and after two years they realized that sustainable management can be profitable and also they can continue doing the same activities every year with the same results. This encouraged empowerment of the local people, as the ARS program was perceived as their own research.

2. *Financial, technological, infrastructure, design, market and environmental aspects are very important… SOCIAL aspects are needed*. Field experiences have shown that social aspects are needed for achieving successful development processes. Development processes need a strong social base for continuity.

3. *Generation of local capacities*,

   A key issue for the generation of local capacities was the participation of local universities with students, researchers and teachers in action research activities. Creating Students project internships (Ex. Peruvian students), helped to develop local capacities significantly. The participation of external people working together with local farmers helped to exchange information, knowledge, and experiences.

4. *Rural-urban, north-south and south-south partnerships facilitated fair commercialization processes and access to markets*. INBAR and local partners implemented different strategies with a variety of partners for opening alternative markets and processes of commercialization.

5. *Diversification of demand and clients,*

   Before the project, there were only two bamboo markets: Hogar de Cristo and the Peruvian market. The program has facilitated an alternative process of commercialization for selling bamboo to coffee and banana growers, furniture and infrastructure for schools-local governments, eco-tourism infrastructure, architects, etc.).

DISSEMINATION PATHWAYS

- *Communication strategies at the village level:*

  Project activities were implemented under participatory rural extension approaches. This involves participatory planning, implementation, monitoring and evaluation. The communication strategy started with activities for the promotion of project activities, training people in the management of methodological and technical tools for bamboo cultivation, management, harvesting, processing and trading.

- *Communication strategies at the national and international level:*

  Informative monthly newsletter (electronic), Web page (Spanish), National and regional training workshops, Technical assistance, Participation in fairs and other events.

FURTHER RESEARCH NEEDS

- *Alternative costing calculation for rural contexts, m*ost of the students, technicians and specialists are trained to work in conventional contexts (Enterprises, industries, etc). For working with rural people a set of alternative tools are needed. People in rural areas have frequently basic education (elementary schools) in those cases conventional calculations result very complicated. We need to research new ways to work with rural people but at the same time having a very good accountability and pricing calculation.

- *Alternative models for rural microenterprises,* for years many projects and the cooperation in general have promoted the development of rural microenterprises without thinking in the other part of the business, the urban contexts. New models with a more inclusive approach and with open doors for partnerships and business opportunities should be researched and developed.

- *Business plan formulation under a changing urban context (trends),* innovation processes are needed for rural microenterprises as fashion and trends change all the time. There is a changing market that needs to be researched and microenterprises need to adapt permanently. For this, a new methodological and technical approach for design should be researched for pilot project implementation.

- *Industrial design versus physical and mechanical bamboo characteristics,* there are many research question in relation to mechanical and physical characteristics of bamboo and the type of products possible to be elaborated. For this, the participation of local and external universities is necessary.

- *Industrial design and its application in rural contexts,* sometimes designers and engineers propose innovative and high quality designs but when these design proposals are discussed with rural artisans in most of the cases design are difficult and local conditions are not enough for the production of such products (ex. Electric energy is not available). It is needed to search for possibilities to produce high-medium quality designs with possibilities to be produced in rural contexts.

- *Bamboo certification schemes* (forest, fair trade, carbon sequestration), there are few examples of certified bamboo (FSC certification), and however for instance there are no initiatives for fair trade bamboo. Research on this issue is needed.

USEFUL INFORMATION

Useful links

www.inbarlac.org
www.corpei.org.ec
www.sachaurku.org.ec

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Acronyms:

- APROGUADUA, Association of Ecuadorian bamboo growers.
- CICAP, Centre for Research, Training, Advocacy and Promotion
- CORPEI, Export and Investment Promotion Corporation, Ecuador
- EC, European Commission
- IFAD, International Fund for Agriculture Development
- INBAR, International Network for Bamboo and Rattan
- MINCA, Means to exchange applicable knowledge
- NGO, Non Governmental Organization
- NTFP, Non Timber Forest Products