

## FINAL PROJECT COMPLETION REPORT

### I. BASIC DATA

**Organization Name:** Man And The Environment (MATE)

**Project Title:** Assesment of the Environment, Economic and Quality Control Issues of Wild Harvesting Medicinal Plants *Centella asiatica* and *Drosera madagascariensis* in Madagascar

**Project Dates:** October 2003 – March 2004

**Date of Final Project Completion Report:** September 2004

### I. OPENING REMARKS

Medicinal plants have been evaluated many years ago (Langrand and O'Connors 1991) to represent an export market for Madagascar of probably more than \$US 1,000,000.00. Considering that the average incomes in rural areas of Madagascar are of less than \$US 10 a month this represent an important potential of revenues to local populations through direct natural resource management, moreover many times in areas where agriculture is not suitable.

This being said, disregarding the amount of money that these incomes represent, very little information is available on the sustainability of the exploitation and some species might be largely overexploited as is has already been seen in this industry.

Demand in medicinal plants (also for the cosmetic industry) appears to be in some cases moving from one plant to the other. The factors influencing these movements can be the plant composition itself but also marketing and confidence of the buyers in regularity of the supplies.

A few hundreds thousands US dollars per year might not look a lot but put in the context of very poor communities they represent a great potential to support sustainable conservation programs.

Defining the sustainable use potential of a plants appears in almost all cases a quite easy and cheap task for a specialist. It seems that the incomes generated should request the needed investment for a preliminary review of the potential of export of each plant.

Such project like this CI/CEPF project show that results and recommendation can be achieved quite easily offering the industry new perspective of quality standard and therefore a potential for market development in resources available to local populations who can be involved in sustainable use program serving conservation

### II. ACHIEVEMENT OF THE PROJECT PURPOSE

The project allowed achieving very positive results even although more work would be needed on the subject.

Indeed truly key element for sustainable use of natural resources in favor of the environment can be pointed out by this limited project;

Informative

1 – Data on the sustainability of the collection of medicinal plant is still far incomplete and, although very useful, statistics are unlikely to give proper information on the possible threats by trade;

Positive

2 – Basic short-term studies like this CI/CEPF project can allow to demonstrate if there is or not an obvious threat on certain species;

Positive

3 – There is a true potential to enhance the medicinal plant quality at the local and national level with limited scientific input and therefore the value of the plants for local collectors in conservation orientated programs;

Positive

4 – A dynamic can be created between researchers in biochemistry, conservation and development peoples to ensure efficient work to achieve progress in this field with research and private sector finances, all this for the benefit of conservation.

Positive

5 – A project of plant collection (*Centella asiatica*) with private sector buying improved quality plants directly to local collector has been set up in an ecosystem approached project which could be duplicated to other projects;

Negative

6 – When a plant production program requires more careful design as it appeared the case for *Drosera madagascariensis*, a short term project cannot ensure the implementation of the required activities of local populations implication in quality controlled procedures and sustainable harvesting methods.

### III. PROJECT OUTPUTS

Purpose			
Output 1			
An assessment of native plant populations of <i>Centella asiatica</i> and <i>Drosera madagascariensis</i>	<p><i>Centella asiatica</i> appears to be a widespread species with a high reproductive potential. <i>Drosera madagascariensis</i> populations appears to be over exploited in certain areas but the populations studied have shown to recover at least to a minimum. (Distribution maps given in the technical report)</p>		
Output 2			
Documentation of the traditional usage, harvesting and post-harvest handling methods of the two species.	<p><i>Drosera madagascariensis</i> hasn't got traditional uses. <i>Centella asiatica</i> has got many uses locally including: stomach ache, wounds, liver problems, etc. Harvesting and post harvesting methods have been identified, including best post harvesting techniques recognized in terms of quality. Simple techniques including length of the stem or leaving the roots have shown to make a great difference to improve quality and productivity.</p>		
Output 3			
Determination of quantities harvested from Vohimana zone and product flow of each species	<p>Field survey showed that no harvesting has yet been going on in the Vohimana zone. The harvesting potential of Vohimana and its peripheric zone toward the Périmet reserve have been estimated to be; <i>Centella asiatica</i> : 480 kg; <i>Drosera madagascariensis</i> : 35 kg. Collection by local population has been started and ongoing monitoring has been set up for future evaluations.</p>		
Output 4			

If threats to the species populations and native ecosystem are identified through the analysis of deliverables 1 through 3, recommendations:

Output 5

A rapid domestic and international market assessment on the top ten Malagasy medicinal species in trade to include *C. asiatica*, *D. madagascariensis*, *Prunus africana*, *Catharanthus roseus*, *Rauwolfia confertiflora*, *Voacanga thouarsii*, *Medemia nobilis*, *Siegesbeckia orientalis*, *Harongana madagascariensis*, and *Aphloia theaeformis*

Output 6

If over-harvesting is identified as a threat to the species and/or ecosystem in which it is native through the above analysis, the following steps will be taken

Output 6.1.

Recommendations will be provided to the Water and Forest Departments to set-up protocols for collection as to recommendation that roots should not be allowed to be collected.

Output 6.2.

Recommendations will be made to the CITES scientific authority of Madagascar

Output 6.3.

Sustainable collection protocols will be publicized to organizations working with management transfer to local populations (Gelose) to promote the sustainable use of the resources

Output 6.4.

Strategic areas will be identified as low-risk versus high-risk ecological areas as they pertain to the species being studied

Output 7

There is no threat on *Centella asiatica* populations, neither on their habitats. When *Drosera madagascariensis* is over exploited in a zone the collections tops and a the limited population stays which is likely to recover to original state after a while. Dorsera madagasacariensis habitat is sometimes small zones but also large wet lands. These wetlands are threatened by potential transformation in rice field.

Export statistics of *Centella asiatica* and *Drosera madagascariensis* have been collected for years 1997 to 2003. Some information has been collected on the export of the other plants but they remain not very precise.

Recommendations to request tracability of the products has been made to the Water and Forest department for *Drosera madagascariensis* as well as to recommendation that roots should not be allowed to be collected.

The collections protocols recommendations for *Drosera madagascariensis* have been copied to the CITES Scientific Authority of Madagascar for it to be aware of the problematic although CITES listing should not be required or considered useful.

There is no risk and need of Management for *Centella asiatica* but quality could be improved at the collection level. A note of information on the subject has been prepared and will be distributed after confirmation of the regional quality of the plant. A note of information has been transmitted to the SAGE program to recommend the consideration of Gelose on Drosera producing sites.

There has been no conclusion on areas of higher or lower ecological risk.

Quality specifications identified and/or developed where applicable for each species

Output 8

Industry buyers have ongoing research and varying need needs to be recognized. A general quality standard has however been identified for *Centella asiatica* of interest to the large majority of the industry.

Research Plan for the reproduction of these species, sustainable harvesting and organic production methods that will facilitate the highest economic return to local harvester/producer

Output 9

Local community members trained in species market demand, quality expectation and conservation issues, and a participatory strategy to determine next steps to adapt techniques that will decrease impact on the environment, increase quality of product harvested/grown and increase the level of income to the community derived from these species. A preliminary assessment of the potential impact of the sustainable harvesting and/or production of these species is expected to be direct, as well as, indirect as the generation of revenues should allow the local populations to: rely less on slash and burn agriculture; and to find an incentive to keep wet zones, specifically *Drosera madagascariensis*' natural habitat, in a natural state. Collection protocols and market information around protected areas and biodiversity rich zones to support local populations involvement in the sustainable management of their resources

Done in partnership with ASNAPP-Rutgers University and the CIRAD. A base has been designed but an ongoing research program has been launched which will bring more accurate results in the future (time for the plant to grow to confirm hypothesis).

An interesting zone for the production of *Drosera madagascariensis* has been identified and SAGE is expected to carry on more local populations implication in this zone.

A women production of *Centella asiatica* of higher quality standard has been set up in Vohimana and is functioning generating the interest, which did not exist there in its activity because price of the raw material was too low.

#### IV. SAFEGUARD POLICY ASSESSMENTS

*Drosera madagascariensis*; it has been considered dangerous to promote the use of the resource at this stage of management capacity. Indeed although the resource did not appear to disappear from the zone where it was very heavily harvested, management requirement are not easy to set up and more effort should be put in place to secure areas and to promote the production protocols to increase revenues at the local level considering an optimal use of the resource. A research – development base program has been launch and work should be ongoing from now on.

*Centella asiatica*; The promotion of the use of *Centella asiatica* appears not to pose any problem to the species populations and to offer a potential of revenues of interest to the women collecting it if price is better than what it was before. To ensure that the incomes are going to benefit the environment and not only be more incomes the new quality standard calling for a better price has been linked to a consideration of the local population of a forest conservation zone and of Organic production procedures.

An information sheet has been transmitted to the woman leading the plant collection organization to ensure that collectors are not going to be disappointed if demand is limited.

#### V. LESSONS LEARNT FROM THE PROJECT

**Project Design Process:**

The project was ambitious in such a short time. The overall analyses shows however that if some periods to achieve activities were underestimated, the quite rapid start and implementation of the project allowed to start a much needed project and to reveal much needed conservation needs (*Drosera madagascariensis* sustainable production consideration). Biochemical analyses where needed and the time they would take has also been underestimated. The same way adaptive management will consider that as there will be a follow up it might not be a problem if the scientific publications take more time than the project completion.

**Lessons learnt worth keeping in mind:**

Integrating research institutions in a way to demonstrate them that the project will collect data following scientific protocols useful for scientific publication has allowed the project with very limited means to gather time of senior researchers. This has been a great help to ensure the success of the project as well as to get the comments of key national researcher having unpublished information.

**Monitoring and evaluation of CI/CEPF project:**

This "micro" CI/CEPF project can be seen as a project, which allowed to initiate a most dynamic professional approach in what could be a program to promote sustainable use of medicinal plants considering environment impact systematically.

## **VI. ADDITIONAL COMMENTS AND RECOMMENDATIONS**

This CI/CEPF project has allowed designing the base of an improved quality production program of *Centella asiatica* at the level of local populations involved in conservation. The implication of research institutions (Malagasy but also French and American) will allow the apply research on quality and production improvement to be ongoing.

The same has not been possible for *Drosera madagascariensis* in the short period of the project but key element to improve the sustainability of the production (seed dispersal following tracability) as well as suitable site for sustainable production program with local population implication have been pre identified.

There are at least 10 medicinal plants of immediate international commercial interest, this short term project has demonstrated that the data collection to confirm or infirm the sustainability of the use are many times not difficult to obtain and that the development of sustainable use of medicinal plants program benefiting communities involved in conservation is not that complicated to initiate with quality improvement. Market fluctuation requires permanent opening to the international community but the approach developed by MATE in this project shows that this is feasible for long term development.

It seems that it would be appropriate to look at a larger scale project to promote the sustainability of the use of the medicinal plant in conjunction with their use within sustainable use program linked to conservation.

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