



## The cloth from trees

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### PRORENA-CBRP

## INCREASE OF QUALITY AND IMPLEMENTATION OF NEW TECHNOLOGIES IN THE MANUFACTURE AND TREATMENT OF TUNO

### Intro – The Biosphere Reservation Rio Plátano

The Biosphere Reservation Rio Plátano represents the largest primary rain forest north of the Amazon and forms part of the largest forest in Central America. Besides a strong Ladino population two ethnic groups live in the focussed area of the Plátano River, the Miskitos and the culturally endangered Tawahkas. Because of bare communication- and transport infrastructure and the declared will of the Honduran government and the United Nations Environment Organization to protect the environment as much as possible, the possibilities to develop economic activities are extremely limited. They can only take place in or near the secondary forests (Huamiles) of the so-called Zona Cultural.

### Products from the BRP – Why Tuno?

Due to the high cost of logisitics and the politically and socially desired restrictions in exploiting the rainforest it seems to be reasonable to assume that only well specialized niche products with a relatively high grade of manufacturing (and therefore high grade of value-adding) have chances for sustainable market supply and continuous market demand. The more the raw material has been transformed in the BRP towards a final consumer good or a semi-finished good for industries, the higher is the grade of value-adding at or near the place of the raw material's extraction. This offers better chances for margins being attractive enough to compensate high transportation costs. Since

these products are decidedly specialized – or even unique in an ideal case, thus offering an USP (unique selling position) – they shall also be attractive to the customers, weather they are industries or final consumers. To be conform with environmental targets such as the protection of biodiversity and to ensure the sustainability of the production, the extraction or manufacturing of those products must not be in competition to other uses of the forests. Ideally they shall be complementary NTFP's (non timer forest products) out of sustainable forest use and therefore adding value to the secondary forests (or to agro-forest systems, where they exist) rather than diminishing its value.

Tuno (*castilla tunu*) is such a product.

But Tuno offers more chances than just being an interesting sustainable forest product: with it's luring structure and texture it might even be the only product of the BRP offering an USP. This can open new doors. Tuno is not only important for producers and customers. On international level, by focussing on the story of it's special origin and the cultural heritage of the Miskito and Tawahka tribes, Tuno is sexy enough to become a marketing tool for the branding of the BRP in particular, and Honduras as a whole. Highlighting the combination of it's archaic authenticity, state-of-the-art surface finishes, and modern (mainly contemporary ethnic) range of uses Tuno offers a convincing, inimitable and unforgettable effect which has become rare these days. On national level, it has potential to support to national cultural identity and it might

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By appointment to H.M. Kabaka Ronald Mwenda Mutebi II, 37<sup>th</sup> King of the Buganda Kingdom  
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also be worth to consider integrating tuno in the Honduran tourism strategy. Hondureños who do not believe this, can compare with an example: In 2005, Ugandan bark cloth production has been declared a UNESCO cultural world heritage and is now benefitting from this fame, also in the tourism sector.

#### Glossary

To distinguish the tuno tree from its bark or its textile, the terms below are used. Some terms are used following to local linguistic usage while other terms are new “artificial” word creations:

**tuno/tunu:** tuno-tree (*castilla tunu*, MORACEAE)

**tunoconcha:** means bark (corteza, concha) of tuno. Not to be confused with bark of other species which are used for traditional dyeing techniques or with bark of higuero, another bark for traditional fibre-textile fabrication

**tunopliega:** means a sheet or cloth (pliega) of traditionally processed tuno bark. It has been washed in water and then beaten with wooden mallets in order to achieve a textilish appearance

**TunoTec:** tunopliega which has been treated (e.g. with textile, leather or wood auxiliaries) in such a way that it either features higher functionality (e.g. water repellent or abrasion resistant behaviour, higher flexibility, higher durability against tearing etc.) or has a different look (designed tuno, e.g. through bleaching or dyeing techniques). It is an artificial term which is needed in order to distinguish it from traditionally produced, non-treated tunopliega. It can also be used for marketing and branding of innovations on tuno. The term has been invented by Dr. Christine Woda of GFA, Germany. The processing has been implemented by Oliver Heintz of The International Bark Cloth Research and Training Institute, Uganda and Bark Cloth Europe, Germany. Other proposals for treated tunopliega are “Tuno Avanzado”, “Tuno Nuevo” or “Tuno Tratado”

### **The International and the Honduran Tuno markets**

From the market point of view, there might exist a huge latent demand for tuno, TunoTec and products made from both. Internationally, deep textures and structures and materials with a high grade of authenticity have become important issues in industrial design, fashion and interior design. But the offered tuno products are still the same well-known wallhangers, greeting cards and stuffed pet-toys which have been produced since more than a decade. The market has not been served with any tuno innovations for the last 15 years since dyeing with industrial textile dyes has been introduced. These products still find their buyers in Honduras because of lack of better

contemporary models/designs but they have no chance on international level. Sales are stagnating, if not falling back. The huge potential needs to be developed to meet a regularly purchasing (international) buyers market.

For three reasons, the Honduran company “InVitro” plays a key role in especially for the development of the Honduran market with innovative tuno products: its designs, particularly manufactured by Miskito and Tahwaka groups meet significantly higher contemporary ethnic design standards than the average. There might be other buyers, who purchase more in terms of quantity, but so far there is no other buyer in sight, who they give input in terms of quality enhancement or product innovation. Secondly, Christina Aguilar, owner of “InVitro” is a regular buyer, dedicated to tuno and its manufacturers. A customer who purchases regularly is more important than others who purchase once in a while. Finally, “InVitro” gives the manufacturers important feedback in especially on quality assurance, and rejects goods if they do not meet the agreed standards. This exemplary partnership on national level is an important step before heading on for international markets.

The family-operated company “Ergo Limited” is a Honduran furniture company selling both, self-manufactured and imported furniture. Its management has shown interest in using tuno for a new line of furniture and room dividers. The new line shall have a modern, ethnic contemporary look with a Honduran touch. Tuno is the perfect material to transport this statement. In especially for the room dividers, a translucent but opaque material is needed for which tuno is predestined. The manufacturing will take place in Tegucigalpa. Ergo has in especially shown interest in the material with the bleached and dyed stripes design. From the functional angle of view the management expressed might prefer the hardened TunoTec Tieso in form of small elements for the room dividers while as surface for the furniture also non-hardened materials would do. This company has the potential in becoming a major buyer but it seems not to be committed yet and therefore frequent follow-ups are important.

The designer and co-owner of the Ergo company manager is also running the design office for interiors and furniture “Estudio 3”.

Mrs. Tatiana Puerto has designed the lobby of Hotel Marriott in Tegucigalpa and seems to be well introduced in Tegucigalpa society. She could become an important channel for reaching the tactical target to arrange a prestigious reference project with tuno in Honduras – best in a lobby or restaurant of a 4 or 5 star hotel (see also last chapter “Recommendations to GTZ”).

A German owned furniture maker in San Pedro Sula, “Artesanos de Honduras” has been contacted. In the 90’s of last century, the company used to export successfully container loads of furniture in especially to Germany. It came under pressure due to globalization effects and is currently about to close down most of its production facilities.

“Lessandra Leather S. de R.L. de C.V.” has instantly shown very much interest in incorporating tuno for material mixes in its fine high quality and high priced leather goods. Its owner and manager Luis Flores is a progressive person with an experimenting spirit and he has already ordered samples of softened TunoTec several times and recently established a contact to the tuno manufacturing and artisan group of Krausirpe. This matchmaking contact is very promising. While Mr. Flores initially reported that leather workers are a rather conservative species not being amused in using other materials than leather, he is meanwhile on the way to overcome implementation resistance within his company. Lessandra leather does distribute through own shops but its main potential are customized merchandising goods, company gifts and made-on-order small series reaching even clientele such as the president’s mansion.

A shoe designer with 20 years of experience, Indira Martínez Núñez has plans to launch an exclusive line of custom-made shoes with Tuno surfaces and to sell them through a shop in Tegucigalpa. She has already manufactured some attractive prototypes. The potential by absolute amounts of material use might rather be limited but the image promotion for tuno can be valuable since the designer focusses on a high fashion style at a high price range.

“Novem Car Interior Design, S. de R.L.” does strictly work with imported wood. Its General Manager Steffen Binöder has explained that Honduran woods do not match Novems high

standards on quality and certainty of supply. Therefore might also be no potential for tuno for Novem car interior parts. A try could be given through the designers department in the parent company in Germany since decisions refer new materials are not taken in Honduras. However, Novem showed interest in a file folder made from stiffened TunoTec Tieso to be used for seminars or as a company gift with a regional relation.

### Recommendations for Optimization of Tuno

There is a need and high potential for optimization of tuno. The optimization relates to:

- a) Increase of the quality of raw tunopliega:
  - avoiding of wrinkles caused by inappropriate folding and malleting of tunoconcha
  - enhancement of hygienic standards, in especially on the “back” side (the side with the strong structures caused by malleting of the bark)
  - manufacture of larger tunopliegas (for interior uses)
  - more use of tunoconcha of trees of an age of at least 6 to 8 years since elder bark allows to manufacture more attractive tunopliegas (for interior uses)
  - particularly increase of homogeneity
- b) Transformation of tunopliega to functional TunoTec
  - optimization of the abrasion behaviour
  - implementation of new dyeing techniques and of increased fixation of dyes in existing dyeing techniques
  - rejection of dirt / stainguards
  - water-repellant characteristics
  - enhancement of flexibility, softness and suppleness
  - stiff and hard TunoTec
- c) Transformation of tunopliega to TunoTec with surface designs
  - using a separation technique (separation of tunopliega into two layers)
  - using bleaching techniques
  - using new dyeing techniques
  - using wax and batik techniques
  - using metallic effects
  - using photochemical processes

Those enhancements and material transformations have been discussed and a starting point for their implementation has been made during the workshop in Wampusirpe 18-20 March 2008 (see attachment "Cronograma Consultaria"). The workshop focussed on finishes made with locally available, mainly biodegradable textile, wood or leather auxiliaries, where possible. According to my experience with the participants I assume it will be possible to implement most of the proposed optimizations, but more continuous trainings will be needed. Some of the participants have already adapted some of the new TunoTec finishes and started to incorporate them into their products. This is a surprisingly fast result. It seems that this year already the first products with TunoTec will be launched which would be by far more than what has been expected.

For details on enhancement of tunopliega and transformation to TunoTec please refer to the attachments "Recomendaciones para los grupos de productores" and "Manual de Procesamiento de TunoTec"

### **Struggle for Sustainable Tuno Supply**

The most crucial and critical points are not difficulties in increasing the quality of tuno or the transformation to TunoTec. These points might be tricky but not critical. Difficult is also not the complexity to develop the market as such because the interest in the products does surely exist and with better tuno products the produce will find its markets. According to many signals on international level – such as highlighting themes in agencies for trends and/or materials – it seems to be reasonable to assume that on the middle to long term the demand for such rare handmade niche fiber products will grow more than the market can supply.

The most critical and crucial issues are to find rather on the manufacturing side, namely

- a) to produce sufficient amounts of tunoconcha in a sustainable manner
- b) to manufacture tuno, TunoTec and tuno consumer and semifinished goods in the demanded and agreed quality
- c) to make the manufacturers understanding that there are segmented markets with different needs and different type and demand: what is a good quality for one

customer might not be a good quality for another customer.

- d) to establish firm supplier-customer relationships in such a persistent and reliable way that the quality of the supply does convince the customers to trust in a continuity of the relationship. The quality of supply does not imply the quality of the goods only but it means also reliability refer the agreed date of delivery, management of eventual complaints, proper tracking of shipped goods (issuing of proper shipping lists), and packaging issues among others.

Refer the sustainability of the bark supply the producers need to immediate take measurements if they do not want to risk to soon meet a market demand which can not be satisfied and thus loose credibility. Sometimes there is no second chance because a customer who wants to purchase but does not receive the ordered goods might never come back. This applies in especially to the manufacturer groups in Wampusirpe where there is no more tuno nearby available but systematic planting and management of *castilla tunu* has not yet started. The Wampusirpe groups need to understand that it is not a sustainable solution to go further and further for the bark instead of planting new trees. But also in the other communities, even if tuno would be planted immediately there is still a risk that the demand for tunopliega will rise quicker than the tree can grow. There can be a gap of up to eight years because the more attractive tunopliegas are manufactured from trees of approximately this age or older while pliegas of younger trees are not attractive and procured as much.

It is up to the women manufacturers groups to strongly insist in systematic tree planting and yield management from their bark suppliers. They are the key players, having the economic power and chapter.

### **Socio-economical view on tuno manufacturing**

Observing the value-adding-chain of manufactory of tunopliega starting at the harvest of the treebark, and ending with the ready-made tunocloth, the net product seems to be diverted as follows: about 20% of the work and increase of value happens with the harvest of the bark, traditionally done by men. At the site of extraction, the value of a tunoconcha which later

gives a ca. 1 x 1 m tunopliega is ca. 20 Lempiras. (Up to now, before the de-barking there happens no active planting, pruning or other management of tunu. The harvesters take out of the forest what the forest gives, nothing else.) The bark harvest is followed by washing of the bark and malleting it towards a cloth-like sheet, the ready tunopliega. This process represents about 80% of the work and increase of value. At the place of manufactory, the value of a tunopliega of a ca. 1 x 1 m size is roughly 100 Lempiras. The tunopliega processing is traditionally done by women. While the bark harvest is usually done by individuals, the further processing is habitually group work. The usual group size seems to incorporate around four to eight group members while larger groups seem to split off. If tunopliega is further processed with dyes towards TunoTec or through the manufacturing of artisan products which usually is done by the same groups, the share of the net product does increase to far more than 90%. It is important to acknowledge this socio-economic and gender angle of view when decisions need to be taken refer promotion of tuno and refer what and who shall benefit from further Honduran-German technical co-operation. Whichever action will be taken, it will have a very direct impact on this small-scale manufacturers groups.

However, any action taken by the manufacturing groups has also a straight impact on their surroundings. The influence of this groups spreads towards two directions. On one side they affect the level before the tunopliega manufacturing, the non-organized individual tunoconcha harvester. He depends directly from the decisions of the manufacturing group. For instance, when the market in the near future (short to middle term) will demand for larger tunopliegas, because the growing interior decoration market needs larger surfaces compared to the yet dominant market for artisanal products, the tunomanufacturing group will articulate this new type of demand directly to the bark harvester. Or, if the manufacturing groups become alert of the growing demand of tunopliega, they can use their influence and economical power to either plant own tunotrees or to push the tunoharvesters to care for a more sustainable supply. On the other side, the tuno manufacturing groups may influence towards a higher organisational level. With a growing

market for tunopliega, TunoTec and products out of both the manufacturing groups might want communicate with neighboring groups for exchange of experience and to organise themselves in associations or co-operatives allowing them to cater to larger markets by co-ordinating and sharing large orders.

As shown above, the entire production process from the bark harvest to a ready made artisanal product shows a strong character of horizontally integrated production with a relatively low grade of division of labour. This might make it reasonably easy to strive for changes within the production process because any action or change wanted will need to be addressed to a relatively small amount of decision takers. If the leaders of the manufacturing groups can be convinced for do's and don't's by both, the market demand on one side and the support through GO's or NGO's on the other side, the chances for reaching a more sustainable production and for adjusting the quality of tunopliega and tuno products towards different, segmented market needs will rise significantly.

### **Recommendations to GTZ and The Honduran-German Cooperation**

- a) There is a need for more basic research on *castilla tunu*. I suggest co-operation with forest and textile physiology/chemistry departments of universities and possibly The International Bark Fiber Foundation.
- b) Support of any efforts of the artisan manufacturers groups and/or the bark suppliers in the re-forestation of *castilla tunu* and neighboring species. Having a closer look to the socio-economical structure of tuno manufacturing I assume it will be more effective and efficient to support the tuno and artisan manufacturer groups (mainly women) rather than the bark suppliers (usually only men). In addition to the support for co-operatives or other groups and if the development aid policy allows it might also be worth to consider supporting engaged and successful individual business person who might have the ability to bring novelties quicker to the market while a group can only be as dynamic as its weakest member.
- c) Deepening of the implemented techniques of tuno-quality-enhancement and tuno-

treatment possibly through creation of a post for a material or textile engineer and/or textile or industrial designer for at least three to six months. This post could probably be filled either through a master student or an expert of the SES (Senior Expert Service). If desired, The International Bark Cloth Research and Training Institute can be helpful with contacts.

- d) Vocational training for the manufacturer groups to reach a higher comprehension of any commercial issues. Apart from commercial “hard” skills (book-keeping, production planning etc.) there is in especially lack of an understanding of different segmented markets with different needs - by area (local markets, regional markets, international markets) and by branch (artisan, furniture, fashion accessories, interiors etc.). This part could probably be taken over by a co-ordinator for rural economical development of DED.
- e) Support of the manufacturer groups to develop a price finding strategy for TunoTec. This will be possible only after the groups have manufactured the materials for a while since otherwise the calculation of production cost would be too uncertain, incorporating too many unknown factors. Also production facilities – and costs – can vary from group to group. For the while being I recommend to charge at least 2.5 to 3 times the price for “ordinary” tunopliega. An exception is the traditionally dyed TunoTec which might need to be sold at lower prices, probably at 1.5 to 2 times the price for non-dyed tunopliega. This price strategy does not follow the more common “price of cost plus mark-up” price building strategy but it follows the assumption on what the market will be willing to pay for and it is usually more lucrative and less risky for the manufacturers. It is not unusual to use this price building strategy in the area of new materials and other innovations. Since this matter is very complex, including local, national and internationally related factors, it might be worth to engage a consultant. This should happen only after a production of the new materials has started and the groups have more experience with the new materials.
- f) Follow-up of companies who have shown interest in using tuno and TunoTec. It seems

that both Ergo and Novem will need an active push while InVitro and Lessandro became active buyers already. Following up could be done through the co-ordinator for rural economical development under d). If wanted, the Bark Cloth Europe can provide photos of recent furniture and interior projects in Europe (Germany, Austria) incorporating tuno products.

- g) Organization of an international workshop focusing on Tuno. Participants shall be textile designers, interior designers and architects, industrial designers, artists and emotional designers, and journalists. It shall have the character of an event and include PR to special interest magazines. The workshop could be organized in Europe or USA by a university with a high reputation in design and by the Bark Cloth Research and Training Institute.
- h) Branding of Tuno and TunoTec as unique products made by indigenous people from the Moskitia. Implementation of a brand and integration of the branding strategy into the overall La Moskitia-Certificate of Origin-strategy which applies to any kind of Moskitian product, such as cocoa etc. Protection from bio-piracy shall be considered. It needs to be cleared who will become juridical owner of the brand.
- i) It might be worth to consider an integration of tuno manufacturing and the tuno brand into the national tourism strategy since it can contribute to cultural identity. Mr. Juan Ricardo Cruz of FIDE-PNC/CITEAT as a link would be the perfect link between innovations in tuno and innovations in the tourism sector.
- j) Image-building through a spectacular prestigious reference project, for instance an art object. It should be located at an “in”-place well frequented by both Catrachos and foreigners (Hotel lobby or restaurant, public building). The link could possibly be done through well known Honduran (interior) designers or artists (e.g. Regina Aguilar of InVitro, Tatiana Puerto of Estudio 3 or Juan Ricardo Cruz of FIDE-PNC/CITEAT) and/or one of the well-known Spanish Hotel chains established in Central America (in co-operation with the Spanish Cooperation?). It should be presented as an outstanding and surprising, but luring and

emotional arts object. It shall not show tuno as an old fashion product with fuzzy-duzzy-designs but as it shall appear contemporary, hence ethnic. It will become difficult to find the right project at the right place and right time and to convince the building client but important to give it a try.

- k) The consultancy has not focussed on another – more rare – type of bark fiber cloth, the whiteish “Higuero”. It is an interesting fiber cloth and with its light color it might even offer more options than tuno but it seems that relatively huge amounts of chlorine are used for its manufacturing. I recommend not to promote Higuero manufacturing as long as the facts of the case are not clear.