Review of the Emergency Transport Scheme and Community Health Volunteer mobility initiatives in Madagascar, under the MAHEFA programme

Photographer: Robin Hammond for the JSI/MAHEFA Program, USAID/Madagascar.

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List of acronyms and abbreviations

AC	:	Agents Communautaires
ANC	:	Ante-Natal Care
CBIHP	:	Community-Based Integrated Health Program
CSB	:	Centre de Santé de Base
CHV		Community Health Volunteer
ETS	:	Emergency Transport Scheme
FTK	:	Fokontany
IGA	:	Income Generating Activity
IMT	:	Intermediate Mode of Transport
MDGNS	:	Millennium Development Goals National Survey
NDHS	:	National Demographic Health Survey
NGO	:	Non Governmental Organisation
JSI		JSI Research & Training Institute, Inc.
MAHEFA		MAlagasy HEniky ny FAhasalamana
USAID		United States Agency for International Development

1. Executive summary

The Madagascar Community-Based Integrated Health Program (CBIHP), known locally as MAHEFA, is a 5-year, USAID-funded community health program that provides basic health services in: maternal, newborn, and child health, family planning and reproductive health, including sexually transmitted infections, water, sanitation, and hygiene, nutrition and malaria treatment and prevention, to underserved populations in six remote and poor regions in north and north-west Madagascar (Menabe, SAVA, DIANA, Sofia, Melaky, and Boeny). JSI Research & Training Institute, Inc. manages the Madagascar CBIHP in partnership with the Manoff Group, Transaid and 15 Malagasy NGOs.

In Madagascar, two of the five most relevant barriers to access health care identified by women of reproductive age (NDHS 2008/2009) are related to transport: distance to the nearest health facility (42%), and the need to use a means of transport (31%). According to Thaddeus and Maine, one of the three delays in seeking care refers to transport as well. The challenges for transport provision in rural areas in Madagascar are many. Issues in the operating environment such as infrastructure, low density demand, socio-economic status of the population, and high vehicle operating costs combine to have a significant impact on the level of competition, the diversity of vehicles, service frequency and cost. Moreover, in MAHEFA areas specifically, the terrain is challenging. It is often mountainous, sandy, and with a majority of sites experiencing access challenges during the rainy season. More than half of the communes in MAHEFA program areas (54%, 149 communes out of 279) are inaccessible by car or truck at least two months of the year. Of these, one third (34%, 96 communes) are not accessible at least four months a year.

While transport has been widely recognised as a barrier to the provision of and access to health service in rural areas (46%, NDHS 2008/09), few community health programs have integrated transport interventions as an enabler to support the provision of services. From its onset, MAHEFA's core strategy included the trial of innovative solutions using transport to improve community health volunteer (CHV) mobility, improve access to health services through emergency transport systems (ETS) and transport-related micro enterprise activities ("eBox"). MAHEFA also established community health insurance schemes *'mutuelle de sante'*. This report will be divided into two parts with a focus on a review of (1) MAHEFA's CHV mobility and (2) ETS activities.

To conduct community health activities and provide services to the individuals and families who rely on them, community health volunteers (CHVs) in many settings must travel long distances. MAHEFA's approach to address CHV mobility focused on delivering bicycles to CHVs to ensure that CHVs have access to an available, functional, and effective mode of transport to reduce time and cost of travel for their health activities. MAHEFA distributed individual bicycles to 1020 CHVs and trained them on topics such as safe operation, management, maintenance, and repair of bicycles.

In the MAHEFA regions there was often limited access to any type of affordable transport. MAHEFA worked to fill this gap by introducing a range of intermediate modes of transport (IMTs) including bicycle ambulances, wheeled stretchers, canoe ambulances, and ox-carts. These were

placed within the community, they were non-motorised and they were chosen according to the terrain and context.

Between September and December 2015 a small review team completed a qualitative review of the CHV mobility and ETS activities in Menabe, Sofia and SAVA. Focus groups and semi-structured interviews took place with key stakeholders to understand technical performance of the bicycles and IMTs, the utilisation, management, equity of access and impact. In addition, routine programme monitoring and evaluation (M&E) programme data was also analysed. The findings from this review are presented in two parts; firstly CHV mobility and secondly the ETS findings.

CHV mobility key findings:

Analysis of routine monitoring and evaluation data as well as the qualitative review found that:

- Quality bicycles that CHVs can maintain have been provided by MAHEFA
- There is some evidence of health service delivery improvements for CHVs with bicycles
- The bicycles motivate CHVs is their work
- Some CHVs report that their cost of transport has reduced since they can now use the bicycle to travel to restock their health commodities
- In more than one region, the review found a link between the perceived social status of CHVs and the possession of a bicycle

The CHV review also identified a number of challenges and lessons learned:

Challenges

- Difficult geographical context of Madagascar. MAHEFA villages are among some of the most hard-to-reach in Madagascar. The MAHEFA bicycles are operating well in the dry season but they are often unusable in the rainy season.
- Complex repairs remain a challenge. While CHVs are able to do simple repairs, in some cases complex repairs remain a challenge and a mechanic is needed.
- Timing of the introduction of transport activities in relationship with other community health activities needs careful planning.

CHV Mobility Lessons Learned and Recommendations

- Procuring bicycles for community health volunteers (CHVs) can greatly improve the mobility, motivation, service delivery and even the social status of CHVs and should be considered for future community-based health programs.
- Provision of bicycles should be part of a program implementation package. It is important to make sure that the CHVs are fully functional so that the program can establish clear, transparent and concrete selection criteria (based on specific indicators of performance).
- The terrain must be carefully considered, as must the specification of the bicycle.
- Training on safe riding and maintenance of the bicycles and provision of repair kits can prolong the useful life of the bicycle as well as the safety of the CHVs.
- Planning for M&E needs is program-specific and, as in MAHEFA's context of high data burden and low educational level of the primary providers, programs may not be able to capture

routine information on transport interventions. Reviews of transport interventions at select time points (baseline, mid-, and/or end-line) are more feasible and can also provide accurate measurements on distances, technical performance of the bicycle, utilization and coverage, and costs.

ETS key findings:

Analysis of routine monitoring and evaluation data as well as the qualitative review found that transport systems are in place, drivers have been trained and management systems are in place. Specifically;

- Five districts now have emergency transport systems in place
- A total of 151 IMTs have been distributed
- 185,053 people now have access to ETS
- 323 committee members for emergency transport have been trained
- 253 drivers have been trained on emergency transport
- Synergies with *mutuelle (community health insurance scheme)* and eBox (micro enterprise bicycle sale and repair shop) activities have been created to contribute to sustainability.

MAHEFA's target groups are using the transport systems and value the service it provides. In a 19-month period between 2014 and March 2016 in the regions of Menabe, SAVA, Sofia and DIANA, 964 people were transported to a health facility using a form of emergency transport:

- 149 women (15%)
- 632 children under five (66%)
- 183 others (men, older children) (19%)

The review also found that:

- Focus group participants reported that journey times in an emergency, which used to take two hours on foot, now take between one hour and one hour 15 minutes.
- In addition to a reduction in cost, communities reported that it would take between one and three hours to arrange transport before the emergency transport system was in place. Now the ETS is available when needed.

In a context where cost constituted a major barrier and where saving time can be the difference between life and death, these findings are significant.

ETS Challenges, lessons learned and Recommendations

- Despite a comprehensive needs assessment and sensitization activities, there is still a perception in some MAHEFA areas that bicycle ambulances and stretchers should only be used for carrying dead people, resulting in a barrier to utilization
- Conducting a thorough needs assessment is key. The needs assessment will help ensure that community-based transport solutions are specific to the geography and local context, as well as provide community perspective and information to build on existing transport mechanisms.

- Community engagement activities are as important as IMT distribution. Investing the time to establish community management systems, publicly recognize drivers, and sensitize the community for demand creation is essential to ensure that transport is accessible, volunteer drivers remain motivated, and community members know about the transport.
- Transport activities can contribute to local capacity building. Building local capacity on IMT production was an important part of this innovation. MAHEFA used a mix of approaches to produce IMTs: canoes and ox-cart ambulances, for which there was already, capacity, were produced at the regional level, whereas other IMTs such as cycle rickshaw ambulances, bicycle ambulances and wheeled stretchers that required a more technical design, were built by a more experienced supplier.
- Plan for maintenance and repair costs for all types of IMT. Despite low running costs associated with non-motorized transport, there is still a need for repairs and maintenance and a mechanism for funding these costs. Despite some challenges, MAHEFA's link to community health insurance schemes and income generating activities *(*eBox) does provide a mechanism for repair, maintenance and access to spare parts.

2. Introduction

In 2013, the WHO estimated that the number of maternal deaths was more than 14 times higher in developing countries than in developed countries. In fact, 99 percent of global maternal deaths occur in developing countries. Poverty is a direct social determinant of maternal mortality and many contributing factors leading to poverty are major obstacles to reducing the number of maternal deaths in developing countries.

Whilst the global average maternal mortality ratio has declined by almost 50 percent since 1990, from 400 maternal deaths per 100,000 live births in 1990 to 210 in 2010 (United Nations, 2013), this masks the fact that in many countries, most notably within sub-Saharan Africa, maternal mortality remains unacceptably high at an average MMR of 510 (WHO, 2014). Under-five mortality has also seen a reduction in the global average of approximately 53 percent between 1990 and 2015 although the risk of children dying before reaching their fifth birthday remains high in sub-Saharan Africa at 81 deaths for every 1000 live births.

The majority of maternal and under-five deaths are preventable. With haemorrhage, hypertension, asphyxia and prematurity being the primary causes, access to skilled care before, during and after pregnancy is critical. The delay in achieving this access to the appropriate care is a key determinant in maternal and under-five mortality. Thaddeus and Maine introduced the three delays model which has been highly influential in defining approaches to addressing the barriers to accessing maternal healthcare services (1994). They stated that delays in accessing health services can occur at three levels:

1. Delay in the decision to seek care
2. Delay in reaching the appropriate health facility
3. Delay in receiving adequate care once at the health facility

Transport plays an integral role in influencing the second delay. In many isolated rural areas where there is low demand and inadequate infrastructure, the lack of available and affordable transport services is a major contributing factor to lower levels of uptake of essential services. Therefore, any failure to integrate transport into programmes designed to address the constraints to accessing essential services will reduce the effectiveness of community-based efforts that aim to improve access to skilled attendants. Murray and Pearson (2006) state that transport strategies implemented alongside other interventions could contribute to as much as an 80 percent reduction in maternal deaths. Inadequate access transport can contribute to increased clinical severity of cases particularly where complications exist.

In 2012/2013, Madagascar's estimated maternal mortality rate (MMR) was 478 maternal deaths for every 100,000 live births (MDGNS, 2012/2013) which are down from an MMR of 740 in 1990 (WHO, 2014). Madagascar has exceeded expectations in making significant progress in reducing under-five mortality with 52 deaths per 1000 live births in 2013 (USAID, 2014) however, 44 percent of these deaths occurred during the neonatal period. USAID's paper, 'Ending Preventable Child & Maternal Deaths' (2014) states that in 2013, only 38 percent of babies were born in a health facility, indicating that a number of challenges exist regarding access to healthcare. The

same paper points to the low level of facility-based births being influenced by the fact that 65 percent of the population live more than five kilometres from a health facility and a lack of formal rural transport services.

The challenges for transport provision in rural areas in Madagascar are no different than those affecting many countries in sub-Saharan Africa. Issues in the operating environment such as infrastructure, low density demand and socio-economic status of the population, and high vehicle operating costs combine to have a significant impact on the level of competition, the diversity of vehicles, service frequency and cost. The majority of rural communities are served by community access roads, most of which are unpaved. It is unknown what proportion of the total amount of community access roads is accessible to motor vehicles, however, seasonal factors such as rainfall have an impact on whether or not these roads are passable, as does the nature of the terrain.

3. Background

The Community Based Integrated Health Programme, known locally as MAHEFA is a five-year USAID-funded programme focussing on the provision of quality maternal healthcare services to isolated communities in six regions of Madagascar. These six regions are located in the north and north-west of the country. The overall aim of the programme is to reduce maternal, child, and newborn mortality and malnutrition rates through increasing the uptake of health-related community-based interventions and essential products in isolated communities.

To address the transport challenges described above, in 2012, MAHEFA conducted a detailed needs assessment in its target zones and designed interventions to overcome the following transport-related challenges:

CHV Mobility. MAHEFA has trained over 6000 CHVs. These CHVs often need to travel long distances to conduct community health activities such as household visits and resupply of health commodities. CHVs spend their own time and financial resources to be able to carry out their activities effectively. To improve CHV mobility and to help motivate CHVs in their work, MAHEFA provided 1020 CHVs with bicycles and basic tools to maintain them, along with training on bicycle use, maintenance and repair. By reducing the time and the cost of travel for CHVs, MAHEFA aimed to both motivate them and lead to improvements in service delivery.

Access to health facilities. MAHEFA operates in a context where the distance to the nearest health facility and the need to use a means of transport are amongst the five most relevant barriers to access health care identified by women of reproductive age (NDHS 2008/2009). Using results of the 2012 needs assessment and in consultation with communities, MAHEFA designed a number of emergency transport systems (ETS) that considered the local context, terrain, topography, potential for flooding, and social barriers. The community's ability to manage and maintain any means of transport was also an essential consideration.

With these findings, MAHEFA introduced a range of *intermediate modes of transport* (IMT) including stretchers, bicycle ambulances, canoes, and ox-carts. MAHEFA educated communities about the ETS and trained volunteer operators to transport patients to the closest health facility. The provision of IMTs is important to improving access but must be backed up by genuine engagement and transfer of ownership to the community, as well as improved care seeking behaviour on the part of the communities. MAHEFA sensitized communities about the approach and engaged community members in the selection of volunteer drivers and ETS management committee members. To provide other avenues of support and funds for repairs and maintenance, MAHEFA established links between the ETS and community health insurance schemes (*mutuelles*) and with "eBox" (enterprise box) activities.

As MAHEFA entered its final phase of implementation, the program conducted a review of the emergency transport and CHV mobility activities to understand their effectiveness, ascertain lessons learned, and develop recommendations for future programmes.

This report constitutes a review of these two transport-related elements of the MAHEFA programme which have been implemented and which aim to improve access to health services for isolated communities in the aforementioned regions. Specifically, this review focuses on emergency transport systems and CHV mobility in Menabe, SAVA, and Sofia regions in the north-west and north of Madagascar.

4. Methodology:

The review analysed routine programme data that is collected by the MAHEFA program. A qualitative review was also conducted in late 2015 to provide additional insight.

A framework was drafted for the field review to detail the key themes. From this framework, semi-structured questionnaires were developed as guidance for focus group discussions and one-to-one interviews with key stakeholders. These tools can be found in Annex 1 for CHV mobility and Annex for emergency transport.

The project team, consisting of two Transaid staff and a small number of external consultants visited three regions where emergency transport and community health worker mobility interventions were in place.

The following stakeholders participated in the study:

- Operators of the emergency transport[1]
- Community Health Volunteers
- Community members (including users and non-users of emergency transport)
- Management committees for the emergency transport
- Community health insurance schemes (*mutuelles de santé*), health facility staff and other stakeholders.

For CHV mobility the following key themes were explored:

- Technical performance (to understand to what extent the bicycles were adequate to the terrain, how they were performing and what maintenance issues were arising)
- Motivation (to what extent the bicycles motivate CHVs in conducting their health activities)
- Utilisation and geographical coverage: (to understand how well used the bicycles were, who was using them, what distances they covered and which communities the could reach)
- Equity of access (to understand if both female and male CHVs were using the bicycles and if there were any constraints in the use of the bicycles)
- Governance (to understand if the bicycles were used for their intended purpose and if there were any issues)
- Sustainability (to understand how sustainable such an initiative is, how long the bicycles are likely to last etc)

[1]In this report the term "Operator" is used to denote all operators of the emergency transport, be they ox-cart operators, canoe operators, bicycle ambulance riders etc.

For ETS the following key themes were explored:

- Technical performance (to understand to what extent the IMTs were adequate to the terrain, how they were performing and what maintenance issues were arising)
- Utilisation and geographical coverage: (to understand how well used the IMTS were, who was using their services, what distances they covered and which communities the could reach)
- The management model for the ETS
- Equity of access (to understand if both female and male clients were able to use the ETS and if any groups were being left behind)
- Sustainability (to understand how sustainable such an initiative is, how long the IMTS are likely to last etc)
- Cost (to understand costs associated with operating the ETS and how communities are funding them)
- Outcomes (to understand what changes have been seen in the communities since the ETS was established)

The target groups for this evaluation were:

- For CHV mobility: CHVs who were provided with bicycles, CHVs who were not provided with bicycles in nearby areas, health personnel, and beneficiaries. The target for each focus group was eight participants.
- For emergency transport: existing operators, (rickshaw ambulance, bicycle ambulance, simple stretcher, wheeled stretcher, canoe) operators who have left the programme, health personnel, management committees, women who have used the transport for themselves (either for themselves, for their children under five or other family members) and women who have not used the transport.
- Emergency transport management committees
- Users (women who have used the emergency transport for themselves or for their children under five)
- Non-users (women who have not used the emergency transport for themselves or for their children under five)

In addition, spot checks on the different types of emergency transport and CHV bicycles were made where possible.

The review team worked closely with MAHEFA's monitoring and evaluation (M&E) team to ensure an appropriate range of sites were visited, with representation from sites which differed by region, means of transport, terrain and distance to health facilities.

The results are now presently firstly for CHW mobility and secondly for ETS.

5. CHV mobility results:

Since 2012, MAHEFA has provided bicycles to 1,020 CHVs in 220 communes (17 percent of CHVs in 79 percent of all programme region communes). All CHVs who received bicycles also received training in the safe riding, management, maintenance, and repair of bicycles.

Figure 1: Bicycles distributed to CHVs by MAHEFA:

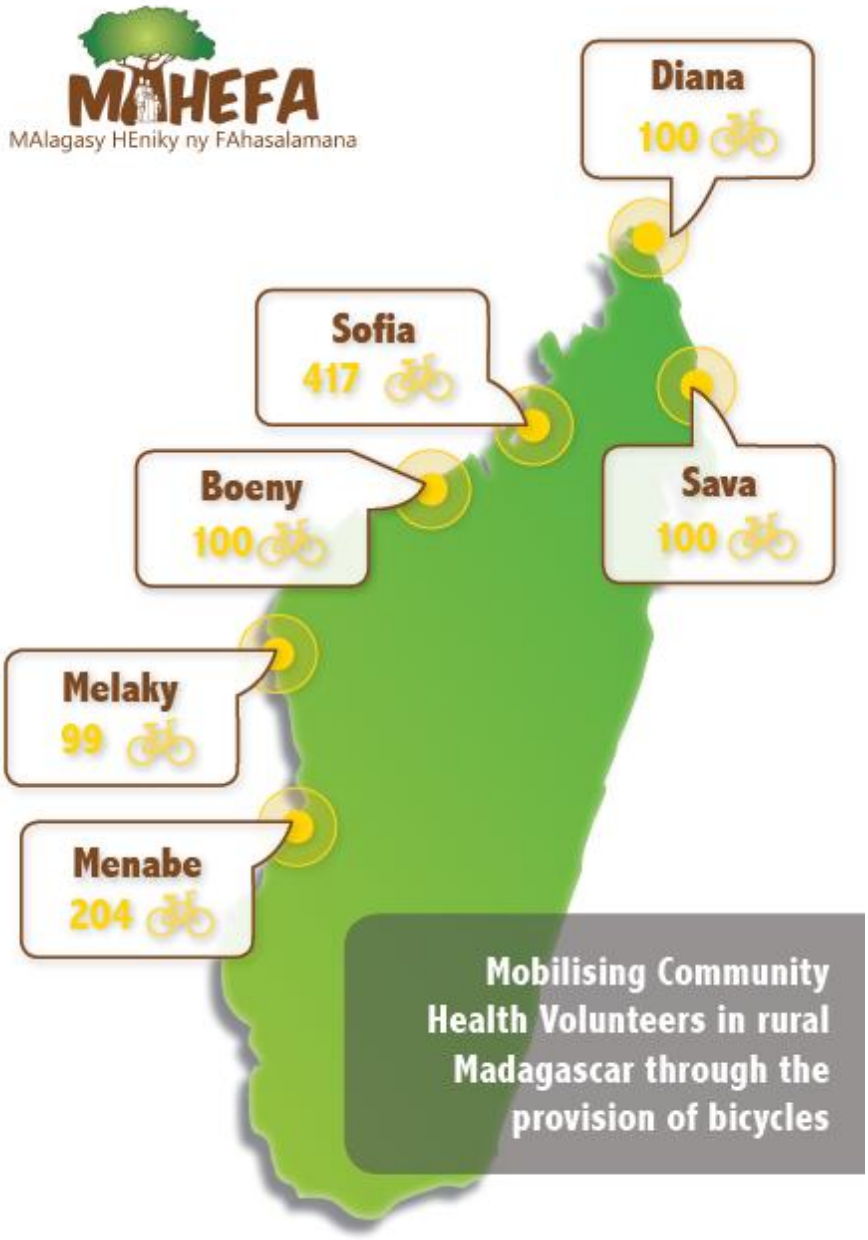


Table 1: Total number of CHVs trained and bicycles distributed:

Region	Male	Female
Boeny	48	52
DIANA	54	46
Melaky	57	42
Menabe	115	89
SAVA	50	50
Sofia	281	136
Total	605	415

Figure 2: CHVs trained on bicycle use and maintenance:

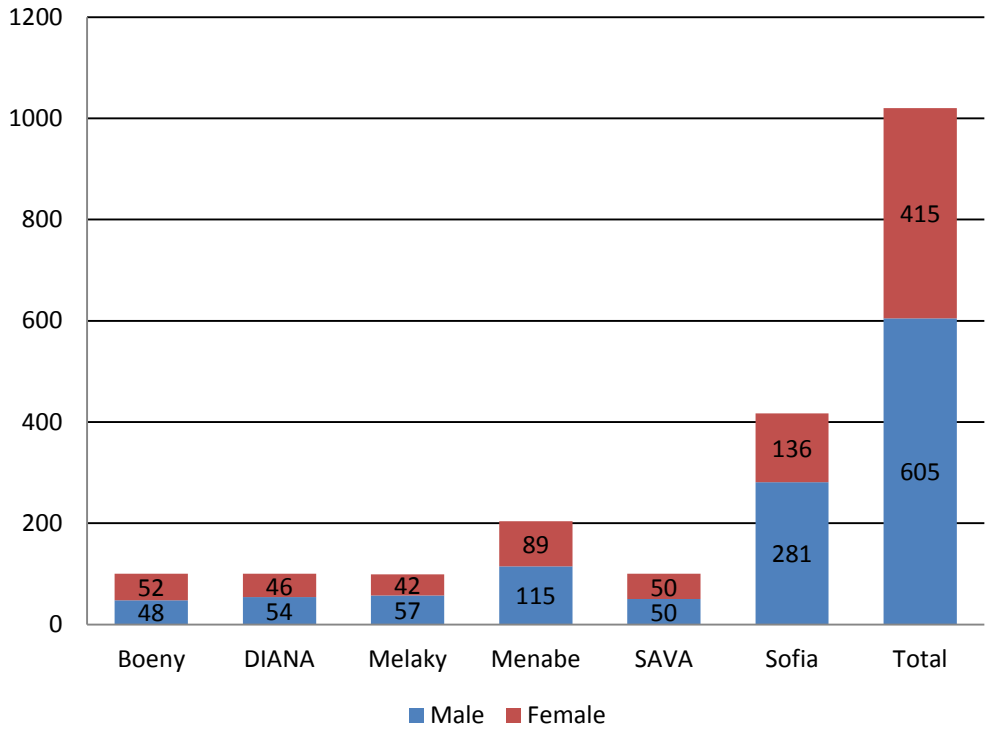


Figure. 3: The two types of bicycles that were distributed

Initial CHV bicycles (2014)

'Spida' bicycle (2015)

A summary of the key findings from the qualitative review of CHV activities, conducted between September and December 2015, is presented below:

Quality bicycles that CHVs can maintain:

- Quality bicycles were provided that are appropriate to the local terrain. CHVs reported that MAHEFA is the only program that they know about where basic training in repairs and maintenance was provided at the time of distribution. Thanks to the training CHVs stated that they were confident in carrying out basic repairs and maintenance, and that as a result, they made efforts to carry out safety checks regularly.
- CHVs consider MAHEFA bicycles to be robust and easy to find spare parts for. Tools were distributed with the bicycles to aid CHVs in carrying out basic maintenance and repairs.

Service delivery improvements:

- Bicycles assist CHVs in their health activities, which include household visits, re-stocking of medical supplies, mobilization for vaccination campaigns and reporting.
- CHVs who are able to cycle rather than walk reported that they are able to visit more families, and in some cases reach more remote communities.

Strengthening links with health facilities:

- CHVs perceive that the possession of bicycles has led to CHVs developing stronger links with health centers as CHVs are now able to visit facilities more often, which they do so to accompany referred patients, for resupply of health products, and to attend monthly meetings.

- According to CHVs and CSB staff in Menabe, CHVs with bicycles are consistently more able to meet their monthly activity goals when compared to CHVs without bicycles.

Additional motivating factors:

- Some CHVs reported that their cost of transport has reduced as they can now use their bicycle to travel to restock their health commodities.
- In more than one region the review found a link between the social status of CHVs and the possession of a bicycle.

In terms of the impact on CHV operations, it is not possible to attribute improved results from CHVs with bicycles solely to the bicycle, it being the case that only high-performing CHVs were selected to receive the bicycles. However, the following findings demonstrate that CHVs with bicycles continued to perform better than the average CHVs in that stock outs of medications were avoided and more home visits were conducted, whilst a slight decrease was noted in monthly meeting attendance. All CHVs understood and agreed that the primary use of their bicycles is to fulfil their day to day responsibilities as CHVs. This is not to say that bicycles cannot be used for other purposes, and some CHVs do use them in helping them achieve other everyday activities.

Additional qualitative interviews with 62 CHVs between September and December 2015 in Menabe, Sofia and SAVA regions showed that the bicycles assisted CHVs in performing the following health activities: household visits, resupplying health products, mobilization for vaccination campaigns, accompanying referred patients to the CSB, participation in the monthly meetings and reporting. CHVs with bicycles reported that they visit more families (an average of 8 home visits per month) and in some cases are able to reach more remote communities. Both the program records and the qualitative interview results show that bicycles enabled CHVs to reduce travel time and perform more health activities. In fact, in Menabe, health personnel at one CSB perceived there to be a link between a recent increase in the number of women giving birth at the health center and CHV mobility.

> ***'Having a bicycle allows us to increase the amount of work we can do. Example: As soon as we have some free time, we fulfil our CHV responsibilities and we monitor the care of our patients. When we didn't have the bicycles we could visit eight people, but now that we have them we are able to visit 18.'***
>
> *CHV with a MAHEFA bicycle in Mahabo, Menabe (anecdotal report)*

Many CHVs that were interviewed said that they appreciated the robustness of MAHEFA bicycles, the wide availability of spare parts, and the provision of tools that made it easier for CHVs to carry out basic maintenance and repairs. Whilst repairs have been necessary since the bicycles were distributed, they stated that they feel confident in carrying out basic repairs and maintenance, and that they make efforts to do safety checks regularly thanks to the training

which should increase the usable life of the bicycle and maximise the sustainability of this intervention.

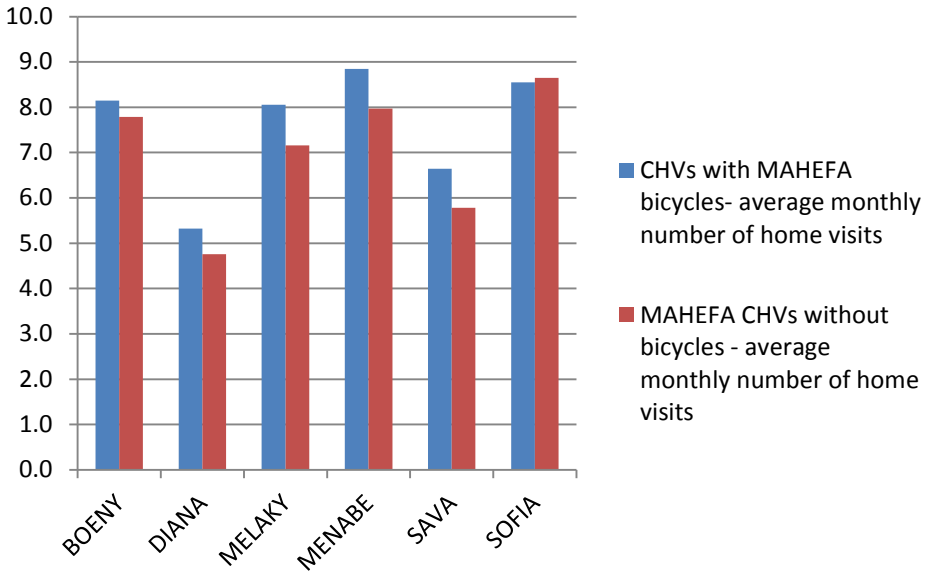
Some CHVs reported that their own transport costs had reduced significantly since receiving the bicycles. Previously they would have had to hire an ox cart or to pay for a minibus taxi in order to carry out many of their responsibilities as CHVs. This has resulted in a more efficient use of their time as stated by CHVs in the Sofia region, where despite the fact that they may be travelling longer distances, they are able to do so in a shorter amount of time and as a result feel less tired at the end of the day. Also from a personal safety point of view, in areas that commonly experience attacks from organized groups of cattle thieves in the West of the country, CHVs reported that they feel safer as they can travel to those areas and return before dark thereby avoiding the danger to them of a potential attack.

The review also found that the possession of a bicycle had an impact on the social status of some CHVs, both men and women. Higher levels of respect were experienced by one CHV in particular in SAVA region and in Menabe, women in their respective communities perceived the services offered by CHVs arriving by bicycle at their home, as being of higher value. Both the elevation of their social status as well as improved credibility amongst community members have served as powerful motivational factors for these CHVs.

> ***"It's a question of pride for the CHVs in the locality"***
> CHV without a MAHEFA bicycle, Mahabo, Menabe

Analysis of the programmes routine M&E data between September 2014 and December 2015 showed that CHVs with MAHEFA bicycles, in all regions apart from Sofia, were conducting a slightly higher number of home visits a month:

Figure 4: Graph to compare home visits conducted by CHVs with and without MAHEFA bicycles:



6. ETS results:

Emergency transport headlines:

- Five districts now have emergency transport systems in place
- Five different types of transport were produced:
  - Bicycle ambulances
  - Cycle rickshaw ambulances
  - Wheeled stretchers
  - Canoe ambulances
  - Ox carts
- 253 operators have been trained on emergency transport
- 185,053 now have emergency transport systems in their *fokontany*

Synergies with *mutuelle* and eBox activities have been created to contribute to sustainability. Three of the four eBoxes have already made a contribution to the *mutuelle*, with a clear proportion specified for ETS support costs. In 2015, the annual eBox contribution to ETS has ranged from MGA320,000 to 640,000 (approximately USD100-200). An average repair costs just under MGA 6,400 (USD 2).

In the regions of Menabe, SAVA, Sofia and DIANA, between **1st September 2014 and 31st march 2016,** , 964 people were transported to a health facility using a form of emergency transport provided by MAHEFA:

- 149 women (15%)
- 632 children under five (66%)
- 183 others (men, older children) (19%)

Table 2: Emergency transport management committees trained, operators trained and IMTs distributed

REGION	DISTRICT	COMMUNE	MANAGEMENT COMMITTEE MEMBERS TRAINED	OPERATORS TRAINED	STRETCHERS DISTRIBUTED	CYCLOPOUSSES (CYCLE RICKSHAWS) DISTRIBUTED	BICYCLE AMBULANCES DISTRIBUTED	CANOE AMBULANCES (PIROGUES)	OX-CART AMBULANCES (CHARRETTES AMBULANCES)
Menabe	Morondava	Bemanonga	40	20	5	3	3	2	2
		Analaiva	19	14	5	2	2	0	0
SUB TOTAL			59	34	10	5	5	2	2
SAVA	VOHEMAR	Antsirabe Nord	23	16	7	0	3	0	0
		Ampanefena	19	16	5		3		
		Nosibe	14	7	7		1		
SUB TOTAL			56	39	19	0	7	0	0
SOFIA	Mandritsara	Mandritsara	14	17	3	0	6	0	0
		Antanandava	33	33	9		10		
		Pont Sofia	15	13	5		4		
SUB TOTAL			62	63	21	0	23	0	0
DIANA	Diego II	Anivorano Nord	43	32	10	0	7	0	2
		Mahavanona	45	42	13		8		
		Andranofanjava	33	21	8		0		2
SUB TOTAL			121	95	31	0	15	0	4
MELAKY	Miandrivazo	Ankondromena	25	22	12	0	0	0	2
SUB TOTAL			25	22	12	0	0	0	2
TOTAL			**323**	**253**	**89**	**5**	**47**	**2**	**8**

Table 3: Dates of training and introduction of IMTS

REGION	DISTRICT	COMMUNE	TRAINING	INTRODUCTION
MENABE	Morondava	Bemanonga	13 - 15 November 2013	17 December 2013
		Analaiva		16 December 2013
SOFIA	Mandritsara	Antanandava	1 – 6 December 2014	6 December 2014
		Pont Sofia		
		Mandritsara		
SAVA	Vohémar	Antsirabe Nord	15 - 17 December 2014	17 December 2014
		Nosibe	17 - 19 September 2014	19 December2014
		Ampanefena	11 - 13 December 2014	13 December 2014
MELAKY	MIANDRIVAZO	Ankondromena	26-28 August 2015	28 August 2015
DIANA	DIEGO II	Anivorano Nord	9-11 July 2015	21 September 2015
		Mahavanona	9-11 July 2015	21 September 2015
		Andranofanjava	14-16 July 2015	21 September 2015

Figure. 5: Five types of IMTs distributed
(Top left to bottom right: cycle rickshaw ambulance, bicycle ambulance, ox cart, canoe ambulance and wheeled stretcher)

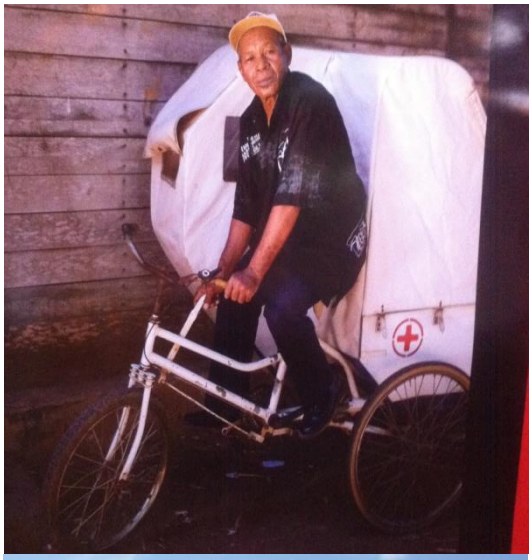


Figure.6: Emergency Transport Systems map:

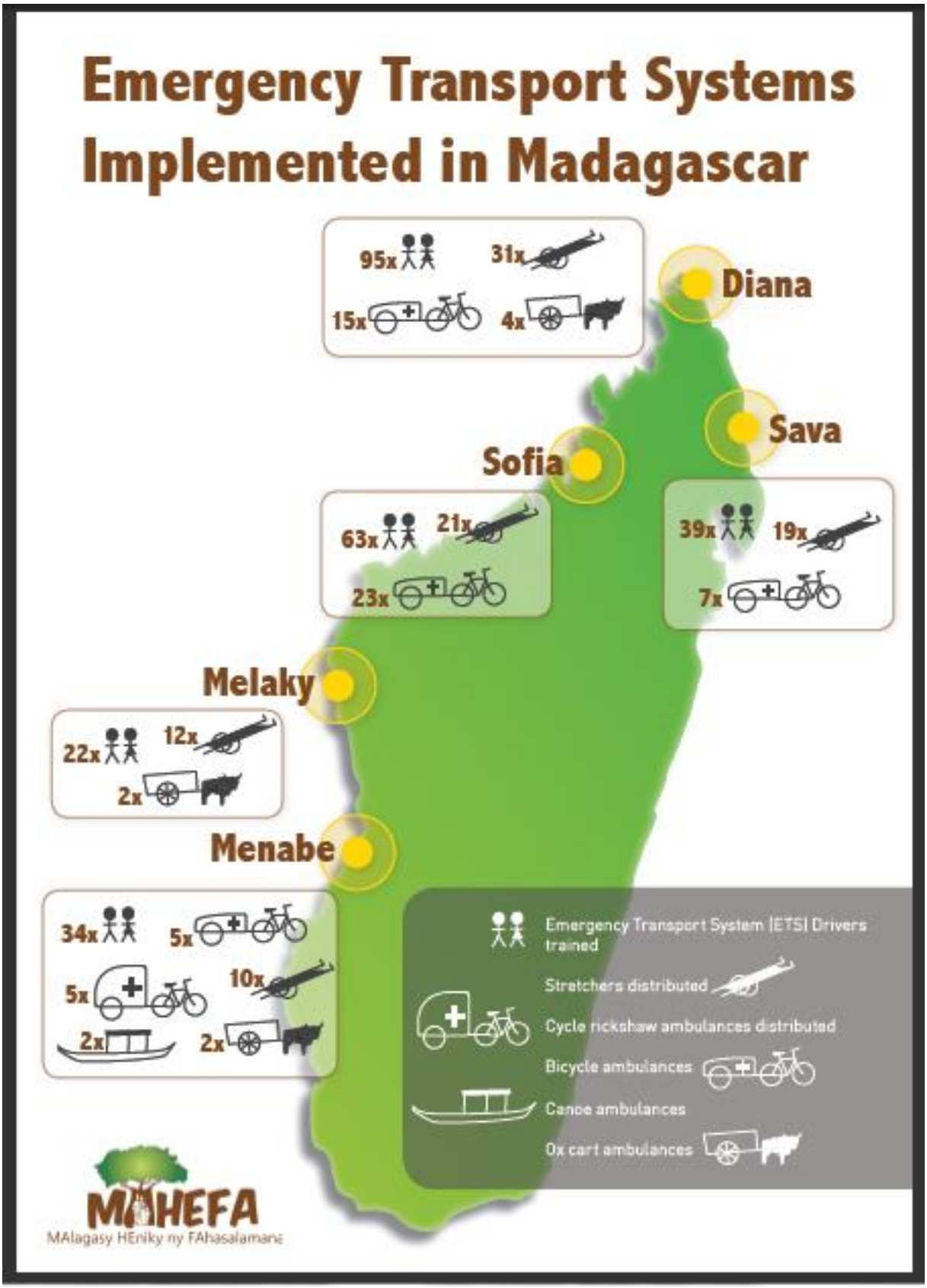


Table 4: Number of people transported by region

Region	Number of women transported	Number of children under five transported	Number of Other people (men, older children) transported	Total
Menabe	90	99	65	254
SAVA	28	2	78	68
Sofia	29	530*	40	599
DIANA	2	1	0	3
Total	149	632	183	964

A qualitative review of the ETS activities was conducted in three regions between September and December 2015.

A summary of some of the key findings are presented below:

Travel times reduced during an emergency from two hours on foot to a maximum of one hour and 15 minutes post- ETS innovation. Pre- ETS innovation it took between one to three hours to arrange transport. Post-ETS innovation

Emergency transport is now available when required. The ETS initiative aimed to respond to a gap of non availability of transport in an emergency, this could be due to a lack of regular routine transport services as well as transport in the night. Transport is now available day and night.

Costs have also reduced:

- Pre- ETS innovation, in Menabe, the cost of using a minibus taxi (if available) was 4,000 MGA (1.25 USD); hiring an ox cart cost around 30,000 MGA (9.40 USD); and a car could cost as much as 100,000 MGA (31.00 USD). In an emergency situation exploitative pricing strategies were often employed resulting in prohibitively expensive prices.
- With the ETS innovation in place, community members pay the following costs:
    - *Mutuelle* members: After paying 1,200 MGA (0.38 USD) per household per year to join the *mutuelle,* member benefits include free ETS use.
    - Non-*mutuelle* members: Community members pay a fee for each use of the ETS, but it rarely exceeds 1,500 MGA (0.50 USD) per trip; this amount is considered affordable.
    - Vulnerable families: The review also found that people were not refused access to the ETS if they could not pay for it at the time of use. Communities know the most vulnerable families, and drivers and management committees were able to exercise flexibility to allow equity of access. In a context where cost constituted a major barrier

to accessing care and where saving time can be the difference between life and death, these results are significant.

People do seem to be broadly aware of the ETS and know how to access it. Children under five are the main users of the scheme and the system has evolved (community decision) in many places for transport to health facilities for vaccination and ANC visits showing that it has become a regular mode of transport in the community.

The IMTs are mainly functioning but there have been issues with punctures, tyres needing mending/replacing, bent wheel rims and pedals. All of the different types of IMTs are being used, with the bicycle ambulances and wheeled stretchers recording the most trips. Simple repairs can be attended to by the drivers but the more complex repairs are challenging. The ETS has more chance of being sustainable when it is placed in the same area as a *mutuelle* and *eBox* where some funds can be made available to support with spare parts or maintenance. Communities felt the IMTs were generally suitable for the terrain but did suggest motorised forms of transport like auto-rickshaws could be a good alternative.

Broadly the ETS operators have remained committed and motivated in their work. They are appreciated by their communities and by the health personnel. Some drivers have however left the scheme, reporting that they needed to find alternative paid work.

Community management systems are in place but there are variations in their effectives. Cost does not seem to constitute a major barrier to accessing the emergency transport, especially where there is a *mutulle*, meaning if you are a member the ETS access is free. During the qualitative review there were no reports of anyone being denied access to the ETS even if they did not have the funds to pay. The priority groups for the ETS are women and children under five however access seems to have been equitable for all and in SAVA the review team also found evidence of female ETS operators.

Two quotes from the review can be found below to share operator and user perspectives:

> ***We have used the bicycle ambulances and cycle rickshaws to transfer ill people, for delivery, for PNC visits and ANC visits as well as vaccination.***
>
> ***ETS operator, Menabe***

> ***To look for an ox cart or a minibus taxi you would lose one to three hours. Hiring a car would cost 100,000 Ariary, the cost of a minibus taxi would be 4,000 Ariary. This is too much for the community to pay. There is a reduction in the cost because the hire of an ox cart would cost 30,000 Ariary or 2,000 Ariary for a canoe. Compare this to the 1200 Ariary per household per year with the emergency transport scheme.***
> *(ETS User, Menabe)*

More details from the qualitative ETS review can be found in Annex 6 to this report.

Analysis of the programmes routine M&E data between September 2014 and December 2015 showed that:

- Six IMTs from the total distributed were reportedly not functional. The severity of the repairs needed is not clear.
- 26 IMTs had been repaired according to the maintenance sheets that are kept by the management committees. All types of IMT have been repaired except the canoe ambulance which had not required repairs at the time of the review. The numbers here only represent what was reported in terms of repairs, meaning that other repairs may have been carried out but not reported.
- The average cost of a 'repair' is MGA 6,400 (2 USD). However, is clear from the data reported that some 'repairs' addressed a number of issues and functioned more like a service where a number of issues were addressed. Typical issues dealt with were oiling, rim straightening, fixing spokes, fitting new tyres, soldering the bicycle ambulance/cycle rickshaw, and replacing inner tubes.
- Information on distances travelled and travel time was not recorded routinely in the logbooks, or was not transmitted effectively up the chain. This information gap should be noted by future programmes to ensure more robust data collection. During training on the safe use of bicycles more time should be spent to orientate CHVs on the logbook and how to fill in the travel times and distances and in what units of measurement to use.

Fig. 7: Distribution of people transported using the emergency transport scheme from 1st September 2014 to 31st December 2015

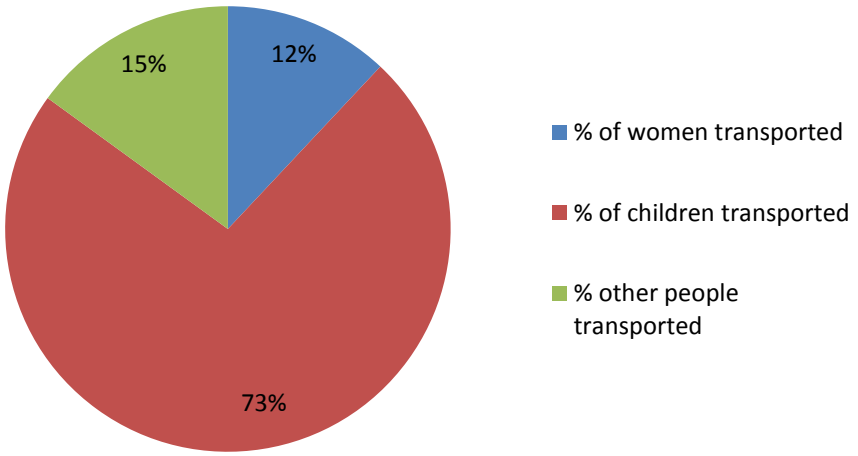
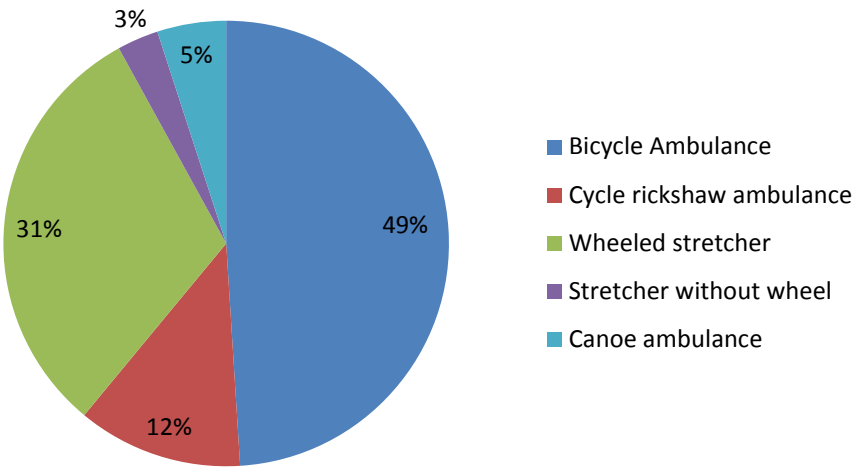


Fig. 8: Percentage of people transported by different modes of emergency transport 1st September 2014 to 31st December 2015



7. Challenges/Lessons Learned

A limitation of this review is that it only focused on three regions (Menabe, SAVA, and Sofia), whilst emergency transport has been implemented in five regions. Analysis of existing data on emergency transport in Melaky and DIANA was challenging. The ETS in these two regions was implemented in 2015 but the routine programme M&E data shows there have been just three transfers in these two regions since implementation. This seems highly unlikely. It is more probable that the data has not been transmitted up the chain.

CHV Mobility Challenges

- Timing of introduction of transport activities in relationship with other community health activities. CHVs in MAHEFA areas needed to be trained in several topic areas in order to provide services, as well as complete a trial period for certification of certain skills (e.g., family planning). It took time for CHVs to be fully functional and the CHV mobility activities were introduced close to the time that most CHVs became fully functional. Because of this timing, it was difficult to identify the high-performing CHVs who should receive bicycles and so the criteria who received bicycles was a little vague. Also, the timing of bicycle training for CHV recipients often conflicted with their other trainings.
- Unavailability of low cost high-quality bicycles in Madagascar complicated the procurement process. For a large procurement, it is hard to find a local supplier that can ensure quantity and quality of bicycles assembled by hand. For the final procurement of the 'Spida' bicycles (the most preferred model), MAHEFA chose an international supplier. While this ensured a quality bicycle, there were production and shipment delays, which affected program activities.
- Difficult geographical context of Madagascar. MAHEFA villages are among some of the most hard-to-reach in Madagascar. It is hence natural that bicycles are not appropriate for everyone. The MAHEFA bicycles are operating well in the dry season but in the rainy season they are many times unusable.
- Complex repairs remain a challenge. While CHVs are able to do simple repairs, in some cases complex repairs remain a challenge and a mechanic is needed. In some instances the review found that CHVs have the expertise but there are affordability issues regarding spare parts; many CHVs report that when they have funds later in the month they are able to purchase spares.
- Balancing needs for monitoring and evaluation (M&E) of the bicycle intervention with broader program M&E work. Because of the wide range of health activities MAHEFA implements, the data collection burden is heavy. Priority for data collection and analysis was given to other health areas, resulting in insufficient or low-quality routine data on transport interventions.

ETS Challenges

- This programme understood the importance of local context from the start hence using a range of IMTs even in the same regions. What was interesting from this review was the difference in the performance of the ETS between communities as close as 15 miles apart. IMTs in Sofia and SAVA seem to have performed better than in Menabe. The manufacturers (MIDAS) were able to learn technical lessons from the first phase in Menabe and benefited from a 'redesign workshop' where two engineers came from the

US to train MIDAS on best practice techniques for building IMTs. It is also probable that the quality of training improved as the approach was replicated in other regions.

- Despite a comprehensive needs assessment and sensitisation activities, there is still a perception in some MAHEFA areas that bicycle ambulances and stretchers should only be used for carrying dead people, resulting in a barrier to utilization.
- There are clearly still challenges with driver retention and motivation as well as with ongoing maintenance of IMTs

8. Recommendations for future programmes

CHV Mobility Lessons Learned and Recommendations

- Procuring bicycles for community health volunteers (CHVs) can greatly improve the mobility, motivation, service delivery and even social status of CHVs and should be considered for future community-based health programs.
- Provision of bicycles should be part of a program implementation package. It is important to make sure that the CHVs are fully functional therefore the program can establish clear, transparent and concrete selection criteria (based on specific indicators of performance).
- The terrain must be carefully considered as must the specification of the bicycle.
- Training on safe riding and maintenance of the bicycles and provision of repair kits can prolong the useful life of the bicycle as well as the safety of the CHVs.
- Planning for M&E needs is program-specific and, as in MAHEFA's context of high data burden and low educational level of the primary providers, programs may not be able to capture routine information on transport interventions. Reviews of transport interventions at select time points (baseline, mid-, and/or end-line) are more feasible and can also provide accurate measurements on distances, technical performance of the bicycle, utilization and coverage, and costs.

ETS Lessons Learned and Recommendations

- Conducting a needs assessment is key. The needs assessment will help ensure that community-based transport solutions are specific to the geography and local context, as well as seek community perspective and provide information to build on existing transport mechanisms.
- Community engagement activities are as important as IMT distribution. Investing the time to establish community management systems, publicly recognize drivers, and sensitize the community for demand creation is essential to ensure that transport is accessible, volunteer drivers remain motivated, and community members know about the transport.
- Using a pilot to improve the technical design - Menabe region was the pilot site and has seen reasonable utilization figures for the number of IMTs in place. However, structurally the transport design was weaker is this first batch of production. Analyzing the findings of the pilot enabled an important redesign workshop where the strength and quality of the production was improved and quality assurance process put in place for other regions.
- Transport activities can contribute to local capacity building. Building local capacity on IMT production was an important part of this innovation. MAHEFA used a mix of approaches to produce IMTs: canoes and ox-cart ambulances, for which there was already, capacity, were produced at the regional level, whereas other IMTs such as cycle rickshaw ambulances, bicycle ambulances and wheeled stretchers that required a more technical design, were built by MIDAS at their workshop. Future programs can deepen these efforts by sharing images of different types of transport with communities and encouraging them to make their own proposals for producing IMTs. The program can provide advice on issues such as running costs and. This approach would also support with local ownership and cultural acceptance.

- There are clearly some sites where adoption of IMTs was less successful than in others. This seems attributable at least in part to low levels of sensitisation in some areas of community members. Future projects might consider a greater focus on sensitisation during project inception, so that there is good awareness from the outset, and could consider promotion through other community forums, radio advertising and demonstrations at public gatherings.
- Addressing cultural barriers - Design issues to consider for future projects are the stability of one-wheeled stretchers, weather protection for stretchers and addressing concerns about similarities of IMTs to other devices used to transport corpses, perhaps by modifying colours of materials, design shape or identifying markers.
- Plan for maintenance and repair costs for all types of IMT. Despite low running costs associated with non-motorized transport, there is still a need for repairs and maintenance and a mechanism for funding these costs. MAHEFA's link to community health insurance schemes and eBoxes is highly innovative. Where eBoxes are in place there is a mechanism for repair, maintenance and access to spare parts. At the end of each year, the eBoxes contribute a percentage of their profits to health activities. Three of the four eBoxes have already made a contribution to the mutulle, in 2015 with a clear proportion ringfenced for emergency transport support costs. The contribution has ranged between $100 and $250 USD as an annual contribution, this is not insignificant when the average minor service cost is just under $2.

9. Other available resources:

The following materials were developed as part of the MAHEFA programme and are available through contacting the authors of this report.

CHV Mobility:

- CHV mobility - Bicycle Training Curriculum for CHVS
- CHV bicycle maintenance guide
- Bicycle specifications
- CHV letter of bicycle receipt and responsibilities

ETS:

- Specifications for Bicycle Ambulances
- Specifications for wheeled stretchers
- Specifications for zebu cart ambulances
- Guidance videos on emergency transport production
- Emergency transport training curriculum (IMTS)
- Log books for emergency transport
- Letter of engagement for ETS drivers
- Letter of engagement for custodians for the emergency transport

Annex 1 - CHV Mobility - Questionnaires

Community Health Volunteer Mobility Questionnaire

Target Group: CHVs (that have MAHEFA bicycles)
[Focus Group / Semi-Structured Interviews]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. When did you receive the bicycle? From who did you get it? 2. Are the bicycles in working order? 3. Is your bicycle appropriate to the local terrain? 4. Have there been any technical problems to date? If yes, what were the problems? 5. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 6. To what degree have you been able to use the skills that you learned to carry out repairs? Were they effective? 7. To that degree can CHVs carry out repairs to their bicycles? 8. Are spare parts available in the local community? If no, how do you get hold of them?
2	**Utilisation and Geographical Coverage**	9. What is the average number of journeys that you would carried out in your work as a CHV each month, using the MAHEFA bicycles? 10. For what purpose to you use your bicycle most frequently? (vaccination campaigns, meetings, home visits) 11. How many clients on average do you visit each month with and without your bicycle? 12. What is the average distance travelled for each journey? 13. What is the average time taken for each journey? 14. What were your longest and shortest journeys (time)? 15. What is the most frequent reason that you use your bicycle for? 16. What is the least frequent reason that you use your bicycle for? 17. Are there any obstacles to using your bicycles (physical or other)? 18. Do you think that you do more, less or the same amount of work now that you have a bicycle?
3	**CHV Motivation**	19. What do you think about the bicycle? 20. How effective is having a bicycle in motivating you as a CHV? (very, medium, low) 21. In your opinion are would having a bicycle influence CHVs to continue in their role? 22. DO you think that journey times have reduced no that you have a MAHEFA bicycle?

		23. Is there a difference in the quality of bicycles that were given by MAHEFA, and bicycles that have been donated by other projects? If so, what are these differences? 24. Are the bicycles used more for professional or personal reasons?
4	**Impact, equity and sustainability**	25. Do you think that CHVs with MAHEFA bicycles visit more or less families than the CHVs without bicycles? 26. Can CHVs with MAHEFA bicycles make home visits to families that would have been difficult to access otherwise? 27. Are the bicycles kept at the homes of the CHVs which received them in the first place? 28. Do male and female CHVs use the bicycles? 29. What do you think is the expected lifespan of the bicycles? 30. Do you think that the bicycle helps CHVs in their work? If yes, how? If no, why? 31. In what way can bicycles be a good way of motivating CHVs?

Community Health Volunteer Mobility Questionnaire

Target Group: CHVs (that DON'T have MAHEFA bicycles)
[Focus Group / Semi-Structured Interviews]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. Do you know about the CHV mobility project? 2. Why did you not benefit from the project? 3. Do you think that the CHVs that have benefited perform better or worse than you in your role? 4. Is your bicycle appropriate to the local terrain? 5. Do you know if there have been any technical problems to date? If yes, what were the problems? 6. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 7. To what degree have you been able to use the skills that you learned to carry out repairs? Were they effective? 8. To that degree can CHVs carry out repairs to their bicycles? 9. Are spare parts available in the local community? If no, how do you get hold of them?
2	**Utilisation and Geographical Coverage**	In carrying out your activities: 10. Do you need to travel for your work? 11. What type of transport do you use? (by foot, bicycle, minibus taxi, canoe, other..) 12. Do you have to pay for this transport? If yes, who pays? 13. What is the average number of journeys that you carry out in your work as a CHV each month?

		14. How many clients on average do you visit each month? 15. What is the average distance travelled for each journey? 16. What is the average time taken for each journey? 17. What were your longest and shortest journeys (time)? 18. What is the most frequent reason that you use your bicycle for? 19. What is the least frequent reason that you use your bicycle for? 20. What means of transport would do you need to be more efficient in visiting the most possible households?
3	**CHV Motivation**	21. What do you think that the CHVs think about the bicycle? 22. How effective is having a bicycle in motivating you as a CHV? (very, medium, low) 23. In your opinion are would having a bicycle influence CHVs to continue in their role? 24. DO you think that journey times have reduced no that you have a MAHEFA bicycle? 25. Is there a difference in the quality of bicycles that were given by MAHEFA, and bicycles that have been donated by other projects? If so, what are these differences? 26. Are the bicycles used more for professional or personal reasons?
4	**Impact, equity and sustainability**	27. Do you think that CHVs with MAHEFA bicycles visit more or less families than the CHVs without bicycles? 28. Can CHVs with MAHEFA bicycles make home visits to families that would have been difficult to access otherwise? 29. Are the bicycles kept at the homes of the CHVs which received them in the first place? 30. Do male and female CHVs use the bicycles? 31. What do you think is the expected lifespan of the bicycles? 32. Do you think that the bicycle helps CHVs in their work? If yes, how? If no, why? 33. In what way can bicycles be a good way of motivating CHVs?

Community Health Volunteer Mobility Questionnaire
Target Group: Health Centre Staff
[Semi-Structured Interview]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. Do you know about the Community Health Volunteer Project? 2. Do you think the performance of the CHVs that have benefited has increased or reduced? 3. In your opinion is the mode of transport appropriate for the local terrain? 4. Have there been any technical problems to date? If yes, what were the problems? 5. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 6. To that degree can CHVs carry out repairs to their bicycles? 7. Are spare parts available in the local community? If no, how do you get hold of them?
2	**Utilisation and Geographical Coverage**	8. Are the CHVs in your commune utilising the MAHEFA bicycles or other types of transport? (if they are using other types, please elaborate). 9. Do you think that the CHVs are more available as a result of having MAHEFA bicycles or not? 10. What are the reasons for using them more often (if applicable)? 11. What are the reasons for low usage (if applicable)? 12. Are there any obstacles to using the bicycles (physical or otherwise)? 13. Is there an increase in the level of service provided by CHVs with MAHEFA bicycles? If so which services in particular? 14. What is the difference between the services offered by CHVs with and without MAHEFA bicycles?
3	**CHV Motivation**	15. How do you think the CHVs feel about the provision of bicycles? 16. How effective in terms of motivation, are the bicycles? (high, medium, low). 17. In your opinion are would having a bicycle influence CHVs to continue in their role? 18. Do you think that journey times have reduced no that you have a MAHEFA bicycle? 19. Is there a difference in the quality of bicycles that were given by MAHEFA, and bicycles that have been donated by other projects? If so, what are these differences?
4	**Impact, equity and sustainability**	20. Do you think that CHVs with MAHEFA bicycles visit more or less families than the CHVs without bicycles? 21. Can CHVs with MAHEFA bicycles make home visits to families that would have been difficult to access otherwise? 22. Do you think there has been an improvement in public health since the introduction of the CHV Mobility Project? (Elaborate).

		23. Are the bicycles kept at the homes of the CHVs which received them in the first place? 24. Do male and female CHVs use the bicycles? 25. What do you think is the expected lifespan of the bicycles? 26. Do you think that the Ministry of Health of the Government would be able to replace the bicycles where needed? 27. Do you think that the Ministry of Health or the Government could scale up this type of project? 28. What does MAHEFA's CHV mobility experience imply for the government's MNCH health transport policy and its overall response to demand-side MNCH barriers? 29. Do you think that the bicycles help the CHVs to do their work? If yes in what way? If no, why not? 30. In what way do you think the bicycles can motivate the CHVs?

Community Health Volunteer Mobility Questionnaire

Target Group: Beneficiaries (CHV Clients)
[Semi-Structured Interviews]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. Do you know about the Community Health Volunteer Project? 2. Do you think the performance of the CHVs that have benefited has increased or reduced? 3. In your opinion is the mode of transport appropriate for the local terrain? 4. Have there been any technical problems to date? If yes, what were the problems? 5. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 6. To that degree can CHVs carry out repairs to their bicycles? 7. Are spare parts available in the local community? If no, how do you get hold of them?
2	**Utilisation and Geographical Coverage**	8. Are the CHVs in your commune utilising the MAHEFA bicycles or other types of transport? (if they are using other types, please elaborate). 9. Do you think that the CHVs are more available as a result of having MAHEFA bicycles or not? 10. Do you think that there is an increase in the number of health products available from CHVs with MAHEFA bicycles? 11. What are the reasons for using them more often (if applicable)? 12. What are the reasons for low usage (if applicable)?

		13. Are there any obstacles to using the bicycles (physical or otherwise)? If yes what obstacles exist?
3	**CHV Motivation**	14. How do you think the CHVs feel about the provision of bicycles? 15. How effective in terms of motivation, are the bicycles? (high, medium, low). 16. In your opinion are would having a bicycle influence CHVs to continue in their role? 17. Do you think that journey times have reduced no that you have a MAHEFA bicycle? 18. Are the bicycles used more for professional or personal reasons?
4	**Impact, equity and sustainability**	19. Do you think that CHVs with MAHEFA bicycles visit more or less families than the CHVs without bicycles? 20. Can CHVs with MAHEFA bicycles make home visits to families that would have been difficult to access otherwise? 21. Has the quality of care increased as a result of CHVs having the bicycles? 22. Are the bicycles kept at the homes of the CHVs which received them in the first place? 23. Do male and female CHVs use the bicycles? 24. What do you think is the expected lifespan of the bicycles? 25. Do you think that the bicycles help the CHVs to do their work? If yes in what way? If no, why not? 26. In what way do you think the bicycles can motivate the CHVs?

Annex 2 : Detailed CHV mobility qualitative review results by region:

1. **Menabe CHV Mobility Results:**

Background to Menabe CHV mobility review:
The review team, comprising one member from MAHEFA (Transaid) and a team of four consultants carried out the review in Menabe in September 2015. The following core activities were undertaken:

- Briefing and training of the consultants on the study objectives and the tools.
- Field work in Mahabo, Analiava and Bemanonga, including Focus Group Discussions and interviews with key informants.
- Debriefing, compilation of results, synthesis of findings and drafting consultants' report

Technical Performance

The Commune of Ankilivalo received their bicycles in March 2013. The Communes of Mahabo, Ankilizato and Ampanihy received their bicycles in August 2013. The CHVs who have received bicycles, as well as those who did not receive bicycles, both advised that the bicycles were suitable for the terrain because they are strong and make their workload easier, for example to buy medical supplies and for house visits. During the focus groups it was reported that all of the bicycles are operational and working well. The bicycles are used frequently for home visits, monthly meetings, review meetings, refresher training, sensitisation and vaccinations.

However, there have been some problems with the bicycles distributed. Some issues have occurred during their operation, for example bent rims, broken spokes and chains and damaged bearings. Broadly it was reported that the bicycles are still in a good condition even though the CHVs have had to do some repairs already (4/10 participants in the focus group) and some of them still had more repairs to undertake. The CHVs pay these expenses because they need the bicycles to be operational. According to some CHVs who have been given bicycles, the parts are only available in Mahabo. The CHVs cannot do all the maintenance themselves; they need someone to repair the difficult things like fixing spokes, welding, and rim realignment.

The beneficiaries who were interviewed advised that the bicycles are suitable for the terrain because they are 'strong' and' fast'. They advised that there have been some failures such as damaged tyres and snapped chains. Most spare parts are available in Mahabo. In the rainy season, the bicycles cannot be used to access some communities.

Many of the technical issues revealed in the assessment are likely the result of improper use of the bicycles, or caused by accidents. For example, of the reported issues, broken chains are commonly caused by improper gear selection, placing undue strain on the chain. Tyres wearing prematurely is often caused by under-inflation, which causes the side-walls to flex

and break. Bent rims are often caused by overloading (on the rear wheel) or collision (on the front wheel). These findings suggest a need for further training of CHVs in bicycle use and maintenance.

> ***"These bicycles are suitable for the terrain because they are solid mountain bikes"***
> CHV Mahabo, Menabe
>
> ***"Each time we need them [CHVs], they come, thanks to the bicycles"***
> Community member, Mahabo, Menabe

Use and Geographic Coverage

The CHVs use the bicycles for their activities (home visits, purchase of medical supplies, vaccination campaigns). According to CHVs with bicycles, the average distance they travel in one trip is eight kilometres and the average travel time is one hour on bicycle or one hour and a half walking. According to CHVs without bicycles, the average distance of their journeys is seven kilometres and takes one hour or more walking; they estimated that the average travel time would be 45 minutes on bicycle. The monthly average number of trips for CHV activities made on the bicycle was reported to be 27 return journeys. CHVs reported that this is a higher number of trips and represents greater distances travelled than trips made on foot, which would be approximately eight trips. One CHV without a bicycle said that sometimes a journey could take the whole day or longer, as they sometimes need to stay the night at the destination. It should be noted that this information on trips and distances was anecdotal.

During the review, the Menabe health staff were positive about the provision of bicycles to CHVs. It was reported that the MAHEFA bicycles increased the services provided by the CHVs. The health staff self -reported that the number of births at facilities and the number of consultations has increased, previously being 140-150 people a month and now between 230 and 300 people/month. They see a link between this increase and the increased mobility of the CHVs, presumably as CHVs are visiting more people and advising them to seek health care at facilities. According to the health personnel, the CHVs use their bicycles for their activities such as home visits and to buy health supplies. It should be noted that these finding were anecdotal from interviews with health staff and were not corroborated with health records. As MAHEFA general CHV services started too close to the time of the bicycle intervention it is difficult to attribute increases in deliveries and consultants to bicycle mobility alone.

The beneficiaries (women in the communities) stated during their focus group that the CHVs use only MAHEFA bicycles and are 'available at the time we need' suggesting that CHVs are now more available. Since the bicycles were distributed, they advised there was no shortage of medicines at the local level. During the rainy season however, they advise that CHVs have to use an ox-cart, as the roads are often impassable by bicycle.

Motivation

According to the CHVs with MAHEFA bicycles, the bicycles motivate them in their work because they can visit remote villages, find the communities/beneficiaries and undertake their professional activities faster. This donation of bicycles appears to motivate the CHVs to continue doing their voluntary health work.

> ***"It's a question of pride for the CHVs in the locality"***
> CHV without a MAHEFA bicycle, Mahabo, Menabe

The CHVs report that MAHEFA bicycles are strong compared to bicycles that have been provided by other programmes. According to the beneficiaries, bicycles motivate the CHVs because they make 'the service' faster and they can visit patients from time to time in the remote villages. The CHVs without bicycles reported that they perceive the CHVs with bicycles to be more motivated than CHVs without bicycles. When considering the time lost to travel, they report that CHVs with bicycles have a much greater advantage. According to the health personnel, bicycles are motivating for the CHVs who receive them and they are motivated to deliver the services. The health staff also commented on the reduction in travel time.

Impact, equity, sustainability

As outlined above, the bicycles seem to be highly motivating for the CHVs and, according to the CHVs and the health personnel, CHVs with bicycles are able to more consistently meet their monthly activities goals compared to CHVs without bicycles. CHVs are now cycling rather than walking which means they can visit more families, and in some cases reach more remote communities. They can use the bicycle to travel to restock their health commodities, when previously they may have had to hire an ox cart. This review took place at the same time as a countrywide polio campaign observed CHVs taking vaccinations in cool boxes on their bicycles. With travel time being quicker on a bicycle than on foot, this increases the likelihood that vaccines will arrive at a cooler temperature; in addition, the team observed a CHV on a bicycle returning to the health facility to quickly restock his supply of polio vaccinations and set off again.

> ***'Having a bicycle allows us to increase the amount of work we can do. Example: As soon as we have some free time, we fulfil our CHV responsibilities and we monitor the care of our patients. When we didn't have the bicycles we could visit eight people, but now that we have them we are able to visit 18.'***
>
> *CHV with a MAHEFA bicycle in Mahabo, Menabe (anecdotal report)*

In terms of equity, both male and female CHVs are using the bicycles. All of the people spoken to during this study kept the bicycle at their home.

The CHVs advised that their bicycles are mainly used for health work activities. Whilst this is positive, the bicycle is provided as a tool to support the CHVs' work as well as to motivate them through the use of the bicycle for personal reasons. Assessing the condition of some of the bicycles during the review, it appears that they may well be used for more than just work-related services. However, CHVs may have been reluctant to share this during the focus groups and interviews, believing that there are restrictions on usage.

The CHVs without bicycles currently walk to carry out most of their work. To attend monthly MAHEFA meetings they might hire an ox-cart or travel by rural minibus (*'taxi brousse'*); MAHEFA pays 200 Ariary per kilometre to support travel to these meetings. To restock their health commodities, the CHVs might hire an ox-cart. There does not seem to be any tension between the CHVs who had been given bicycles and those who did not have bicycles. The bicycles are seen as a good source of motivation for CHVs by both groups. Some CHVs without bicycles advised they did not know why they had not received bicycles and what the selection criteria had been. The CHVs without bicycles advised they looked forward to the possibility of receiving bicycles in future programmes.

All of the CHVs who participated in the focus groups advised that their bicycles were functional. Some repairs had been needed and had been undertaken. If more complex work was needed, the bicycles were taken to a mechanic to help. The CHVs cover the mechanic's costs and report that it sometimes takes time to gather enough funds to purchase parts. In some areas, spare parts are not available within the community; in these cases CHVs have to travel to the district capital in order to find spares.

There was a general perception during the review with all target groups that the bicycles given to CHVs were operational. Minor repairs are being undertaken with the CHVs paying for parts themselves.

A focus group with eight female beneficiaries revealed some interesting perspectives. According to their estimation, the life of the bicycle is dependent on the route, the use of the bicycle and the maintenance, and usually will be about one year. Their CHVs were all women and they all had bicycles from MAHEFA; all of the bicycles can still be found at the CHVs homes and are still operational.

> ***'The CHVs really use the MAHEFA bicycles because no other bicycles from other projects are seen around in the locality. The CHVs come when the ill people need their services…It's a success, the population is profiting from the donation of these bicycles. They are very helpful and there are no more stock-outs of medicines like Confiance, RDTs and, Sur'eau'***
>
> *Community member, Mahabo, Menabe*

The beneficiaries commented that they were visited often by the CHVs on bicycles and there seemed to be a link between the perception of a CHV on a bicycle and the quality of service provided. However, it was not possible to fully quantify this in terms of whether this meant more time with the family, increased frequency of visits, greater availability of health

supplies or a more general perception that a CHV with a bicycle might have a higher social standing.

One community member commented; ***'The possession of a bicycle gives more value to the CHVs in the eyes of the community'.***

'The CHVs can always respond whenever their services are request thanks to these bicycles.'
Health Staff, Mahabo, Menabe

The study revealed largely positive feedback about the condition of the bicycles from the CHVs with and without bicycles, the health staff and beneficiaries. As this study was short and the bicycles are widely distributed it was not possible to visit every bicycle for physical verification. However, seven bicycles were seen[2], through a mixture of spot checks and taking advantage of meeting CHVs whilst they were travelling, for example during the polio campaigns. In general, the spot checks revealed that the bicycles were in a poorer condition than was suggested during the focus groups. Despite the team reassuring the target groups that the review was to learn from this project and to be open with their responses, some of the respondents may have been nervous about sharing problems with the bicycles that they are responsible for maintaining.

For the CHVs without bicycles, some may have had an interest in seeing this type of project continuing and this may have influenced some of the positive comments on the performance of the bicycles and also the expected life of the bicycle. Two particularly interesting spot checks were conducted: one CHV had kept her bicycle in excellent condition and there was evidence that a number of small repairs had recently been made. The CHV was very positive about having the bicycle for her work and shared that she felt her own health and fitness had also improved as a result. Another CHV visited showed us her dismantled bicycle. Whilst she advised that it was going to be repaired and she showed that the parts were still in her possession, it looked as though the bicycle was being used to repair another bicycle (of lower quality) in the household.

Based on the discussions with target groups and spot checks on the bicycles, transport experts on the review team estimate that the bicycles in Menabe (part of the procurement of a batch of 300 bicycles) will have an average life span of three to five years depending on use, terrain and access to funds for repairs and spare parts. The bicycles seem to be robust but the environment and terrain still pose some challenges. Punctures, broken brakes and gears were common. During this review the key informants reported that it was unlikely that the CHVs could replace the bicycles at the end of their economically viable life. Interviewees felt the Ministry of Health or other government entity could potentially replace the bicycles and scale up this programme.

[2] See annex three for a summary of condition of bicycles that were seen in Menabe during the study. In January 2016 CHV bicycles were also observed in Miandrivazo. In Miandrivazo, six Spida bicycles were seen and they were in excellent condition, only one had any damage – a broken brake lever where the bar ends designed to protect the brake levers had been tilted up towards the rider.

In terms of feedback on the training, there appeared to be no concerns with riding the bicycles and it was positive to see minor repairs being made and access to spare parts. However, almost all of the CHVs requested refresher training on bicycle repair and maintenance. The E-box in Bemononga (near Morondava) can offer bicycle repairs and access to spare parts but it is quite far from many of the communities and at the time of the study was not well yet well known for the repair service offered, more the sale of bicycles.

2. Sofia CHV Mobility Results

The project team, comprising of one member from MAHEFA (Transaid), and a team of four consultants, carried out the review in Sofia in September 2015.

Technical Performance

In Bozigny, the project team also spoke to a group of 13 CHVs, all of whom had received bicycles as part of the project. 12 CHVs had received bicycles in July 2013 and one CHV had received one in June 2014. All CHVs reported that the bicycles were in working order, although seven out of 13 participants reported having to purchase replacement parts such as pedals, chain, brake cables, and in one case, a new front fork. Spot checks were carried out on the five bicycles that had been brought to the focus group. These checks supported claims that replacement parts had been purchased, and some areas where maintenance needed to be improved. Whilst everyone agreed that the bicycles were appropriate to the terrain, the terrain was also reported to be the cause of frequent punctures and in some cases, broken chains and pedals. In fact, six out of 13 participants reported broken pedals and four reported broken chains. The CHVs themselves generally organise and pay for repairs for which the required skills exist locally. For simpler maintenance requirements, including oiling the chain and adjusting the brakes, all CHVs are able and willing to carry this out themselves.

Utilisation and Geographic Coverage

CHV participants collectively stated a number of reasons for which their bicycles were used including sensitisation, vaccination campaigns, procuring new health commodities, as well as travelling to meetings and trainings. One CHV reported occasionally using the bicycle for personal reasons such as to carry a bag of rice. The majority of CHVs reported making between three and five journeys each month. Four CHVs said they made less than three journeys, and one said that they made between five and eight journeys. In terms of making visits to support pregnant women and under-fives, the CHVs do not use their bicycle when making visits within their own villages, only when they have to travel further afield.

Table 5: Number of monthly visits with and without bicycles (by CHVs who have received bicycles)

Number of visits	Visits without bicycles	Visits with bicycles
0-5	8	5
5-10	4	6
10-15	1	2

When asked what this equated to in terms of distance travelled each month, nine out of 13 participants reported travelling between 50 and 60 kilometres each month. Individual journey durations ranged from 15 to 90 minutes with the average total duration per month being four to six hours, although one participant stated that they had travelled for 12 hours per month. Four CHVs were not able to reliably estimate their average total monthly duration of travel.

Table 6: CHV monthly travel distances and time taken (all of whom have received bicycles)

CHV	Total distance travelled per month	Average trip time	Longest trip	Shortest trip
01	50-60km	90 mins	12km – 2 hours	3km – 1 hour
02	6km	90 mins	8km – 90 mins	1km – 15 mins
03	5km	15 mins	1km – 15 mins	100m – 5 mins
04	24km	51 mins	6km – 90 mins	3km – 15 mins
05	50km	No available information	No available information	No available information
06	50km	No available information	No available information	No available information
07	50-60km	No available information	No available information	200m – 7 mins
08	50-60km	90 mins	12km – 2 hours	3km – 1 hour
09	50-60km	90 mins	No available information	No available information
10	50-60km	90 mins	No available information	No available information
11	50-60km	90 mins	12km – 2 hours	3km – 1 hour
12	50-60km	No available information	No available information	200m – 7 mins
13	50-60km	No available information	No available information	200m – 7 mins

The most common reason for using the bicycle was to carry out sensitisation, closely followed by home visits. The principal reasons to explain low-usage periods include times where the bicycle requires maintenance, and the rainy season where flooding is common. Otherwise CHVs often have other work to do and, as already mentioned, the bicycles are not used when the CHVs are making visits that are within walking distance.

The responses from the CHVs point to a significant change for the better in the way they carry out their role since the introduction of these bicycles. As well as motivation levels having increased, by using the bicycles, CHVs save time travelling larger distances in a shorter time, leaving them less tired at the end of the day. The bicycles have also led to CHVs developing stronger links with the health centres as they are now able to visit them more often. A personal perspective expressed by all 13 CHVs was that those with bicycles can visit many more people than those without, with in their opinion, the potential to double the amount of clients visited.

Sustainability

For the CHVs, the motivational impact of the bicycle distribution bodes well for the future of the system in place. CHVs also report that the basic training in repairs and maintenance provided when the bicycles were distributed, and as mentioned earlier, puts the CHVs in a position to carry out much of the basic maintenance themselves for the duration of the useful lifetime of their bicycles, which in their view would be between five and 10 years. Whilst this view is not based on extensive expertise it points to a confidence amongst CHVs that their bicycles are durable which in the longer term supports the sustainability of the approach taken.

3. SAVA CHV Mobility Results

In SAVA, the review team carried out focus group discussions in four communes (Nosibe, Ampanefena, Antsirabe Nord and Fanambana) with CHVs that both had and hadn't been donated bicycles as part of this project. There were eight focus groups in total, involving 24 CHVs with bicycles, and 16 CHVs without bicycles. This review took place in November 2015. In SAVA, MAHEFA distributed good quality bicycles to 100 CHVs, all of whom underwent training in bicycle repair and maintenance. The bicycles were distributed in May and June 2015.

Technical Performance

CHVs with Bicycles:
In all four communes, CHVs stated that their bicycles are functional despite the majority of CHVs having had small technical problems in the past. Problems to date include punctures, a broken pedal and unspecified issues with the saddle and the handlebar. The majority of repairs have been made, to ensure that the bicycles are in working order, although some of the more expensive repairs are yet to be carried out.

Many of the CHVs have managed to carry out the repairs that they were trained to do, although some have had to organise for the repairs to be made by someone else. It was only made clear in Antsirabe Nord that the CHVs paid for these repairs that were carried out externally. This is not to say that the CHVs in other communes did not have to do the same thing. Thanks to the training, all CHVs stated that they were confident in carrying out basic repairs and maintenance, and that they made efforts to do safety checks regularly ensuring that the tyres are pumped to the correct pressure, that the chain is well oiled, that the brakes are aligned and that the bicycles are kept clean. For the majority of the CHVs interviewed, purchasing spare parts required travelling at least 10 kilometres from their homes. One CHV claimed that spare parts were only available in Vohemar, a distance of 66 kilometres. For 17 out of the 24 CHVs, spare parts for their bicycles are available within their own *Fokontany*.

On the whole, CHVs believe that the bicycles are appropriate to the local terrain despite some concern in Fanambana over the bicycles' suitability during the rainy season. CHVs reported that the bicycles handled sandy routes particularly well due to the thick tyres.

CHVs without bicycles:
All of the participants in this group had heard of the CHV mobility activity and were aware that MAHEFA had distributed bicycles to some of the CHVs. In fact, the CHVs in Fanambana were under the impression that there was due to be a second wave of bicycle distribution which they would benefit from. The CHVs in Antirabe Nord and Ampanefena believe that there were not enough bicycles for everyone which is why they have not benefited to date. Some CHVs in Antisirabe Nord already have bicycles that were given to them by PCIMEC (la Prise en Charge Intégrée des Maladies de L'Enfant au niveau communautaire) which is also thought to be the reason why they were not given MAHEFA bicycles.

The majority of CHVs noted that in their opinion the bicycles are appropriate to the local terrain and conditions, and that they can be used all year round. However, six out of 16 CHVs stated that they would only be able to use the bicycles during the dry season.

Whilst many of the questions about technical issues with bicycles were not so relevant for CHVs without bicycles, the majority in this group did concur with previous responses to questions regarding the availability of spare parts in terms of their availability within their respective *Fokontanys*. Whilst this appears to be the case, most CHVs would have to travel to the main town in the *Fokontany* in order to purchase parts.

Use and Geographic Coverage
CHVs with Bicycles
The CHVs were asked how many visits to communities they were able to carry out with their bicycles each month.

Table 7: Number of monthly visits (by CHVs who have received bicycles)

Number of Visits	Number of CHVs
0-5	3
5-10	8
10-15	2
15-20	6
>20	3
No available information	2

The most common reasons for their visits were vaccination campaigns and community sensitisation activities. The least common reasons were to attend meetings despite data analysis showing an increased attendance by those with bicycles.

The following table gives an illustration on the distances covered for each journey as well as the time taken.

Table 8: CHV monthly travel distances and time taken (all of whom have received bicycles)

CHV	Total distance	Average journey	Longest journey	Shortest journey

	travelled per month	**time**		
NOSIBE				
01	12km	No available information	18km	8km
02	8km	2hrs	12km	4km
03	5km	1hr	10km	2km
04	14km	2hrs	20km	7km
05	20km	3hrs	36km	10km
AMPANEFENA				
06	18km	2hrs	No available information	No available information
07	12km	1hr	No available information	No available information
08	8km	1hr	No available information	No available information
09	9km	1hr	No available information	No available information
10	10km	1hr	No available information	No available information
11	No available information	No available information	No available information	No available information
12	No available information	No available information	No available information	No available information
FANAMBANA				
13	12km	3hrs	12km	0km
14	18km	1hr 30mins	25km	2km
15	12km	45mins	20km	3km
16	7km	1hr 30mins	10km	3km
17	No available information	No available information	No available information	No available information
ANTSIRABE NORD				
18	No available information	No available information	No available information	No available information
19	No available information	No available information	No available information	No available information
20	No available information	No available information	No available information	No available information
21	No available information	No available information	No available information	No available information
22	No available information	No available information	No available information	No available information
23	No available information	No available information	No available information	No available information
24	No available information	No available information	No available information	No available information

Bicycle use is generally low during the rainy season, and also when the bicycle is sidelined for repairs. Without the bicycles, CHVs report not being able to do as many home visits due to the long distances involved. Bicycles also allow CHVs more time to carry out their day-to-day responsibilities outside of work. The fact that they can do more in a shorter time and that they feel less tired at the end of the day is hugely motivating to all of the CHV participants.

CHVs without bicycles:
Most of the CHVs thought that the CHVs with bicycles could travel further and carry out more visits than the CHVs without bicycles. Despite this, the number of visits per month stated by CHVs without bicycles was impressive. At present, without bicycles, CHVs stated that they can make between 15 and 30 visits each month. However, with a bicycle, they claimed that this number could rise to between 75 and 96. It should be noted that these totals are extraordinarily high when compared to the actual number of visits taking place in other regions. Perhaps a contributing factor to these high numbers was the shorter distances that CHVs were travelling, usually between one and four kilometres, although there were some journeys of up to 13 kilometres reported. Average journey times ranged from 30 minutes to three hours.

In cases where members of this group are required to travel to carry out home visits, many need to travel on foot, whilst the majority sometimes take 'taxi brousses'. In cases such as these, it is the CHV that must pay for the journey out of their own pocket. All the CHVs said that they would benefit from having a bicycle or a motorcycle to help them carry out their role. CHVs in Antsirabe Nord also mentioned that having a telephone would be useful.

Motivation

CHVs with bicycles:
The CHVs see the bicycle as a huge motivation in their work as well as a means to increase their activities as CHVs. The CHVs unanimously requested that they be given a spare bicycle in case their present one is destroyed or damaged. One CHV in Fanambana points to receiving an increased level of respect in their village as a result of having the bicycle. More home visits, more sensitisation and shorter journey times have been the result.

Whilst examining the difference in the quality of the bicycles distributed by this project, compared with those in similar projects, CHVs in three communes agreed that the bicycles distributed by MAHEFA were of higher quality and more robust than others they had seen. The CHVs in Nosibe were not aware of any other project that distributed bicycles. Also, where other bicycles have been distributed, no training in repairs and maintenance has been provided. CHVs in Fanambana claim that it is easier to find spare parts for the MAHEFA bicycles than it is for other bicycles that have been distributed by other projects.

CHVs are permitted to use their bicycles outside of their CHV roles; however the CHVs in all four focus groups stated that most of the journeys where they use the bicycles are work-related. For these journeys, the CHVs firmly believe that because the journey time has been reduced, they manage to make far more home visits than the CHVs without bicycles. One

CHV in Ampanafena thought that the numbers visited between groups did not differ because those without bicycles use minibus taxis 'taxis brousse'. However, this CHV did admit there was a cost implication in having to use public transport. The majority of focus group participants thought that with bicycles they can visit families which they would otherwise have found difficult to reach through using other means of transport. However, it was noted that it is still difficult to reach some communities during the rainy season.

CHVs without Bicycles:
CHVs agreed that the reduction in journey time that results from having a bicycle as well as the honour bestowed upon them would be a huge motivating factor for them. The CHVs in Fanambana did communicate unhappiness at not having received bicycles from MAHEFA. Whilst the CHVs in Fanambana saw the bicycle as being a major motivating factor for them in terms of how long they continued to be a CHV, the other groups stated that whether they had a bicycle or not, they are motivated to continue carrying out their roles for the foreseeable future.

A comparison between the MAHEFA bicycles and bicycles that have been distributed by others led many to suggest that the MAHEFA bicycles are more robust and that the spare parts are easier to find. In addition, no tools were given with the other bicycles to allow the CHVs to carry out basic maintenance and repairs.

Impact, Equity and Sustainability

CHVs with bicycles:
The bicycles in all cases are kept at the home of the CHV. The groups stated that there were no barriers to male and female CHVs making full use of the bicycles. There were varying opinions on what the expected useful lifetime of the bicycle would be. The majority of CHVs thought that with proper maintenance, the bicycles would remain functional for approximately five years. However, many thought this period might extend to 10 years, and the minority thought three years.

The groups unanimously agree that the bicycle is useful to their work, and that the community directly benefits as a result. For the CHVs, the journey times are reduced (a three-hour journey might take 90 minutes instead), and they are less tired at the end of each day. Also it is easier to carry packages on the bicycle such as medicines and, according to one CHV, it is an opportunity to exercise and stay fit, all of which are a motivation to the CHVs in carrying out their role. The community benefits through an increased number of visits and sensitisation activities.

CHVs without bicycles:
The group of CHVs who has not been given bicycles agreed that bicycles would have a positive impact on their work, primarily through a reduction in the time taken for each home visit, the ease with which longer distances could be covered, and a reduction in expenses, whereby the CHV may previously have had to pay for transport out of their own pocket. The respect that they would receive from other members of the community was also an important factor for the CHVs in Fanambana.

Annex 3: La Mobilité des ACs: La Condition des Bicyclettes – vérification technique
Mahabo, Ankilivalo et Batiment ou Bezeziky

Nom	Commune/ Fokontany	No.	Fonctionne Y/N	L'état général	Rien cassé?	Les freins	La chaine	Les roues	Les pneus	Les engrenages	Pièces remplacées ?
AC 1	Mahabo		Y	La bicyclette fonctionne, mais il y a des problèmes avec les freins avant et les engrenages. Photo 1+2	-	Les freins avant ne marchent pas	-	-	-	Ne marchent pas	-
AC 2	Mahabo		Y	Photo - 1	-	-	-	-	-	-	-
SARONDRA	Ankilivalo	04	Y	Assez bon	Les freins	- AC a remplac	-	-	-	-	-les freins

Nom	Commune/ Fokontany	No.	Fonctionne Y/N	L'état général	Rien cassé?	Les freins	La chaine	Les roues	Les pneus	Les engrenages	Pièces remplacées ?
NO Tombontsoa				Photo - 3	Les pédales sont tordues Selle usée	é les freins					arrière
Unknown			N	Bicyclette est à la maison de l'AC. Pas de vérification technique. Apparemment il y a un problème avec la	-	-	-	-	-	-	-

Nom	Commune/ Fokontany	No.	Fonctionne Y/N	L'état général	Rien cassé?	Les freins	La chaine	Les roues	Les pneus	Les engrenages	Pièces remplacées ?
				chaine et le dérailleur. L' AC a expliqué qu'il est en train de faire cette réparation et par conséquent il a dit que la bicyclette marchait pendant le focus group la semaine avant. Il a dit que les pièces sont disponibles, c'est juste une question d'argent.							

Nom	Commune/ Fokontany	No.	Fonctionne Y/N	L'état général	Rien cassé?	Les freins	La chaine	Les roues	Les pneus	Les engrenages	Pièces remplacées ?
				Pas de photo							
TONGAVELO Jeannine	Batiment Ankilivalo		N	Très mauvais état. Tous les pièces sont détachés – les freins, chaine, pneus etc. Photo 4	Le dérailleur et la roue arrière	Manquant	Manquant	Manquant	Manquant	Manquant	
Rosolofo Herindrainy Roberto	Ankilivalo	14	Y	Très bon état Photos 5 et 6	Patin de frein avant gauche manquant	Patin de frein avant gauche manquant	Récemment lubrifiée		Très bon état, bien gonflés		Freins arrière remplacés

Nom	Commune/ Fokontany	No.	Fonctionne Y/N	L'état général	Rien cassé?	Les freins	La chaine	Les roues	Les pneus	Les engrenages	Pièces remplacées ?
					Dérailleur pliées Garde-boue avant tordu Klakon manquant						

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

Annex 4: Bicycle procurement guidelines for CHVs

Procuring bicycles for community health workers (CHVs) can greatly improve the mobility, motivation and social status of CHVs. These guidelines are designed to assist in procuring the most appropriate bicycle for a given CHV application and avoid common mistakes in the procurement process.

Bicycle type
The majority of CHVs will use their bicycles on unpaved roads and tracks for all or part of their trips. The best bicycle for use on unsealed surfaces is known as a mountain bike. Mountain bikes were developed for off-road riding, and have wide tyres with knobby tread to provide grip and a more comfortable ride. They can easily be fitted with a luggage rack and mud-guards, and come in a range of frame sizes and designs.

Mountain bikes are now the largest selling bicycle type in the world, meaning that in many countries, spare parts for mountain bikes are more widely available than for any other type of bicycle. Mountain bikes are recommended for use by CHVs in countries where spare parts are widely available. To verify whether mountain bike spare parts are widely available in your CHV catchment area, consult with field staff, local bicycle repairers and bicycle retailers.

Bicycle size
There are two main measurements to consider when specifying a bicycle. One is the wheel size, the other is frame size.

For mountain bikes, it is important to specify 26 inch wheels. Of the other sizes available, 24 inch wheels are designed for children's mountain bikes and are not always widely available, and 29 inch wheels are a recent development for which tyres and tubes are expensive and not yet widely available.

Frame type and gender of users
Mountain bike frames come in different sizes and designs. If your CHV population is mostly short, then it will be best to order small frame sizes, however some medium and large bicycles are advisable for taller riders. You will need to verify with your supplier whether the option to mix the size of the frames in your order is possible.

Mountain bikes are available with straight top tubes (traditionally male frames) and sloping top tubes (traditionally female frames). Female frames are designed to be easier to mount and dismount for women wearing skirts. Of course, men can ride female frames, and vice versa, but in some countries there are strong gender preferences for certain frame types. Frame types should be ordered in line with the gender composition of your CHVs and local preferences.

Mountain bike with 26 inch wheels and traditional male frame with straight top tube

Mountain bike with 26 inch wheels and traditional female frame with sloping top tube

Gears or single speed?

For hilly terrain, gears are essential for climbing. Gears also make long distances easier to cover. However, gears add to the maintenance requirements of the bicycles. If your CHVs are on flat terrain with relatively short distances to cover and limited access to maintenance services, a single speed bicycle might be a better option.

Some common bicycle component issues to consider

- **Brake levers.** Plastic levers break easily. Aluminium levers are more durable. Bar-ends can also be added to protect brake levers in a fall, which is a common cause of breakage.

- **Wheels.** Aluminium wheels are lighter and stronger than steel, though avoid 'deep section' rims, as these may require special tubes with long valves that are not readily available.

- **Pedals.** Plastic pedals commonly break after limited use. Consider steel or aluminium pedals.

- **Accessories.** Bicycles should be delivered with pumps, puncture repair kits, and if theft is an issue in the region where the bicycles will be deployed, locks. If the seat-post adjustment requires a spanner or Allen key, consider supplying this too.

- **Luggage rack.** A solid steel rack can add value to CHV bicycles, especially if their work includes carrying supplies.

- **Mud-guards.** Mud-guards are essential for CHV bicycles, as they prevent clothing being soiled during rainy-season cycling.

- **Gear levers.** It is increasingly challenging to find gear levers that are appropriate for bicycles for CHVs. Solid metal levers have been replaced by flimsy plastic, and twist type shifters are also prone to breaking. Levers at the higher end of the market are expensive and very complex. It is best to specify solid aluminium levers, or good quality Shimano levers, though be prepared for most suppliers to struggle with specifying appropriate levers.

- **Frame material.** Steel is the most affordable, durable and repairable frame material.

Is a more expensive bicycle a good option for a CHV?
Up to a point, more expensive components will be more reliable and require less maintenance. However, many modern high-end bicycles have components that aren't compatible with low-end bicycles. This will cause maintenance issues for CHVs, who may struggle to afford replacement parts, and in many cases will not be able to find spare parts in their region. All components should therefore be checked for availability and affordability in the regions where the bicycles will be deployed.

What if mountain bikes are not available?
In some countries or regions, mountain bikes may not be the predominant bicycle type. You should verify your specification with a trusted bicycle vendor or repairer in the region where you will be distributing your bicycles prior to calling for tenders for any procurement, to ensure that spare parts will be readily available on the existing market. Avoid at all costs supplying bicycles for which spare parts will need to be imported into the region where they will be used.

Choosing a supplier
It is important to select a supplier with an established reputation for supplying quality bicycles. Ideally bicycles should be covered by a warranty, but in practice this is difficult to apply to bicycles that are distributed across a typical CHV catchment area. It is far more practical to procure good quality, well assembled bicycles in the first place. After advertising your tender and receiving submissions, choosing a supplier can be a challenge, but the following points can help in the process:
*Provide a detailed specification list to tender applicants, down to each component. The degree to which suppliers comply to the specification, or can justify and explain variations, will give you an indication of their experience and the appropriateness of their bid.
*Use a list of criteria and points system by which to assess each applicant, including price, references, quality and delivery turnaround.
*View a sample assembled bicycle from each of the shortlisted applicants, if possible. Make sure you have a trusted bicycle technician available to assess the bicycles, if your staff don't have technical knowledge of bicycles

Getting help
For further information and requests for advice on your CHV bicycle procurement process, please contact Transaid. We will be glad to seek support from our network of technical experts. Email: info@transaid.org Website: www.transaid.org

Annex 5 – ETS Questionnaires

Emergency Transport Questionnaire

Target Group: Operators (EXISTING)
[Focus Group]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. When did you receive the IMT? 2. Are the IMTs in working order? (Encourage an explanation) 3. Have there been any technical problems to date? If yes, what were the problems? 4. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 5. Were there any problems finding the spare parts? 6. How do you find using the IMT? 7. What were your reasons for using the IMT to date? 8. In your opinion is the mode of transport appropriate for the local context? 9. Can you think of any ways in which the IMT could be improved?
2	**Utilisation and Geographical Coverage**	10. Since the IMT was introduced in your fokontany, how many people have you transported to the health centre? Who are these people? 11. Do you think this a lot of people or not very many transported? Why do you think it is like that? 12. What is the average number of people transported each month with your IMT? 13. Can you describe how you communicate with users, with the management committee, with the health centre? 14. What do the communities think about the emergency transport? 15. Have there been any problems regarding the availability of the IMT? 16. What are the reasons for people using or not using the emergency transport? 17. What are the average distances covered for each type of IMT? 18. On average how long does each journey take? 19. What is the longest journey and the shortest? (specific which IMT is used) 20. In your opinion who can use the IMT? 21. For what purposes can people use the emergency transport? (ante-natal classes, child vaccinations, other?)
3	**Management Model for the emergency transport (managed by the community)**	22. Do you think that the management committee is working? Very well, average, or not very well at all? Elaborate.

4	**Equity**	23. Are there cases where you have refused to transport someone? Why? 24. How can members of your community become emergency transport operators? 25. How do you think the community perceives you and your role as an IMT operator?
5	**Sustainability**	26. What motivated you to take part in this project? 27. Once your contract expires, do you think you will renew your contract as a volunteer? 28. Once the IMT needs replacing, how do you think the community will do this? 29. Will the community continue to manage this successful once MAHEFA have withdrawn?
6	**Cost**	30. In your opinion how long will it be before your IMT needs to be replaced? (bicycle, stretcher, canoe). 31. In what way can the community be expected to maintain the emergency transport? 32. Do people have to pay to use the emergency transport? How much? 33. Is it a fixed price? 34. Does this money go towards paying the operator or towards the cost of maintenance? 35. Is there a charge for members of the health savings group, or is it free? 36. In terms of cost, do you think that when compared to the funds you have invested, that the costs are expensive, reasonable, or about right considering the benefits the IMT provides?
7	**Outcomes**	37. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)

<u>Emergency Transport Questionnaire</u>

Target Group: Operators (WHO HAVE LEFT THE PROJECT)
[Focus Group]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. When did you receive the IMT? 2. When did you leave the project and why? 3. Was the IMT in working order when you were with the project? 4. Had there been any technical problems? 5. Had any repairs been required and if yes, who arranged for them to be carried out and who paid? 6. Were there any problems finding the spare parts? 7. In your opinion is the mode of transport appropriate for the local context?

		8. Can you think of any ways in which the IMT could be improved?
2	**Utilisation and Geographical Coverage**	9. Since the IMT was introduced in your fokontany, how many people did you transport to the health centre? Who were these people? 10. Do you think this a lot of people or not very many transported? Why do you think it is like that? 11. What was the average number of people transported each month with your IMT? 12. Can you describe how you communicated with users, with the management committee, with the health centre? 13. What do the communities think about the emergency transport? 14. Had there been any problems regarding the availability of the IMT? 15. What were the reasons for people using or not using the emergency transport? 16. What were the average distances covered for each type of IMT? 17. On average how long did each journey take? 18. What is the longest journey and the shortest? (specific which IMT is used) 19. In your opinion who can use the IMT? 20. For what purposes can people use the emergency transport? (ante-natal classes, child vaccinations, other ?)
3	**Management Model for the emergency transport (managed by the community)**	21. Do you think that the management committee is working? Very well, average, or not very well at all? Elaborate.
4	**Equity**	22. Are there cases where you have refused to transport someone? Why? 23. How can members of your community become emergency transport operators?
5	**Sustainability**	24. Why did you leave the project? (Encourage an explanation). 25. Is there anything that would have made you stay with the project? 26. Once the IMT needs replacing, how do you think the community will do this? 27. Will the community continue to manage this successful once MAHEFA have withdrawn?
6	**Cost**	28. In your opinion how long will it be before your IMT needs to be replaced? (bicycle, stretcher, canoe). 29. In what way can the community be expected to maintain the emergency transport? 30. Do people have to pay to use the emergency transport? How much? 31. Is it a fixed price? 32. Does this money go towards paying the operator or towards the cost of maintenance? 33. Is there a charge for members of the health savings group, or is it free? 34. In terms of cost, do you think that when compared to the funds you have invested, that the costs are expensive, reasonable, or about

		right considering the benefits the IMT provides?
7	**Outcomes/Bilan**	35. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)

Emergency Transport Questionnaire

Target Group: USERS
[Focus Group]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. For what purpose did you use the IMT? 2. Is the IMT being used in your community to this day? 3. In your opinion, is this mode of transport appropriate to the local context? 4. Has the use of the IMT been offered to you, and if so, why did you not want to use it? 5. Are there any improvements you would make to the IMT and if so what would these be? 6. Do you think that another type of IMT is needed in its place, and if so what would you suggest?
2	**Utilisation and Geographical Coverage**	7. When did you use the IMT? 8. Why did you call for the IMT? 9. Did you pay to use the IMT or not? If no, why? 10. Are there any barriers to accessing the transport (physical or other)? 11. What do the communities think about the emergency transport? 12. Have there been any problems regarding the availability of the IMT or the operators themselves? 13. Since the introduction of the IMT, has the availability of emergency transport increased or decreased? 14. How did you contact the operator (or other people)? 15. What was your experience of using the IMT like? 16. How did you find the service on offer? 17. Where are people transported to usually in the case of an emergency (Health Centre/Hospital)? 18. How long does the journey take using the IMT? 19. How long does the journey take without the IMT? 20. Would you recommend using this emergency transport to other people? 21. How long did it take once reaching the health centre, before the patient is seen by staff?
3	**Management Model for the emergency transport**	22. Do you think that the management committee is working? Very well, average, or not very well at all? Elaborate.

	(managed by the community)	
4	**Equity**	23. Which people benefit most from the emergency transport and which don't benefit at all? 24. How can members of your community become emergency transport operators? 25. What measures have been taken by the community to ensure that women and children benefit most from the emergency transport? Elaborate.
5	**Sustainability**	26. Do you think that the operators will continue to work with the project? 27. Will the community continue to manage this successful once MAHEFA have withdrawn?
6	**Cost**	28. In your opinion has there been a reduction in cost for users of emergency transport since the introduction of the IMT? (Note: if one mother has had multiple births, it would be good to find out whether there are differences before and after the introduction of the IMT. 29. How can communities support the maintenance of the emergency transport?
7	**Outcomes**	30. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)

Emergency Transport Questionnaire

Target Group: USERS (THAT HAVE REFUSED)
[Focus Group/Semi-Structured Interview]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. For what purpose did you use the IMT? 2. Is the IMT being used in your community to this day? 3. In your opinion, is this mode of transport appropriate to the local context? 4. Has the use of the IMT been offered to you, and if so, why did you not want to use it? 5. Are there any improvements you would make to the IMT and if so what would these be? 6. Do you think that another type of IMT is needed in its place, and if so what would you suggest?
2	**Utilisation and Geographical Coverage**	7. Have you heard of the emergency transport project? 8. What do you know about the project? 9. Have you already needed to call transport to travel to a health facility? If yes, why did you not use the project's emergency transport?

		10. Are there any barriers to accessing the transport (physical or other)? 11. What do the communities think about the emergency transport? 12. Have there been any problems regarding the availability of the IMT or the operators themselves? 13. Since the introduction of the IMT, has the availability of emergency transport increased or decreased? 14. If you have transport for an emergency in your community: a. Who is it used by? b. Are there any barriers to using it (relating to operators, cost, etc.)? c. Is there a need for it in the community? d. Does it genuinely serve the community? 15. Do you know the operator? What do you think of the operator? 16. If a different type of IMT was introduced, would you use it in the future?
3	**Management Model for the emergency transport (managed by the community)**	17. Do you think that the management committee is working? Very well, average, not very well at all?
4	**Equity**	18. Which people benefit most from the emergency transport and which don't benefit at all? 19. What is the community's perception of an emergency transport operator? 20. What measures have been taken by the community to ensure that women and children benefit most from the emergency transport? Elaborate.
5	**Sustainability**	21. Do you think that the operators will continue to work with the community? 22. Will the community continue to manage this successful once MAHEFA have withdrawn?
6	**Cost**	23. How can communities support the maintenance of the emergency transport?
7	**Outcomes**	24. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)

Emergency Transport Questionnaire

Target Group: USERS (THAT HAVE NOT REFUSED)
[Focus Group/Semi-Structured Interview]

#	Parameters	Indicators/Questions
1	**Technical performance**	N/A
2	**Utilisation and Geographical Coverage**	1. Have you heard of the emergency transport project? 2. What do you know about the project? 3. Have you already needed to call transport to travel to a health facility? If yes, why did you not use the project's emergency transport? 4. Are there any barriers to accessing the transport (physical or other)? 5. What do the communities think about the emergency transport? 6. Have there been any problems regarding the availability of the IMT or the operators themselves? 7. Since the introduction of the IMT, has the availability of emergency transport increased or decreased? 8. If you have transport for an emergency in your community: a. Who is it used by? b. Are there any barriers to using it (relating to operators, cost, etc.)? c. Is there a need for it in the community? d. Does it genuinely serve the community? 9. Do you know the operator? What do you think of the operator? 10. If a different type of IMT was introduced, would you use it in the future?
3	**Management Model for the emergency transport (managed by the community)**	11. Do you think that the management committee is working? Very well, average, not very well at all?
4	**Equity**	12. Which people benefit most from the emergency transport and which don't benefit at all? 13. What is the community's perception of an emergency transport operator? 14. What measures have been taken by the community to ensure that women and children benefit most from the emergency transport? Elaborate.
5	**Sustainability**	15. Do you think that the operators will continue to work with the community? 16. Will the community continue to manage this successful once MAHEFA have withdrawn?

6	**Cost**	17. How can communities support the maintenance of the emergency transport?
7	**Outcomes/Bilan**	18. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)

Emergency Transport Questionnaire

Target Group: Management Committee
[Focus Group/Semi-Structured Interview]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. Are the IMTs in working order? (Encourage an explanation) 2. Have there been any technical problems to date? If yes, what were the problems? 3. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 4. Were there any problems finding the spare parts? 5. How do you find using the IMT? 6. What were your reasons for using the IMT to date? 7. In your opinion is the mode of transport appropriate for the local context? 8. Can you think of any ways in which the IMT could be improved?
2	**Utilisation and Geographical Coverage**	9. What do communities think of the emergency transport? 10. Have there been any problems regarding the availability of the IMT or the operators themselves? 11. Since the introduction of the IMT, has the availability of emergency transport increased or decreased? 12. Do you think that the IMT could be used for other health related activities (vaccines etc.)?
3	**Management Model for the emergency transport (managed by the community)**	13. Do you think that the management committee is working? Very well, average, or not very well at all? Elaborate. 14. Do the management committees manage the emergency transport system? 15. What approach is taken to managing the emergency transport? 16. What have been the lessons learned (from the way the IMT is managed by the community, how it is accessed etc.) 17. How has the management approach changed over time since implementation? 18. How does the management approach differ with different modes of transport? 19. What have you done to promote the IMTs?
4	**Equity**	20. Who are the people that have used the IMT and do they pay to use it? 21. Have there been people who have refused to use it?

		22. In your community do you think you will need to replace the IMT in the future? 23. What measures have been taken by the community to ensure that women and children benefit most from the emergency transport? Elaborate. 24. How can members of your community become emergency transport operators? 25. Are women involved and if so how do they participate? 26. Do you think that women can be IMT operators, and if so which type of IMT? 27. What would women need in order to become operators?
5	**Sustainability**	28. How will the emergency transport continue to function once MAHEFA withdraw? 29. After their contract has expired, do you think the operators will continue being operators? 30. What would motivate the operators to continue? Does the community have the capacity to respond to this? 31. Could you start responding to this now? If yes, what do you already do and how could this be improved? 32. Once the IMT needs replacing, how do you think the community will do this? 33. Do you think the funds generated by the IGA or even the funds from the health savings scheme could be used to contribute to replacing or improving the IMTs? 34. Have you already received funds before from the cooperative (IGA)? Or the health insurance scheme? 35. Have you used these funds, and if so how did you use them? 36. Is this useful? (the IGA or health insurance scheme)
6	**Cost**	37. Do people have to pay to use the emergency transport? How much? 38. How is the cost of the transport calculated? 39. Who pays cost? 40. In your opinion, is the price of using the transport affordable? 41. Do you think that having the IMT in your community is useful? Explain why. 42. Without the IMT, how long would it take to find transport in an emergency? How much would it cost? What do you think of this cost when compared with the costs of emergency transport? 43. How long is the journey from your village to the health centre and do you think that the IMT has reduced the journey time? 44. In what way can the community be expected to maintain the emergency transport?
7	**Outcomes**	45. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)

Emergency Transport Questionnaire

Target Group: Health Centre Staff
[Semi-Structured Interview]

#	Parameters	Indicators/Questions
1	**Technical performance**	1. Are the IMTs in working order? (Encourage an explanation) 2. Have there been any technical problems to date? If yes, what were the problems? 3. Have any repairs been required and if yes, who arranged for them to be carried out and who paid? 4. Were there any problems finding the spare parts? 5. How do you find their performance? 6. In your opinion is the mode of transport appropriate for the local context? 7. Can you think of any ways in which the IMT could be improved?
2	**Utilisation and Geographical Coverage**	8. When did you use the IMT? 9. Why did you call for the IMT? 10. Did you have to pay? If not why not? 11. Are there any barriers to accessing the transport (physical or other)? 12. What do the communities think about the emergency transport? 13. Have there been any problems regarding the availability of the IMT or the operators themselves? 14. Since the introduction of the IMT, has the availability of emergency transport increased or decreased? 15. How did you contact the operator (or other people)? 16. What was your experience of using the IMT like? 17. How did you find the service on offer? 18. Where are people transported to usually in the case of an emergency (Health Centre/Hospital)? 19. How long does the journey take using the IMT? 20. How long does the journey take without the IMT? 21. Would you recommend using this emergency transport to other people? 22. How long did it take once reaching the health centre, before the patient is seen by staff? 23. On average how many people each month are brought to the health centre using the IMT? 24. Since the IMT was introduced in your fokontany, how has it been promoted to the wider community? 25. How do the operators communicate with the CHVs, other operators, health centre staff? 26. Is there a system of communication in place between the operators and the health centre, if there is an emergency? 27. If yes, how do you find this system of communication? 28. Do you think that the IMT could be used for other health related activities (vaccines etc.)?

3	**Management Model for the emergency transport (managed by the community)**	29. Do you think that the management committee is working? Very well, average, or not very well at all? Elaborate.
4	**Equity**	30. Which people benefit most from the emergency transport and which don't benefit at all? 31. How can members of your community become emergency transport operators? 32. What measures have been taken by the community to ensure that women and children benefit most from the emergency transport? Elaborate.
5	**Sustainability**	33. How will the emergency transport continue to function once MAHEFA withdraw? 34. What do you think are the necessary requirements to ensure that the emergency transport system is supported by the districts in the medium and long term? 35. Do you think that emergency transport IMTs could be financed by the district health budget? 36. What do you think is your role in the promotion of the MITs?
6	**Cost**	37. In your opinion has there been a reduction in costs for users of the IMT since its introduction? 38. In your opinion is the cost affordable to users? 39. Do you think that emergency transport IMTs could be financed by the district health budget?
7	**Outcomes**	40. To what extent does the emergency transport system depend on the fact that communities are mobilised, for the system to be effective? 41. Is there a link between the health savings group, the emergency transport and the AGR? 42. Do you think that the link set up between the health savings group and the emergency transport system is effective or not for the community in overcoming the transport related barriers to accessing care? What have been the lessons learned? 43. Do you think that the link between the AGR and the emergency transport system is effective or not for the community in overcoming the transport related barriers to accessing care? What have been the lessons learned? 44. Are there indications that there have been improvements to public health following the introduction of the emergency transport system in your commune? 45. Have you seen an increase in the number of people being admitted to the health centre/hospital, in particular for child birth, following the introduction of the emergency transport? 46. What changes have you seen since the introduction of emergency transport? (Accessibility, seeking care, affordability etc.)?

Annex 6: Detailed ETS qualitative review results by region

1. Menabe ETS results

Menabe was the pilot MAHEFA region to receive IMTs. Five different types of IMTs were provided in the communes of Bamanonga and Analaiva. In December 2013, five bicycle rickshaw ambulances (*cyclopousse ambulance*), five bicycle ambulances, two canoe ambulances (*pirogue ambulance*) and ten wheeled-stretchers (*brancard*) were distributed. In late 2015, two ox (zebu) cart pulle ambulances were also distributed.

Findings from the focus groups and interviews have been consolidated and are summarised below according to parameter/theme, then categorized by respondent target groups.

Technical Performance

Operators:
Four focus group discussions took place with operators in Menabe, one with eight bicycle ambulance/cycle rickshaw ambulances, one focus group with four canoe ambulance operators (*pirogue ambulance*) and one focus group with nine stretcher operators. A focus group also took place with four people who have resigned from their posts as ETS operators. The findings are presented collectively below.

- **Cycle rickshaw ambulances** were trialled in Menabe where cycle rickshaws are widely used as a common means of transport. The cycle rickshaw operators reported that the rickshaws are currently in need of repairs and they did not have enough money to purchase the required spares. However, they reported that the parts are easy to find. This finding highlights the importance of having mechanisms to finance small repairs, even for non-motorised means of transport with low running costs. The cycle rickshaw is appropriate to the terrain outside of the rainy season.
- **Canoe ambulance operators** in Ampagnaniha reported that the canoe ambulance was operational. However, the second canoe ambulance in Troboambola was no longer functional as it was broken into two pieces when it hit an obstacle in the river. They advised it is not repairable and another was needed. It appears that the canoe did not break in half due to a structural weakness, but due to an anomalous accident.
- The review team also spoke to four **operators who have quit their post** as volunteer ETS operators. Their communities received the IMTs in September 2014 and they quit in November 2014. They reported that it wasn't feasible to continue the work unpaid and they preferred to seek paid employment. They reported that the IMTs were appropriate for use on the paved routes but not on secondary (unpaved) roads because this caused damage to the cycle rickshaw ambulances.

> ***"There were always problems like the chain snapping, bent rims and it is them (operators) who pays for the repair."***
> Cycle rickshaw operator who has quit as an ETS operator, Menabe

- **The bicycle ambulance operators** reported that the cycle rickshaws, bicycle ambulances and canoe ambulances are generally operational. They believe that the

cycle rickshaw ambulance, bicycle ambulance and canoe ambulance are appropriate to the terrain. In Analaiva, the spare parts are not available in the community, and operators have to travel to a larger town in the commune for parts. The bicycle ambulances have had a number of technical problems; tyres, inner tubes, chains and pedals have been damaged and rims have become warped, all of which necessitate repairs. The operators are capable of repairing an inner tube but apart from that they have taken the bicycle ambulances to the mechanics where the operators often pay for the repairs themselves. The bicycle ambulance operators report that the availability of transport in case of an emergency has increased and that community members are happy because the IMT allows them to easily travel from their locality to the health center. A bush taxi minibus would be expensive and requires a long wait, whereas the IMT is free.

People who have used the emergency transport (users):
The group of female 'users' advised that the IMTS are appropriate to the terrain because they make transport 'quicker'. They suggested that a motorised tricycle (bajaj) or a motorised cycle rickshaw would also be useful.

Management committee:
In Bemanonga the management committee advised that the IMTs work fine on the paved roads but less so on unsealed roads. There have been problems like broken pedals and flat tyres.

The mayor in Analaiva stated that he had heard that the *fokontanys* of Betsipotiky and Soalala have used the IMTs. There have already been problems such as flat tyres, which have been repaired, with operators paying for the repairs. He reported that the cycle rickshaw ambulance has been removed by MAHEFA but he did not know why[3].

Health Personnel:
At the health center, the health personnel reported that in general the cycle rickshaw ambulances and bicycle ambulances are functioning better the other IMTs (e.g stretchers). There have however been instances of broken pedals, flat tyres and warped wheel rims. During the review itself, a woman used a bicycle ambulance to travel to the CSB for delivery.

Utilisation and Geographic Coverage

Operators:
In a number of places, the stretchers have not been accepted by the community due to a perception that stretchers are used to carry corpses. The *fokontany* of Ankoronadabo was a notable exception where the stretcher had been used to transport women in labour, an injured person and a very ill person.

The cycle rickshaw operators have been more active (probably in part as the cycle rickshaws have been more accepted by the communities) and reported that they had already transferred the following number of people, from the following *fokontany* to the CSB:

[3] During the review stretchers 15 and 16 were seen at the CSB in Bemanonga. They had been removed from the communities as the communities had not 'accepted' them for cultural reasons. Cycle rickshaw number 11 and un-numbered bicycle ambulance were also at the CSB reportedly broken down and were awaiting repairs.

- Tanandava 508: 25
- Bekonazy: 15
- Bemanonga: 22
- Tanambao marofototry: 72

"We have used the bicycle ambulances and cycle rickshaws to transfer ill people, for delivery, for PNC visits and ANC visits as well as vaccination." ETS operators, Menabe

They reported that the average distance was one hour 15 minutes; this same distance would take two hours on foot.

The canoe ambulance operators advised that they have taken the following number of people, in the following *fokontany* to the CSB:

- Ampagnaniha: 25
- Troboambola: 50 (before it broke)

The canoe was used to transport ill people, women for delivery, for ante natal visits and post natal care visits. In the canoe, the average journey reportedly took 45 minutes to cover one kilometre.

The operators who have dropped out of the scheme advised that the number of people using the IMTs is low as there is not enough sensitisation. The average journey is 16 kilometres and takes one hour with the IMT.

The stretcher operators suggested that a 'poor mentality from the community' was one of the reasons that the stretchers have not been widely used. As can be found in some areas there was a perception from some community members that the stretcher was something to be used to carry corpses not for emergency transport. This points to a need for community sensitisation. The stretchers are said to facilitate local transport even if they are not highly used. The stretcher in Andranovoritarehitra currently has a puncture. Importantly, in addition, they advised that the community think that stretchers are just for carrying dead people. The stretcher in Ankidafito has not yet been used. Where the stretchers are used, the operators advised they are used approximately eight times a month. The average distance is four kilometres and the longest journey was 11 kilometres. The average travel time is two hours. To access the transport, the beneficiary or the head of the *fokontany* calls the operators. The transport is free to use. The stretcher operators do not currently think the management committee functions well, remarking; 'the management committee doesn't work as all the members are asleep'. To the operators, to be an ETS operator in their community means to do good for others in the village and to offer the service freely.

Users:
Eight women who have used the IMTS were interviewed from the *fokontanys* of Bemanonga, Kimony and Analaiva. They used the transport for delivery, diarrhoea, PNC, malaria, newborn vaccination and to buy medicines for the CHV. The group advised that the IMTS were appropriate for the terrain but that a bajaj or a motorised cycle rickshaw would be an improvement. The women have used the IMTs because they are less expensive and direct, meaning they do not have to wait for a bush minibus taxi and the operators are easy

to find. The trip to the CSB takes between one and two hours on average on foot. The health staff prioritise the patients who arrive in the IMTs (if the person is seriously ill). During the use of the IMTs, they have not had any problems.

Non-users:
A group of women who have not used the scheme were also interviewed in Kimony. They had heard of the stretchers but thought they were for carrying the dead. They had not used the stretchers but would rather use a canoe ambulance. They advised that a bajaj or a cycle rickshaw would also be useful. This group advised that the operators are willing to take them but that have not wanted to use the IMTs.

Fokontany Presidents:
According to the president of the *fokontany* in Analaiva, where cycle rickshaw ambulance, bicycle ambulance and canoe are generally operational and work well; they are often used for PNC, vaccination, severe malaria, severe diarrhoea, delivery, or people who are very ill or injured. The president reported that there have not been difficulties with the availability of IMTs or operators. When the IMTs arrived, the president had an official launch with the communities, MAHEFA, health personnel and the mayor. The mayor in Analavia reported the IMT is used depending on the health needs of the community. He reported that the management committee is active and meets twice a month.

Health Personnel:
According to the head of the health centre in Bemanonga, the IMT is used for vaccination, delivery and ill people. For the members of the *mutuelle de santé,* it is free. Until now, there has been no difficulty in using the IMTs. The average journey is three hours on foot, or one hour with the IMT. Even though the health centre is on a paved road, the minibus taxis do not always run at night and often refuse to carry a sick person, especially if someone is bleeding. The head of the health centre reported that the operators are doing important work for the community, and she sometimes tips them from her personal funds.

Community Management System

Operators:
There were a range of views about the effectiveness of the management committee. According to the operators, there has not been a meeting to exchange information until now. Operators feel the management committee does not really manage the transport system and that leads to low utilisation of the IMTs. They also commented that the members of the management committee want to be remunerated for this management role. The bicycle ambulance operators commented that it would be better to change the management committee to have people with authority who are available and dynamic. Some of the cycle rickshaw ambulance operators did not seem to know about the management committee. The operators who have quit advised that the management committee is not functional. The canoe operators, however, advised that the committee is functional and people are investing 300 Ariary per month as part of the *mutuelle de santé.*

Users:
The users advised that measures were taken during the meetings in the *fokontany* to prioritise women and children under five for ETS use. Concerning the management system,

they report that only the management committee in Tanambao Marofototra is not functional.

Non-users:
The non-users of the transport believe the management committee functions well.

Management Committee:
As for the committee members themselves, they believe that the performance of the emergency transport scheme is 'average' because most people do not make the financial contributions for the *mutuelle.* This is important to support with ongoing running costs for the transport.

Health Personnel:
In the *fokontany* of Analiva the COSAN (Comite de Santé – Health Committee) advised that the management committee is not functioning because they are not paid, despite the fact it is meant to be voluntary position. However, in Bemanonga, the head of the health centre in Bemanonga reported that the management committee is functional.

Equity

According to the operators, measures have been taken in the community to ensure that women and children benefit from the system. In Bemononga women have been involved in the sensitisation activities. If the transport were motorised, the operators believe that women could be operators, however, according to the COSAN, women cannot be cycle rickshaw ambulance operators because they are not strong enough and for security reasons. The cycle rickshaw operators advised they have not refused any sick person. The canoe operators have also not refused to transport anyone; they report that the people using the canoe ambulance are happy with the use of the IMT. The head of the health centre in Bemanonga reported that all people are benefiting from the IMT.

Sustainability

Operators:
It is important that these community-managed systems remain in place after MAHEFA withdraws in May 2016. For this reason, this review examined various issues related to the sustainability of the project such as the motivation of the operators themselves. The canoe ambulance operators are ready to continue their work. The operators who have left the programme in Analavia left because they were not remunerated and, on this basis, they feel they cannot continue. The operators who had left reported that if the ETS was managed by an NGO, [presumably with paid operators] that perhaps they would continue.

The canoe ambulance operators advised that the canoe is appropriate and the broken one needs replacing. The cycle rickshaw operators advised that the community is considering replacing the emergency transport with a motorised bicycle ambulance/cycle rickshaw or a bajaj. They feel that communities could then cover the cost of spare parts and fuel.

The operators do not believe that the funds generated by the eBox or the *mutuelle* will be enough to replace or improve the IMTs because of the low level of contributions they are able to make, and that more sensitisation and community engagement is needed.

The stretcher operators think that the community can replace the stretchers in time with an ox-cart. They also think that without MAHEFA the emergency transport system will end.

Users and non-users:
The users believe that the operators are very motivated and ready to continue even when MAHEFA ends. The non-users would like to continue the emergency transport scheme if MAHEFA ends but they report that in some instances the community is not very motivated.

Management Committee:
The head of the health centre in Bemanonga advised that the system can continue in the community because the community is benefitting from it. The mayor in Ananalavia advised that once MAHEFA ends, the system will continue as people see the need for the IMTs. The president in Analavia, however, advised that the ETS cannot work when MAHEFA ends, unless there is an NGO to support the system.

Cost

Operators:
The stretcher operators there are no fees for use. According to the operators the stretcher is expected to last on average three years. Cycle rickshaw operators estimate the life expectancy of the rickshaws to be around five years. The community is still not able to maintain their vehicles. People contribute 1200 Ariary per household per year to the *mutuelle* and then the transport is free for *mutuelle* members. Otherwise, the transport is reported to cost 500 Ariary. The operators who have dropped out reported that they did not have engagement/participation from the community to look after the IMTs. They reported that they did not have the money to make repairs and that *mutuelle* 'does not really work' as a system for collecting funds.

Users:
The users advised that now there is no cost when comparing the cost of the IMTs with using an ox-cart or minibus bush taxi (presumably this is for those in the *mutuelle*). The users reported that emergency transport is useful and important in the community but it is still not fully functional as there are financial problems with the eBox and the *mutuelle*.

> ***To look for an ox cart or a minibus taxi you would lose one to three hours. Hiring a car would cost 100,000 Ariary, the cost of a minibus taxi would be 4,000 Ariary. This is too much for the community to pay. There is a reduction in the cost because the hire of an ox cart would cost 30,000 Ariary or 2,000 Ariary for a canoe. Compare this to the 1200 Ariary per household per year with the emergency transport scheme.***
> *(ETS User, Menabe)*

The users reported that time to travel from the *fokontany* to the primary health centre (CSB1) is on average now 15 minutes; from the CSB in Analaiva to the hospital in Morondava (onwards referral) takes about 60 minutes. The existence of the IMT reduces the time lost to travel. To ensure the maintenance of the IMTs in the community the users plan a meeting at each *fokontany*.

Management Committee:
In Bemononga the management committee reported that *mutuelle* members pay 1,200 Ariary per household per year. For those not in the scheme they need to pay 1,200 for each trip with the ETS. The head of the health centre in Bemononga reported that for those in the *mutuelle*; 'there is no cost to use the emergency transport'. According to the mayor in Ananaliva, since the IMT has been in place patient transport costs have reduced compared with before. The cost of 1200 Ariary is considered affordable within the communities. However, according to the management committees members interviewed people are often 'not taking responsibility and making this contribution' towards the *mutuelle* and ETS.

Outcomes

Operators:
The stretcher operators advised:

- Everybody transported by the stretchers has saved time.
- The beneficiaries who were taken to the health centre are happy.
- There are still issues with community acceptance.

For the canoe ambulance operators, the IMT has brought changes such as time saved, medicine is more available, transport is cheaper, and the service is 'quick'.

Users and non-users:
Since the emergency transport system was put in place, the changes that non-users have noticed are;

- Travel to the health centre and hospital has become easy and quicker than before.
- Patients are attended to quickly.

For the non-users there have not been many changes at the community level as the stretchers they see are not used.

Health Personnel:
The head of the health centre in Bemanonga advised that there is a change since the emergency transport was put in place but not as much as it could be, as the sensitisation and the utilisation of the IMT is insufficient.

2. Sofia Emergency Transport System Results

In Sofia, IMTs were distributed in three communes (Mandritsara, Antanandava and Pont Sofia) in Mandritsara district and consisted of 17 wheeled stretchers and 20 bicycle ambulances (see existing data in section 5.1).

Technical Performance

Operators:
Two focus group discussions took place divided by the two types of IMT introduced in Sofia. 6 bicycle ambulance operators attended one focus group and 5 stretcher operators attended the second focus group meeting. The findings were similar and are therefore presented collectively below (11 operators in total). Those that participated in the focus group discussions reported that despite experiencing some technical problems with the equipment, the IMTs were all currently in working order. They stated that they are

maintaining the equipment well despite being used frequently. The operators have been exercising care due to the difficult nature of some of the routes that they travel on, and as a result, the majority have experienced no major technical problems. Three out of 11 participants reported that punctures were common and two people reported the need for additional oil after having washed their bicycles, both of which are basic maintenance duties which the IMT operators are able to carry out themselves. Three participants have had to replace pedals and two added a baggage rack, all at their own expense. Whilst a minority of operators have been able to source spare parts locally in their own *Fokontany*, eight out of the 11 people have to travel further either to the nearest town or further.

All participants appear to be using the IMTs for the correct reasons and have a good understanding of the equipment's purpose in the community, which is to say for the transport of patients to health facilities. Participants reported having transported children under five, pregnant women, including those showing danger signs, and people experiencing illness to the degree to which they find it difficult to walk. In carrying out this role, all participants (bicycle ambulance and stretcher operators) agreed that the IMTs reduce the amount of time taken to transport patients to health facilities, are appropriate to the terrain on which they have to travel, and on the whole are easy to use year-round.

Since the IMTs have been in place,[4] the two groups totalling 11 operators have transported a 36 people from their villages to the nearest health facility. Their responses give an interesting picture of the mix of patients that are able to make use of the bicycle ambulances. Of the 36 people transported, seven women travelled due to the need to access maternal healthcare services, including post-natal care. Eight of those transported were suffering from malaria and the remaining 21 people were transported due to a variety of different reasons such as spinal injury, stomach sickness and some unclassified illnesses that made it difficult to travel by foot. The participants could not remember the condition of 16 out of the 21 people transported.

In terms of improvements that could be made, when asked, nine out of 11 of the participants suggested that ideally there should be a waterproof shelter attached to the stretchers, similar to those available for users of the bicycle ambulances, so that the patient remains dry in transit during the rainy season. The same people suggested that they be given some sort of item, such as a badge or a t-shirt[5], which makes them stand out from other members of the community in terms of the role that they play. In addition, it was suggested that they be given lights, importantly ones that do not require batteries, to make travel at night easier. Finally, two out of the 11 participants suggested that there should be a small amount of money specifically put aside for the ongoing repair and maintenance of the stretchers and the bicycle ambulances, which the operators should have ready access to. It was unclear whether they felt this money should come from community contributions or from MAHEFA.

Users:
A focus group involving eight community members constituting potential IMT users (at the time of writing none had used the IMTs) took place to gain a better understanding of how

[4] IMTs were introduced here in December 2014.
[5] High visibility vests and dynamo lights were purchased for the IMT operators in Sofia in September and December 2015. This was planned and not a response to this review.

community members perceive the project. Both the stretchers with wheels and the bicycle ambulances were perceived to be appropriate by all eight community members. These potential users, however, did express a preference for the bicycle ambulance due to its ability to cover large distances in a shorter time.

Management Committee:
A focus group discussion with four members of the management committee also reported that the IMTs were fully functional and that required maintenance was carried out after each use. Problems experienced to date include issues with pedals, the pump and the luggage rack. For the repairs that have taken place to date, the operators arranged for the repairs to be carried out and they paid for them. The parts were easily found in Mandritsara, which is about five kilometres away.

The management committee stated that the IMTs have been easy to use, appropriate to the local terrain, and affordable for community members, although it can be difficult to use them during the rainy season as the routes are generally in bad condition. The management committee mentioned that lights would improve the IMT, possibly solar powered lights, making it easier for the operators to travel at night, as well as a raincoat for the operators.

Health Personnel:
From the point of view of the one health personnel (commune Ambodisatrana Manjola) who was interviewed, the IMTs were currently functional, however it must be pointed out that this particular person had not seen the IMT in the three months that they had been working at the CSB and was relying on hearsay. Likewise, they believed that there have not been any technical problems in the short time that they have been working in the area. Their belief was that spare parts are not available locally and to obtain them would require travelling to Mandritsara although it is uncertain whether or not this participant was in a position to know this. They mentioned that it would improve the quality of the journey for the patient if the IMT carried a mattress for their use to make them more comfortable.

Use and geographic coverage

Operators:
It was the opinion of all the people present during the focus group that the IMTs were to be used by pregnant women and children under-five, as well as all people suffering from an illness requiring transportation to health facilities. When asked the average number of people being transported by each operator every month, four participants stated that they transported up to two patients each month, four that they transported two to four patients per month, and three stated that they transported between four and six patients every month.

Participants were also asked to estimate the average distances they were travelling over a period of one month. Distances covered in one month varied widely and were estimated at being between six and 100 kilometres, with the majority of operators stating that they travel 30 kilometres each month. The longest reported return journey undertaken by stretcher operators was 60 kilometres and the longest journey for bicycle ambulance operators was 100 kilometres. In their view the number of people currently being transported is high, however six of the participants believe that, bearing in mind the IMTs are in place to act as a means of emergency transport, they are not transporting a sufficient

proportion of cases that are considered to be emergencies. Instead, the majority of clients transported are being transported for illness, although in many cases, serious illness.

The operators believe that communities have welcomed the introduction of the bicycle ambulances in their areas and believe that they play an effective role in transporting people to health facilities although two participants did point to the fact that some community members consider the bicycle ambulances to look similar to the vehicles associated with transporting corpses. In terms of IMT availability, participants claimed that the ambulance and trained operator are always available for use, although two participants did state that on occasion, if the operator was not available, family members of the patient have taken the IMT with the permission of the management committee. To the project team's knowledge this has only occurred with bicycle ambulances. The participants consider the stretchers and the bicycle ambulances to be faster and more responsive than the other alternatives such as ox carts. Patients appreciate the fact that they can communicate with the operators more effectively which in their opinion has led to community members having confidence in the operators themselves. In fact, four out of the 11 participants reported receiving a thank-you token which might be a gift or a small amount of money.

Users

Users stated that when the IMTs were introduced, the chief of the *Fokontany* called a meeting to introduce the project and to explain the intended use of the IMT. When questioned, users demonstrated a clear understanding of its intended use which was for pregnant women and children under five, and for those that are unwell. They state that the new IMTs mean that time is no longer lost in searching for a means of transport to take them to the CSB.

Users currently contact the operators by going to their houses. Seven out of eight stated that the IMT was much easier to use than the traditional stretcher that was in place before although one person did say that it could be difficult to carry the patient at times. The journey from community to the health centre takes between 90 and 120 minutes. Without the IMT, the same journey would take up to three hours by foot. However, there appears to be a problem with where the IMT is located. The IMT in question is currently located at the operator's house for safekeeping. However, community members have reported some issues concerning the reliability of this particular operator, stating that he has 'problems' with certain people in the community. They therefore expressed a wish for the IMT to be relocated.

Management Committee:

Members of the management committee demonstrated a good understanding of the intended use of the IMT. They say that they have had no problems to date, regarding the availability of the IMT for use by patients and they state that in general, transport availability has increased since the introduction of the IMT. When asked if the IMT can be used for other things in the community, such as the transporting vaccinations and medicines the committee overwhelmingly said yes and that it was already being used for other things but only when there was no need for emergency transport. Unfortunately, the types of use were not explored as part of the discussion.

Health Personnel:

The health worker stated his belief that the IMT was appropriate to the local context and demonstrated a good understanding of its purpose. According to this health worker's opinion and anecdotal experience, the IMT's availability has not been a problem and members of the community are delighted with having access to the IMT for travel to the centre. He believes that the operators are well trained and that journey time has reduced significantly since the introduction of the IMT.

Community Management Model

Operators:

The way that the IMT is managed within the community obviously has implications for the sustainability of the project in the long term. There was some disagreement amongst participants on this subject. Whilst a minority suggested that the management committee carried out their role well and regularly undertook inspections of the IMTs, most participants in the operators' focus group stated that there was little or no communication between the management committee and themselves. In fact, many suggested that there should be some sensitisation amongst committee members as to what was expected of them in their role.

Users:

From the users' perspective, whilst the management committee is functioning, it is far from fulfilling its potential in carrying out this role. This is apparently due to problems between the different members of the committee although the group would not elaborate.

Management Committee:

The management committee were emphatic in their conclusion that the committee is functioning well. The group stated that they have a good relationship with the CSB. They see their principal responsibilities as registering the operators and managing the finances, such as subscriptions (to the *mutuelle*) and the money received from users for use of the IMT. In terms of lessons learned, the committee members think that more sensitisation in the wider community is necessary to explain the advantages of the emergency transport system. They see this sensitization as the role of MAHEFA and not as part of their remit, though when the IMT was introduced, they called a community meeting to explain the activity and its advantages. They believe that otherwise the system is functioning well, implying that the introduction of IMTs has seen an increase in the number of members of the *mutuelle*.

Health Personnel:

The health worker is under the impression that the management committee is not functioning as well as it could at present although they were not able to add detail to this assertion when questioned. The very fact that the health worker is only 'under the impression' points to a lack of joint working between the management committee and the health facility.

Equity

Operators:

None of the participants report ever having refused to transport someone although they have been adamant that members of the community cannot use the bicycle ambulance tools that came with the repair kits for other purposes, which some community members are unhappy about. However, the participants say that people respect the service that is

offered to them and are satisfied with it. Eight of the IMT operators were motivated to carry out their role, by the fact that they were performing a charitable act, and by extension helping their community. The remaining three operators were happy to feel useful in their respective communities.

Users:
Users state that whilst the primary beneficiaries of the IMT are pregnant women and children under five, everyone can benefit from the use of the IMT in the case of an emergency. Users did state that pregnant women should get priority use of the IMT.

One problem highlighted by users regarding the accessibility of the IMT was that that one of the operators sometimes refuses to take people from families that he does not like. This line of discussion was not explored fully, however, users stated that in general, drivers should be reliable, confident and should not have problems with members of the community. These characteristics were echoed by the management committee representatives.

Management Committee:
To demonstrate the equity of access to utilising the IMT, the management committee members discussed who the users were. Examples included a man with a broken foot, a child under five with malaria, a pregnant woman in labour, a child with diarrhoea, a woman requiring an operation, and a man with an undefined serious illness. To their knowledge, there have been no cases so far where operators have refused to transport someone. When first speaking to the community about the emergency transport and the use if the IMTs, the management committee stated the need to prioritise pregnant women and children under-five. When sensitised, women have responded well in terms of taking the opportunity to use the IMTs if required although it is the belief of committee members that more sensitisation is needed. When asked whether women could become operators, they communicated definite barriers to overcome in terms of gender equity, implying female operators would be a last resort if no men were available for the role, adding that women would require additional training on the operation of the IMT.

Sustainability

Operators:
It is important that these community-managed systems remain in place after MAHEFA withdraws in May 2016. For this reason, this review examined various issues surrounding the sustainability of the project such as the motivation of the operators themselves, in order to establish their level of commitment. As mentioned above, eight of the 11 participants were motivated to volunteer by the fact that they were helping improve their communities. Each of the remaining three participants stated that an important reason behind their choice to volunteer was the encouragement that they received from either the chief of their *Fokontany*, or from members of the management committee. All 11 of the participants present stated that they wanted to continue their level of involvement in operating the IMTs indefinitely.

In terms of the equipment itself and what might happen to it when it reaches the end of its life and needs to be replaced, it was the opinion of all operators that the community was not in a position to fund the replacement of IMTs where needed. Participants pointed to the fact that it was their responsibility to fund the maintenance and repairs of the IMTs and not

the responsibility of community members. However, there was an understanding amongst participants that in the long term, the responsibility for the continuation of the project lies with the community and not with MAHEFA.

Users:
There is certainly much support for the introduction of the IMTs from users, with the group saying that they have found its introduction to be highly advantageous for people in their community. Users are expressed confidence that the benefits of the project will continue beyond MAHEFA's involvement and believe that the community will be able to ensure its success in the long term. However, users stated that this conclusion is dependent on two factors. Firstly, that the location of one IMT in particular is changed and the responsibility for its operation is given to someone else, and secondly, that the management committee functions effectively.

Management Committee:
The management committee is also confident that the project will continue functioning once MAHEFA's involvement has ended, stating their wish to continue playing their part as well as the fact that the project addresses such an important need. They were also confident that the operators will continue to help the community as they have been doing to date having gained the community's trust in carrying out their role, which ultimately is perceived to be their motivation.

In terms of the IMT itself, the committee has already discussed the possibility of constructing another trailer for the bicycle ambulance not because it is damaged but to provide additional options to the current trailer should demand require it. It is not clear whether this trailer will be constructed locally or indeed who will pay for it, although the group did state that 25 percent of *mutuelle* membership costs do fund repairs and improvements to the IMTs and therefore would contribute to the construction of new equipment as well. The fact that the need for an additional trailer is already being discussed is indicative of a confidence within the community that demand for the IMT will increase as care-seeking behaviour improves and bodes well for the future of this initiative. The committee also discussed a wish to purchase a motorised rickshaw. Managing the IMTs at community level has already been discussed at previous meetings and in doing so, the need to increase the number of members of the *mutuelle* is seen by the committee as a key strategy to the project's success, as well as reinforcing the link with the CHVs to sustain sensitisation activities.

Health Personnel:
The health worker's previous assertion regarding the problems of not having a functioning committee no doubt has implications for the sustainability of the project once MAHEFA ceases its involvement. They also believe that wider community coverage is required to ensure sustainability. Unfortunately the health worker did not elaborate on this last point, though one possible interpretation is that wider sensitisation is required.

Cost
Operators:
The cost of maintaining and replacing the IMTs as and when required must be borne by the community itself in the long term. As the operators have already alluded to, they themselves are at present dealing with the cost of repairs and maintenance and there has,

to date, been no need to replace any of the IMTs. However, it is inevitable that the IMTs will at some point require replacement and a strategy must be in place to facilitate the purchase and/or manufacture of new equipment.

When asked about the expected lifetime of the IMTs, two out of the 11 participants estimated the lifetime to be up to five years, with nine participants expecting the lifetime to be between five and 10 years. Whilst community members have confidence in the ability of the operators to maintain the IMTs, the operators believe that community members should be making regular contributions towards the upkeep of the IMTs. Members of the *mutuelle* currently pay 500 Ariary per month (200 Ariary goes towards maintenance of the IMTs, and 300 Ariary is for the *mutuelle*). Those that are not members pay 1000 Ariary each time that they use the IMT. These prices are fixed as stated in the rules of operation. The operators stated that none of the money from the contributions went to the operators of the IMTs. These costs are considered reasonable by the operators bearing in mind that they spend up to 7500 Ariary each month on repairs.

Users:
There was agreement from users as to what individuals might expect to pay for using the IMT and unanimous support for the fact that community members who are not paying members of the *mutuelle* should pay 1200 Ariary to utilise the IMT. Overall, users agree that prices have reduced and that the charges, as stated above, are not a barrier to people accessing transport because of the obvious benefit that the activity has brought to the community.

Management Committee:
Members of the management committee in Andidimiady (Mandritsara) stated that there was no cost to utilising the IMT for those who are *mutuelle* members. For those who are not members, the cost is 1000 Ariary payable each time the IMT is used, which they initially stated was deemed to be affordable, as also stated by the health worker. However, two out of the four committee members later stated that users do have problems paying at times and that cost is still a potential obstacle to them accessing the transport.

Outcomes

Operators:
Each participant was asked to name a change that they had seen as a result of the project. Two participants pointed to the difference the IMTs have made in reducing the time taken for people to reach the health facilities. Three pointed to the improvements in the design of the stretchers (the addition of wheels) as having a high impact on their ability to carry patients to and from health centres over long distances. One participant was particularly proud that the *Fokontany* that he worked in was now a model for other *Fokontanys* to follow suggesting that there might be an appetite in other areas for the adoption of IMTs. Three participants pointed to the support from the health facilities for the introduction of IMTs as evidence of its impact, and the final two participants stated that the activity had improved the way that members in their respective communities were cared for.

Users:
Users stated that members of the community were now able to travel to the CSB without delay and that the duration of the journey itself has been reduced.

Management Committee:
The management committee believes that IMTs present an affordable means of transport for community members, allowing users to arrive at the health centre in a timely manner.

Health Personnel:
The health worker believes that the ETS depends on a successful community health insurance scheme, which in turn, will require additional sensitisation to generate an increase in the number of members. The CHVs must play a key role in managing this system for the sake of its sustainability.

3. SAVA Emergency Transport Systems Results

For the review of the emergency transport interventions in Vohemar, under MAHEFA's supervision the review team consisted of a team of four consultants and took place in November 2015. The review targeted emergency transport operators, beneficiaries (users), members of the management committee, and health centre representatives.

In SAVA, MAHEFA has introduced intermediate modes of transport (IMTs) in three communes, Antisirabe Nord, Ampanefena and Nosibe. Nineteen stretchers and seven bicycle ambulances have been distributed.

Technical Performance

Operators
Two groups of operators; one in Nosibe and one in Ampanefena participated in the focus group discussions, both involved in the operation of wheeled stretchers. The IMTs were introduced in Nosibe in October 2014 and in Ampanefena in December 2014. Six out of the eight participants in Nosibe reported that the IMTs are still operational, in part thanks to the quality of the equipment itself. However, two operators reported that their stretchers currently do not work due to the need to replace a rim which broke on their last journey because of the rough road surface. Otherwise, the other six operators have had no technical problems whatsoever. For the two stretchers that need repairs, it is the operator's expectation that they themselves must organise and pay for the repairs. They expect to have to pay up to 2000 Ariary. In Ampanefena, the IMTs have not been used yet and as such there has been no need for repairs. Three out of the four participants noted that they did not have any tools to carry out repairs.

In Nosibe, half of the group said that there were no problems at all finding a vendor selling the correct spare parts/tools in their village, as did all operators in Ampanefena. However, the other operators in Nosibe have to wait for market day before they can buy spare parts or travel to Vohemar to find them.

There is demand for the IMTs in Nosibe although most operators advised they had not transferred anyone for at least two months, some not for up to four months. Operators claimed that this was not because people were refusing to use the IMTs but simply because not many people had fallen ill. Two operators however reported transporting a woman who was haemorrhaging last month.

Both groups of operators consider the IMTs to be very light and easy to use, explaining that no time is lost if there is an emergency. All participants overwhelmingly agreed that the IMTs were appropriate to the local context illustrated by the fact that most operators have had no problems in using the IMTs and that IMTS have the support of the local community. However, the participants made a number of recommendations. The majority of operators in both Ampanefena and Nosibe stated that they needed overcoats especially during the rainy season. Two participants suggested that two wheels would improve the balance of the stretcher as opposed to just one and one participant in Ampanefena, suggested a lamp would assist travel at night.

People who have used the IMTs and people who have not used the IMTs

Three groups of people who have used the ETS took part in focus group discussions, two of which involved members of the community that have used the IMTs, and one group that have not but would be willing to. Most of the beneficiaries heard about the introduction of the IMTs from the CHVs with one having learnt about it from the president of the *Fokontany*. All had a good understanding of the fact that the IMTs are to be used as emergency transport. However, despite knowing about the project, focus group participants in Ampanefena, consisting of members of the community who are yet to make use of the IMT, expressed uncertainty as to how the system worked. They did not know how to access the transport, perhaps pointing to a need to improve sensitisation in this community.

All participants agreed that the stretchers are appropriate to the local context although some improvements were suggested by the group. These included adding an additional wheel to improve the stability of the IMT (as the operators had also suggested) and installing a roof to shelter people from the rain if they are being transported during the rainy season. One of the non-users suggested that a motorcycle ambulance might be faster still. Despite this, overall support for the IMTs is illustrated by the fact that there were requests to introduce more stretchers for communities that are located further from the health centres due to the IMT's ability to travel over inaccessible routes.

Management Committee

The review team spoke to three groups varying in size from one to 11 people representing the management committees, one in each of the three communes, Nosibe, Ampanefena and Antisirabe Nord.

Each of the three groups confirmed that the IMTs were in working order and that they are checked regularly, although the groups in Nosibe and Antisirabe Nord have experienced some technical problems with their bicycle ambulances. The wheel rims on the trailer have buckled, and there have been problems with the frame that supports the canopy on the trailer. Where there have been repairs required, it has been the role of the management committee to organise and pay for them to be carried out and the members of the committee seem happy with taking on this role. The IMT in Ampanefena has not had any technical problems to date because it has not been used.

All participants in the management committee focus groups stated that the IMTs are very easy to use and are very light, perfectly appropriate to the local terrain. Its introduction is

also appropriate to local circumstances with members of the community happy that they no longer need to use other traditional means of transport. Members of the management committee in Antisirabe Nord said that other communities in other *Fokontanys* are very keen to have an IMT, indicating high levels of acceptance by communities in the region. There were a number of suggestions made to improve the IMTs. In Nosibe they suggested that for the stretcher a lamp is required by the operator for use at night. They also thought that adding another wheel would add stability to the IMT. They would also like to extend the arms of the stretcher so that the operators can get a better hold. The management committee in Ampanefena did not have any suggestions to improve the IMTs, only that it would be preferable if all *Fokontanys* had IMTs. In Antsirabe Nord the group also suggested additional locations for more stretchers as well as recommendations for spare wheels.

Health Personnel

An interview was carried out with the staff from a health centre based in Nosibe commune. Before the introduction of the IMTs, people used what is called a 'le gony' which translates as 'cart', although it is not clear whether this refers to an ox-pulled cart. Members of the community are now opting to use the new IMT to travel to the health centre. In the opinion of the participants, the IMTs are presently kept in good working order although two of the three participants understand that the IMT has had a number of punctures. It is their understanding that repairs are sought externally and the cost is paid by the local *mutuelle*. All the spare parts are available locally. The participants believe that the operators are well trained and that they have mastered using their IMTs.

In terms of who can use the IMT, the group stated that it is for all those who are suffering from a serious illness to use. However, pregnant women and children under five are to be prioritised. In their opinion the IMT is completely appropriate to the community members' needs and serves to improve their health and wellbeing. In addition, the stretchers in particular are suitable to the context and relatively easy to use, even during the rainy season. The bicycle ambulances are not so easy to use during the rainy season. The improvements they suggested were to give the operators raincoats and a lamp, and if possible, a telephone so that they can communicate with the health centre.

Use and Geographic Coverage

Operators:

The operators from Ampanefena had not yet had the opportunity to transport anyone. In Nosibe, however, operators have transported 18 people from three *Fokontanys:* Beraja, Moronjolava and Bobatsirevo. The people transported were a mix of pregnant women, patients with malaria, diarrhoea, one person with a fracture, and a patient with lumbago. The group felt the number of people transported was substantial. The average number of people transported each month varied between one and five according to the *Fokontany*.

The operators from Ampanefena advised that there is a definite need for the IMTs in communities, and they sense that members of the community are proud of its introduction in their *Fokontany*. People are motivated to visit health centres but they are choosing to travel by other modes of transport. There is no problem with the IMT's availability although it was suggested that the lack of use may be due to uncertainty about how the system

works. It was also suggested by operators that the location of the village may be the reason, it being situated near the road which leads to the health centre.

In Nosibe, operators say that the community are satisfied with the IMTs and that they are seen as an effective way of travelling to the health centre and one that reduces travel time. The increase in the number of members of the *mutuelle* from 45 to 200 members is thought to be due to the introduction of the IMTs. A system is in place in Nosibe which in some ways is different to other communes in that there is a nominated 'supervisor' who is responsible for managing the IMTs. There have been no problems with availability to date. There has only been one incident when a bicycle ambulance could not be used and that was due to heavy rain and the poor quality of the road.

In Nosibe there is one bicycle ambulance and the remaining IMTs are stretchers. The average distances travelled for each journey vary between five and 20 kilometres according to which *Fokontany* they are based in. The time taken per journey varies hugely from one to nine hours. The stretchers are carrying out longer journeys compared to the bicycle ambulance. In particular, the operators mentioned the stretcher in Antsampano *Fokontany* had made especially long trips. Unfortunately there is no record of exactly how long these journeys actually are, but they are reportedly considerably long.

Both groups of operators were in complete agreement as to who should be using the IMT. Everyone's understanding was that everyone with an illness that needs to travel to the health centre should be able to use the IMT. However, the priority groups in terms of beneficiaries should always be pregnant women and children under five.

Users and Non-Users:
For those who have used the IMT they would usually go to the operator's home when they needed to use the IMT and did so for a number of different reasons including malaria, serious bleeding and a pregnant woman in labour. When asked what the impact of having this system in place can have, most of the group pointed out that the introduction of the IMT is there to save people's lives. One user said that without the IMT she would have died.

> In response to the question; ***Why did you call for the IMT?"***
> The response was; To ***save my life, without the IMT I would be dead'***
>
> *ETS user, SAVA*

More generally, the group thought that the IMT will also encourage more people to visit the health centre.

Two out of the eight participants from the group in Ampanefena said that they had had reason to use the IMT but that when they needed it, their first instinct was to take a 'taxi brousse'. It didn't cross their mind to contact the operator of the IMT. The cost of the IMT does still seem to present a barrier to some members of the community and seems to be the reason why some of the group have opted for the more traditional means of transport, hand pulled carts. Of the participants that have used the IMT, five out of the six are not members of the insurance scheme and therefore had to pay 1000 Ariary for its use. One person in this group claimed that despite being a *mutuelle* member, they were still charged

by the operator. It is unclear whether this sum was for one journey only and what the reason for this might have been, as in most cases the use of the IMT is free-of-charge to *mutuelle* members.

Whilst five out of six of the users have not experienced any problems in terms of accessing the IMT, one person who does not live in the village where the IMT is located has had problems. Due to the fact that this person lives in a different village, they used another means of transport (type unspecified) to travel to where the IMT is located. On this particular occasion, there were difficulties finding the operator on arrival. In addition, the stretcher's tyre was flat. Fortunately, the repair was made and the operator was found and the person reached the CSB safely. Overall, the group concluded that the availability of emergency transport has definitely increased since the introduction of the IMT. From the group of non-users in Ampanefena, the obstacles to accessing the IMT consisted of not knowing who to ask to be able to use the IMT, not knowing who the operator is, and not knowing how to become members of the local *mutuelle*.

All the users that participated in the focus groups said that the community have welcomed the introduction of the IMT stating that there is a real need for improved transport in their communities. The presence of the IMTs has had a big impact on reducing the amount of time that it takes people to reach the CSB, and therefore reducing barriers to accessing healthcare.

Management Committee:
When asked whether there were any obstacles to accessing the IMTs, each group interpreted this question in terms of the availability of the operator and the IMT. In all cases the groups claim that the operators and the IMTs were always available, amounting to what the committees in Nosibe and Antsirabe Nord suggested was an increase in available emergency transport in general. In the eyes of management committee members in Nosibe and Antsirabe Nord, members of the community are very happy with the introduction of the IMTs, with more people travelling to the health centre thanks to use of the IMT, which is considered affordable. However, in Ampanefena where the IMT has not been used, the committee said that at first there was interest but this quickly ended. People do not want to use the bicycle ambulance and instead travel to the hospital by other means. They suggest that this might be because their village is located next to the main road to the hospital and presumably other transport is available.

On the subject of whether or not the IMT should be used for transporting other health related commodities, such as essential medicines, there was a mixed response. In Nosibe, the majority of the group believed that the IMT should only be used to transport people in the case of an emergency; a view shared by the management committee representative in Antsirabe Nord. However, in Ampanefena there was little objection to using the IMT for other health-related transportation, though as yet, no one from the local community has used the IMT.

Health Personnel:
Whilst the health staff have not used the IMTs themselves, they have had reason to contact the operators whilst assisting members of the community. They have not had reason to pay for the transport on behalf of the patient, for example if the patient had absolutely no means of payment, implying that the cost is fixed at a level that is affordable.

On the whole, the health personnel believe the IMTs are accessible for use and that the only potential obstacle is the motivational level of the operators. For this reason, they suggest some sort of incentive for them. However, as far as they're concerned the IMT is always available to members of the community and has provided a means of transportation far superior to the traditional means that were used prior to the IMT's introduction. According to them, this results in between one and five people using each IMT every month.

The participants agree with previous statements that the primary way people contact the operator is to go to their home. The operator then visits a supervisor who is part of the management committee for authorisation before starting the journey. Journey length is between five minutes and two hours dependent on which IMT is used and its location. These times are a huge improvement as before the introduction of the IMT the time taken for each journey was between 15 minutes and five hours. For this reason, health personnel make every effort to encourage members of the wider community to make use of the IMT. The health workers do so largely via the CHVs as well as promoting its use directly to their patients.

Once a patient arrives at the health centre, they are seen immediately and the operator signs a register to record the transportation. When asked if the IMT could be used for other health-related purposes, health centre staff agreed that it could be on condition that the operator was motivated to do so.

Community Management System for the ETS

Operators:
In Nosibe the management committee appears to be working as it should with each member carrying out the role that is required of them, such as IMT supervision, collecting payments to the insurance scheme, sensitisation of CHVs so that they can in turn promote the use of the IMT to the people that they speak to. However, in Ampanefena, the operators' perception is that the management committee is not carrying out the required supervision or sensitisation. However, the group are positive that this will change for the better as there is a new mayor being introduced.

Users:
In response to being asked whether or not the management committee is working properly, the non-users said that as they have never heard of this committee, the chances are they are likely to not be carrying out their role very effectively. Users advised there were some recent problems within the committee although it was not made clear what these problems were, and that prior to a few months ago the committee had been functioning very effectively.

Management Committee:
In Nosibe, the management committee is deemed to be working well as a unit. The only issue that three participants raised was the distance between where each member is located and the fact that that makes getting together difficult sometimes. In Antsirabe, the committee is also said to be completely functional with all its members actively taking part in income generating activities. The committee in Ampanefena is said to be lacking the level of motivation that existed at the start of the programme. Two participants stated that some

members lacked the dedication necessary to be part of the committee. However, with a new mayor having been recently elected, they hope that he will be able to re-energise the committee. Despite this, all participants stated that their committee had mastered the emergency transport system.

The roles expected of each committee include recruiting the operators where needed, keeping records of members of the insurance schemes and their respective subscription fees, and documenting spare parts needed as well as all outgoings and income. This model applies to all the different types of IMTs equally. Over time having seen the increase in members of the insurance scheme, committee members in Nosibe are now even more motivated to contribute to the future health of the community. Likewise, in Antsirabe Nord there has been a large increase in the number of people wanting to join the insurance scheme with members increasing from 270 to 415 since last year. In Ampanefena there has been little change since the IMT was introduced, and as mentioned above the IMT is yet to be used.

In terms of promoting the emergency transport system, each of the committees carried out their responsibilities in sensitising the local community through calling meetings. At these meetings the committee members explain the advantages of having the IMT and its importance particularly for transporting pregnant women and children under five to the health centre.

Health Personnel:
It is the opinion of the health staff that the management committee is functioning as it should. This was a conclusion the group came to due to the increasing number of people joining the community insurance scheme, and their active involvement in sensitisation activities within the community to promote the project.

Equity

Operators:
The operators have never had a reason to refuse to transport someone in need. In everyone's opinion, to be an operator is a decision made of your own free will to help your community without expecting or asking for anything in return. In response, the community has confidence in the operators and the way they carry out their roles.

Users:
Users believe that everyone in the community can benefit from the IMT although they understand that pregnant women and children under five are to be prioritised. In the opinion of focus group participants, the qualities needed to be a good IMT operator include being reliable, confident, someone who does not have any problems with anyone in the community and someone who is available whenever needed. In addition, they should understand the needs of community members who are suffering from a serious illness. The CHVs have been largely responsible for ensuring that the community are sensitised and that there is a wider understanding that the primary beneficiaries of the scheme are to be pregnant women and children under five.

Management Committee:

In Nosibe people with a number of different conditions have used the IMT. These include a man with a broken bone, children under five with malaria, a woman in labour, a pregnant woman who was haemorrhaging, and a man with serious diarrhoea. To their knowledge no one with a serious illness has been refused the use of the IMTs. In Antsirabe Nord the majority of users have been pregnant women and children under five, although one woman with a serious allergy has used the IMT. According to the management committee there have been people that have been refused use of the IMT in this commune due to the fact that they could not pay the utilisation fee, which is utilised to pay for any repairs and maintenance needed. However, this was at the very beginning when the IMT was introduced. There is now no longer a fee for the utilisation of the IMT in Nosibe and instead, all members contribute a small monthly fee of 300 Ariary towards the cost of repairs.

Committee members in Nosibe stated that there was definitely no need to replace the IMT yet, however, they want to construct another IMT using the same design as the present one to transport people with different illnesses who aren't necessarily prioritised to use the current one. The members also said that they would be delighted if the programme decided to introduce a motorcycle ambulance in their village. Also, the committee in Antsirabe Nord wants to add another stretcher to deal with demand. This was also a desire expressed by the management committee in Ampanefena despite the fact that there is absolutely no demand at present for their IMT.

In each of the communes, the committee has taken measures to ensure that the primary beneficiaries of the IMT are pregnant women and children under five. These measures amount to sensitisation at community meetings whereby it is communicated to the wider community that pregnant women and children under five will be prioritised.

Women playing active roles in the emergency transport scheme:
'The women participate a lot more than the men. In our village it is only women who are the drivers. There are men who drive but they are few.'
Management Committee, Nosibe commune, SAVA

Each participant was asked what it takes to be an IMT operator. There was consensus that to be an operator required willingness to help the community, reliability, confidence and availability at any time of the day or night. The involvement of women seems to be restricted to sensitising community members about the use of the IMT, and cleaning the IMT. In Nosibe, the operators of the stretchers are women. There are however, no female bicycle ambulance operators. It is believed that you need greater physical strength to be a bicycle ambulance operator. The committee in Ampanefena believes that women could be operators with additional training (including operator training and recognition of danger signs), but in Antsirabe Nord, it is thought that the terrain is far too difficult for women to be recruited as operators.

Health Personnel:
The health personnel understand that the priority groups are pregnant women and children under five and it is their understanding that there are measures in place at a community level to ensure that this principle is adhered to. In the opinion of one of the health workers they thought that these measures should not be in place and that everyone should have the same right to use the IMT.

Sustainability

Operators:
All the operators stated that they were motivated by helping their communities, and contributing to improving the health of their communities. For this reason, all of the operators from Nosibe and 50 percent from Ampanefena will have no hesitation in renewing their voluntary contracts once their present ones have expired, as long as they had support for this from the community. Two out of the four operators from Ampanefena said that they would not renew their contracts simply because there is no reason to, due to lack of demand.

In both locations, the operators thought that the replacement of the IMTs (when needed) is not something that the community have planned for as yet. A fully functional management committee must be in place to ensure that this happens when it is needed as well as to ensure that the system continues once MAHEFA ends. All the operators are confident that the project will continue without MAHEFA based on the fact that there is such an obvious demand.

Users and Non-Users:
Both the users and the non-users are confident that the operators will continue with the project after their contracts have expired for the sake of the health of the wider community. There seems to be a belief, which illustrates a deeper sense of satisfaction with the way they are carrying out their role, that the operators are motivated by the good they are doing for the wider community. When asked whether the scheme will continue as a community managed system once MAHEFA have exited, the community thought that the obvious need for such a scheme will be enough to ensure that this remains a success. In fact, six out of eight of the non-users stated that they planned to join the community insurance scheme the next day.

Management Committee:
All the members of all three committees represented believe strongly that their members will continue to carry out their roles as part of the project after MAHEFA ceases involvement. In Nosibe, participants believe without a doubt that the operators will also continue in their role because they are motivated by helping their communities. Participants from Antsirabe Nord and Ampanefena stated that only certain operators were likely to continue for two different reasons. In Antsirabe Nord, some are expected to leave the project unless they see a benefit to them in continuing, and in Ampanefena, some will leave due to the lack of demand for their services. In fact, the ones that may leave do not feel motivated due to the lack of users. The issue of what benefits might be expected by operators in Antsirabe Nord was not discussed.

The committee members in Nosibe appear to be planning well for the future. They have been carrying out all the necessary maintenance as and when it is needed to try and maximise the lifetime of the IMT. They are thinking about constructing another stretcher of the same design and if the committee carries out its role effectively, particularly in managing the finances well, they hope to purchase a motorcycle in future to which they would attach an ambulance trailer. The committee has adopted a strategy that will focus on increasing the community insurance scheme membership through reinforcing current

sensitisation activities with the help of the CHVs. The committee in Ampanefena also has been similarly prepared in planning for a replacement IMT. They are also confident that the project will be a success at community level although have no explicit plans how to achieve this as yet. Unfortunately, participants in Antsirabe Nord are yet to start planning for a replacement IMT although they are also confident the project will be successfully managed at community level after MAHEFA's departure.

An important question is how funds will be raised to cover the cost of replacing the IMT when necessary. Participants from both Antsirabe Nord and Ampanefena both agree that the funds from the community insurance scheme cannot be used to purchase a replacement. They believe that a portion of the money collected from members can only be used to purchase spare parts to carry out repairs, and not to replace the IMT. In Antsirabe they see the funds collected from the income generating activities as a potential source of finance to cover the cost of a replacement. In Nosibe, their stance is that both the funds from the community insurance scheme and the IGAs can be put towards the purchase of a new IMT. The committee at Nosibe does point out however, that to date, no funds have been received from either of the abovementioned sources. This was also the case for the other two committees.

Health Personnel:
The health personnel are confident that the system in place will continue to function after MAHEFA's departure due to the fact that members of the community are benefiting from it. They do however consider it important that ownership over the system is passed to a group such as the CSB or representatives at the commune level. The CHVs must be engaged as part of this process to ensure sustainability.

They also consider it important that there should be a specific budget in place for these activities. When asked whether this budget might come from the district's health funding the participants seemed to think that this was a possibility, provided that pregnant women and children under five continue to be prioritised, and if the membership of the community insurance scheme is expanded to cover the whole of the country and is managed by the state with every *Fokontany* having at least one IMT.

Cost

Operators:
When asked to estimate what they thought the lifetime of the IMTs would be it was estimated that the stretchers would last between three and five years, whereas in Ampanefena it was thought that the bicycle ambulance would need replacing in three years as opposed to 10 years in Nosibe. Maximising the longevity of each IMT is the responsibility of all parties, and in Nosibe, operators said that after each time the IMTs are used, they are washed and made ready for the next time they are needed.

When asked if there was a cost to the users of the IMT, all operators said that there was a fixed cost to members of the community insurance scheme. To be a member of the insurance scheme people are expected to pay 300 Ariary each month, a cost which is broken down in Nosibe as 100 Ariary towards maintenance, and the remaining 200 Ariary towards the insurance scheme. In Nosibe, people that are not members of the community insurance scheme must pay 1000 Ariary each time that they require the use of the IMT. The cost is

twice that in Ampanefena. All operators stated that the money paid for the use of the IMT all went towards the repairs and maintenance of the IMT. Most operators considered this cost to be reasonable bearing in mind that the IMT provides a potentially life-saving service.

Users and Non-Users:
Two out of six of the users agree that there has been a reduction in the cost of travelling to the CSB with the introduction of the IMT. However, the majority said that before the IMT was introduced, there was no transport and therefore very few people travelled to the health centre. In other words, they have nothing to compare the cost of the transport now and before.

Users stated that measures are taken to ensure that the IMT is kept in good working order. The IMT is cleaned after each journey is completed and the operator checks to see whether any repairs are needed. In fact, the group said that members of the community make a small donation each time they use it which goes towards the upkeep of the IMT. As part of the wider picture, non-users see the success of the community insurance scheme in attracting more members as crucial to the long term success of the uptake of the IMTs in terms of its contribution to ongoing repairs and maintenance.

Management Committee:
To use the IMTs there is no charge to members of the community insurance scheme although they pay a subscription to be a member of the scheme which in Antsirabe Nord is 300 Ariary per month. Antsirabe Nord differs from the other two communes in that they do not charge a utilisation fee for people who are not members of the insurance scheme. When the IMT was first introduced there was a charge of 5000 Ariary to use the IMT although it quickly became clear that community members could not afford to pay this so they decided to make the IMT free-of-charge for everyone. In Ampanefena there is a charge of 2000 Ariary for non-members for each time they use the IMT. Similar to their counterparts in Antsirabe Nord, they used to charge 5000 Ariary but soon reduced the price to try to encourage community members to use the IMT. The community in Nosibe charges a fee of 1000 Ariary to non-members which they consider to be affordable to all. All charges are payable by the user or their family.

All participants clearly communicated the fact that having the IMTs in their community was important to saving lives. Without the IMT the journey to the CSB would take up to two hours and possibly the same again to find a means of transport to use. Whilst in some cases there might not be a cost with an alternative means of transport, the time taken could be the difference between living and dying.

Health Personnel:
The health workers believe there has been a reduction in the cost of emergency transport as a result of this project, pointing to the role of the community insurance scheme as being a key factor in influencing this reduction. The usual price for people that are not members of the community insurance scheme is 1000 Ariary per journey which all participants consider to be affordable. For those that are members of the scheme and who therefore pay a subscription fee of 300 Ariary per month, the use of the IMT is free-of-charge, which backs up previous comments made in other focus group discussions.

Outcomes

Operators:
The changes that have occurred since the introduction of the IMTs have been perceived differently by different people. Whilst in Ampanefena there have been no noticeable changes, in Nosibe, the biggest change has been not only the reduction in delay for people reaching the health centre but also the transition from a more traditional approach to reaching the health centre to being able to readily access the IMT, which everyone thinks is a positive change and has reinforced the care available to members of the community.

Users and Non-Users:
Before the introduction of the IMT, members of the community were not convinced of the need to travel to the CSB because of illness. Now people are encouraged to seek treatment from the CSB thanks to the IMT. In the opinion of the non-users there is yet to be a substantial change due to the fact that people are not using the IMT at the moment. However, they agree that the IMT has huge potential to make a really positive impact on the wider community.

Management Committee:
The committee believe that the IMT has had a significant impact in reducing the number of deaths caused by serious illness in Antsirabe Nord. In Nosibe, the fact that people can find transport and travel to the CSB immediately is a huge change for the better for members of the local community. Whilst there has been little change in Ampanefena due to the fact that the IMT has not been used, the committee is resolute that the introduction of the IMT is a good thing for their community.

Health Personnel:
It is the health staff's belief that the community is the 'engine which drives the system'. Without their contributions to the community insurance scheme the system would cease to function properly. In turn, the introduction of the IMT motivates people to become members of the community insurance scheme. The increase in members is testament to the impact that this project is having in the local community, as is evidence of a reduction in transport costs, and the increase in people receiving consultations at the CSB. This activity project has also brought the CSB closer to the community, inspiring a more collaborative approach to improving the community's health.