

## The Rufford Small Grants Foundation

### Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
<b>Your name</b>	Martina Petru
<b>Project title</b>	'Terra Preta ny Madagasikara': charcoal remnants to facilitate forest regeneration and improve agricultural soils in SW Madagascar
<b>RSG reference</b>	9454-2
<b>Reporting period</b>	February 2011 – October 2011
<b>Amount of grant</b>	£6,000
<b>Your email address</b>	martina.petru@gmail.com
<b>Date of this report</b>	21 October 2011

**1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To evaluate the role of charcoal fragments in the forest that remains after charcoal harvesting to facilitate forest regeneration.		x		The initial experimental set up and monitoring revealed high recruitment from added seeds, however 2 months of sudden drought (February - March) have greatly compromised survival and available data for on-going monitoring, analysis and generalisation of the results.
Experimentally evaluate the role of composted charcoal fragments, biogas residuals and irrigation on growth of seedlings in a nursery.			x	Seedlings in the nursery have in average, doubled in size when watered with nutrient rich solution of charcoal fragments with biogas residuals. Additional mulching with charcoal pieces allowed warmer environment for seedling emergence, while serving as a sponge keeping water for the recruited seedlings, and preventing transpiration from the pots during hot times of the day.
Experimentally evaluate the role of composted charcoal fragments, biogas residuals and irrigation in gardens for soil improvement and increased food production.			x	Similarly to the results from the nursery, garden vegetable production and size of plants doubled in average when the composted charcoal + biogas solution was applied.
Experimentally evaluate the role of composted charcoal fragments, biogas residuals and irrigation in agricultural fields.		x		Limited agricultural field areas were provided by the villagers for experimental set-up thus crops could have been mainly planted in-between vegetables in the garden in low intensity. Limited conclusions and generalisation can be made.
Run training workshop for nutrient recycling methods for the local community.			x	Workshops were practical/hands-on and identified a motivated gardener, who became the trainer for the other parts of the community, mainly the women. Gardens have been planted under his supervision and he has followed with the monitoring of the gardens, the nursery and setting up and an extended area for

				food production using the nutrient treatment.
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

First of all, we would like to express our sincere thanks to the RSGF for support of our efforts within the organization Ho Avy that we received in the second Rufford Small Grant, especially during the current uneasy economic times where financing of small grassroots organizations is difficult to obtain.

The planning and designing of the proposed project went relatively smooth both in a pilot nursery and forest experimental set up. The assistance of the local community with field experimental set-up was very helpful and according to the planned design, though with lower overall number of forest charcoal mounds observed (60 instead of 80) due to time constraints and available experimental plots in the relative proximity of the village that would assure time-effective monitoring.

The overall organisation and motivation of the villagers to assist with mass harvesting of the residual charcoal in the forest was initially low, understandably influenced by the lack of convincing experience of the successful implementation of this new approach. We have carried discussion on the use of the residual charcoal and explanation of its role as a soil amendment. Later on, when the community has seen the results improving the garden and nursery production, the appreciation of the use of these residual resources (both charcoal remnant and biogas residual) rose.

We harvested small amount of residual charcoal from the harvested pits in the forest, however, in the sequence of events, several illegal bags of charcoal have been confiscated from officially declared no harvest zone (Ala Faly) shortly before the on-set of the experimental trial. This charcoal has been used for the nutrient treatment and to run practical workshops as proposed.

Our initially planned three different compositions of soils for the nursery and garden set-up has been reduced to two for practicality, time reasons, area for gardening provided and considering the available human resources to maintain responsibly the experimental set-up. We have used for both the nursery and garden a mixed and diluted (1:10) solution of charcoal and leftover biogas residual 1:1 (biogas production plan has been installed as part of the previous Rufford Small Grant). This nutrient treatment was used to water plants in nursery pots filled with sand + compost 2:1. Both pilot and large-scale nursery was run with the application of this treatment against controlled, non-fertilised conditions. In the nursery we additionally used charcoal fragments as physical mulch in pots to cover the ground against water losses, moderating the temperature for emerging seedlings and serving as a sponge for the growing seedlings, when regularly watered.

Drought during the vegetation season lowered the opportunity to utilise the agricultural fields of the villagers, who were less open to experimentation and cultivated all possible land conservatively with their conventional crops and methods. That is fully understandable in the times of great food insecurity. Therefore we decided to combine the garden and agriculture field plots and grow vegetables and low intensity mixed vegetable-crops and trees. While we have been successful in finding a very experienced gardener to apply the nutrient treatment, monitoring and taking data has been reduced to nursery by a collaborating student and quantification of the products were carried on the weight and overall biomass comparative scale.

### **3. Briefly describe the three most important outcomes of your project.**

1. Results from our nursery, accommodating over 4000 nursery pots, show that size of seedlings in average doubled when nutrient treatment of diluted charcoal + biogas residual was applied over a period of 3 months. This clearly documents the positive effect of the nutrient mixture on accelerated growth of plants during the dry/winter season in Madagascar.
2. Similarly, the half of the garden/agro plots that had the nutrient treatment applied has produced at least double the biomass and yield of healthy food products. The difference in production was very clear when plots compared with the control.
3. Workshops that were focused on nutrient cycling and hands on experience with the nutrient mixture were carried for a group of village women and many steps of the process of composting and nutrient use were directly explained in detail to one gardener who showed to be an effective inspirational element and disseminator of the gained experience through the training. The gardener Harry took a lead and worked with his several assistants and the women on treatment application and plant growth monitoring. It is apparent from the attached document to this report, that one man can make a huge positive difference when realizing the potential the land and the gained and understood knowledge and has a position to be a trainer to his surrounding community, disseminating the knowledge organically and effectively.

### **4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

Initially the community was not convinced to experiment and try a new method that, although logical and from major part understood, did not open them to give it a try. About 50 members of the community were directly involved in the workshops and gardening efforts, with 70% of youth participation. The greatest benefit of our efforts was to involve one skilled gardener Harry and a group of 10 women into planting of garden and having this capable gardener to water and care for the nursery and apply the nutrient mixture. He then has taken the lead to vegetate the land and in turn has inspired several women from even more distant parts of the village.

Harry, the gardener and his wife have been the lead entrepreneurs in the village, selling new vegetable varieties produced in the garden at a premium, with their neighbours lining up daily to buy and try the new produce. People across the village are starting their own gardens around this local intervention and was truly encouraging to see ideas taking off and being translated into local context, one step at a time.

This is in our view the most sustainable way to spread the knowledge and inspire to self-sufficiency. Ho Avy has met here its mission: to inspire and help the communities to help themselves in a first step.

### **5. Are there any plans to continue this work?**

This project has proved to be just one piece of the puzzle that starts giving a prospective picture how to further work more interactively towards more sustainable land use and community development in SW Madagascar. As being one part, it has proved to well integrate with other recent projects of Ho Avy: 1. installing a clean water access, micro-irrigation and agroforestry polycultures in Ranobe,

SW Madagascar, granted as a micro-project by the German Embassy, and 2. the raising and planting native tree for reforestation and agroforestry supported by the Naturefund Foundation.

The project also outlined a specific need – to assist and provide interlinked and interdisciplinary capacity building and training in permaculture ethic, principles and interlinked approaches.

We have been, reflecting on this project, reassessing Ho Avy's objectives and their social impact, organizational structure and further steps forward to accomplish our goals effectively, and have concluded that Ho Avy needs to develop practical, educational and outreach permaculture, programme and local training through a demonstration site in the rural countryside. The greening of the landscape towards green/forested landscape resiliency is an extremely important undertaking as it mitigates the major environmental challenges in the region: disappearance of the forest and wildlife due to increasing needs for natural resources of the rapidly growing population. There are no affordable alternatives to cooking fuel except charcoal that comes from the unique forest of Ranobe, but there are ways to create landscapes that are more resilient to these on-going pressures. Our rural location in Ranobe has been the pilot site for several trials to assess the feasibility and adjustment of permaculture methods in the local conditions since 2008. Ho Avy has been already establishing nurseries of native, multipurpose, fuel and fruit trees, agroforestry trial sites and gardens and have been engaging with schools and local educational NGOs to promote permaculture design and most of all training on their land and engage the pupils into care of the nurseries and food gardens.

Permaculture principals and linkages will be integrated in all Ho Avy's projects that are and will be running, our ultimate goal is greening up the landscape; we are working towards untapping the vast potential in the area and turn it into a food forest garden of abundance and diversity and efficient functioning with ecological foundations and in harmony with nature. Throughout the process of working with Harry, we gained an experience that we can have much greater impact working first hand with more educated and experienced people from the city/suburban area who could be the second hand of trainees making this knowledge and skills spread and shared in urban and rural areas, supporting self-perpetuated system of teaching and learning by doing. The goal is to be moving towards self-sufficiency and abundance in life.

Increasingly, many of our most valuable contacts for advancing projects in Madagascar have come from local actors: students, professors, Regional Rural Developments sectors of the government, farmers, fishermen, etc. who have partnered with and who would be the most immediate adepts for a profound – three week permaculture training course, along with pioneering local farmers. Their role is significant, as they help Ho Avy stay alive as an organization in an incredibly tough time for organisations depending on aid funding to support positive change in Madagascar.

## **6. How do you plan to share the results of your work with others?**

We have shared the concept, implementation and results with the public through updates on web sites, reports to collaborating projects and foundations and though the attached article that has recently been issues in the book Food and Democracy: Introduction to Food Sovereignty. We have been demonstrating our work to visiting group of other projects operating in the region, such as SuLaMa ([www.sulama.de](http://www.sulama.de)), which has been planned to investigate charcoal and biochar from more research aspects; our results may serve as first indication of the effects of charcoal as soil amendment and as a solution for improved agriculture in the region of Toliara. Two German and one

American volunteer will be coming to assist Ho Avy in the next months and will be exposed to this project. The projects have been shared for inspiration and ideas generation with the SIT (School of International Training) visiting students. We are currently outlining the results of the experiments in an article for broad circulation.

Coordinated efforts of Ho Avy and a photographer Michael van Rooyen has created a promotional video, where Ho Avy and interlined projects are presented; please feel free to view the video on: <http://vimeo.com/30656929>.

Most importantly we would like to use this project as a foundation stone to more integrated view on the landscape use, along with irrigation and re-vegetation and a precedence to share with many local farms and stakeholders as well as bigger organization in the permaculture training course planned for 2012-2013.

**7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?**

The grant has been used over February to October 2011. The period was shorter than originally planned due to the fact that we have installed and used the major aspects of the project and all the available finances. We produced within the limits of the realisation results that have been anticipated. We also realized Ho Avy next steps and interventions need to direct towards more integrative and training/educational aspects as described above and will focus our efforts on those.

**8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Ho Avy supervision and overseeing	600	900	+300	Due to shortage of other funding for Ho Avy and operation we have been utilising most of the supervising personnel power, especially in the last few months to the project monitoring.
Personnel	1500	1300	-200	Lack of reliable local personnel caused greater allocation of funds to supervision (above) from the originally planned local personnel participation.
Material and Equipment for gap regeneration	100	0	-100	Revision of material on field site revealed ways to re-use existing resources and allowed to re-allocate the available resources elsewhere.
Material and Equipment for workshops	700	700	0	
Material and Equipment for crop plots	1000	500	-500	Due to reduced area and combination of garden/agro plots

				within one design the financial demand was also reduced.
Material and Equipment for garden	100	600	+500	Quality vegetable seeds and equipment were marketed higher price than anticipated, we have purchased greater amount of nursery pots, as re-use of existing ones was not possible due to various damages.
Transportation and Subsistence	1400	1400	0	
Logistics and Operation	350	550	+200	Frequent field interventions during the beginning of the rainy season and also when setting up the nursery demanded greater allocation to transportation and unanticipated maintenance of Ho Avy vehicle that needed to be done to finish our tasks for this project.
Communication and Meetings	500	500	0	
<b>Total</b>	6,000	<b>6,200</b>	+200	

Explain how the rest has been funded. The 200 GBP were funded from the Alexander von Humboldt Fellowship research funds.

### 9. Looking ahead, what do you feel are the important next steps?

Ho Avy has been, from the leading positions making dynamic and exciting steps towards implementing permaculture teaching and practice in Madagascar.

Ho Avy will focus on following the scheme of teaching people to greater self-sufficiency. The organisation's strong drive will be consultancy position and promotion of permaculture and permaculture training. We will be working towards setting up Ho Avy's efforts as an example in that and develop a consultancy with and for the projects and organizations in the region and link them world-wide. But most importantly, we will focus to raise the awareness and have qualified Malagasy personnel to take the lead on activities and build a strong example case of a grassroots organization that goes by example and teaches in the community resource training and service centre.

Ho Avy sees as a first step to place its position to a consultant post and to link the various efforts, projects and organization in a permaculture design course. We plan to design and develop an efficient SW Madagascar region-tailored curriculum to further promote leadership and participation in projects and organise permaculture training on annual basis, starting in late 2012 or early 2013 that educates and raises new local practitioners and further teachers.

**10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?**

In the web site, promotional video, updates on web site, in communications with other funders and all presentations of the project publically (4 presentation in 2011 in the Czech Republic, 2 in Germany).

**11. Any other comments?**

We'd like to apply for a booster grant and get into the permaculture training and also to involve schools as the initial step to greater sense of permaculture. We sincerely thank RSGF for the on-going support!