

Radio broadcasting for sustainable development in southern Madagascar

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ABSTRACT

The Millennium Development Goals have been written into the Madagascar Road Map (2007-2012) in order to improve the Malagasy social, economic and environmental situation. The Andrew Lees Trust Radio Broadcasting Project in southern Madagascar has been set up to alleviate poverty and, through a recent DFID (Department for International Development) funded evaluation study, has demonstrated its contribution and work towards the United Nations targets set for 2015. This article draws on the DFID study, "The Contribution of Radio to Millennium Development Goals in Southern Madagascar", to illustrate the project's success in approaching the main goals of poverty alleviation and education. Radio is a cost effective, non-formal learning medium, which can reach across vast geographic distances to communities in the most remote and isolated regions, and can deliver vital development information to all members of the community irrespective of age, gender, or beliefs. This article reinforces the assertion that radio can act as a vital tool in reaching Millennium Development Goals in Madagascar and beyond.

RÉSUMÉ

Les Objectifs de Développement du Millénum ont été inscrits sur la Feuille de Route de Madagascar afin d'améliorer la situation sociale, économique et environnementale à Madagascar. Le projet d'émission radiophonique de l'ONG Andrew Lees Trust a été élaboré pour lutter contre la pauvreté et s'est avéré capable d'apporter des éléments décisifs pour atteindre les objectifs fixés par les Nations Unies pour 2015 selon une étude récente du Département pour le Développement International (DFID). Cet article s'inspire des études du DFID "The Contribution of Radio to Millennium Development Goals in Southern Madagascar" pour illustrer en partie la réussite du projet quant à la réalisation des principaux objectifs que sont l'éducation et la diminution de la pauvreté. La radio est un moyen de communication peu onéreux, qui ne nécessite aucune formation particulière mais qui a la capacité de couvrir de vastes zones géographiques pour atteindre les communautés les plus isolées et les plus reculées afin qu'elles aient accès, quel que soit leur âge, sexe, et croyance, à des informations essentielles portant sur le développement.

Cet article confirme l'importance vitale de la radio pour atteindre les Objectifs de Développement du Millénum à Madagascar.

KEYWORDS: Millennium Development Goals, Sustainable Development, Radio Broadcast, Madagascar

INTRODUCTION AND APPROACH

MILLENNIUM DEVELOPMENT GOALS AND ROAD MAP MADAGASCAR The origin of the sustainable development concept can be traced back to Barbara Ward's 1972 book "Only One Earth", although she did not use the term 'sustainable development', and to the World Conservation Strategy, which was formulated by the International Union for Conservation Nature IUCN, the World Wildlife Fund for Nature WWF and the United Nation's Environmental Programme UNEP (IUCN 1980). This strategy emphasized the need to ensure the sustainable management of species and ecosystems. It can be looked at as the roots of the concept of sustainable development. It was in the Brundtland Commission's Report (1987) "Our Common Future", where this concept of sustainable development has been formulated as a global vision: "Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs." That vision enabled manifold interpretations and two dominant movements emerged: *environmentalism* (promoting the protection of nature from economic ravages) and *sustainability* (promoting economic reformation in order to mitigate environmental crises) (Bailey 1990). A convergence between the two movements aimed at promoting environmental, social and economic dimensions of development (Opio-Odongo 2003). The Millennium Development Goals originated from a series of United Nations conferences where different resolutions and agreements were made in the 1990s. In 1996, OECD/DAC (the Organization for Economic Co-operation and Development) proposed the International Development Goals (IDGs), a set of seven quantitative goals as a possible road map to sustainable development (IMF/OECD/UN/World Bank Group 2000, United Nations 2000). In the year 2000, representatives of 180 countries transformed the seven IDGs into the eight Millennium Development Goals (MDGs) during the landmark Millennium Summit.

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Essentially, the MDGs with its 18 targets (see Table 1) and 48 indicators became the road map to the sustainable development goals (United Nations 2007). Since poverty is a complex issue, the first seven goals (Table 1) are mutually reinforcing and should possibly abate poverty in all its facets, whereas MDG8 represents the framework which should ensure the achievement of the other MDGs by 2015.

In Madagascar, as well as in many other sub-Saharan countries, the prospects of susceptibility to negative shocks due to catastrophic weather and other natural events (e.g. cyclones, droughts), coupled with the fact of fertility rates and population growth outpacing many other regions in the world, will be especially challenging for the achievement of the Millennium Development Goals by 2015 (Sahn and Stifel 2003). The new Malagasy government in charge since 2002 has therefore established in 2006 an ambitious development strategy termed Madagascar Action Plan (United Nations 2006). It intends to accelerate and coordinate this development process in order to help Madagascar achieve its MDGs as well as overall economic development. The eight commitments of the Madagascar Action Plan have diverse foci like "cherishing the environment", "rural development and a green revolution", and "health, family planning and HIV/AIDS." Key aspects of this plan are the environmental conservation and human health interventions (United Nations 2006).

CONCEPT, RESOURCES AND METHODS

The Andrew Lees Trust (ALT), a UK-based NGO, has been implementing an educational radio broadcast project known in French as 'Projet Radio' (PR) in Madagascar since 1999, following a six months feasibility study. The project aims to empower isolated rural populations across the southern provinces of Toliara and Fianarantsoa (Figure 1) to improve their food security and alleviate the effects of poverty through education delivered by radio. PR's work is founded on the collaboration and networking of three

groups: local radio stations (Figure 1), village listening groups and NGOs / local service-providers. Listening Groups consist of 10 to 15 people within a community (Vadgama 2006).

Over three quarters of the rural population are illiterate (World Bank 1996), and villagers have few means to learn how to improve their situation and reduce their economic and social vulnerability. However, aural learning traditions in Madagascar, especially in the southern part, give people a great capacity to listen to radio and remember details of key messages (Bouwer 2007). Radio programmes cover a range of topics including cattle rearing, animal husbandry, food security, farming, natural resource management, environment, healthcare, HIV/AIDS awareness, family welfare, education and culture. On average, 30-40 radio programmes are developed every month by ALT and collaborators. 2,242 programmes have been broadcast between 1999 and 2008 (see Table 2 for an overview).

Members of a community forming together as a Local Listening Group will share one radio, which has been distributed by ALT and its partners. These groups sign a contract of collaboration with the PR, which in turn allows the Listening Groups to follow programmes broadcast by ALT and partners. PR has developed a participative approach, which is designed to respond to villagers' information needs and produce solution-oriented educational broadcasts in local languages. The programmes are currently distributed to 40 local FM radio stations affiliated to the PR across the provinces of Toliara and Fianarantsoa (Figure 1). The stations broadcast the programmes in exchange for radio equipment to increase their signal coverage and quality of programming. These educational programmes reach more than 700,000 people across the two provinces, as a minimum of 10% of the population also own radios. Villagers receive the broadcasts via Freeplay clockwork and solar-powered radios, which the project places with the village responsible that is

TABLE 1. Millennium Development Goals (MDGs) and respective targets (T); the third column represents the fields of radio programmes developed by ALT and partners, and in brackets are the numbers of broadcasted programmes (derived from Harford 2007).

Millenium Development Goal (MDG)	Target (T)	ALT Radio Topics
Eradicate extreme poverty and hunger, by halve between 1990 and 2015 (MDG1)	the number of people whose daily income is below one US\$ (T1); the number of people who suffer from hunger (T2)	Rural Development (147), Agriculture (304), Food Security (3), Livestock (86), Fishing (11)
Achieve universal primary education by 2015 (MDG2)	in that all the children, girls and boys alike, shall be able to attend and complete a course of primary school level education (T3)	Education (62)
Promote gender equality and empower women by 2015 (MDG3)	in eliminating gender inequality at all levels of education (T4)	Culture (22), Rights (3)
Reduce child mortality between 1990 and 2015 (MDG4)	in reducing the under five year old child mortality rate by 66% (T5)	Health (539)
Improve maternal health between 1990 and 2015 (MDG5)	in reducing the maternal mortality rate by 66% (T6)	
Combat HIV/AIDS, malaria and other diseases by 2015 (MDG6)	in halting and reverse the trend of spread of HIV/AIDS (T7); in halting and reverse the incidences of malaria and other major diseases (T8)	
Ensure environmental sustainability by 2015 (MDG 7)	in integrating the principles of sustainable development into country policies and programs (T9); in halving the proportion of people without regular access to safe drinking water as well as basic sanitation T10); in achieving by 2020 a significant improvement in the lives of at least 100 million slum dwellers globally (T11)	Environment (354)

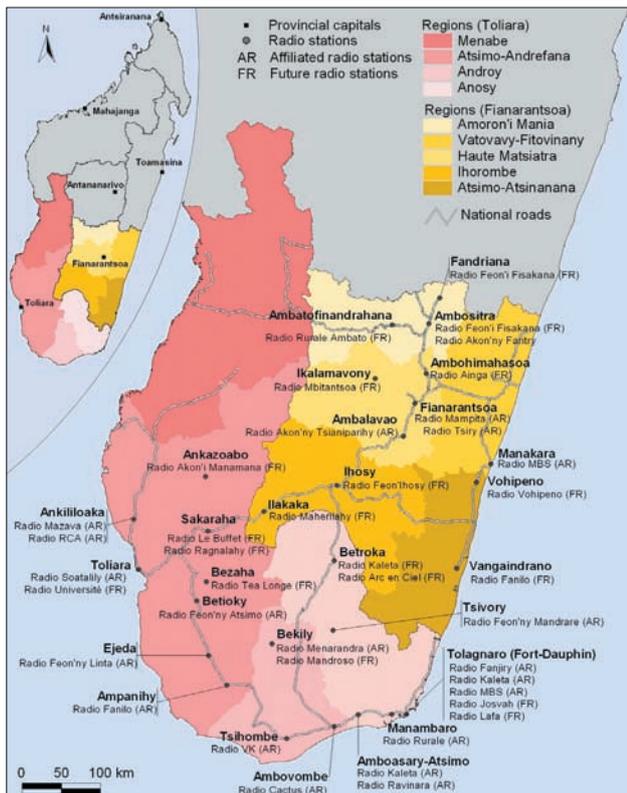


FIGURE 1. ALT's affiliated (AR) and future (FR) radio stations in the 'Projet Radio' in the regions of Toliara and Fianarantsoa in south Madagascar.

elected to take care of the radio. The radios are both environmentally and economically appropriate, requiring no batteries or other external energy source. PR now involves more than 3,371 Listening Groups, who agree to collaborate in the project by participating in programme research, production and monitoring to allow for an 'adaptive research approach' (see Figure 2). Research has shown that members of the community who are not directly involved with a Listening Group still benefit from the radio broadcasts due to information-sharing traditions within the village (Smith 2001, Metcalf 2006).

In order to assure a holistic approach and high quality expertise, ALT has engaged in project cooperation with more than 47 local NGOs and service providers associated as Partners for Communication and Information Development (PCID) (for more details on PCID see Harford 2007). All affiliated radio stations are local community or commercial FM stations. Radio programmes are tailored in local dialects, using formats that are relevant to villagers. The participative production cycle process gets as close as possible to the needs of the audience, but without villagers actually making the programmes themselves. However, this year, following recommendations of the DFID (Department for International Development) evaluation (Metcalf et al. 2007), the project has begun training villagers to record programme content themselves.

OBJECTIVES AND PLAN The objectives of this article are two fold: (i) to demonstrate the potential of radio broadcasting as a high efficiency/low cost means to meet IDGs / MDGs in Madagascar, but also beyond Malagasy border, by presenting ALT's efforts in southern Madagascar published so far in the form of several project and evaluation reports on the ALT website (<http://www.andrewleestrust.org/radio.htm>), most specifically the DFID evaluation study which highlights project results in the

TABLE 2. Broadcasted programmes in Ejeda between August 2004 and December 2005. In total, 463 radio broadcasting programmes were produced and aired by ALT and its PCID-partners, with all of these programmes being broadcasted at least once during the month they are received by the radio stations (numbers from Metcalf 2006).

Topics	# of Broadcasted Programs
HIV/AIDS	55
Breastfeeding	10
Family Planning	10
General Health	10
Vaccinations (not Polio)	8
Sexually Transmitted Diseases	7
Hygiene	6
Polio	5
Malaria	5
Prenatal Consultation	4
Drinking Water	3
Tuberculosis	2
Cholera	1
Planting Vegetables for Healthy Diet	1
Pregnant Women's Health	1

context of the Millennium Development Goals; and (ii) to draw conclusions to which extent this approach can be used and extrapolated into other contexts, in answering the questions: How can radio broadcasting help to achieve the Millennium Development Goals? And how and where more emphasis could be given to the educational radio programmes? The key items here seem to be based on a secure network of cooperation at local, regional and national levels, on sufficient radio infrastructure, the functioning of adaptive reporting in radio broadcasting, and on the cost effectiveness of the PR's goals, especially in terms of education, environment and public health.

The preceding subsection outlined the concept, resources and methods of the approach adopted by ALT. In the following section are presented a selection of important results and impacts of the Radio Broadcasting Project pertaining to the MDGs, and the last section summarizes this article and gives some recommendations for potential further application of the PR's ideas.

RESULTS AND IMPACTS OF THE RADIO BROADCASTING PROJECT

According to the chronology 'IDG1996/ALT-PR1999/MDG2000/UN-Road-Map2007', ALT set up this project before the Millennium Development Goals were laid down – ALT has never claimed that it purposefully set out to meet MDGs – but ALT did set out to empower people to alleviate the effects of poverty and extended its activity across all development sectors – hence ALT then hit the MDGs. Although the project has carried out various monitoring activities over the nine years of its operation, in 2006 ALT secured funding from DFID (Department for International Development) to carry out an extensive evaluation of the project impacts. This was aimed to contribute to wider studies within the ICD (Information and Communication for Development) department of DFID to assess the importance of media for development. The consultancy group Media Support Solutions was commissioned by ALT to design and direct the evaluation

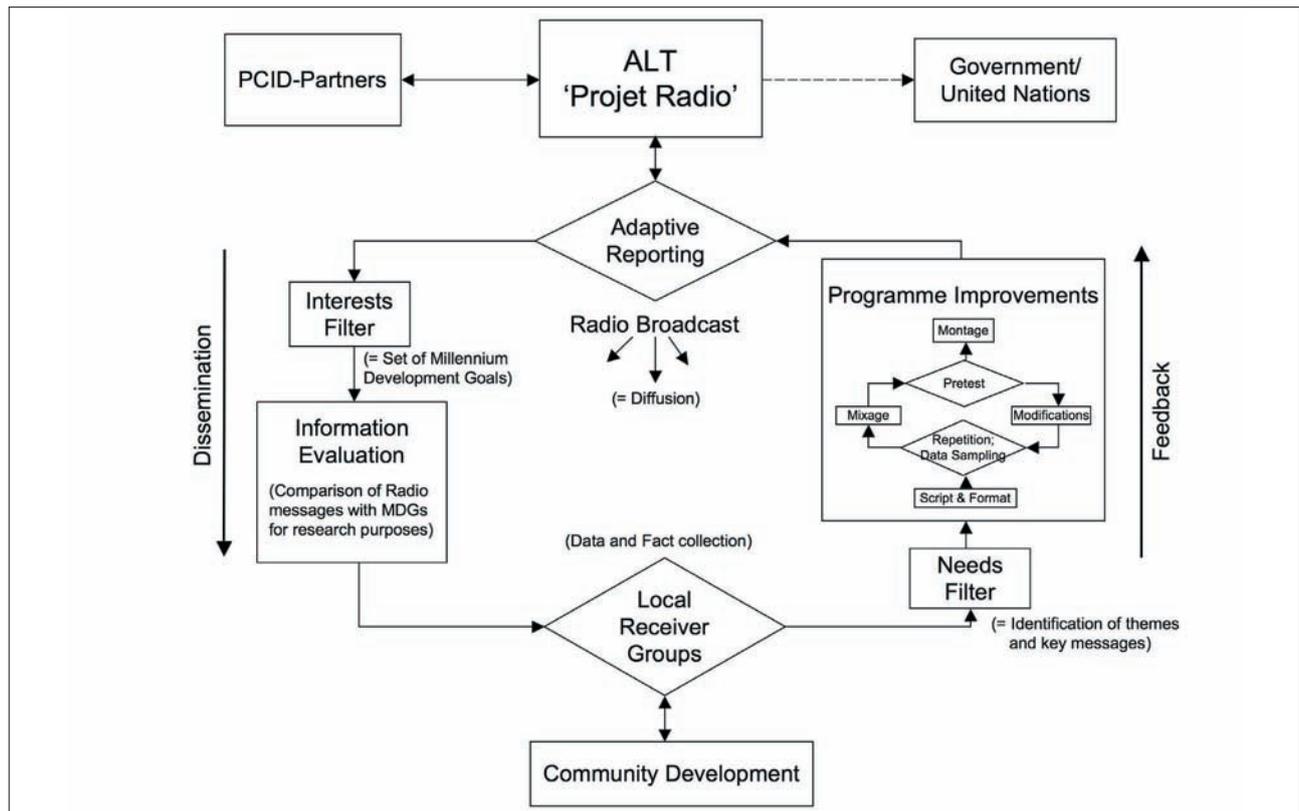


FIGURE 2. Concept and flow of sustainable development values and activities (e.g. MDGs), realized by Radio Broadcast and Local Listener and Receiver Groups in the ALT 'Projet Radio'. MDGs: Millennium Development Goals; PCID: Partners for Communication and Information Development.

was commissioned by ALT to design and direct the evaluation process and a research coordinator (Leo Metcalf) was appointed to oversee the study activity in the field over fifteen months. Given the project's multifaceted approach, an evaluation matrix was designed to measure specific project results in the context of Millennium Development Goals.

Eleven research studies were carried out across the project area in southern Madagascar (Figure 1) between August 2005 and December 2006, which fed into a final analysis published by Metcalf et al. in 2007. The respective methodologies applied in the field research are detailed in separate reports referenced in the subsections below. In summary, qualitative methods like structured and semi-structured interviews have been used to evaluate a range of project activities and topics (e.g. Wengraf 2001). Tools like questionnaire-based interviewing of large random samples of up to 273 people, to small focus groups (e.g. Listening Groups), participative mapping, and interviews with key informants were applied.

ERADICATE EXTREME POVERTY AND HUNGER (MDG1)

The World Bank in its Madagascar Poverty Assessment (1996) writes: "The most striking features of poverty in Madagascar as identified by the poor are isolation and powerlessness. The poor lack the means of communications with all but their own immediate community". In Madagascar, for many years the media were heavily restricted, but over the last ten years the press has been increasingly liberalized and, in 2006, the Ministry of Communications registered 244 radio stations throughout Madagascar. Radio provides a forum of communication, interactive exchange, amongst but especially between rural communities (Van Crowder et

al. 1998, Ilboudo 2000 and 2002, Rakotoson 2002). Nevertheless, poverty and illiteracy still severely limit access to information, because many cannot afford to buy radios or batteries, and electricity is often not available outside the urban areas. Widespread illiteracy also severely limits the spread of the written press.

Madagascar is a Least Developed Country, with a population of approx. 20 million people (CIA Worldfactbook 2008). The HDI (human development index) is a composite measure of three dimensions of human development, i.e. long and healthy life, education, and standard of living. The HDI for Madagascar is 0.533, which ranks Madagascar as 143rd out of 177 countries. 85% of the Malagasy population lives on less than \$2 US a day (Gaffikin et al. 2007), and the situation is particularly precarious in the south where frequent drought causes chronic food insecurity (UNICEF 2007, IRIN 2007).

ALT/PR and its partners have so far produced over 400 radio programmes specifically on the subjects of hunger and poverty. The topics of the radio programmes range from controlling diseases in livestock, to improved techniques for rice-planting, to advice on laws and rights, loans, fishing and bee-keeping. All these actions are accounting to the targets T1 and T2 of MDG1 (see Table 1).

In order to evaluate the importance of radio in terms of sources for news and knowledge, ALT has performed a comparison between five villages (totalling 134 villagers) with non-existent or very low access to radio, and six villages with good access to radio signals (with a total sampling size of 268 randomly selected villagers) (Metcalf 2006, Metcalf et al. 2007). Both sets of villages were otherwise identical in socio-economic terms. Generally, this

comparison revealed that women were particularly influenced by radio, since men have access to other information sources, such as word of mouth, due to their greater mobility. In the question "Where do you get your information about agricultural matters?" radio was mentioned most often in villages that had regular access to radio (Listening Groups) (with 50% mentioning "radio", and 39% mentioning "word of mouth"). Whereas in villages that had no radio access "important men or notables" were the main sources of news (with 53%), and with 40% of the respondents opting for "word of mouth" (Metcalf et al. 2007).

In terms of whether listeners had been able to implement ideas or advice they received via the project's radio programmes, 80 members (men and women) of eight radio Listening Groups who had been listeners since 2002 were interviewed. Three out of eight members of these Listening Groups had built windbreaks to protect cotton fields; three groups had used insecticides to protect their crops; four had tried to follow radio advice on grafting manioc, and three had planted sorghum. Thanks to the radio information, the majority of Listening Group interviewees claimed to use now "modern agricultural techniques". Furthermore, four out of eight groups said they now vaccinate their cows; and three groups revealed that they consult veterinary help if a cow is sick (Metcalf et al. 2007). Interestingly, three out of these eight listening groups have shown initiative and founded an association, which is eligible to apply for local development funding.

These results show that radio is a source of help in terms of bringing new ideas and presenting alternatives to remote areas in order to improve agricultural techniques and approaches to alleviate poverty and hunger (T2), and to increase possibilities of income (T1). This is especially valuable in regions where outreach and exchange is scarce and where illiteracy amongst the population is quite high (FAO 2007).

ACHIEVE UNIVERSAL PRIMARY EDUCATION (MDG2)

Rural life often causes poverty and illiteracy. Hence, improvement in education can create opportunities and strengthen skills, which in turn can strengthen and enhance peoples' livelihoods, productivity and income (Girard 2003, Shibeshi 2006). According to UNESCO (2005a) about 30% of the population is literate and only 37% finish primary school. Poor primary school children are more likely to be out of school than richer ones (UNESCO 2005b).

As literacy is an integral part of education (see T3, Table 1), ALT helped to promote local literacy classes in the Androy, an area with a poor reputation for school attendance and attaching little importance to formal education since the principal traditional livelihood is cattle rearing. In this region cattle are not simply a capital asset but are also sacred. Cattle are slaughtered at death to assure a better afterlife and are therefore highly prized (for more details on the Androy culture see Metcalf et al. 2007).

The literacy project began with a simple radio announcement requesting local communities to submit a list of those adults interested in attending literacy classes to the co-ordinating NGO, 'Tahantane' in Tsihombe. ALT then developed a full radio campaign to broadcast the advantages of the literacy programme. Key messages included (i) the literacy programme is free, there are no costs involved in learning – the students can use charcoal and old sheet metal or the blade of a spade to write with (ii) the programme offers the prospect, through literacy, of freedom from the embarrassments of illiteracy such as fingerprinting and the risk of being easily defrauded.

According to the tracking records of the request numbers for attending this educational programme, the radio broadcasting has attracted in the period between 1 April 2005 and 15 December 2005 up to 25,000 students (with an age range between 20 and 80 years) distributed over 800 training centres (Lellelid 2006). This is a very large number of attendees, which would have never been possible without radio, and also shows the scale of demand from the population for literacy and education. In questionnaire surveys carried out by local researchers, different motivations for attending this listening literacy classes were identified: for 31% (out of a total sample size of 161 adults) it was the ability "to read", and for 15% each "to write", or "not to be cheated by others"; for 11% each it was the ability to "sign by name", or to "calculate", or to "send letters"; 6% wanted to "avoid the fingerprint" (often used as a form of signature) (Lellelid 2006). These results nicely show that it is important to the villagers to be as independent as possible, and they appreciate having been offered an opportunity through the radio to participate in the literacy programme, as reflected in the relatively high number of students who enrolled. Another study showed that most of the adults attending these literacy classes came by foot to the learning centres (269 out of 274 interviewed), and the others did so by bike or ox-cart. Obviously, the farther away such a reading centre was located (0.25-20 km), the lower was the motivation to attend the programme. Interestingly though, the closer such a centre was the more women did attend it (e.g. within a distance of 0.25 km, 49% of all interviewed women attended, but only 26% of all interviewed men) (Lellelid 2006). This highlights the particular importance of radio enabling women, who are more housebound than men, to attend education classes. This can particularly help women who carry the major responsibility of managing a family.

PROMOTE GENDER EQUALITY AND EMPOWER WOMEN

(MDG3) In southern Madagascar, women have traditionally played a secondary role in decision-making. Their status is subordinate to men, and their inferior status has many negative consequences for their education, health, nutrition and life-prospects. Poverty has forced men to migrate away to work for long periods, leaving 25% of households headed by women (Metcalf et al. 2007). ALT has actively promoted women's role in development and ensured that women were given priority in leading Listening Groups and being responsible for managing access to the radios within the village setting. Women represent a stable presence in the village and are less subject to hierarchical issues in the traditional village structure. Consequently, they guarantee better access to the radio for community members. To date, 68% of all the heads of Listening Groups in the PR are held by women (Metcalf et al. 2007).

ALT's research found that women's inferior access to information compared to men could be greatly improved by the use of radio broadcasts, which would work towards the achievement of T4 of MDG3 (Table 1). For example, one research study was conducted in Ejeda, Mahafaly region (Figure 1), where ALT and UNICEF had helped to install a new FM radio station in a local hospital in order to focus specifically on mother and child health issues which are particularly problematic in this region due to cultural practices. (e.g. the use of 'Tisane' for new born, but see MDG5 for more details). Sales of radios to local people escalated after the installation of the radio station and a number of Listening Groups were set up by ALT to work in collaboration with hospital health radio journalists.

70 women exiting the hospital were interviewed: "How do you receive information on health?" The answers were: "radio" (49 answers), "friend / neighbour" (36 answers), "local authority" (27), "hospital" (23), "word of mouth" (13), or "market" (2); "Which sources give you the most information?" The women gave the following answers: "radio" (33 answers), "friend / neighbor" (20), "local authority" (11), "hospital" (5), "ombiasy" (Malagasy for traditional healer) (1). "Why did you consider the radio as source for information?" Here, four different reasons were mentioned: "easily accessible" (25 answers), "reliable" (11), "easy to understand" (since it speaks the local dialect) (8), "gives practical advice" (1). For all the questions multiple answers were possible (Metcalf 2006). For women who are at home, or at least spend most of the time in their villages, radio seems to be a quick and reliable way of access to information, which is important for acquiring more knowledge and understanding, which in turn are fundamental for decision-making and family planning. This becomes especially imminent if decisions have to be made in terms of health where time is an important and often restricting factor.

REDUCE CHILD MORTALITY (MDG 4) AND IMPROVE

MATERNAL HEALTH (MDG 5) Health indicators for Madagascar are generally comparable to averages for sub-Saharan Africa; however, Madagascar ranks substantially below this average on child malnutrition (World Bank 2001). Access to health care and services is still a major challenge in Madagascar for the poor. Economic, political, administrative, geographic and socio-cultural factors all influence peoples' behaviour in seeking access to health services. Unaffordable health care costs represent an important barrier for poor people to access health services; these can include, for example, transportation costs to overcome distances, or lost working time (Glick and Razamanantsoa 2005). In Madagascar the probability of a child dying during its first five years of life is 115% and the mortality rate for infants < 1 year is 72%. In 2006, there were an estimated 82,000 (< 5 years) child deaths mainly due to malaria, diarrhoea or respiratory problems (UNICEF 2006). In the south, health services are particularly scarce with only 49% of women able to access and use skilled antenatal care (Metcalf et al. 2007).

ALT and partners have produced a variety of radio programmes on themes like childhood diseases and hygiene (in order to achieve MDG4/T5), as well as on the advantages of prenatal consultations (to achieve MDG5/T6, Table 1), of vaccination, exclusive breast-feeding and family planning (Table 2). In a study on "How to avoid pregnancy?" the ALT team has interviewed 134 women. The ones from villages with good radio reception (i.e. they were able to follow the aired programmes of the PR) were more knowledgeable about all types of family planning methods than those from villages with low radio listening (i.e. they were not able to follow the PR broadcasting). For example, 46% of the former knew about contraceptive pills compared to only 18% in the latter (Metcalf et al. 2007). Knowledge and understanding are the basic steps towards a change of attitude.

In an evaluation conducted by Johansson (2005) for UNICEF /ALT, 56 persons (35 men, 21 women) from Listening Groups, and 53 persons (19 men, 34 women) from non-Listening Groups were interviewed on five health topics: diarrhoea, infant feeding, polio vaccination, pregnancy and malaria.

For the question "What would you do if your child got diarrhoea?" 71% of Listening Groups (LGs) answered "give the baby water often" in contrast to 32% of the non-LGs; and

95% of the LGs answered "bring the child to the hospital", in contrast to 23% of the non-LGs. 32% of these would also "give the baby a tisane" (a traditional practice of administering a plant-infusion / tea which is given in large quantities to new born and which can result in severe sickness or death) whereas only 5% of the LGs would do so too.

For the question "How would you feed your baby?" 79% of the LGs gave the answer "breastfeeding exclusively" in contrast to 23% of the non-LGs, whereas 49% of the latter would "give the baby a tisane", comparing to only 9% of the LGs.

For the question "Why should you let your children get vaccinated?" 71% of the LGs answered "to protect it against poliomyelitis"; in contrast, only 8% of the non-LGs did so too.

For the question "What do you do if you think you are pregnant?" 75% of the LGs answered "vaccination", in contrast to 58% of the non-LGs; 54% of the LGs would "treat illness", in contrast to 13% of non-LG. 17% of the latter would "take tisanes", whereas only 2% of the LGs would do the tisane treatment.

For the question "What can you do to prevent malaria?" 86% of LGs, and 77% of non-LGs answered "use a mosquito net"; 41% LGs and 6% non-LGs answered "take Nivaquin every week"; 0% LGs, and 4% non-LGs answered "I don't know".

The research found that 89% of women from villages with radio (= with LGs) had vaccinated their children compared to only 75% of those from villages with low levels of radio listening (= no LGs). Significantly more women from 'radio villages' (68%) knew that a child needs a total of five vaccinations, compared to women in 'non-radio villages' (42%). All villages had equal access to vaccination services, and were visited equally by health workers publicizing vaccination.

These results reflect that people are listening to radio and can gain knowledge and understanding in terms of health issues. However, this does not mean that people will then immediately change their behaviour. Encouragingly, Metcalf et al. (2007) found that most of the advice broadcast during radio programmes was being practiced by the Listening Groups. ALT found that, out of 100 Listening Groups (LGs), the health ideas from radio programmes were reportedly being put into practice by a majority of participants in the PR as follows: the "use of mosquito nets" is mentioned most (46 LGs), followed by "use of condoms" (32 LGs), take-up of family planning measures such as "injections and pills" (31 LGs) and "prenatal and neonatal care" (25 LGs) (Metcalf et al. 2007). A further study should aim to measure whether (and if so, to what extent) the disease incidences of children and mothers have been reduced thanks to radio broadcasting efforts in order to clearly support the indicators listed in Table 1.

REDUCE HIV/AIDS AND OTHER DISEASES (MDG 6)

According to UNAIDS, an HIV rate of over 1% represents a 'generalised epidemic'. Therefore, a national average HIV rate among pregnant women in antenatal clinics of 1.1% recorded in a survey performed in 2003 (UNAIDS /WHO 2004) did activate a re-orientation of the national strategy. This forced the responsible authorities to reach directly every individual in the country with essential information on HIV instead of focusing efforts on specific populations (with the exception of people living with HIV). However, rural areas are often ignored in HIV surveillance, since the population has often limited access to health care, education, and media (print, radio, television) (Leutscher et al. 2003). Although HIV infection is usually less

prevalent in rural areas (e.g. less tourists, and therefore less exchange with outsiders), rural prevalence continues to rise (Munguti et al. 1997).

ALT launched ALT 'Projet Radio SIDA' in January 2004 in order to offer radio programmes in local languages / dialects on themes of HIV / AIDS. A central aim of this project is to enhance the understanding of this disease amongst vulnerable groups of people, which works towards the MDG6, target T7 (see Table 1). Researchers analyzed the impact of a specially commissioned series of radio programmes on HIV / AIDS broadcast between 2004 (Phase I) and 2005 (Phase II), covering a variety of HIV / AIDS awareness themes (Metcalf 2005).

A questionnaire-based enquiry was carried out over two months by local researchers, targeting 270 randomly selected individual interviewees with the respondents representing a cross-section of rural and urban dwellers, with roughly equal numbers of people who claimed to be members of Listening Groups (LGs) as there were non-LG members. Respondents were asked to list their personal sources of information about HIV / AIDS in order of importance: "Did you hear about HIV / AIDS; if so, what type of media; what are your other sources?" (Metcalf 2005). On average 89% opted for "radio" (with 96% from urban and 82% from rural respondents), 53% "programme leader / NGO", 39% "posters", and 30.5% "television" (with 59% urban, and 2% rural respondents). Radio is clearly the most pervasive source for both rural and urban areas, whether they are members of an LG or not. Interestingly, during Phase I of project ALT PR / SIDA (i.e. before 2004) radio was already the most important source of information, but at a much lower percentage (51.5% versus the 89% of Phase II); in Tsihombe (Figure 1) it was 26% in Phase I versus 100% of the interviewed in Phase II.

In the same Phase II interviews of 2005, questions on beliefs and knowledge on HIV / AIDS were posed (Metcalf 2005): "What can you tell me about HIV / AIDS?" 85% of the respondent quoted "AIDS is a disease", of which 60% declared that "AIDS is a sexual disease", 52% of all the interviewee answered that "AIDS is incurable", and 58% "AIDS can lead to death". Although in 2004 in Phase I 20% answered to the same question "AIDS does not exist", still 10% of the Phase II interviews still opted for the same. It is one of ALT's most challenging goals to reduce this belief to 0%.

"Could you tell me the ways in which HIV / AIDS is transmitted?" 96% "sexual relations" (of which 58% precised that "unprotected sexual relations" are the cause); 78% "blood"; and 38% "mother to child"; 15% "mosquitoes". Interestingly, 20% of the urban interviewee opted for this belief, whereas only 10% did so from the rural area. This could be due to the faster spread of rumours in urban areas, or it could be because rural areas are still more traditional and do not talk openly about beliefs. These results show that the programmes produced by ALT and partners on HIV / AIDS can change the knowledge and understanding amongst urban and rural population, and also reverse the general trend of dissepation between rural and urban areas (Sahn and Stifel 2002). Three quarters of respondents were able to identify that ALT 'Projet Radio' had produced the programmes on HIV / AIDS, only 18% of respondents could not remember who produced these programmes (Metcalf et al. 2007). The ALT programmes were so memorable that in some cases members of Listening Groups could even repeat entire dialogues from these radio series, or were able to recite whole poems previously broadcast. Radio is certainly a medium that is particularly well

suited to overcoming the lack of general information sources in rural areas, and if aired in the local language, a high number of people can receive and understand the messages. Further, the greater the frequency of the programmes being aired, the higher the chances that people will remember the messages. This is certainly a prerequisite for meeting MDG6/T7 (Table 1).

ENVIRONMENTAL DEGRADATION (MDG 7) Known for its highly biological diversity (Myers et al. 2000), Madagascar has attracted the interest of many donors and international agencies. For example, Madagascar was one of the first African countries benefiting from the NEAP – the National Environmental Action Plan (Mercier 2006). Nevertheless, the high degree of poverty and the strong demand for wood, mainly in form of charcoal, are putting heavy pressures on the remaining forests, i.e. an average Malagasy family in southern Madagascar uses about 1,200 kg of charcoal *per annum* (Vetter 2006).

The ALT radio project, in collaboration with PCID partners, has produced over 354 radio programmes on the environment. The broadcasts cover a broad range of topics including the promotion of fuel-efficient stoves and tree-planting as well as the consequences of *tavy* slash-and-burn agriculture and the protection of threatened species like the Radiated tortoise, *Astrochelys radiata*.

ALT introduced a fuel efficiency project in 1999, which trained rural women to build the *Toko-Mitsitsy*, a fuel-efficient wood stove, which can reduce wood consumption by up to 75%. Additionally, ALT has also been engaged in tree planting and established a tree nursery in Tsihombe in 2003. The aim is to grow a variety of seedlings that can offer local food, fuel, and soil stabilization, including mango (*Mangifera* spp. Anacardiaceae), papaya (*Carica papaya* Caricaceae), moringa (*Moringa oleifera* Moringaceae), and filao trees (*Casuarina equisetifolia* Casuarinaceae). Seedlings are sold at affordable prices to individuals or distributed free to local not-for-profit associations (Metcalf et al. 2007).

In 2006 ALT assessed the extent to which radio informed and encouraged people to purchase trees, or local associations to apply for free trees from the tree nursery. Results showed that radio was responsible for 59% of trees distributed from the nursery whereas 35% were attributed to face-to-face communications with ALT staff (Metcalf et al. 2007).

ALT's evaluation of the impacts of the *Toko-Mitsitsy* involved a survey of 268 (including 134 women) randomly selected respondents from 11 rural communities in the south of Madagascar (Metcalf et al. 2007). In contrasting the women from 'radio villages' with 'no-radio villages', on average 61% of the former showed a higher understanding of this cooking tool and were also using a *Toko-Mitsitsy*, whereas only 47% of the latter did so too. Interestingly though, both the 'radio' and 'no-radio villages' have been visited equally by ALT field agents to promote the new stoves. According to field agents in the villages with radios, the women were more willing and much less reluctant of adopting and applying these new stoves, and this can be put down to radio broadcast information spread. For example, survey-village number three, where the women have been well organised in regular radio Listening Groups since 2002, showed even better results: 81% of the respondents did know and / or were using a *Toko-Mitsitsy*. Radio, therefore, can promote and ease the establishment of new tools with higher efficiency and contribute to the reduction of wood use, which is working for achieving MDG7, target T9.

CONCLUSIONS

The ALT 'Projet Radio' is affecting the villages and communities in terms of enhancing knowledge and understanding, and in starting to change attitudes on topics such as HIV/AIDS (MDG6), family planning, mother and child health (MDG4/5), environmental (MDG7) or social and administrative issues (MDG8) and gender inequality (MDG3). Education is at the front line of achieving the Millennium Development Goals (Gasparini and Zulberti 2003), and radio is facilitating this for a range of ages, men and women alike. The environment and its relation to sustainable agricultural development and food production present an enormous challenge in terms of proper use and the conservation of environmental resources. These are often degraded by the poorest, which are mostly rural people with no alternative for meeting their daily needs for land on which to grow crops, or fuel wood. Unsustainable use of resources can only be halted if new schemes of incentives and techniques of cultivation are brought to these remote areas. Such solutions, however, will have to be made accessible and acceptable to local people, many of which will need considerable encouragement and training in new skills (Fraser and Villet 1994). That is where the role of communication, i.e. in form of radio, has its main potency. Radio is also having a positive impact on uptake of health services, enrolment in literacy classes (MDG2), construction of environmentally friendly woodstoves, tree-planting, agricultural yields, and awareness of strategies for poverty reduction through income generation and community associations (MDG1).

Generally, radio is a medium that easily can reach remote areas and overcome distances, where other media like printing or television face greater challenges. With radio, even the very poorest members of the community can have access to information, which can help to tackle everyday problems. However, to receive news from radio broadcasting, a village needs to be able to receive such signals. These demand service providers, who ensure the radio coverage of such remote areas. ALT/PR has invested substantially in radio infrastructure in the regions where it works, launching two new stations in areas where there was no FM signal and providing access to educational broadcast for thousands of new listeners. The project has also provided equipment upgrades for over 20 stations to date, with further supports imminent for another 19 stations.

Households need to have a radio device in order to receive these frequencies. Service providers, like radio sets do not come free, but activities like ALT's 'Projet Radio' can gather into a network of collaborations and funnel funding and expertise (e.g. trainers and specialists) into remote regions like the provinces of Toliara and Fianarantsoa. Such projects also help build local capacity, which is the basis of future independence and assures a long-term sustainability of information provision when project funding ends. However, given the community benefits from such projects, continuous effort must be assured in the form of local training to develop high quality programme content which can help enhance the knowledge and understanding of the local audiences and work towards the MDGs.

In order to measure whether indicators and targets are met, the impacts should be evaluated on a regular basis, to identify where to improve and enhance future efforts. The 'adaptive reporting' can help radio projects become even more effective (see Figure 2). Critical to its success is ALT/PR's decision to train NGO outreach workers to make radio programmes promoting their specialized topics, rather than follow the usual course of

training radio broadcasters to make programmes on unfamiliar subjects of which they have little understanding. The ability of radio to scale-up and extend the on-the-ground work of local service-providers emerges quite clearly. Since ALT/PR embraces a participatory approach, the communities have opportunities to express their needs, radio broadcasting programmes are tailored in a manner to meet these needs (e.g. 'needs filter'), and communities can feedback on the programmes (see Figure 2 for more details). However, this process can be challenging especially where community demands are high and staff resources limited. It is therefore of utmost importance that such projects and approaches are based on a secured network of cooperation at local, regional and national levels.

ALT/PR is cost effective – education is delivered at a cost of less than a dollar per head per year (for a summary see Metcalf et al. 2007) and has a high local reputation, i.e. communities see a direct benefit of the radio programmes, and are also keen to participate in Listening Groups and monitoring of programmes. These are two important factors showing that this approach of helping to achieve the Millennium Development Goals, i.e. to alleviate poverty, can be fruitful in regions like southern Madagascar, where many communities are isolated and often have been neglected by the international development community.

There is a growing focus on the role of media for sustainable development in Madagascar. ALT has now shared its model and methods with CNLS (National HIV/AIDS Committee of Madagascar), UNICEF and UNDP and the Ministry of Communications who have adopted, or are in the processing of adopting the ALT 'Projet Radio' approach to some of their national communication strategies. Most recently ALT acted as a consultant on a national media communications assessment for UNDP Madagascar and has made recommendations to address communication gaps at local level, implicating much of the model and many lessons learnt in the southern experience of PR. It is hoped that a scaling up and duplication of the PR model will now occur in other parts of the island even where geo-topographic conditions may be yet more challenging.

Radio is a medium with a wide and popular reach. To quote Gro Brundtland: "Sustainable development (i.e. in achieving the MDGs) is a major challenge for the next century. People are central to that task. The only way we can work for a common cause, for common interest, to improve our condition, is really through communication. (...) It has to do with participation, with spreading of knowledge and insight and ability to take care of our future."

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