

Mahabari

The ECDD project newsletter

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Engagement Communautaire
pour le Développement Durable

Komori ya leo na meso

Communities working together to improve access to water

Over the last six months, the ECDD project has helped four communities, Outsa, Ouzini, Salamani and Nindri, to complete a programme of collective work to improve access to clean water by rehabilitating ageing infrastructure. Most of the water delivery systems were built over 30 years ago, and there has since been little maintenance. With ever-increasing village populations, access to clean water has become increasingly difficult in many of the villages we work in.

Key improvements were identified through studies of the water delivery networks in each village by engineers from project partners the Union des Comités d'Eau d'Anjouan (UCEA), as well as discussions with the water management committees in each village. The work involved improvements to water catchment reservoirs (or an entirely new one for Outsa), replacement of ageing pipes and putting in place new communal taps in the villages.

In addition to improving access to water, the goal with these relatively small invest-

A member of the Nindri water committee performing tary at a party to celebrate the completion of the works



The new reservoir for Outsa (left)

ments was to build capacity for collective work for the good of the community, to pave the way for further initiatives aimed at collective management of natural resources. Anjouan societies are in many ways individualistic and find it particularly difficult to mobilise for collective work, as traditional power structures have broken down. The project funded the materials and technical advice from skilled builders and plumbers. However, the manual work was carried out by community members on a voluntary basis. Over the four villages, over 300 people contributed their labour to complete the work. A symbolic financial contribution was also collected from each household by the water committees.

There is still a lot more work to do to replace leaking pipes and inefficient networks, but these investments have already shown results. The head of the village water committee in Outsa expressed the community's satisfaction: "Before we would often have no water for long periods of time, but since we completed the work, water is flowing in the pipes all day long, every day. We're proud to have shown the village what we can achieve through working together".

In brief

- The **market gardening** season, which ended in October, was the most successful yet: we supported 126 people. Potato crops, introduced into two villages for the first time, gave particularly impressive yields.
- **Landcover maps** for Anjouan and Grande Comore are now complete and will be presented along with species distribution models in a workshop in Moroni in the first quarter of 2012.
- In December the team hosted the **Commissariat de la Production et de l'Environnement** for Anjouan on a visit to the project's field activities in Outsa and Adda. The delegation was very impressed with the work and further options for collaboration are being developed.
- The national and island coordinators participated in the final workshop of the **FAO forest project** in Moroni in November, with collaboration agreed on the production of final forest maps for the Comoros.
- The ecological team assisted with a **BirdLife South Africa** visit to set up a Comoros taskforce to assess Comoros bird species for the Nairobi Convention, and a mission from the **Kew Royal Botanic Gardens**.
- We welcomed three new members of staff: Technical Assistant **Christian Rakatoarinivo**, whose expertise in agro-ecology is already showing results (see page 2); **El-Yamine Ali Mohamed** who was appointed as Ecological Technician following a successful masters project with the project; and **Inzou Ali**, a new facilitator who brings a wealth of knowledge of agriculture in Anjouan from his experiences with the SNAC.
- The project was featured in the recent UK government's **Darwin Initiative newsletter**, follow this link to download: <http://goo.gl/kQftS>.

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Higher yields, less work and natural resource protection: agro-ecology in Anjouan

Tropical forest cover maintains fertile soil through recycling nutrients and protecting the soil from erosion and desiccation by the sun, wind and rain. If trees are cleared for agriculture, the soil is left exposed and loses fertility quickly, as has happened in areas of Anjouan which have turned to *padza*: eroded and unusable land. Agro-ecology is about growing crops in ways that protect the soil and its fertility, allowing improved and sustainable production over long periods.

An important part of agro-ecology is ensuring the soil is constantly covered, fertilised and protected in ways that



Degraded land in Anjouan

mimic the leaf-litter and undergrowth layers of a forest. Soil cover can be dead, in the form of leaf mulches, or live, using specially selected cover plants which grow underneath or among crops, protecting the soil and recycling nutrients. In Madagascar these techniques have shown impressive results, producing better yields, requiring less work from farmers (because they don't need to weed or work the soil, they need less fertiliser and there are fewer pests) and preventing environmental degradation in particular through soil erosion.

Up until now the project's work has concentrated on agro-forestry techniques: planting tree cuttings along contour lines to prevent erosion; and integrating livestock with production for natural fertilisation. The new partnership with Agronomes et Vétérinaires Sans Frontières (AVSF) has allowed us to gain from their experience with soil cover techniques in Madagascar and start trialling this approach in Anjouan. The aim for the project is to improve produc-



Example of living ground cover (left) and dead ground cover (right).

tion in existing fields over the long-term, so that the pressure on the remaining forest for new agricultural land is reduced.

New Technical Assistant Christian Rakotoarinivo is heading up the trial programme, having previously worked with AVSF in Madagascar. Different varieties of cover plants are being tested and multiplied at the project's experimentation plot in Mpagé, and 20 new integrated demonstration plots have been put in place in the project zone to show how these techniques can integrate with and improve on traditional agriculture.

Building the capacity of the ECDD team

One of the most important tasks for the ECDD project if it is to have a lasting impact in the Comoros is to set up a structure for a new NGO and develop the capacity of the team to continue to develop and implement the model for natural resource management and biodiversity conservation.

Opportunities for developing skills exist already within the team, and training programs have been implemented for word processing, Excel, presentation skills, desktop publishing and GIS. In seeking external training opportunities we built on last year's exchange visits to Madagascar to link up with the Réseau des Educateurs et Professionnels de la Conservation (REPC), the Madagascar branch of the an international initiative run by the American Museum of Natural History. The REPC is run by a consortium of NGOs in Madagascar, including our partner Durrell Wildlife Conservation

Trust, Conservation International and the Wildlife Conservation Society. The network's aim is to provide training opportunities in vocational skills for conservation to help fill the skills gap between academic training and the needs of employers in the environmental sector.

Madagascar Coordinator Domoina Rakotobe and Durrell representative Ony Rabearivololona visited Anjouan in December to deliver a training session for the ECDD team in active teaching methods, and to look at linking up Comorian institutions with the Madagascar network.

The training was greatly appreciated by all the participants as it contained a good mix of principles and tools that can be applied in our everyday work, particularly in the way we communicate with and build the capacity of communities. We are confident that further involvement with the REPC will be of great benefit to

the project, and hope to assist the network in becoming well established in the Comoros in order to build capacity for conservation at a national level.

The ECDD project is run by Bristol Conservation & Science Foundation (an operating unit of Bristol, Clifton & West of England Zoological Society Ltd.) in partnership with Durrell Wildlife Conservation Trust, Agronomes et Vétérinaires Sans Frontières, the Government of the Union of the Comoros and the Administration of the Island of Anjouan.

External funding comes from the UK government through the Darwin Initiative scheme, the French Development Agency and the Global Environment Facility (through the PoWPA project) amongst others.

The project works with consultants from the International Union for the Conservation of Nature and Cranfield University.





Estimating the population of Livingstone's fruit bats in Anjouan

Livingstone's fruit bat, an endemic species found only on the islands of Anjouan and Mohéli in the Comoros, is one of the biggest bats in the world. The last population estimate for Anjouan was carried out in 2006, with 1173 individuals found in 17 roosts. On the basis of this estimate and the rapid degradation of the Livingstone's natural forest habitat the species was classified as Endangered on the IUCN's red list.

During the latest rainy season, the ecological team carried out a count of this species with the aim of producing an up-to-date population estimate, and determining the level of threat to the species through comparison with previous estimates. The team visited all 17 known roosts on Anjouan in some of the steepest and most inaccessible corners of the island. Unfortunately we found that two

roost trees had been lost since the last study, and we couldn't find any new roosts that might have replaced them.

In total we counted 766 individuals over the 15 roosts, and saw signs of degradation of the habitat surrounding the roosts.

It is too early to make conclusions from these results, as previous studies have shown that numbers observed vary from season to season. However it is clear the species is still at a high risk, and human pressure on the forest is the principal threat. The next stage for the ecological team is to repeat the counts during the



A roost tree in Anjouan. Even though Livingstone's fruit bat is very large, they can still be difficult to count from a distance. Especially as they keep moving!

dry season (June and July 2012) and compare the data for the two seasons in order to produce a more reliable estimate on which to base an evaluation of conservation status.

Understanding the loss of water resources in Anjouan

Anjouan has seen a progressive reduction in water resources and there are now fewer than 10 permanent rivers, with most reports pointing to a loss of over 30 permanent rivers in the last 30 years. This decrease in water flows has been widely attributed to deforestation, however reliable data on both the extent and causes of this loss is lacking.

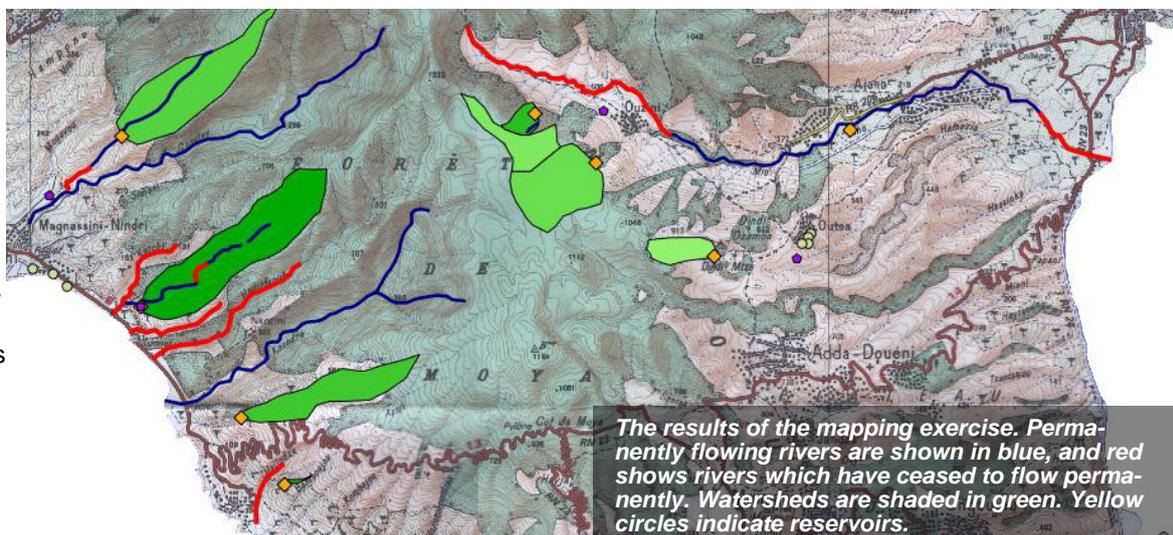
In October, Miguel Fernandez Astudillo, an intern recruited through our links with Cranfield University and the student-run NGO SAFAD, started a project mapping the rivers and sources in the project's intervention zone in order to understand in detail current water availability, and also the change in water resources over time. The results, validated by discussions with older villagers, have shown us which rivers have dried up in the last 50 years, and given us a better idea of how water scarcity is affecting villagers. Miguel has also mapped watersheds feeding the water sources of each village using

maps of relief. This information will help to target community actions to protect the resource in the long-term.

The next step will be to assist the village water committees to put in place regular monitoring of both water quality – through measures of turbidity to understand the impact of soil erosion – and quantity, through daily measurements of rainfall in the catchment areas and the volume of water entering the pipes in each village.

Alongside the fieldwork we are also tracking down aerial photos and data from reports and mapping studies in the Comoros over the last 60 years to try to build a reliable picture of the degradation in water resources in Anjouan.

Further research to complete the picture will involve a mission in August from an experienced hydrologist to assess the root causes of the changes to water supplies in the project's intervention zone.



The results of the mapping exercise. Permanently flowing rivers are shown in blue, and red shows rivers which have ceased to flow permanently. Watersheds are shaded in green. Yellow circles indicate reservoirs.



I haven't always been a farmer. I used to work in hotel kitchens, but about ten years ago I decided to give it up and concentrate on agriculture. Farming is better for me; in one job I worked for nine months and was only paid for three. With farming, I never come home empty handed - I always have something to eat or to sell.

I inherited my two fields from my parents. One is quite far from the village – a fifty minute walk. I grow bananas there, and only need to pass by a couple of times each week. My other field is lower down, thirty minutes walk from Moya. In the colonial days this land was all part of the domain and the French grew vanilla here. After independence [in 1975], and the *coup d'état* soon after by Ali Soilihi, there was a rush for land and my parents claimed this field.

When everyone started planting clove trees during Abdallah's presidency [1980s], it encouraged people not to work hard with agriculture; they just sat around and waited until the cloves were ready to harvest. Even now, people from Moya usually pay people from Niumakele to harvest the cloves. Other people, particularly young people, look for the easy solution and steal crops.

Farming is the world's most important job. Everyone needs food. Some people don't understand why I made the decisions I made. Young people scorn agriculture, they want to be DJs, or work for the state and get nice salaries - but there isn't any

The cow Miftah is loaning to fertilise his field. In the background are the tree cuttings he planted last season.



Discussions with an innovator

Saïd Athoumani (a.k.a Miftah) lives in Moya, in the south of Anjouan. He is 39 years old and has two children aged 7 and 12. He started working with the project in 2010 by planting erosion breaks and enclosing his field, and we're now assisting him with fertility management. He is also planning to plant potatoes this coming season with the project's help.

We visited him in his field, to find out his views on agriculture and why he is keen to try out new techniques...

work. They sit around the village doing nothing.

I'm always looking to learn new techniques. Technicians from lots of different projects have given me advice, and I look at other examples around the island to get ideas, especially in Niumakele. But I don't use a new technique unless I have tested it. I normally try it out in a small area of my field, and if it works well then I enlarge it. I've never had big failures because I test things out and work hard.

At the moment I'm growing sweet potato and cassava. Next year I'll rotate things around and plant maize where the sweet potato was, so the soil doesn't get worn out by root crops. A technician from the SNAC [Syndicat National des Agriculteurs Comoriens] taught me about this.

I first came across the ECDD project in 2010 when they were researching land use in the area. I asked them for help with my field, and when they started the field improvement programme, I was one of the first in Moya to get involved. Last season, I planted tree cuttings all around my field, and across the slope, to section off different areas, prevent erosion and provide forage for my cow. It was really hard work – took me three months! – but I'm glad I did it, the cuttings have grown well and I can tell already that the soil in my field is in much better shape.

Since then, ECDD technicians have been helping me to improve the fertility of my field. I want to grow potatoes because you can make a good price at the market with them, but they need a lot of fertiliser. I recently started looking after a friend's cow in my field so that I have lots of manure available. When it has a calf I'll be able to keep that. The cow is on a picket in one part of the field, and I'll plant cassava in that area to make use of the well-fertilised soil. I'm hoping that the project will be able to loan me a second cow to improve fertility in my other field. I've also started setting up a compost heap so I'll always have lots of well-composted manure and organic matter ready.

People come to me asking for help after seeing my field and what I've produced here. I tell them they're welcome to come and have a look at what I'm doing, and I'll give them advice and help them as much as I can.

When I was at school, they taught us how to grow crops alongside our normal lessons. I want my children to study hard so they have lots of opportunities when they're older. But it's also important that they learn to work hard and to produce food, in case they need these skills later on, like I did. During the holidays I bring them up to the fields and teach them what I know.

Miftah weeding his sweet potato crop



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...means 'the news' in Comorian

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