



seed **madagascar**

sustainable environment, education & development

A final report on

Project Sekoly: provision of school buildings, sanitation infrastructure and a rainwater harvesting system for the Soanierana CEG (middle school), Anosy Region, Madagascar



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1. Introduction

'Ny fianarana no lova soa indrindra'

'Education is the best heritage'

- Local saying

Madagascar is the poorest country in the world that has not suffered a conflict (World Bank, 2014) and has a nationwide literacy rate of just 64% (UNESCO, 2009). In the rural commune of Soanierana, located in the isolated Anosy region of southeast Madagascar, 50% of school-aged children have never been to school and, of those that do attend, more than a third do not complete primary school (UNESCO, 2012). As a result, the literacy rate in the commune is a mere 27% (INSTAT, 2010).

Soanierana CEG (middle school) is the only middle school in the commune and serves a local population of 6,678 people, over 3,600 of whom are under 19 years old (INSTAT & UNFPA, 2009). Prior to Project Sekoly, the school had only four classrooms for its 560 students and was vastly oversubscribed. Those students lucky enough to gain a place at the school were taught on a rotation basis, attending for only a few hours per day. The overcrowding and limited number of spaces available drastically curtailed the ability of young people in the area to progress to high school and achieve formal qualifications, without which livelihood and employment options are limited. There was also a pressing need to improve the sanitation and water facilities at the school, which fell significantly short of the student to latrine ratios recommended by WHO and UNICEF.



Soanierana CEG site before and after the build

Thanks to a donation of £21,823, SEED Madagascar (SEED) has been able to support the community of Soanierana through the provision of one fully-furnished brick school building containing two classrooms, a composting latrine block and a rainwater harvesting system for the CEG. This infrastructure will make a huge difference to students at the school: the two extra classrooms will enable all final year students to have a full day of classes every day, better preparing them for their end-of-school exams; the extra latrines will halve the pressure on the old latrines and can be emptied safely to provide agricultural fertiliser; and the rainwater harvesting system will provide students with a means of washing their hands next to the latrines, as well as with clean water for washing, cooking and cleaning.

This report details activities undertaken by SEED in Soanierana Rural Commune between December 2013 and June 2014. Photographs from the construction, case studies of staff and students at the beneficiary school and a full financial report are included in appendices.

2. Project activities

2.1 Preparation

Preparations for the school build began in December 2013 with the recruitment of all necessary local staff and international volunteers, and meetings between stakeholders in the region and the SEED team.

2.1.1 Recruitment

The project was led by SEED's Head of Construction and the coordinator of SEED's award-winning 'Pioneer' international volunteer programme. Construction was completed by a team which included five SEED staff, seven local labourers (one from each of the seven hamlets that make up the village of Soanierana), and eleven Pioneers and seven short-term international volunteers from countries including Australia, the Netherlands, Norway, South Sudan, the UK and the USA. The use of a combination of volunteer and professional labour helped



Members of the Malagasy construction team at the construction site

to keep project costs down whilst ensuring quality, as well as providing an opportunity for cross-cultural exchange. International volunteers underwent a week-long induction

course in Fort Dauphin prior to starting construction work, fully preparing them for the tasks ahead. This included training in Malagasy building techniques, tool handling and on-site health and safety, as well as daily language lessons enabling volunteers to converse at a basic level with members of the community in their local dialect. During the build, international volunteers engaged with members of the local community in Soanierana and discovered how the project would benefit them. Feedback at the end of the project demonstrated that this interaction had been a valuable experience for all concerned. To read some of the beneficiaries' opinions about how this project will positively affect them, please see Appendix 2.

'I am very pleased you built this school. Before our school was insufficient but now I like it as we have more room to study.'

- A final year student

2.1.2 Community

Community participation is integral to all SEED projects, ensuring projects are responding to genuine needs and increasing sustainability. This project stemmed from a direct request to SEED from Soanierana CEG's head teacher for an extra school building. At the start of the project in December 2013, SEED's community agents and key members of the Soanierana community met to determine a work plan and agree the community's contributions to the project. The community agreed to provide a range of goods and services including a campsite for the international volunteers and staff, accommodation for the construction team, local rock to be used in construction, a secure storeroom for tools and community members' labour throughout the build. This contribution kept the budget to a minimum and has given the Soanierana community a well-deserved sense of ownership in the project.

2.1.3 Ground-breaking ceremony

On the 16th of January a leading member of the community presided over the formal ground-breaking ceremony. He gave a speech in which he explained the importance of the project and thanked all those involved before offering a token libation to the ancestors and wishing for a speedy and successful completion to the project. Pioneers, international volunteers and members of the construction team were enthusiastically welcomed by the community and work on the build began.

2.2 Construction

Construction took place over a five-month period between January and June 2014. During this time a fully-furnished two-classroom school building, a two-cubicle composting latrine block and a 3,820 litre rainwater harvesting system were constructed using locally available materials and tools. The following sections detail the construction process.

2.2.1 School building

- A patch of flat ground, near to the other school buildings was chosen and fenced off
- The land was cleared and levelled and the foundations for the walls were dug
- The foundations were filled with concrete, reinforcing bar (“rebar”) and rocks before being covered in a cement and sand finish
- Brick walls were constructed between structural concrete pillars, with holes left windows, doors and ventilation
- The floor was filled and flattened
- Window and door frames were constructed and installed
- Pre-made shutters and doors were fitted to the frames and locks attached
- The roof was constructed out of wooden beams, corrugated tin and an anti-cyclone layer of concrete
- Walls, doors, windows and trimmings were painted
- A veranda across the front of the building and ledges over windows across the back of the building were constructed to provide shade and to reduce the exposure of wooden doors and windows to the elements
- Raised teaching platforms, blackboards, teachers’ desks and 40 two-seater benches were constructed
- Finally, the desk and benches were moved into the classrooms by students



Walls are built and benches constructed at Soanierana CEG

2.2.2 Composting latrine block

This featured a two-pit, two-cubicle design. Each pit is accessible from each cubicle but only one pit is open at any one time; when the first pit is full it is capped and the second pit opened. By the time both are full, the material in the first pit will have safely decomposed and can be emptied via removable sections of the walls, allowing this pit to be reused whilst the second pit is sealed and the contents left to decompose.

- A patch of sloping land was chosen so that the latrine block could be built into the hill
- The ground was cleared and members of Soanierana community dug the foundations for the four outer walls of the latrine and lengthways across the middle, to create a dividing wall between the pits
- A wooden frame was built to provide structure to the foundations and was filled with wire and concrete
- Concrete pillars cast and the spaces between them filled with breezeblocks to form the walls of the pits. A small space in the wall of each pit was filled with easily removable bricks to facilitate emptying
- Scaffolding was erected inside the pits to support a wooden mould that was built over the top of the pits for the pit lid. Spaces were left for entry to the pits to remove the scaffolding afterwards, for defecation holes in each cubicle (two in each cubicle, one over each of the pits), and for ventilation
- Wire and concrete were poured into the wooden mould to make a permanent platform on top of the pits
- The cubicles for the latrines were built on top of this platform, with breezeblock walls
- All the outside walls were rendered and painted
- Cement footrests were moulded onto either side of each defecation hole
- Door frames and doors were constructed, installed and painted
- A roof was built of wood and corrugated iron
- The scaffolding in the pit was removed and all the soil that had been removed to allow access to the foundations was filled back in
- Breezeblock steps up to the front of the latrines were built, rendered and painted



A two-cubicle latrine is built in the school grounds

2.2.3 Rainwater harvesting system

- A site at the end of the new school building was selected as a suitable place from which the roof gutters could feed into the 3,820 litre rainwater storage tank
- The foundations for the rainwater harvesting system were dug and a layer of concrete, gravel and wire laid
- Foundation walls were built using granite blocks, with the space between the blocks packed with sand

- The base of the tank was built using reinforced concrete
- A vertical wire cylinder was set into the base of the tank to form the reinforcement for the tank walls
- A cylindrical plywood case was built around the wire and filled with concrete to create a large concrete tank. Holes in the walls were left for drainage, cleaning and overflow
- The wooden mould was removed and the inside of the tank rendered with a waterproofing agent
- The outside of the tank was rendered and painted
- Wire and cement were used to build a circular lid with a hole left for the incoming water pipe
- Pipes leading from the gutters to the top of the tank were installed and fixed to the wall
- A pipe leading from the tank to a tap by the latrines was buried across the school playground



Foundations are dug for the rainwater harvesting tank



The completed rainwater harvesting system

2.3 Opening Ceremony

On 22nd July 2014, Soanierana CEG was officially opened and handed over to the community. A plaque commemorating the generous grant from the donor had been installed on the new school building and the ceremony took place in front of this. Speeches were made by local dignitaries reiterating the importance of the build to the whole community, thanking the project partners for their help and encouraging students to excel in their exams. Students, teachers and local dignitaries all eagerly inspected the new buildings along with SEED staff and volunteers, and toasts were offered to the success of future students. In October, a new cohort of students will arrive at the school and all students will benefit from the extra capacity of the school and the improved sanitation facilities.



Students outside their new school

'The two new classrooms are great because they will allow students space to study. This will mean they are more likely to pass their exams and reach their potential.'

- Mayor of Soanierana

3. Monitoring and evaluation

SEED will monitor the project over the coming years through regular visits to Soanierana CEG to ensure that the new building is being used to its full capacity, that the latrines and rainwater harvesting system are being used properly and to evaluate project's impact on student numbers and results. This will involve interviews with staff and students, along with monitoring of attendance registers and exam results. All findings will be used to inform future SEED projects in the region.

4. Conclusion



Students working in their spacious new classroom

Many people contributed their time and resources to Project Sekoly in Soanierana and worked hard to bring it to a successful conclusion. The impacts of the new school facilities will be felt immediately by students come the start of the new school year and are expected to last for at least 25 years. Additional classroom space will mean a full seven hours of lessons a day for final year students, enabling them to prepare better for the national exams, whilst additional benches will ensure that students no longer have to sit uncomfortably on the floor to learn. The

latrines and rainwater harvesting system will help to improve students' health, anticipated to increase

attendance and reduce the amount spent by the community on healthcare. In particular, girls are more likely to attend school when there are sufficient sanitation facilities (UNICEF, 2007) and this project will therefore increase their chances of completing middle school. With a chance at a full education, young people will be better placed to secure employment and attain a higher standard of living. This will be of benefit to the individuals who graduate and their families and their community, bringing development to the area for years to come. Education, as the local saying goes, is the best heritage.

5. Appendix 1a: Pictures from the construction



Site fenced off, marked out and ground cleared



The brick walls begin to grow



Brick laying finished and pillars, lintels and eaves over windows filled with concrete



Corrugated iron roof laid by the construction team



Wooden mould for the rainwater harvesting tank's walls erected inside the wire reinforcement cage



Scaffolding is used inside the latrine pits to support the construction of cubicles on top



Benches are carried to the school



Students test one of the new taps on the rainwater harvesting system



SEED's head of construction washes his hands at the tap in front of the new latrines



The school keys are officially handed over to the community



The completed school building and rainwater harvesting tank (on the left)



Students in their new classroom

Appendix 1b: Photos of Soanierana rural commune



Fruit on offer at Soanierana market



Zebu (Malagasy cattle) pull a wooden cart



Hand-woven baskets for sale in the market



International volunteers and locals enjoy a game of basketball



Break time breakdancing at the construction site



Soanierana valley. The school is on the left

Appendix 2: Case studies

Name: Damy Randrianatenaina

Job: Teacher (1st, 2nd and 4th years)

Damy lives in Andramaka, about two kilometres away from Soanierana CEG. His day starts at 5.30am, when he gets up and gets ready for work. He leaves his house at 6.30am and walks for about half an hour to get to Soanierana. It's important that he gets there early because one of his responsibilities is to open the school. He teaches for five hours in the morning, and a further two in the afternoon. In the two hour lunch break, he sometimes goes home and sometimes stays in Soanierana.



Damy teaches physics, natural sciences, chemistry, maths and sometimes other subjects to the 1st, 2nd and 4th year groups. Each class has 50 – 70 students and he has no assistants or other support. He says it is very difficult to teach so many subjects but he is the only teacher at the school who specialises in the sciences. At the moment, he teaches the 1st and 2nd grades for 6 hours a week, and the 4th (final year, just before exams) for 12 hours a week.

A graduate of middle school and high school, Damy was in the second year of University at Toliara (one of six public universities in Madagascar) studying management, when a strike stopped his studies for nine months. Tired of waiting, he decided to become a teacher instead and came home to Soanierana. He has been teaching for two years now but, as a FRAM (community employed) teacher, he has had no formal training. He is paid by the parents of the students but as most families are very poor, he only earns 40,000 Ariary (Ar) a month; in the beginning, he worked for free.¹ Teaching at the school takes up most of his time so he doesn't have a second job, but does some farming at weekends for extra money and food.

He is very excited about the new classrooms at Soanierana for several reasons. Firstly, the extra space will mean he no longer has to teach classes in a church about a kilometre away from the school. It will also mean he spends more time with the 4th years, making sure they have enough teaching hours to pass their exams. With the extra space, a new teacher will be taking over some of his hours with the 1st and 2nd years.

When asked about what more could be done to make his job easier, Damy suggested that more teachers would help, particularly if they also taught science. However, having hired a new teacher already, the parents association cannot afford to pay for any more teachers. As the Government does not seem likely to pay, if more teachers were hired, his salary would decrease.

¹ FRAM teachers are not formally trained or paid by the government and so rely entirely on the donations of the Parent Teacher Associations at their schools. 40,000 Ar a month is the equivalent of US\$16.49 or £9.61 and as such is well below the global income poverty level of \$1.25 per day (UNDP, 2013).

Name: Razafindramasy Simeona

Job: Secretary / Administrative assistant at Soanierana CEG

Simeona lives in Andramaka, the same village as Damy. She is married and has four children.



Every day she gets up at 5am and gets ready for work. She leaves her house at 7am and walks about 40 minutes to get to the school. She stays at work all day before heading home at 5pm when the school day ends. After doing the housework and preparing the evening meal, she goes to sleep around 8 or 9pm.

As a secretary, Simeona works in the office of the school looking after the textbooks and other teaching materials, monitoring student attendance, following up on absent students, and helping the Director of the school with the

day-to-day management. She is paid by the government rather than the local community but says the salary is not enough to support her family. However, because she is busy at the school, she does not have time for a second job.

From her perspective, Simeona says the main problems the school has are money, space and resources. The office she works in doesn't belong to the school but is borrowed from somebody else. There isn't any money for office furniture, so two benches have had to be borrowed from the classrooms. She says the school needs a library so the kids can learn by reading, but there is no building for this, nor is there money for the books. Nevertheless, Simeona is very pleased with the new facilities and the help that they will bring to the school and its students.

Name: Dera

Year: 3rd year (penultimate year of CEG)

18-year-old Dera lives in Ankarefo, approximately 3 km away from Soanierana and an hour's walk to school. He has five sisters and one brother, all of whom live with him in the same house and are currently attending school.

Each day he wakes up at 4am, studies and then gets ready for school, leaving his home at 6am. His lessons only last for three hours a day, with one hour in the morning and two hours in the afternoon. In the four-hour break between his lessons, he sometimes stays at school, reading and studying in preparation for the afternoon lesson, or walks home to help his parents. His lessons finish by 4pm, he walks home, arriving by 5pm. He goes to sleep around 10pm.



Dera's year group, the 3rd year, is split into two classes because it is so big. In his class alone, there are 79 students, all of whom pack into one classroom with as many as three students per bench (which are designed for two).

If every enrolled student turns up to a lesson, there are not enough places to sit. Dera's favourite subjects are physics, natural sciences, maths and English, although he also finds maths hard, along with Malagasy. He would love to go to university but it depends on his parents being able to afford it. Outside school, Dera likes football, walking and fishing. He also helps his family by collecting firewood, running errands and collecting water.



He is happy about the new building, as it will mean more lesson time before his exams.

Name: Elinah

Year: 4th year (final year of CEG)



Elinah is 18 years old and lives in Andranana, about six kilometres from Soanierana CEG where she is currently studying. She has two sisters, a four year old in primary school and a 13 year old in the first year of middle school.

Every day, she wakes up at 5am, and leaves her house a little before 6am. It takes an hour to walk to school, and her morning lessons start at 7.30am (unlike some other students, who start at 9am), which is why she must leave so early. Before school, she likes to study. From 9am to 2pm she has no lessons, so she hangs out with her friends,

studying and watching her classmates play football. At 4pm she goes home, although some days she has to ask her teacher to let her leave early because it takes a long time to get home. She walks back to her village in a group of friends because it isn't safe to walk along the isolated roads alone. At 7pm, she goes to bed.

There are 66 students in Elinah's class, with just one teacher. She enjoys school and studying and would like to continue school if she can. Her favourite subjects are natural sciences, geography and history but she is less keen on physics and maths, which she finds hard. Her mother looks after her and her sisters alone since her father left the family, so in financial terms it is very hard for her to stay in school.

She is very happy to have new classrooms as this will mean more time to study for the final year students, which will help them with their examinations and make it easier to get into high school.



Name: Esperant

Year: 4th year (final year of CEG)

Esperant is 19 years old and lives in Ankarefo (the same village as Dera) with his family, including his brother, a 17-year-old shepherd who has never been to school. His younger sister is four and already attending school elsewhere.

On a typical day he wakes up at 5am and leaves his house at 6am. On his new bike, he can make the journey to school in about fifteen minutes so he has more time to study before lessons start. Morning lessons for his class start at 7.30am and last for an hour and a half, finishing at 9am. Afternoon lessons are from 2 to 4pm, so sometimes he cycles home in between lessons to help his family. On other days he stays at school and studies or plays football with his friends. After school he goes home to help around the home, collecting manure for crops and clearing around their cassava plants, before going to sleep at 9pm.



His year group is split into two classes, each in a separate classroom. In his class alone, there are 66 students. He likes school, and his favourite subjects are physics and mathematics. For Esperant, English is the hardest subject, followed by Malagasy. He likes studying at home and wants to continue in school through the high school and



on to university. Sadly, he doesn't think it will happen. He says life is very hard for his parents so they may need him to stay at home and work, and will probably not be able to afford the costs.

Esperant is very happy to see the new classrooms being built and likes to watch the construction team during breaks between classes. He thinks the extended school will bring more students and progress. He was pleased to hear the new schoolrooms will mean more lesson time for final year students in the future.

Name: Martina

Year: 3rd year (penultimate year of CEG)



Martina is 17 years old and lives in the village of Esalo, with her parents and two brothers (who are both also in school). Her village is about half an hour's walk from Soanierana CEG, where she is currently in the 3rd year.

Her day starts at either 5am or 6.30am, depending on when her lessons start. She leaves for school an hour before the start of lessons and arrives with half an hour to spare – just enough time to say hello to her friends and quickly study. Morning lessons are from 7.30am to 9am or from 9am to 11am, followed by a long break. During the

break she goes home for lunch if it's not too hot, then walks back again for the afternoon lesson, which lasts from 2pm until 4pm. On most days she is home by 5pm, in time to help her mother cook the evening meal. On Saturdays she helps with the washing and on Sundays she goes to church with her family.

There are 73 students in Martina's class and a total of around 140 in her year. Her favourite subject is natural sciences, while maths is her least favourite and the subject that she finds the most difficult. Martina likes school and wants to go to university but it is hard because her parents may want her to get married and may not be able to afford the costs involved in higher education.

Martina is happy about the new classrooms being built at the school. She says that the new building will mean new thoughts, so everything will be new. She is pleased that the new building will mean more classroom hours for 4th year students in particular, as she will be in the first year to experience these extra hours. She is very confident she will pass her exams as a result.



Name: Jimmy

Year: 3rd year (penultimate year of CEG)

16-year-old Jimmy is in the 3rd year at Soanierana CEG, getting ready for the important exams in 4th year. He lives in a village called Nosy Be (the same village where most of the bricks used in the new school-building were made), about 40 minutes walk from where he goes to school. He has two sisters and three brothers. He is proud that all of his siblings are in school, except for one who is already married.

Every day Jimmy wakes up at 5am, gets ready and leaves for school at 6am. After a bit of studying, his lessons start at 7am. He has one or two hours of school in the morning and another two hours in the afternoon. At 5pm,

Jimmy leaves school and walks home. Before dinner he helps his parents pound rice for the evening meal.

Jimmy enjoys school and his favourite subject is maths. For him, the hardest subject is physics. Jimmy and Martina (see above) share their classroom with 71 other students. He would like to continue his education and complete university but it will be hard to get there because he may need to get married (a large financial commitment in itself) and his parents can't afford the university fees.

He is really excited for the new classrooms because he is sure they will help him pass his exams.



Name: Soa

Year: 3rd year (penultimate year of CEG)



Soa is 18 and lives in Nosy Be, the same village as Jimmy. It takes her about an hour to walk to school from her village, where she lives with her parents, three sisters and two brothers. Most of her siblings are already married and only one other goes to school.

Getting up at 5am, Soa gets ready for school and leaves at 6.30am. Her lessons usually start at 9am, so she has some time to study before class. She has one or two hours of lessons in the morning, and a further two hours of lessons in the afternoon. At 5pm, Soa and her friends walk home

from school, travelling in a large group because the road isn't safe to walk alone. Back at home, she fetches water from the nearby well for her family, before dinner and bed at 9pm.

Like most of the 73 students in her class, Soa enjoys school and would like to go to University but she thinks it will be hard – it costs a lot of money to go to high school and university and her parents won't be able to afford it. She also thinks it might be hard if she falls in love. Her favourite subject is English, while maths is her least favourite because it's so hard.

Soa is very happy for the new classrooms because they are new and it means she will pass her exams (she is already very confident!). She understands the benefits that the extra classrooms will bring and is optimistic about her future.

Soa hope to attend high school near her house and is lucky because there is a small high school about seven kilometres away.

