

Implementing an Emergency Transport Scheme in rural Madagascar

Lead author: Dr Aymar Ramadany, Regional Director Community Capacity for Health, JSI, aymar.ramadany@mg.jsi.com

Contributing authors: Sabrina Eagan, (JSI), Caroline Barber (Transaid) and Irene Kruse (Transaid)

Abstract:

This paper examines the challenges and opportunities of emergency transport in isolated communities in rural Madagascar through an innovative programme with a holistic approach to providing quality health care services. The Community Based Integrated Health Programme, known locally as MAHEFA, was a five-year USAID-funded programme led by JSI Research & Training Institute, Inc., and implemented in partnership with Transaid, The Manoff Group and 15 national NGOs. The overall aim of the programme was to reduce maternal, child, and new-born mortality and malnutrition rates through increasing the uptake of health-related community-based interventions and essential products.

While transport has been widely recognised as a barrier to the provision of and access to health service in rural areas (46% - INSTAT, 2010), few community health programmes have integrated transport interventions as an enabler to support the provision of services. From its onset, MAHEFA's core strategy included trialling innovative solutions to improve access to health care through emergency transport systems (ETS).

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 non-motorised locally appropriate intermediate modes of transport (IMTs). These IMTs were placed within the community and strong community management systems were built. In addition, the MAHEFA programme took an innovative approach by connecting ETS with income generating activities and community health insurance schemes, creating synergies between activities and contributing to the sustainability of the programme.

Five types of IMTs were provided: stretchers with or without wheels (93), bicycle ambulances (50), cycle rickshaw ambulances (5), ox-drawn cart ambulances (8), and canoe ambulances (2). Since the ETS activities started, a total of 964 people were transported by the ETS from their community to health facilities. Children under five made up 66% of those who benefitted from the ETS approach.

Key words: transport, access, health, rural, emergency, Madagascar

1. Introduction

In 2015, the WHO estimated that the number of maternal deaths was almost 20 times higher in developing countries than in developed countries. In fact, 99% of global maternal deaths occur in developing countries (WHO, 2015). Poverty is a direct social determinant of maternal mortality and contributing factors leading to poverty such as poor governance, inequality and lack of investment in health, education and infrastructure are major obstacles to reducing the number of maternal deaths in developing countries.

Whilst the global average maternal mortality rate (MMR) has declined by almost 50% from 1990 to 2015 – from 385 deaths to 216 deaths per 100,000 live births, this decline masks the fact that in many countries, most notably within sub-Saharan Africa, maternal mortality remains unacceptably high at an average MMR of 546 (WHO et al., 2015). Under-five mortality has also seen a reduction in the global average of approximately 53% between 1990 and 2015¹. However, children in sub-Saharan Africa are over 14 times more likely to die before the age of 5 than children in developed regions (WHO, 2015).

The majority of maternal and under-five deaths are preventable. With haemorrhage, hypertension, asphyxia and prematurity being the primary causes of death, access to skilled care before, during and after pregnancy is critical. The delay in achieving 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 (Thaddeus and Maine, 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 for transport, the lack of available and affordable transport services is a major contributing factor to low uptake of essential services. Inadequate access to transport can contribute to increased clinical severity of cases particularly where complications exist (Murray and Pearson, 2006). Therefore, integrating transport into programmes designed to address the constraints to accessing essential services will contribute to increased effectiveness of community-based efforts that aim to improve access to skilled attendants. Another study found that an integrated approach, with transport strategies implemented alongside other interventions such as family planning, safe abortion, increased skilled attendants, antenatal care (ANC), shifted births away from home, improved recognition of referral need, and availability/quality of emergency obstetric care, could contribute to as much as an 80% reduction in maternal deaths (Goldie et al., 2010).

¹ A drop from 91 deaths per 1,000 live births in 1990 to 43 in 2015

In 2015, Madagascar’s estimated MMR was 353 maternal deaths for every 100,000 live births, which is down from an MMR of 778 in 1990 (WHO, 2015). Madagascar has exceeded expectations in making significant progress in reducing under-five mortality from 159 per 1,000 live births in 1997 to 52 deaths per 1,000 live births in 2013. However, 44% of these recent deaths occurred during the neonatal period (USAID, 2014). USAID’s paper, ‘Ending Preventable Child & Maternal Deaths’ states that in 2013, only 38% of babies were born in a health facility, indicating that a number of challenges exist regarding access to healthcare. The same paper states that the low level of facility-based births is influenced by the fact that 65% of the population live more than five kilometres from a health facility and that there is a lack of formal rural transport services (USAID, 2014).

The challenges for transport provision in rural areas in Madagascar are similar to 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. Transport infrastructure in Madagascar is characterized by poor condition of roads, by a lack of adaptation of roads to the density of existing traffic, inadequate maintenance and underinvestment in new roads (GoM, 2015). The World Economic Forum Global Competiveness Report ranked Madagascar 139 out of 140 countries in terms of quality of roads (WEF, 2016). 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 are 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.

2. Background

The Community Based Integrated Health Programme, known locally as MAHEFA, was a five-year USAID-funded programme focussing on the provision of quality maternal healthcare services to isolated communities in six regions in the north and north-west of Madagascar. The overall aim of the programme was to reduce maternal, child, and new-born mortality and malnutrition rates through increasing the uptake of health-related community-based interventions and essential products in isolated communities. The second phase of the programme, the Community Capacity for Health Programme (CCHP), or Mahefa Miaraka, also funded by USAID started in June 2016 and will be implemented over the next five years.



Image 1 Map of MAHEFA regions in Madagascar

Transport has been widely recognised as a barrier to the provision of and access to health service in rural areas of Madagascar (46%) (INSTAT, 2010). In Madagascar, two of the five most relevant barriers to access health care identified by women of



Image 2 MAHEFA bicycle rickshaw ambulance driver

reproductive age are related to transport: distance to the nearest health facility (42%), and the need to use a means of transport (31%) (INSTAT, 2010). As mentioned above, the challenges for transport provision in rural areas in Madagascar are many. Moreover, in MAHEFA areas specifically, the terrain is challenging. It is often mountainous, sandy, with a majority of communities experiencing access challenges during the rainy season. More than half of the 279 communes in MAHEFA programme areas (54%, 149 communes) are inaccessible by car or truck at least two months of the year. Of these, one third (34%, 96 communes) are inaccessible at least four months of the year (Transaid, 2016a).

Aiming to address these challenges, using results of a needs assessment undertaken in 2012 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 found that 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. MAHEFA sensitized communities about the approach and engaged community members in the



Image 3 MAHEFA pirogue/ canoe ambulance

selection of volunteer drivers and ETS management committee members. MAHEFA then trained these volunteer operators to transport patients to the closest health facility. The programme also facilitated innovative connections between ETS, community health insurance schemes and income-generating activities (IGA).

The objective of this paper is to examine the challenges and opportunities of emergency transport in isolated communities in rural Madagascar through the empirical example of the 5-year MAHEFA programme, as well as briefly introduce the activities of the second phase, which will be implemented in the course of the next five years.

3. Key activities of the programme

MAHEFA's ETS approach provided access to locally available and appropriate transport during health emergencies to improve health service access. Because of the variety of terrain encountered in MAHEFA regions, a thorough needs assessment was

conducted and findings were used to identify and pilot a range of locally appropriate non-motorized modes of transport.



Image 4 MAHEFA bicycle ambulance driver

MAHEFA also established links between the ETS groups, community health insurance schemes (*mutuelles*) and the eBox (enterprise box) activities to provide other avenues of support and funds for repairs and maintenance. Co-locating ETS and *mutuelles* in the same communities allowed the ETS to receive modest funding from the *mutuelle* to support repair and maintenance of transportation mechanisms. Links to the eBox, a social micro enterprise for bicycle sale and repair that gives five to ten per cent of profits to selected local health activities, also provided a source of funds and skills for emergency transport maintenance.

Emergency Transport Systems Implemented in Madagascar

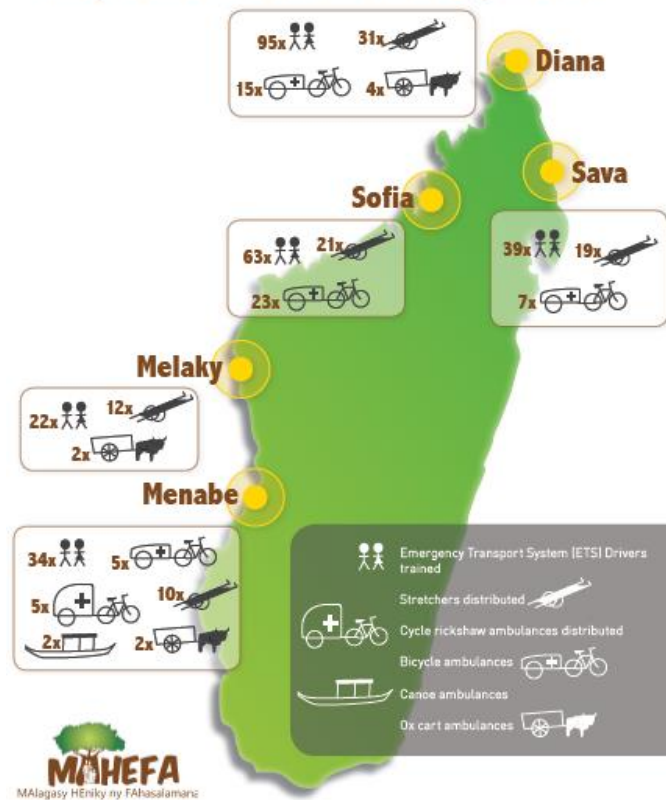


Image 5 MAHEFA IMT infographic

The main activities conducted by the programme to address the ‘hardware’ aspects of ETS implementation were:



1. **Conducted needs assessment.** A comprehensive transport needs assessment that included interviews with community members and leaders took place in 2012 and occurred in all of MAHEFA's six regions. Results were analysed and the ETS concept was designed for the initial region.
2. **Manufactured initial fleet.** To design various modes of transport, MAHEFA drew on promising practices in Zambia where bicycle ambulances were piloted extensively, and in Afghanistan where wheeled stretchers were used in mountainous areas. For the cycle rickshaw, canoe ambulances, and ox-drawn carts, there was already considerable local knowledge in Madagascar on the design and suitability for the local terrain. Manufacturing was done in collaboration with a Malagasy organisation.
3. **Conducted pilot activity and evaluated at community level.** The pilot was conducted in the Menabe region and later replicated in other MAHEFA regions. The community-level activities are presented in Box 1. After six months of the pilot phase, MAHEFA conducted a review to draw lessons learned and modify the approach and adapt the modes of ETS.
4. **Conducted a workshop for construction of emergency transport after pilot.** A redesign workshop took place to ensure the quality of subsequent production of modes of ETS; the workshop also served to further build the capacity of local partners to produce the modes of ETS.
5. **Expanded to other regions.** Following the successful pilot in Menabe and implementation of lessons learned, the ETS was expanded to four more regions (SAVA and Sofia in 2014 and to DIANA and Melaky in 2015). In 2015 a small number of ox-drawn carts were added in five communes through a shared approach: MAHEFA provided communities with the cart while the community provided the oxen.
6. **Addressing challenges of sustainability:** In order to promote sustainability, MAHEFA established links between the ETS groups, community health insurance schemes (*mutuelles*) and the eBox (enterprise box) activities, which provided other avenues of support and funds for repairs and maintenance. Creating these synergies was new for Transaid and unique to the MAHEFA programme.

MAHEFA also aimed to ensure that the IMT were context specific, adapted to the particular terrain of each *fokontany* (collection of villages), and locally appropriate, as well as to promote ownership. Promoting ownership of the ETS was crucial to MAHEFA's approach, in line with the programme's overall commitment to improving health at the community level. The main activities conducted by the programme to address the 'softer' community engagement and ownership aspects of ETS implementation were:

- 1) **Conduct initial workshop to explain ETS in pre-selected *fokontany*.** This step was important to assess interest and buy-in and to sensitize communities on the intervention.



- 2) **Conduct a technical evaluation of the sites.** MAHEFA conducted a technical evaluation for feasibility of ETS, appropriate modes of transport for specific terrain, and potential ETS management and operational capacity in each region.
- 3) **Make site selection and community-based ETS activity introduction.** The community selected volunteer drivers and identified ETS management committee members.
- 4) **Conduct training for ETS management committee members, supervisors and drivers.** Training contents included overviews of individual roles, repairs and maintenance, danger signs for pregnant women and newborns, and how to interact with health facility staff. The management committees learned how to ensure ETS services were available and accessible, manage relations with the drivers, coordinate repairs, and manage links with the community health insurance scheme and, where applicable, with the eBox.
- 5) **Set cost and user fees.** Guidelines on costing and potential ETS user fees were established so that communities could set their own prices based on demand, distances, and affordability.
- 6) **Establish reporting systems.** These systems included logbooks for drivers that were consolidated by the community management committees for aggregation and sent on to the MAHEFA regional teams.

Certain challenges were faced during the five-year programme, which will be kept in mind and addressed in the course of the implementation of the next phase:

- **Cultural barriers to perception of the emergency transport.** Despite a comprehensive needs assessment and sensitization activities, there was a perception in some MAHEFA areas that bicycle ambulances and stretchers should only be used for carrying the deceased, resulting in low uptake of the ETS.
- **Sustainability after the programme ends.** With the exception of the ox-drawn cart ambulance, other modes of ETS were built based on technical specifications by specialized companies who were contracted by MAHEFA. This approach meant higher costs and a dependence on external constructors for the communities.
- **Performing complex repairs.** While the drivers are able to do simple repairs, more complex repairs requiring a mechanic were challenging. In some instances, the drivers had the expertise but there were affordability issues regarding spare parts.
- **Data collection.** There were challenges with collecting data about trips and making this data meaningful for the communities. These challenges ranged from getting drivers to complete their logbooks to ensuring that driver data was consolidated and shared with different audiences. Additionally, data on the services people received once they were transported to health facilities has not yet been collected.

4. Results and lessons learned

The five-year MAHEFA programme aimed to provide basic, quality health care to isolated populations in six north and north-western regions of Madagascar. To date, 3.5



million people have benefited from the project. More specifically, over the life of the programme (MAHEFA, 2015):

- 6,052 community health volunteers (CHV) were trained, equipped and supervised in providing basic health services at the community level,
- 89% or 2679 *fokontany* constructed permanent health huts or equivalent where CHVs provided services,
- 279 communes were supported in establishing or advancing their local health governance structures,
- 33 *mutuelles* were formed, with 9,120 paying members.

Moreover, the programme supported the Ministry of Health (MoH) in the advancement towards the 2019 targets established in the National Development Plan for the Health Sector.

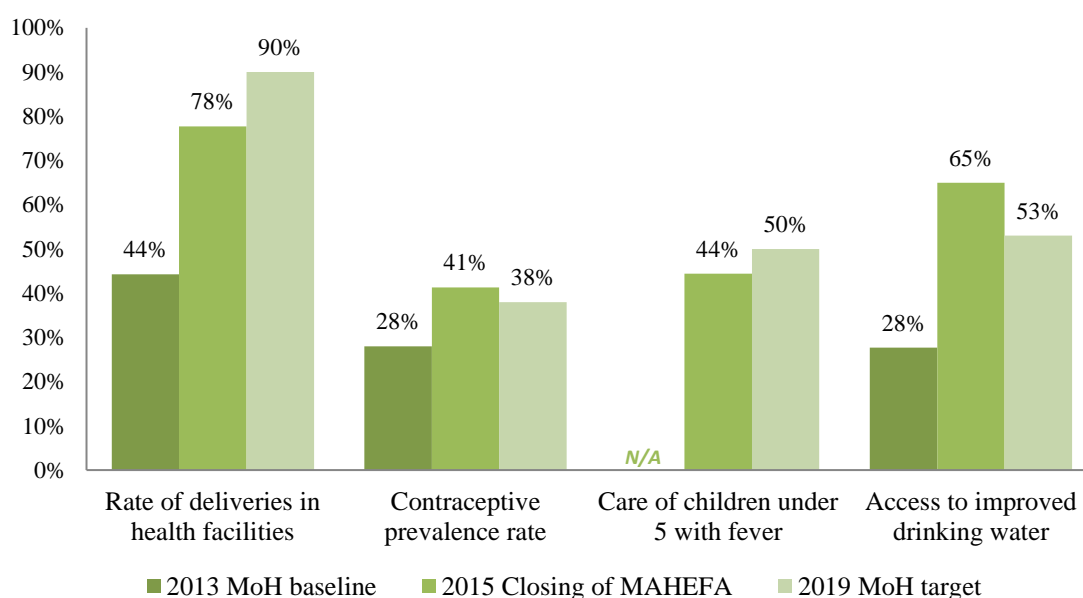


Fig. 1 Statistics at the end of the MAHEFA programme in comparison with the baselines and targets of the Ministry of Health in Madagascar (MAHEFA, 2015)

One of the strengths of the MAHEFA programme was having an integrated approach and package of services which did not look at supply or demand side work in isolation, but made sure that key components like community engagement and transport were fully integrated from the outset. This integrated approach sets MAHEFA apart from many other community health programmes.

As one of the main objectives was to provide access to basic quality health care, ETS was essential. A review undertaken by Transaid in April 2016² found and documented the following results since the start of MAHEFA’s ETS efforts:

- Five districts now have emergency transport systems in place.

² Available here: <http://www.transaid.org/knowledge-centre/review-emergency-transport-scheme-community-health-volunteer-mobility-initiatives-madagascar-mahefa-programme/>



- ETS activities were implemented in 11 communes covering 132 *fokontany*.
- 185,053 people now have emergency transport systems in their *fokontany*
- Five different types of transport were produced:
 - 1) bicycle ambulances (50)
 - 2) cycle rickshaw ambulances (5)
 - 3) wheeled and non-wheeled stretchers (93)
 - 4) pirogue/canoe ambulances (2)
 - 5) ox carts (8)
- In all, 160 ETS management committee members and 454 supervisors and riders were trained.
- A total of 964 people were transported by the ETS from their community to health facilities.



Image 6 MAHEFA wheeled stretcher

4 eBox cooperatives were established, and provided with 2,562 bicycles. Training was also provided in maintenance and repair, as well handling of container delivery, tax clearance, and container transport to the eBox sites. Travel times reduced during an emergency from two hours on foot to a maximum of one hour and 15 minutes post-ETS innovation (Transaid, 2016b).

Emergency transport is now available in these *fokontany* when required. The ETS initiative aimed to respond to a gap of non-availability of transport in an emergency, whether due to a lack of regular routine transport services or a lack of services available in the night. Transport is now available day and night.

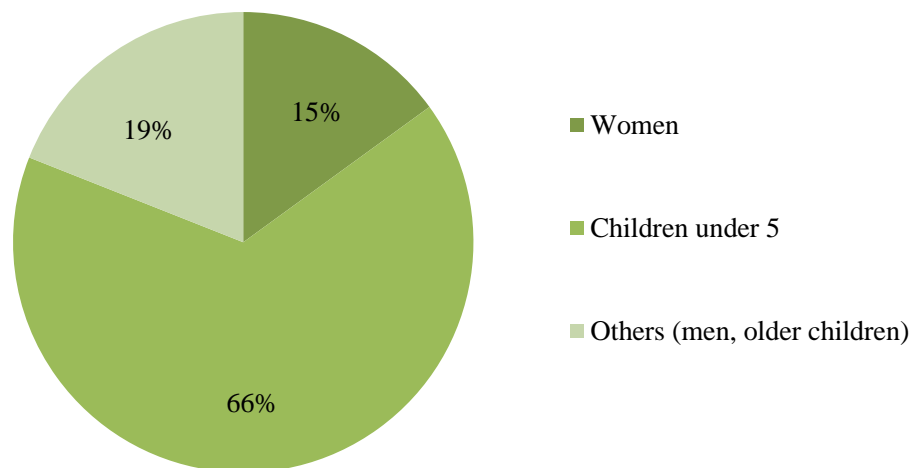


Fig. 2: Distribution of people transported using the emergency transport scheme from 1st September 2014 to 31st December 2015 (Transaid, 2016b)

The review also showed that costs have 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 (Transaid, 2016b):

- *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 by community members.
- 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 reported that they were broadly aware of the ETS and knew how to access it. Children under five were the main users of the scheme and the transport system evolved (by community decision) in many places to provide transport to health facilities for vaccination and antenatal and postnatal care visits, showing that it became a regular mode of transport in the community.

In terms of IMT functionality, at the time of the review, the majority of the IMTs were still functional but there had been issues with punctures, tyres needing mending/replacing, bent wheel rims, and pedals. All of the different types of IMTs were being used, with the bicycle ambulances and wheeled stretchers recording the most trips. Simple repairs could be attended to by the drivers but the more complex repairs were challenging. The MAHEFA programme found that 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.

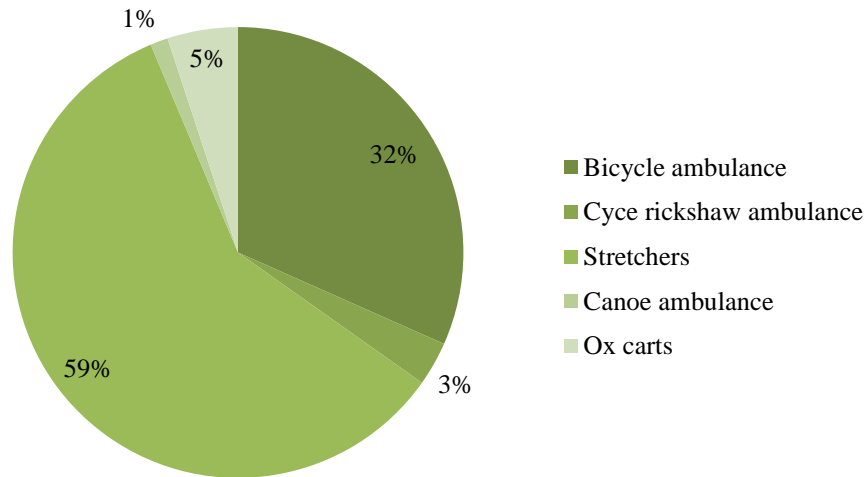


Fig. 3: Percentage of people transported by different modes of emergency transport 1st September 2014 to 31st December 2015(Transaid, 2016b)

Broadly, the ETS operators have remained committed and motivated in their work. They are appreciated by their communities and by the health personnel. In SAVA, the review team also found that some of the ETS operators were female, indicating that ETS may be another means for women to participate in roles that garner community recognition. 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 effectiveness. Cost does not seem to constitute a major barrier to accessing the emergency transport, especially where there is a *mutuelle*, meaning if you are a *mutuelle* 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.

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 320,000 to 640,000 MGA (approximately 100-200 USD). An average repair costs just under 6,400 MGA (2.00 USD) (Transaid, 2016b).

“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, an ox cart would cost 30,000, a minibus taxi would be 4,000. This is too much for the community to pay. Compare this to the 1,200 Ariary per household per year with the emergency transport scheme.”

- ETS User, Menabe

Image 7 Quote from the review undertaken by Transaid in April 2016 (Transaid, 2016b)

During the life of the programme, the four eBox cooperatives set up through the support of the MAHEFA programme received containers with a total of 2,562 bicycles. The average number of bicycles per shipment was 420. As of February 2016, the eBox

cooperatives had sold 2,095, which was 82% of the total bicycles received (Transaid, 2016b). The average income per cooperative was USD 16,000 and the average dividend paid to cooperative members was USD 28. The cooperatives' contributions of between five and ten per cent of income to their local *mutuelles* (in some cases with a clear amount earmarked for ETS) thus constitute a valuable support towards the longer term financial viability of the insurance schemes.

According to a 2015 survey, benefits of the eBoxes included increased motivation of community health workers, additional availability of funds for health related services, improved response to community transport needs (with quality bikes now in circulation), as well as contributing as a source of pride for members of the community.

The main lessons learned and recommendations from the work on the ETS in the first phase of the programme were:

- **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 in this batch of production. Analysing the findings of the pilot enabled an important redesign workshop where the strength and quality of the production was improved and a 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 and production could occur at the regional level; vs. other IMTs such as cycle rickshaw ambulances, bicycle ambulances and wheeled stretchers that required a more technical design and were built at the national level by an organisation called MIDAS. Future programmes can deepen efforts to promote local production by sharing detailed images of different types of transport with communities and encouraging them to make their own proposals for producing IMTs. The programme can provide advice on issues such as running costs and technical design. This approach would also support with local ownership and cultural acceptance.
- **Adoption of IMTs was less successful in some sites than in others.** Decreased success seems attributable at least in part to low levels of sensitisation of community members in these areas. Future projects might consider a greater focus



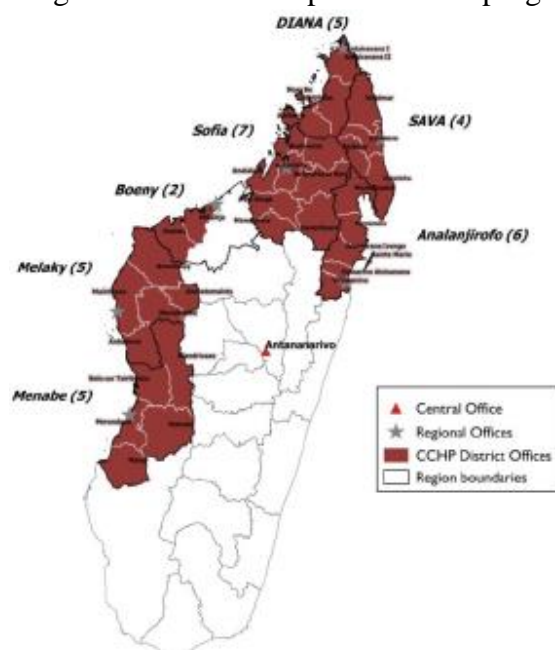
on sensitisation during project inception, and especially at the same time as the start of health service delivery by CHVs or other programme providers, so that there is good awareness from the outset, and could consider promotion through other community forums, radio advertising and demonstrations at public gatherings.

- **Addressing cultural and local 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 devices used to transport corpses, perhaps by modifying colours of materials, design shape, or other identifying markers to be determined with community participation.
- **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.

The experience built in the course of the five years, and the lessons learned generated, will feed into the continuation and scaling up of activities under the next phase of MAHEFA.

5. The road ahead

Transaid will be working with JSI once again on a new partnership with USAID and the Government of Madagascar under the USAID Community Capacity for Health Programme. The next phase of the programme will build on the achievements of the



previous MAHEFA programme and, at the same time, improve the sustainability of the existing community health system, support improvement of MOH systems, and increase quality of services across the continuum of care. The programme will continue to assist local-level government and community leaders to make improvements in community health to eventually achieve the following: improved local governance of health issues, increased community ownership of health communication and behaviour change activities, strengthened health systems in particular at the commune and district levels, and improved health service delivery at the community level.

Image 8 Map of new programme regions



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Over the next five years, the programme will scale up significantly, expanding the intervention from six to seven regions, 24 to 34 districts and 3,000 to over 5,000 *fokontany*, aiming to reach approximately 6.1 million people.

The ETS strategy for CCH is still being developed. ETS will be expanded based on lessons learned from the first programme and the programme is currently reviewing how to best scale up interventions, in partnership with the GoM, and in the most impactful, sustainable and cost effective way.

Conclusions

To reduce maternal and neonatal deaths, timely access to skilled care before, during, and after pregnancy is critical. Delays in accessing quality care are a key contributor to maternal and neonatal mortality and morbidity. Inadequate access to transport is one of the three main delays in accessing health services and can worsen the clinical severity of cases, particularly where complications exist. According to a study, an integrated approach, implementing transport strategies alongside key interventions such as family planning, increased skilled attendants, improved antenatal/postpartum care, shifted births away from home, improved recognition of referral need, and availability/quality of EmOC, may contribute up to an 80% reduction in maternal deaths (Goldie et al., 2010).

The MAHEFA programme is an excellent example of a successful programme with an integrated approach to community health and transport. The programme's holistic approach, encompassing mechanisms on both the supply and demand side, was a key contributing factor to the positive results reached at the end of the five-year programme.

Reaching over 3 million people in rural Madagascar, the MAHEFA programme's activities supported the priorities of the Ministry of Health and provided a significant contribution to reaching the 2019 targets set in the National Development Plan for the Health Sector. As an integrated part of the programme, ETS with locally appropriate, context-specific low-cost non-motorised IMTs were set up in 132 *fokontany*, where communities now have access to affordable and reliable IMTs connecting them to health care services.

Sustainability of the ETS is a central concern of the programme, in term of ensuring both financial viability and local technical capabilities for maintenance and repair of IMTs. The innovative approach of linking ETS with both a community health insurance scheme such as the *mutuelle*, as well as to income generating activities through the eBox cooperatives, has shown interesting potential by reducing the cost of ETS significantly, developing skills and functionality within the communities, and increasing motivation among community actors. Most importantly, MAHEFA's experience shows that the provision of IMTs is important to improving access but that the effect is amplified when the transport approach is integrated into a community health programme and is backed up by genuine engagement and transfer of ownership to the community, as well as improved care seeking behaviour. These experiences will feed into the strategy to be developed for the new five-year programme.



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