



***Enhancing ICT
Connectivity as a
Strategic Instrument
for Effective Rural
Development.***

*ICT diagnosis report
Tanzania.*

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<http://www.isglink.org>

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First Mile Project with
Agricultural Marketing Services Development
Project (AMSDP). Tanzania

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1. Introduction

This report summarises ICT (Information and Communication Technology) provision in Tanzania with a focus on rural areas and their use by AMSDP groups in the villages and how this access can be expected to change over the near future and how the exchange of ideas and information between groups can most likely be improved. The diagnosis was conducted through a combination of review of existing reports on use of ICTs in Tanzania, material published by government institutions and international organisations, interviews with key organisations in Tanzania and representatives of groups from districts throughout the country and household semi-structured interviews with representatives of groups and households in Hai and Babati districts in the North of the country¹.

2. The Context

2.1. Government Communications Policy

The National Telecommunication Policy (NTP), for the period 1997 through 2020 aims at ensuring the accelerated development of an efficient telecommunications network that can provide an info-communication infrastructure and universal access to telecommunications services by all sectors of the national economy and segments of the population. The NTP underscores the development of the telecommunications sector as a guideline to all stakeholders in line with national macroeconomic, legal and regulatory regimes.

2.2. Regulatory Framework

According to the TCRA (Telecommunications Regulatory Authority)² the number of customers accessing communication services has increased dramatically from around 100,000 in 1993 to about 2,100,000 by January 2005. This is attributed to spread of services covering more geographical areas and the gradual fall of tariffs and prices. The demand and needs of the Tanzania population of about 35 million people and the economy, however, remain far from being met due to material size of the country, high tariffs and poverty. The challenge to provide universal quality and affordable services is still very large.

3. The Current State of the Telecommunications Sector

Currently, the country's telephone density stands at 0.32 telephones per 100 inhabitants, well below the average for neighbouring Kenya (0.92), and far below the average for the Southern Africa Development Community - SADC (3.4), Asia (3.86), Europe (35.36) and the world (10.49). The very low telephone density in Tanzania means that most urban and rural areas are still constrained by the lack of telecommunication services.

¹ See Annexes for details of discussions in Dar es Salaam and interviews with households in Hai and Bahati Districts.

² Tanzanian Communications Regulatory Authority (TCRA) *The Implementation of the New Converged Licensing Framework in the ICT Sector in Tanzania*



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The telecommunication sector in Tanzania has been liberalized since 1993. Licenses have been issued for basic telephone services, data communications, mobile cellular telephone, radio paging, internal wiring and installation of customer premises equipment as well as importation and distribution of telecommunications and radio communication equipment.

Up until February 2005, TTCL - the incumbent telecommunication operator had a monopoly on the provision of infrastructure used for voice services, on the provision of national fixed voice services and on the supply of all international voice services. In 2001 the TTCL was partially privatized through a sale of 35% to a strategic investor. The company was given an exclusive license for provision of the above services for a four-year period ending 22nd February 2005. Since then, the provision has been open to competition.

The role of the government in the telecommunication sector is defined as being:

- To initiate and facilitate the process of designing specific development strategies and lines of action for the telecommunication sector, and to be the custodian of the telecommunications policy;
- To encourage fair competition and create an enabling environment to attract investors and private sector participation;
- To provide inter-sectoral and regional coordination; and
- To provide mechanisms through which the views of stakeholders can be presented.

The NPT emphasizes the need for development of telecommunication services in the rural area. Each village will be provided with telecommunication facilities by the year 2020³. To support this, a Rural Telecommunication Development Fund will be established. Developments in mobile telephony are however making the aim of providing fixed line telecommunications to each village by 2020 redundant.

3.1. Fixed Line Telephone Operators

Landline (fixed line) telephones are present in all major provincial and district towns but much less so in villages away from the main roads and urban areas. An agreement had been made with TTCL (Tanzania Telecommunications Company Limited) to provide at least one public telephone kiosk for each village of over 3000 inhabitants by early 2005 and for all villages by 2020. The agreement is unlikely now to be met and the current provision stands at less than half this figure (around 2300 of the 5000 or so villages of this size have a fixed line telephone kiosk).

At present, only TTCL provides landline (fixed line) services. In fact, for most rural areas this service is provided by radio links rather than telephone lines. The service is considerably cheaper than for mobile phones (and now significantly cheaper than it was before the mobile phone operators began providing service) but is reportedly less reliable and costs of calling to networks other than the (TTCL owned) are high. As the majority of the population now use cellular telephones, there are fewer new requests for fixed

³ *Telecoms policy statement 2001*



lines.

Deregulation in February 2005 has opened competition such that TTCL has now lost its monopoly status for both fixed line provision and for international calls. No new licenses have as yet been issued, though several international companies are reportedly interested including ZANTEL. The new regulations also allow for voice over internet (VOIP) operation which had previously been banned in Tanzania.

Mobile telephone provision exceeded fixed line telephones during 2000 and continues to grow providing a further disincentive for rapid expansion of the fixed line networks. As mentioned, since February 2005, the telecoms licences have been deregulated and TTCL no longer holds a monopoly. No new licences for fixed line telephony have as yet been issued however.

Coverage of landlines is supposed to be in all villages by 2020 (by which time it will probably be redundant). By this year it was supposed to be in all villages of over 3000 people, but in fact reaches only about 60% of them. Competition from mobile operators is an increasing disincentive to expand the network, but 'pay as you go' for fixed line (as with mobile telephony - recently introduced) may make a difference to the number of new subscribers.

3.2.. Mobile Telephone Networks

There are currently three mobile phone operators in Tanzania – Mobitel, Vodacom and Celtel (operated by the fixed line operator – TTCL). A fourth operator Zantel – owned by the Zanzibar telecommunications operator will begin operations in July 2005. The first provider to supply mobile phone services – Tritel - ceased operations in January 2003 due to insolvency through competition from Vodacom and Celtel – an indication of the competitive pressure to lower prices and increase access.

At present, Celtel has the largest share of the market due to its greater network coverage and penetration into rural areas as a consequence of its fixed line infrastructure. Vodacom however provides strong competition and offers a number of popular services such as free 'callback' where a user can send a message to another mobile phone requesting them to call back at no cost. A number of free sms messages (currently 5) are also offered per month. Their penetration into rural areas is not currently as extensive as Celtel, but continues to grow.

Mobitel, the second service to begin operations, has been losing market share to Celtel and Vodacom in recent months, but still remains a significant player in the market and has major plans for expansion. Hence with three or possibly four (Zantel) operators competing with expansion of network coverage a major element of their plans, the future is very bright for more extensive coverage and more affordable access throughout the country.

Total coverage remains stronger in and near to the urban areas inevitably, but access in rural areas is improving. Perhaps 60% of villages throughout the country now have direct



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access to mobile phone networks (considerably higher in the North, Dar es Salaam region and Zanzibar and in and around larger urban centres). Total ownership according to Vodacom⁴ remains very low at only 2.5% for the country as a whole (Other figures estimate an ownership rate of perhaps 10% in rural areas). Mobile phone usage though is much higher than this through use of friends and neighbours handsets and kiosks in nearby towns and may be as high as 70% in many areas. Often access is only available from certain spots in a village such as on top of a hill or under a particular tree. This however is sufficient for some to own a mobile telephone and access is so highly valued that one report mentioned villagers being prepared to pay up to 10,000 shillings (about US\$10) per minute for access.

People own and use mobile phones even where there is not direct access in their own village. SMS use is common amongst frequent users of mobile phones and perhaps 80% of all users have used SMS. Beeping – dialling a number and then hanging up immediately in order to be called back – is very common.

3.3. International Transmission

International transmission is principally through Intelsat satellite earth stations situated in Dar es Salaam. Calls between African countries are routed through Europe or the USA at high cost as the countries do not have direct international telephone links. This is expected to change shortly through two developments: a (largely World Bank financed) project to link Tanzania, Kenya and Zambia power and telecommunications cables) with the first phase due to come on line in 2007 and; a consortium including Zantel which is building the Eastern African Submarine Cable System (EASCS) due to be lit in 2006 which will connect all East African countries from South African to Djibouti, to the international cable networks. Both developments should result in considerably cheaper international calls and internet provision. As noted above, VOIP developments are likely to considerably add to the competition for international telephony.

3.4. Internet Service Provision

There are between 14 and 18 providers of internet connection services in Tanzania using either satellite or wireless links according to various reports⁵ though considerably more (32) licenses have reportedly been issued. In general, the services are provided through satellite connection. Wireless technology is also being used to provide access by the mobile telephone operators.

The Internet is widely available in all regional towns through Internet cafés and Post Offices. Smaller towns increasingly have an Internet café also. Villages do not in general have any direct access. Approximately 50% of villagers have at least heard of the Internet and perhaps 20-30% know someone who uses it. Only a very small percentage (about 3% or less) have actually used it. However, most of those who have heard of it are very

⁴ *The Vodafone Policy Paper Series • Number 2 • March 2005 Africa: The impact of mobile phones*

⁵ e.g. *ICT Socio economic feasibility study, Tanzania January 2005;*

Workshop report on impact of Telecommunications on rural livelihoods June 2005;

Creating an environment for ICT in Tanzania – policy, regulation and markets : Institute of African Affairs, Sept 2004



interested. Internet cafés and post offices will assist the user to the extent that a handwritten message can be taken and sent by email from a post office to a given address or at an internet café, the operators will open an email address for the user, type in and send the message for them.

3.5. Radio

National radio (Radio Tanzania) provides a broad mix of news and entertainment and is close to universally available in all areas of the country. All individuals interviewed regardless of level of income reported owning a radio. Most also listened to the agricultural programme broadcast at 0630 daily which reports on market prices in Dar es Salaam and some other larger markets. A common comment though was that the prices given were always for the previous day and that they did not provide prices at local and regional markets of relevance to the respondents.

Local radio is little used as yet except for religious programmes and entertainment (music). Licences are now possible to obtain at district level according to COSTECH (Tanzania Commission for Science and Technology) and there is a huge untapped potential for their use in provision of local market information.

3.6. Television

Television is receivable across most of the country. Broadcasts are mainly news and entertainment and at present few in the rural areas can afford it. Perhaps 5% in the villages have regular access and it is not mentioned as a significant source of information in surveys.

4. Group and Household Survey Results

The principle findings concerning ICT use from discussions with groups (producers, processors, traders, partner agencies etc.) are the following:

- Use of mobile telephones is high – 70% -90% of group members and 60% of the general population in the Northern regions surveyed. Perhaps twice as many use one as own one.
- Use is lower but still at least 50% in the less connected regions e.g. districts near to Mbeya.
- SMS use is common and increasing.
- The mobile phone is initially used for contact with family and friends but then increasingly for business contact, especially contact with traders, middlemen and transporters and to find costs of inputs and new technology.
- Perhaps one third had seen a computer and very few had yet used one directly (The only producers who reported using one were in Babati town where there is an Internet Café).
- Awareness of Email and the Internet was similar. However, most of those who had seen a computer also had a friend or relative who used it and there was considerable interest in the possibilities.
- Television had been seen by most at some point though was watched regularly by perhaps 20%. The main use was for national and international news.



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- Radio was widely owned and listened to (perhaps 90%). Apart from the daily information on market prices, the radio was used mainly for news and music. Local radio is only used for music and religious broadcasts at present.

The access to ICTs in the two districts surveyed confirms the larger surveys conducted by COSTECH/Gamos/ICTDA and UNDP and others, though secondary use (use through intermediaries) and knowledge of the technologies seems to be higher than is apparent from those surveys. The situation is also changing very rapidly with most respondents only having started using mobile phones in the last 12 to 18 months.

5. Improving Exchange of Ideas and Information Within and Between Producer Groups.

The findings from this diagnosis suggest that access to mobile telephony amongst groups is better than expected and there is no *technical* reason why groups could not contact regularly by telephone or sms messages. To a lesser but still significant extent, this is also true of email and the Internet, where in most groups, there is already awareness of email and the Internet and interest in the possibilities. Direct access was non-existent in villages but some group members in all groups interviewed had directly seen the operation of email in a nearby town. This was true even for representatives from the areas with less access.

Further developments in mobile phone technology and access are likely to bring GPRS (which will allow email via mobile phone) to increasing areas of the country in the near future (over the next 6-18 months). Technically, therefore, it could become possible for a group equipped with a GPRS mobile handset and an infra-red printer, to send, receive and print emails directly in villages.

The bigger problem is not the access to the technology, which is closer and more accessible than thought, but whether enough value is seen in exchange of information to justify the cost. At present, groups brought in contact with each other do not generally continue to maintain regular exchange of information. This is likely due to two main issues:

- Familiarity with the other group – there is an issue of trust within groups and villages. For regular exchange of information, time is needed to build up trust.
- Usefulness of information – Groups need specific information of value to them to justify the cost and effort of communications other than direct conversation or meetings.

To improve communications therefore, costs should be shared through group use of technology and regular contact to build up familiarity and trust between groups will be needed as well as structured learning experiences, rather than expecting free exchange of information initially. Information on issues such as markets and agricultural technology may well then be best provided to all through a web site which can then also act to provide a communication mechanism to other groups (this could be done through further development of the LLL website). The initial use would more likely be to access local



information initially, and then later to discuss issues with other groups linked to the site.

On the technology side, training in use of email and the Internet will be important, beginning with something as simple as a group visit to an Internet café to introduce the possibilities and open an email address for the group. For those who do not possess a mobile telephone, as suggested by some respondents, a group telephone should be bought, specifically for business use (though there is no reason why the cost should not then be covered by hiring out for personal use as with a kiosk telephone).

6. Assessment on Capacity of Local Groups to Realize their Communication Action Plans

In almost all AMSDP's groups, there is at least one person who has seen the Internet in operation though very few have directly used it themselves. Access is not as remote an idea as is often thought – in fact, it is usually only a matter of working through a single intermediary to be able to access the Internet.

Many group members are familiar with the concept of an intermediary through use of mobile phones which belong to others – they nevertheless receive messages through them and they are passed on by the owner. Similarly prices may be collected by sms or mobile phone by one person calling a market trader and then passing this information on to others.

In a similar way, information can be sent by email via an intermediary. One anecdotal example is that I took a digital photograph of one of the women I interviewed in Hai district and she asked if I could send a copy to her son who has an email address in Arusha. He would then deliver it to her. (This has since been done).

It is therefore perfectly possible for most farmer groups to open an email account and use this for communication between groups.

Similarly, access to mobile phones is rapidly becoming cheaper and easy such that the majority of group members now have access to (though not yet personal ownership of) a mobile phone. Group purchase of a mobile phone is perfectly possible for group use if they wish. This could also be funded by selling time for non business use to members and others.

Further developments in the technology (GPRS) may soon make it practical to send and receive email messages to mobile phone wherever access is possible. The handsets for this may cost more but will still be within reach IF there is sufficient demand for the information which can be received. With a mobile phone with infra-red, emails could then be printed direct to an infra red printer.



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In short, the technology is not the barrier to more effective communications within and between groups in most areas (it is acknowledged that there are still some areas of the country where there is no access at all and in these cases the need to travel to a nearby town in order to use a mobile phone does limit the usefulness).

The greater issue is what is being communicated between groups. It is generally found that social and economic development works faster through people who are part of groups or at least have a good network of contacts. As such, active intervention to build and strengthen groups can be seen as worthwhile in itself. For groups to remain strong though, they need to be built around an agreed purpose – savings and credit, production, marketing etc. Similarly for groups to work together, there needs to be an initial strong reason for doing this – joint marketing, inputs, storage, new crop production, market prices etc. Building the habit and practice of sharing information between groups on such issues through learning groups is certainly possible and the more directly and cheaply it can be done, the more likely it is to happen.



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Annexes

Annex A. Summary of Discussions in Dar es Salaam

Annex B. Discussions with Workshop Participants from Mbeya and other Southern Districts

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Annex A. Summary of Discussions in Dar es Salaam

1 DAI/PESA: 7/6/2005

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DAI/PESA (Private Enterprise Support Activities) a USAID funded programme, implemented by Development Alternatives Inc. (DAI) is a programme which aims to 'increase incomes of small farmers in selected agricultural subsectors'. They operate on an integrated subsector development basis strengthening producer associations as the foundation to sustainable development in governance, business and technical capacity development. Apex groups are formed from a number of producer groups as with the AMSDP project. They facilitate access to capital and linkage to market and in several districts (in Morogoro, Iringa and Mbeya) work closely with AMSDP.

DAI/PESA were approached during this visit because of a reported programme to provide market price information through sms text messages on mobile telephones (all associations under their programme have at least one mobile telephone). This system had been tested by the project on an experimental basis but it was found that price information alone was little valued. A more comprehensive service of market system access regularly provided would be needed for greater uptake and as yet little has been done on this.

Market information for the complete price chain to consumer, knowledge of market chain organization, group operations for inputs and markets are felt to be extremely important for improvement in producer group profits and such a market information system is not practical without strong organization – hence the emphasis at present on building strong producer group organizations.

At present, the 6 APEX groups use the PESA office but they are working on building links for the APEX groups to find their own information once the PESA project ends in 18 months time. TCCIA were felt to be one of the more useful organizations here with offices throughout Tanzania at provincial and often district level.

2 Tanzanian Commission for Science and Technology (COSTECH) 7/6/05

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In cooperation with their development partners (CIDA, UNESCO, DANIDA, TTCL) , COSTECH are responsible for establishment of a number of Multipurpose Community Telecentres (MCTs) in rural areas of Tanzania, firstly in Serengema (Mwana) with others to be established in Kasula and Ngara regions. The MCTs provide telephone, fax Internet, email and related training services to those living in the community both for business and individual use.

Two pilot studies have been conducted on village access and use of the Internet for provision of local market information. The intention is ultimately to set up a nation wide network of linked websites from district to municipality for provision of market and general information (See www.lungalugoba.or.tz and www.sengerema.or.tz (for the telecentre) and www.sengerema.go.tz (for the district) and www.zmc.go.tz for an example of a municipality site).



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At present the work is only in its very early stages with all input being done directly by COSTECH staff. Ultimately, villagers, district staff and municipality staff to provide information directly for the websites.

COSTECH also see considerable potential for use of local radio, which at present is used essentially only for entertainment and religious broadcasts. As one example of the potential, the case of Sengerema was quoted where a licence was provided for local radio and in one experiment, broadcasting information on vaccinations to encourage people to ensure their children were vaccinated at local clinics led to a doubling of the vaccination rate in the area.

3 TCCIA (Tanzania Chamber of Commerce, Industry and Agriculture) 7/6/05

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TCCIA are present in all regions and a number of districts. Some AMSDP producer groups are currently members.

The intention is to gradually open more district offices as the membership and demand for services increase. TCCIA provide training in business and marketing for members, and provide market information on request by fax or letter through the regional chamber development officers. Market information is collected from the 21 regional officers and some district chambers and sent to regional and HQ offices for collation and provision to members through the (monthly) newsletter and website (www.tccia.com). It is recognised that at present the market information is not updated often enough to be really useful and TCCIA are looking at a cost recovery model to be able to provide more rapid updates as market information data collection is seen as expensive and fails if there is not a sustainable source of funds. Increasingly Internet connections are being provided through TCCIA regional and district offices.

SIDA (Swedish International Development Agency) have provided support to TCCIA since 1996 and will continue to support its development at least until December 2007

4 Workshop on the impact of Telecommunications on Rural livelihoods. 8/6/05

Following the meeting with Mr Theo Mlaki at COSTECH on 7/6/05, the consultant was invited to the above COSTECH hosted workshop in Dar es Salaam. The workshop was to present and discuss the results of a survey conducted during 2004 on the use and impact of ICTs in Mozambique, Tanzania and in Gujarat State, India. The workshop mainly concerned the work conducted in the summer and autumn of 2004 in Tanzania (in Hai, Njombe and Sengerema districts) but also made reference to the other two countries, which despite their differences gave rather similar results in terms of impact. The survey looked in particular at communication flows and channels, use and attitudes toward telephony and the use of the Internet.

Some of the more interesting findings as regards the first mile programme were that:

- Face to face contact was by far the most preferred form of communication for both business and personal use.
- The most important use of the telephone was for urgent emergency use (concerning family and friends) followed by social contact.
- Market and business information was important to about 50% of those using a mobile phone
- Business use was much more concerned with cost savings and better supply chain management than in generating new business.



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- Radio (which was very widely available) was more highly valued as an information source on business and market issues than the telephone.
- SMS (short message service) use was common amongst all mobile phone users but detail on SMS use was not investigated.
- There is not an issue of acceptance – demand for mobile telephony greatly outstrips supply. The issue is one of access, which has improved significantly in the last two years but remains a problem in some areas.
- The survey around Serengema showed little significant difference from the other two districts despite the existence of the MCT (Multipurpose Community Telecentre) in the district town.

This last finding is consistent with other surveys of the use of Telecentres, which conclude that provision of an Internet service alone is insufficient to impact on level of use by producers and others in the marketing chain. There are many other barriers to use by the majority in rural areas, which also need to be overcome, such as literacy (general and computer), language (English is still dominant), content (there is as yet too little local content available) and importantly, the general feeling that the telecentres are not something for them. This in turn leads to significant issues in how internet use needs to be promoted if it is to become more widely used by villagers.

The research was funded by the UK Department for International Development (DFID's) Knowledge and Research programme and the full report will be available shortly through their website.

5 ASSP (IFAD Agricultural Services Support Project) 9/6/05

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Under the new IFAD/World Bank funded Agricultural Services Support Project (ASSP), which formally begins operation shortly, aims to restructure and reorganize the existing extension and research system under a decentralized and market-oriented approach to allow farmers and their organizations to obtain cost-effective services from a range of service providers. It aims to empower farmers/farmers' organizations through provision of knowledge, information, technology, financing and organizational strengthening. As part of this programme, it will develop network services in wards of 42 (of 120 total) pilot districts. Mobile telephones with solar powered charging units and booster boxes to improve signal access where needed, libraries and Internet connections are planned to be provided to the district offices. The mobile telephone will be provided under a credit-based programme whereby the ward level staff would be able to operate the phones as a business, renting out their use.

Farmer groups would be developed through the programme for improved access to all agricultural services. At present there is some debate as to whether the existing national network of farmers organisation could be used or whether a new system will be needed developed more from the village level upward. This could still be based on existing groups such as the savings and credit groups, commodity groups etc.



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Annex B. Discussions with Workshop Participants from Mbeya and other Southern Districts

Following the session at the exploratory workshop (8-10/6/05 Arusha), a discussion was held with the representatives from the Southern districts with a view to assessing what were felt to be the main issues in use of ICTs in those areas and any differences between them and the Northern districts.

A total of 19 participants representing groups from the provinces of: Mbeya, Iringa and Songea took part in the discussions

Telecoms: The communication infrastructure in the South was felt to be less developed than in the North. The mobile telephone networks in particular do not cover all districts such that landlines or radio calls are the only means available. Some groups do have mobile telephones (some subsidised by 70% by the partner agencies). 17 of the group reported that they owned a mobile phone however and the remaining two make use of call box mobiles or those of friends and colleagues. Ownership in general varied from a ward in Manyara district where there were 7 groups with no mobile phones and no coverage to Mbeya where most traders and some producers within the groups own a mobile telephone. However, the coverage and ownership of mobile phones has increased considerably in the last two years. SMS use was common and in general all those who used a mobile phone also used SMS messages.

Use of telephones: As in other areas and consistent with surveys, the primary use of the telephone is for communication with friends and family. It is also used however for market information (calling a contact at the market to find prices) and to communicate with traders and middlemen. SMS is sometimes also used for negotiations.

Power is also not available everywhere making it necessary to travel to other areas to, for example, charge a mobile phone.

However, it was also felt that Southern groups were making better use of mobile phones (by collaboration within the groups rather than only operating independently).

Access to all services was felt to be good only near to the towns meaning that groups in or near to towns had a significant advantage.

Transport is often also more limited with busses leaving in the early morning and only returning in the evening. This too was reported to have improved considerably in the past two years making it possible to travel by car to areas which were not previously possible.

Markets: In the North of Tanzania, producers do not depend on the internal market only – there are also the neighbouring countries – particularly Kenya.

E-mail and Internet: Only 6 of the 19 participants reported that they had an email address and all 6 were project staff. Eight of the group had ever used email but all were aware of it and several were interested to learn and thought they would use it soon. Uses of the Internet were reported as to contact family and friends, to look for information on study abroad, to check exam results, to check market prices and to check car prices for import. These findings were broadly consistent with other survey data (see documents consulted).



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TCCIA

The TCCIA representatives described briefly their services in the districts. They provide market information to members, training in marketing and entrepreneurship and use of ICTs and represent members to government. Some groups also make use of their facilities for meetings. At present district market information centres are being planned for all districts. More local market information provision is also being discussed but it would need to be sustainable – i.e. on a cost recovery model. At present around half of the southern producer groups are members of the TCCIA.

Most significant changes (MSC)

The greatest changes in the past two years were felt to be the better access and wider ownership of mobile phones, the better roads and a change from subsistence only production to produce cash crops.



Annex C. Summary of Interviews with District Groups and Individuals

From 13-16th June 2005, a series of semi structured interviews were held with representatives of marketing groups in Hai and Babati districts. Individual household interviews were also conducted with a small sample of people in the villages represented – some group members and some not. In Hai district, four groups and 20 individual producers were interviewed. In Babati, interviews were with two mixed groups (producers, processors, traders, partner agencies etc.) and two individuals (a market trader and a food seller).

Interviews were conducted by Jonathan Cook and Helen Gillman working separately

Summary of the group and household interviews

Production

Most persons interviewed were very small-scale producers, growing crops for food and sale of surpluses. Crops generally included maize, beans and vegetables. Sunflowers and some other cash crops were being introduced in some areas.

Groups

Most of those who belonged to a group were enthusiastic about it though two had left groups as they found them either ineffective or taken over by a small group of members. Many who were not members would like to join but often lacked the membership fees. Contact between groups is appreciated but unless organised, there were no incident found of continued contact by any means following a group to group visit. For on going learning to take place between groups, there needs to be more to share which is of value to the groups.

Storage

Most stored produce individually in sacks or drums and warehouses, which are planned under the AMSDP, are very much wanted.

Marketing

Almost all respondents marketed their goods separately. There is a serious issue of lack of trust between villagers, which is only likely to be overcome through working together regularly.

Information sources

Most found market prices by **direct contact** with market traders. **Bulletin boards** where present were appreciated but the information provided was not posted frequently enough to be really useful. Few used their **mobile phones** to get market information, though the practice was increasing. Information on prices from the **radio** was widely listened to but not thought very useful as too few crops are covered and the prices are always out of date and for to few markets (mainly Dar). The **Extension service** was seen by many as a very useful source of information but some said the officer was either not available or away on long term training. There is some suggestion that the service is not as good as it was.

The main source of information seemed to be direct conversation with **traders, input suppliers and other producers**.

ICTs

Mobile phones are widely used by most respondents – perhaps twice as many use one as own one. SMS use is common and increasing. The mobile is used for contact with family and friends but also increasingly for business contact, especially contact with traders, middlemen and transporters. Very little use has been made so far to contact other groups even after initial face to face contact suggesting that there is not yet a strong enough link or information to share between groups.

Perhaps one third had seen a computer and very few had yet used one directly. Awareness of email and the Internet was similar. However, most of those who had seen a computer also had a friend or relative who used it and there was considerable interest in the possibilities.

Television had been seen by most at some point though was watched regularly by perhaps 20%. The main use was for national and international news.



ICT Diagnosis Report

Radio was widely owned and listened to (perhaps 90%). Apart from the daily information on market prices, the radio was used mainly for news and music. Local radio is only used for music and religious broadcasts at present.

MSC (Most Significant Change seen in the past few years)

Groups were often the catalyst for the major changes mentioned by respondents – training, improved production, loans and credit. In general, the better off respondents were members of groups – a finding consistent with surveys worldwide.

Mobile phone coverage and use, though not specifically mentioned, has increased greatly in the last three years with most respondents only beginning to use one in the past one to two years.

The serious drought was also mentioned by many respondents as the biggest change in recent years with consequent effects in income and food supply.

Finally improvements in local facilities – especially new schools and clinics in the areas were mentioned by several.

Needs

Most anticipated changes were improved market information, warehousing and better roads – all elements of the AMSDP project, though it was unclear how much this was mentioned because we were known to be from that project.



Annex D. Communication Action Plans to Enhance First Mile Access to Internet Services in Tanzania.

At the exploratory workshop held in Arusha (8-10 June) communication problems and potential solutions were explored on Friday 10th June with the groups represented.

*The groups were asked to first identify the main challenges they had with communicating **within** their groups and then to suggest potential solutions to these. Secondly they were asked, through a joint group exercise, to determine the main issues in communicating **between** groups and how these might be overcome. In the first exercise, groups worked only within their own groups. Nevertheless, the results and subsequent discussion showed that the same communication challenges were common to most members. For this reason, a summary is therefore presented of all issues identified with their associated proposed solutions rather than the individual group results (see proceedings of exploratory workshop for group work outputs).*

The challenges identified fall broadly into four categories:

- ♦ *Funding limitations,*
- ♦ *ICT access including power,*
- ♦ *Lack of awareness, and*
- ♦ *Access to information.*

Funding limitations can to some extent be dealt with through group purchase or group actions - reducing the cost per person. Group savings and credit schemes such as implemented through SACCOS and SIDO are also possibilities but only where the funds can be clearly linked to increased incomes.

Based on the results of the first exercise, suggested actions to be taken in improving communications within groups could therefore include:

Group purchase of a mobile phone for group. If funding is an issue, it may be practical to pay for the cost through charging for use of the telephone for other than group work.

Group introductions to email and the Internet. Apart from the training of one or more group members, it would be useful to raise awareness of the possibilities by a simple group visit to an Internet café or other office/site where Internet access is available. This would enable all members to feel more involved in the process.

Introductory training in use of email and the Internet for one or more members of a group who do not already have this knowledge. This introductory training is already planned through the ISG first mile project through a training of trainers course and subsequent follow up later this year.

Promotion of alternative power sources. This is outside the scope of the AMSDP project at present, but group purchase of biogas units or solar power could be practical if linked to an income generating activity such as vegetable processing. The power available could then also be used to e.g. charge the group mobile phone.

Market information access. In almost all groups, one or more members has a mobile phone. It should therefore be possible to coordinate regular gathering of market price information through the groups which could then be **posted on the village bulletin board by the members.** This would need to be coordinated with the market monitors and village leaders. As a second step, this information could be sent to other groups through SMS messages. For example, maize prices could be shared between a group in Iringa to a group in Mbeya or even better, simultaneously to all groups at no greater cost. A third stage could be linking to a simple website, making it possible to make price information available at markets throughout the country on a regular basis. Information could be sent by sms direct to the web site, or to a coordinator. This work would take considerable coordination however, and would need contributions from members in terms of funds to make it worthwhile. If the information is valued highly enough (prices at different markets), this could be possible. Knowledge of prices in other markets though, is of limited use unless the associated costs are also known – even for negotiating prices with middlemen. Selling in other markets requires organisation of collection, transport and sale either to middlemen or traders in those markets, or organisation of direct sale. These prices are also needed to compare prices of goods in each market. Again, this could be possible to arrange if the return is worth the cost. It could also be a useful way to build links between groups. (see below). Actual sale in other markets would require good group organisation of transport and marketing costs.



ICT Diagnosis Report

Group solidarity and sharing of information

An issue not mentioned in the challenges but which came out strongly in discussions and interviews is that of trust within groups – hence the very limited use of group marketing. More regular group activities both social and business are needed to build up trust and joint action within groups if significant progress is to be made. For information to be shared between groups, there are a number of other issues – see actions in this area below (**2- actions between groups**)

Note on information centres: The description and meaning of an Information centre varied from a simple billboard with price information posted regularly at a fixed meeting point such as a market, to a room or complete building equipped with computers, fax, telephones, internet access etc. The simplest level of meeting point/bulletin board was also envisaged as a place where regular meetings could be held and information provided on e.g. market information. Information could be posted by Pas, TCCIA, market monitors etc. from several districts and as printouts from information collated on a web site. The web site would be directly available to those with access, and the printed information available to others at the meeting point/information centre. Similarly, information posted to the bulletin board could be added to the website.

Improving communications between groups

*In the second exercise, participants were asked to identify challenges and possible solutions for sharing information **between** groups. Initially they worked alone to write down a number of issues they personally found. They then shared their results with one other person and drew up a combine list. These pairs then discussed and combined their lists with a pair from another group. Finally, each person worked with members of all other groups in four large groups to produce four combined lists of issues and suggestions for improving communications between groups. These four lists were in turn combined into a single list for all participants as presented below:*

Table of Communication challenges between groups & suggested solutions

Challenge	Proposed solution
Long distance from markets and other groups	Group members to have contacts – email telephone, mobile, postal addresses, buses etc.
Lack of telecoms especially telephones – both mobile and landline	Organize and mobile group members to buy mobile/landline where possible Post, mail, email, sms
Limited usefulness of information shared	Sensitization through emails, letters, phones, etc.
Lack of power	Seek nearby available power Emergency batteries (cheap)
Lack of ICT skills	Sensitize people to open emails Seek help from ICT providers Groups to train a resource person to have ICT knowledge Self help between members about ICTs
Lack of postal services in some areas	Use of private buses
High running cost of mobile phones	Use of postal services and sms
Method of communication	Agree on time and day for meetings
Lack of internet services	Contribute funds to send one person to read the emails in areas where internet café is available
Little knowledge and skills in use of internet	Involve a person/friend/service provider to read on behalf
Rigidity in sharing information	Encourage each group member to share information
Groups do not know each other	Share contact information and get to know each other through the internet Participant list has all info needed.



ICT Diagnosis Report

From the results of this second exercise, many of the issues raised are similar to those for communication within groups – funding, lack of access to ICTs, lack of skills and knowledge of the Internet etc. As such, similar solutions could be found.

The major difference is in the areas of *reasons* for the groups to contact each other and the value of this needs to be developed. Social contact is the main reason for use of ICTs in general and can then be a catalyst for subsequent business use. This may be useful in building up trust and relationships between groups. In practice though, apart from family, most social contacts tend to need to be close enough for people to meet regularly. Regular meetings are not practical over the distances between many of the groups, hence there must be real value in sharing information for this to happen. Some suggestions as to what can be shared between groups are included below.

Suggested actions to be taken to improve communications between groups could include:

Actions as above for improving communications within groups – i.e. joint purchase of a mobile phone, shared funding for access to the Internet, group introduction to the Internet, training of one or more members in Internet use etc.

Newsletter: Begin regular (e.g. once per three months?) sharing of information between groups through a newsletter available in print and on the LLL website

Describe activities of each group in print – particularly the issues which may be of interest to other groups – successes and problems, so that solutions can be shared and new ideas proposed by other groups. This information could be sent by post initially but should also be available on the web site.

Language is an issue with use of the web sites. Information needs to be in Kiswahili to increase access by group members. For sharing between countries, it will need to be in English, but it is important to build up the use of the Internet within Tanzania before significant efforts are placed on the sharing information outside the country.

Follow up contacts with sms messages or phone calls or letters to group members met at workshops such as the ISG/AMSDP exploratory workshop in Arusha just completed. All participants have the contact list for everyone present.

Increase general information on the website

Providing general information of direct relevance to all groups as well as links to a discussion forum on the information, could increase the value of using the internet to members. This in turn will increase use of the Internet to contact other group members once connected (at e.g. an internet café)

Such general information could include agricultural production and marketing issues relevant for Tanzania – links to the Ministry web sites, links to research – links to TCCIA market information could also be negotiated, links to loan information and savings and credit groups, links to NGO sites etc.

Most agricultural issues already have solutions defined from other institutions or countries. The problem is often one of language – they are only available in English – or another international language. Rather than attempting to translate large amounts of information, it might be more useful to respond to requests for specific information posted to the web site by members of groups.



ICT Diagnosis Report

Annex E. Question Areas for Household Surveys

General info about the household:

Name, No of family members, age and sex

Production

What they produce – crops, acreage, processing, storage

Marketing - how they sell it – direct, middlemen, groups

Groups – what, how often they meet, where, why, what is discussed

How do they **communicate** – bulletin boards, letters, other?

Relationship between groups

What can groups learn from each other?

Constraints in communication – trust, language, isolation

Information needs: General and market

- If you have an information need – who do you go to? How do you communicate with them?
- What information would you like to have?
- **Would you be prepared to pay for it?**
- How do you solve problems – who do you ask, what type of information do you use.

Communication media (ICTs)

What is the existing situation in terms of access to media?

Ownership of/use of, frequency, if no access/not used, why not? Do you know others who use them? (esp. family, children friends). Have you ever heard of them/seen them used?

What do you use each of the media for? Social, business, info, comms?

Landline Telephone,

- Mobile phone – coverage, cost, use of SMS
- Kiosk phone
- Radio,
- TV
- Computer
- E-mail
- Internet

How important are the various media/methods for finding information (possibly use matrix ranking here)?

How important for communication with the group/with others in the marketing chain?

MSC – What is the **Most Significant Change** you have noticed in the past 5 years as regards access to information and markets?

What do you expect to change in the next few years?

What problems are you/the family facing (concerning marketing/information access/ communication with others/problem solving)?

How do you/they think they can solve/reduce these problems in the future?

What could prevent this happening?

What would be the most useful practical improvement in communications



Annex F. Household Interviews in Hai District 13-15 June 2005

(conducted by Jonathan Cook)

Interview 1: Hai District office

Apex group interview (four sub-groups each with 40 members from Uwasi, Mungani, Ugenda and Illaramati).

Groups

Groups (all are in the same village) meet on average twice per month to discuss progress in their plans. Each group has specific activities (3 on livestock and one on Maize) and a joint activity on Safflower production (on contract with a company). Groups learn about production and processing from each other.

Marketing

So far all crops are sold individually. Market prices are checked by individual visits to the (nearby) market before taking produce the following day. Previous market prices are taken into account as well as exchange of information on the way to the market. A bulletin board has been set up in the District office and prices posted by the Market Monitor and sometimes by group members. Only evening prices are recorded at present, which is felt to be inadequate as market prices in the morning are very different to the evening prices. Ideally prices morning and evening and at least twice per week are needed.

Other information sources

Village extension workers are well thought of and often consulted. There is no specific service directed at women. Radio is widely used and mobile phones are used by about half of those present. About half of those using mobile phones also sent sms messages. Mobile phone use increased significantly in the last 12 months as access improved. It is common for messages from friends and family to also be received on a neighbour's telephone which are then passed on.

Better market information, warehousing and better roads are the most important changes wanted by the group (all elements of the AMSDP project)

Interview 2

Maganini village: Magdarena Boniface Masawe, female, approx 55 years old. 3 sons, 32 – a carpenter in Arusha, 29, a teacher and 26 – also a carpenter.

Production

2 acres, Produces Mango, papaya, banana, coffee – and processes the fruits with a solar drier which belongs to the group. Production is at a level where she would like her own drier. Also keeps goats and would like to have cattle

Market

Sells from home by word of mouth

Group

Belongs to a demonstration group (through a research institute) which has encouraged use of traditional pesticides. Also a member of the Uwasi group for pasture management to learn about livestock production. The group arrange courses and training. Cost is Ts500/month plus a Ts2000 entrance fee.

Information sources

Trade exhibitions, extension field days, market traders, village extension office, others in the village. Information board at the group office.

ICTs

Has electricity and radio. No telephone but a neighbour has a mobile phone which she uses to talk to or send sms messages to her sons.

Computers, email and the internet. Has seen in operation and is interested. Her son has an email address.

MSC

No major changes have been seen recently but a warehousing project (under AMSDP) is expected to help considerably to be able to store produce when the market price is not good. Road improvement is the change most wanted.



ICT Diagnosis Report

Interview 3:

Mongoshi Village: Naike Kimaro, female, approx 50 years old four daughters ages 28, 26, 17 and 12. Some other members of the group (Mkombozi) were also present.

Production

One acre, maize, sunflowers, beans, vegetables for food and sale of surplus

Groups

Belongs to a maize production group 'Mkombozi' with 26 members. They meet monthly to discuss inputs access (seeds, fertilizer, pesticides), mobilizing the funds for bulk purchase and banking. The group in turn is part of a five group apex organisation which deals with training and group banking among other issues.

Storage

Own storage only (bags and drums). No warehouse available yet. Most produce is also sold immediately as the cash is needed.

Marketing

All marketing is individual at present. There has been some training on group marketing through AMSDP but no action has been taken as yet.

Information sources

Middlemen buy directly from the producers at what is felt to be too low a price. They had heard that coffee producers are now better organised in the area and through group marketing are able to negotiate higher prices. Village extension worker also widely consulted.

ICTs

All group members own a radio and listen to market prices but they only provide a guide as they are in Dar es Salaam only. Mobile telephone – one group member has a telephone. She uses it, mainly for social use and to check for prices through friends. Up to 5 sms messages sent per day. Another group member uses her son's telephone regularly. Most group members had seen a computer but were not aware of email and the Internet.

MSC

An irrigation scheme nearby which one group member was using. Increases in quality and quantity of maize following training. School improved. Dispensary recently added

Needs

Better access to improved inputs and market information

Interview 4

Mongoshi Village: Emanuel Obedi Lema male, approx 22 years old. Just married this year, staying at father's house.

Production

One half acre. Sunflowers, Maize, beans. (Father also has 3 acres and his brother 2). The last 3 years there has been a drought but conditions look better this year.

Marketing

Sells through middlemen. Gets information from traders and others then decides when to sell, but prices fluctuate greatly.

Groups

Does not belong to any group but his brother does and he is considering joining.

Information sources

Radio (own) newspapers (for general agricultural information), Input stores and extension officers main source for specific information. Also discusses with friends and relatives. No telephone but uses his brother's and a neighbour's as needed to call friends – 2x/week. Has not used sms yet Internet – has seen in Arusha where his friend was using it. Is very interested but has not used as yet.

MSC

The drought of the last three years

Needs

Better market information



ICT Diagnosis Report

Interview 5

Mongoshi Village: Elifadhily male, approx 23 years old. Wife and one (8 month old) daughter.

Production

Eight acres. Maize, Sunflower, Groundnut, Cassava, Banana

Market

Sells in four different markets. Finds prices on the village bulletin board but they are only posted once per month and can't be relied on as prices fluctuate widely. Goes to market first to agree a price then returns to get crop if price is acceptable. Always sells alone (issue of trust).

Groups

Does not belong to any group

Information sources

Extension, traders, radio, bulletin board

ICTs

Own radio and mobile phone. Uses for social and business (also a mason). Checks prices by phone. Uses SMS frequently. His brother has an email address and he wants to get one too.

MSC

Improved standard of living which he expects to continue improving

Interview 6

Mongoshi Village: Elishamia Sawe male, group secretary, approx 46 years old. Four children, - two daughters, 25 and 16 and two sons, 18 and 14.

Production

3 1/2 acres. Maize, beans, sunflowers, vegetable, bananas

Market

Sells both through middlemen and direct to market. Goes to market to check prices or asks others going. Then takes produce there (gets the price agreed)

Groups

Belongs to a production group and last year began group purchase of inputs but most inputs are still purchased individually. Groups also visit each other to learn production methods – mixed cropping, drought resistant varieties and they exchanged phone numbers to keep in contact.

Information sources

District council, radio, newspaper, extension officer

ICTs

Own radio. No mobile phone but recently started uses other's (including for sms). Knew of but had not used email or the internet.

MSC

Big improvement in health and school buildings. Training programmes and water provision.

Interview 7

Kware village, Hai district

Janie Masawie, female, approx 53 years old. 5 children from 28 to 11 (4 girls, one boy – 17)

Production

Maize and vegetables on 3/4 acre. For consumption and some vegetables for sale. Also works for others.

Market

Green vegetables sold at fixed price Ts100 per bunch at Bomba market

Groups

Not a member of any group. Would like to join but lacks contribution fee (Kimea group on maize production and savings). Ts10,000 membership fee but gain interest on this.

Information sources

Market traders, fellow farmers, input dealers, village extension worker (rarely present though and can sometimes find at Bomba market)

ICT

No power. Uses neighbour's cellphone to call relatives including use of sms and they call back (beep). Radio FM music, news and agriculture programme. Has seen TV locally but has no time. Computer – has seen in Boma, but doesn't know anyone who can use.



ICT Diagnosis Report

MSC

The drought of the last three years

Needs

More faith in the country

Interview 8

Kware Village: Amena Hamisi female, approx 46 years old. Four children, - two daughters, 25 and 19 and two sons, 14 and 1

Production

15 acres, maize, beans, sunflowers

Storage

In drums for maize and beans

Groups

Doesn't belong to any. Would like to join group but cost too high. Felt it would help with marketing vegetables and with training.

Market

Sells part of crop direct to market (nearest in Sadara) and sometimes through middlemen (prices similar in all markets). People do not work together due to selfishness and lack of trust.

Information sources

Middlemen, market traders, village leaders, extension worker

ICTs

Has power – since 1984. Radio (listens to agri programme and others). Telephone – husband has mobile phone and she uses 2x/week (first time last year. TV – sees at a neighbour's house. Computer – has seen in Arusha. Did not know of the Internet but felt that it was important her children knew of 'such things'.

MSC

Things getting worse in the last few years due to lack of rainfall.

Needs

Would like to get capital to start a business – a shop in the village.

Interview 9

Kware Village: Abdara Athumani male, approx 70 years old. Was village chairman for 20 years several years ago. 11 children - from 50 to 14 - 4 boys, 7 girls. Only three left in the village (two women, one man who all work together). Others are in Nairobi and Mwanza.

Production

5 1/4 acres, maize, beans, cucumbers, tomato, coffee. For consumption and sale. Coffee sold directly to Kilimanjaro Cooperative Union (KCU)

Storage

In drums for maize and beans

Groups

Was a member of a vegetable production group but left as a few people were using it for themselves only. Knows of three groups now but hasn't seen any with good intent.

Market

Sells through middlemen or direct to market. Uses cellphone to call middlemen and will go to market then call back to his wife with the prices.

Information sources

Middlemen, market traders, friends who go to other markets, radio for production issues, newspapers for general agriculture news.

ICTs

Has power – since 1980's. Radio (listens to agri programme and others). Telephone – bought 2 cellphones 3 years ago for himself and his wife. Uses many times daily also uses sms (especially to Nairobi) and beeping. (celtel network). TV – sees at a neighbour's house. Computer – has seen many times and his children use email in Moshi and in Nairobi.

MSC

Lack of rainfall in the last few years (production of maize fell by 2/3).



ICT Diagnosis Report

Needs

Better market access, crop stores, better ownership by villagers of local facilities (schools, clinics etc.) rather than government direction.

Interview 10

Kware Village: Zuhara Ahamed female, approx 60 years old. Nine children, - from 43 to 15. Three still live with her, others are in Dar es Salaam.

Production

2 acres cultivated, 8 abandoned, maize, beans, bananas

Storage

In drums for maize and beans

Groups

Belongs to a womens group which just started a few weeks ago aimed at finding funding for small businesses. Knows there are other groups but nothing about them. Had not heard of AMSDP

Market

Sells direct to market and accept the price offered. Sell only as a family – no joint marketing.

Information sources

Neighbours, people who go to training courses, village meetings.

ICTs

Has power – since 1980's. Radio doesn't listen much. Mobile phone (first time last year) Vodacom. Uses mainly to receive for emergencies. Doesn't know how to use sms. Computer – has seen in Dar and Moshi. Not sure what is email and the Internet but one child uses a computer, so may well use them.

MSC

Drought and lack of food production.

Needs

An irrigation scheme

Better market price information and a system to bypass middlemen.

Interview 11

Kware Village: Maka Athuman female, approx 70 years old. Husband died, four children remain at the house.

Production (family)

1 acre, maize and vegetable

Groups

One son is a member of a production group.

Market

Sells direct to market without prior knowledge of prices

Information sources

Neighbours and traders

ICTs

Has power – since 1980s. Radio (listens to agri programme and others). Telephone – no-one in the family owns a telephone but her daughter's in Dar, call to a neighbour's phone.

MSC

No significant changes in the past few years – would like to see more change with people coming from outside

Needs

Would like to get capital to start a business – a shop in the village.

Interview 12

Kware Village: Aisha Kimaro female, approx 40 years old. Three children, - two daughters, 22 and 18 and one son, 18 months.

Production

1 acre, maize, beans, sunflowers and chickens. Some goats for sale as emergency fund.

Groups

Did not know of any groups except a Muslim women's group (AMSDP groups are in neighbouring villages but were not known by this respondent).



ICT Diagnosis Report

Market

Checks market price first, take if fair price. Sometimes from middlemen, or neighbours – prices more or less the same. Has not tried group marketing – crop quantity is also too little.

Information sources

Input suppliers main source – extension officer rarely present. Does not listen to radio much except music and does not read newspapers

ICTs

No power. Radio. No telephone and has never used even to receive messages. Has never seen a computer.

MSC

Situation becoming much worse in the last few years due to lack of rainfall.

Needs

Would like a sunflower oil processing machine to increase income

Interview 13

Kware Village: Village meeting with Jikuzeni Apex group. Consisting of three sub groups Zalisheni, Juhaji and Kwahua.

Membership

Each group has 40 members – formed in 2002 through the participatory agricultural development project (PADEP). After end of the PADEP project were taken up by the AMSDP.

Juhaji group – 22 male, 18 female – purpose is to improve production through soil improvement. Trained in agricultural production on Paprika and are now preparing to start vanilla and other cash crops depending on soil types and conditions. Future plan to register the group and begin processing.

Zalisheni group 25 male, 15 female – purpose to improve production of cash crops. Received maize and vegetable production training. Planned for paprika production. Now using improved inputs – loan of improved maize seeds.

Kwahua group 23 male 17 female – purpose – poverty eradication. Training through WorldVision and loans for inputs. Allowed to pay 1/4 of loan and rest after harvest. Trained by AMSDP on contract farming for Maize and other crops.

Groups are open to more members with membership fees of Ts1500 to Ts2500. The three groups meet in an Apex group as needed 5-10 times per year to share information such as new crops with potential in the area, and other regular meetings to discuss group progress and future plans. Market prices – used to post information on a bulletin board, but none posted at present. The Market monitor only works in 4/14 wards as she has no transport since the ending of a former project. Exchange information with other groups on setting up a credit scheme – went to Lombo, Sane and Moshi.

ICTs

None present owned a mobile phone but most use one. About half use sms. 2/3 have seen computers used and three reported having seen email. One had an email address which he used to chat with friends.

MSC

Improvement in groups in levels of production and in choosing leaders. Have learnt how to produce commercially calculating the cost of production and therefore the sales price needed. Now find markets before production.

Needs

Lower production costs (currently do group purchase) Improved feeder roads More skills in production technology Warehousing Standard measurement of crops (scales) Better cash flow – savings – to prevent the need for immediate sales to obtain cash.



ICT Diagnosis Report

Annex G. Household Interviews in Babati District 14-15 June 2005

(conducted by Jonathan Cook)

Magugu Village, Babati district: Village meeting with Mshikamanu Saccos group. Savings and Credit group set up through Farm Africa in Sept 2003

Membership

When formed, 43 members 12 male, 31 fema. Now 71 members, 30 male, 41 female. Member funds: Ts2,412,000. Entry fee Ts305,000, Savings, 1,021,000, Deposits, 90,000, Shares 795,000. Board members meet once per month AGM twice per year plus special meetings Between meetings letters are sent to members, Mosques and churches used for announcements and any member can contact the secretary at any time. Union of processors, producers and traders. Main objective is poverty alleviation through capital, savings, and soft loans to members in order to avoid private creditors/money lenders. The group is now registered.

Main member activities: Rice, groundnut, Maize, sunflower, sesame, sheep, goats, chickens and pigs production. Food vendors and vegetable and fruit sellers and small general stores. Processors of Rice and other foodstuffs. Tailors and carpenters.

Progress

AMSDP training of treasurers. Training on members responsibilities and rights. Training in Saccos leadership (savings and credit group operation) Training in marketing. Warehouse about to be built (next week?). Group has provided loans to 27 members (21 female, 6 male) @ 15% interest rate (c.f. up to 500% for private credit). Pending loan applications are more than 10Million, so demand largely still unmet.

Problems

Low capital. No permanent office. No safe. No market access. More training needed on group operation

Future plan

Increase membership to 150 by end of the year. Increase contributions. Increase loans to members. Share information and capital with other groups. Build group office (plot agreed)

Marketing

Some training received but not felt effective. Currently middlemen give market prices but they do not know the real prices at market.

ICTS

6/30 of those present own a telephone and almost all use one. About 1/3 use sms. All use for social use and about 1/3 reported use for business. Beeping is common and sms is common to contact family in other countries. All had seen computers used and about 1/4 reported seeing the internet used. Six knew someone who used email. There is common use of intermediaries for telephone use (neighbours etc to receive messages)

Group cooperation

Have had meetings with other groups and discussed progress – no regular contact. Expressed interest in maintaining contact but it seems that *the only reason why not is lack of specific information to share. Other groups do have cellphones and they have the numbers.*

MSC

Tractors, water accessibility. Cellphone use. Power. Increased rice production. Secondary school in the ward.

Needs

Lower production costs (currently do group purchase). Improved feeder roads. More skills in production technology, Warehousing, Standard measurement of crops (scales), Better cash flow – savings – to prevent the need for immediate sales to obtain cash.

Interview 15

Babati town: Fatuma Juma, female, 35 - Market trader.

Sells vegetables – some from producers in the local area, rest from bulk purchase in other markets for resale. Negotiates prices directly with producers

Group

Fatuma is a member of the Saccos group and has applied for a loan



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ICTS

No cellphone but would like to get one to be able to order from different markets without going there first. Also wants a loan to increase sales of other produce.

Cooperation with others:

Works with other traders to arrange joint transport of produce from Arusha.

Interview 16

Babati town: Amina Djumane, female, 33 – Food vender.

Sells drinks, Maize porridge (Ugali), banana, rice and in the evenings, chicken and chips. Business is fine at present but falls from August as the farmers are working in the fields and do not come to the market in as large numbers.

Group

A member of the Saccos group and has applied for a loan to begin rice trading. She has already identified buyers and transport to sell produce in Arusha. Through SIDO (Small Industry Development Organisation) she also took part in business training.

ICTS

No cellphone yet but expects to get one soon. Has no contact or experience with email or the internet.

Interview 17 - 15/6/05

Babati town: Meeting with Manyara Processor and Trader Saccos group and TCCIA leaders at the TCCIA office (The group is a member)

Membership

36 members all in Babati town. Group only established at the end of 2004.

10 people present in the meeting.

Main member activities: Buying and processing sunflower oil. The group is expected to eventually include members from all villages where there is power to allow processing. At present each member works separately but the aim will be for a single machine for all for processing, grading and packaging. The purposes of the group are: 1) to get better machines for processing, 2) to join together to market oil including for export, 3) to act with one voice in negotiations – prices not yet good enough, 4) to work together on credit for machines. A second sub group works on vegetable processing which they sell to individuals and small shops. Small scale equipment was purchased through a SIDO loan but would like to take out a larger loan either through SIDO or Saccos for better equipment.

Markets

Find prices in other markets through traders or visits to Arusha and Dar. Do not at present call contacts for prices by telephone though almost all have mobile phones. The radio does not give prices for sunflower and oil.

ICTS

Those without mobile phones, do use other peoples (mostly friends though also Kiosk phones) for social and business use. About half also use sms. Beeping is common. About half the group began using the mobile phone two years ago and the rest last year. Network access first reached Babati town 5 years ago. All three operators (Celtel, Mobitel and Vodacom) are now available in the town. Celtel gives the widest coverage in the country but Vodacom is expanding coverage and is also popular. Everyone has radio and most listened to the farm programme though it was felt to be of limited use for prices as they are always from the day before. About half had access to Television and most saw it at least occasionally. Four members had actually used a computer for email. Everyone had seen them used and most knew of email and the internet. Uses apart from social contact with relatives abroad were: 1) To negotiate on the price of sunflower processing machines, 2) For use between TCCIA offices and for business information, 3) To send application for loan to SIDO, 4) To look for a car to import. The post office was used by several members for email where it is possible to take a hand written message that will be sent from the Post Office email address. Messages can also be received in this way.

Note: The email post office service is available in a number of towns countrywide, though the Babati town post office service had recently closed due to the competition from Rainbow internet café – a commercial venture. Even here though, staff were willing to open a new email account on behalf of anyone, and operate the equipment for them. In other words, computer literacy is not necessarily a requirement for simple email use.



Annex H: Household Interviews in Hai District, 13-15 June 2005
(conducted by Helen Gillman)

Interview 1

Magadini village: Aminieli Mushi, 65 years old, male, 11 children, aged from 13 to 39 years. Chairman of Mungano producers group.

Production

Has 12 acres of land. Grows coffee as a cash crop, and maize, beans, cassava, bananas. He also has dairy cows. He processes the coffee beans (shell, wash, dry in sun, grades) and then takes them to market. He has storage facilities and sometimes keep the maize until he can get a better price. He sells the coffee beans to a cooperative. He sells maize and other produce to middlemen, who come to the farm. His producer group meets in the church near his house. They discuss production and share information on how to get more milk from their cows, how to plant, when to plant and when to carry out other farming activities. They also remind people when to send their kids to school. The group has an exchange visit system, so farmers can learn from each other. Between meetings, he visits group members in their homes to maintain good relationships. He is a firm believer in face-to-face communication – much better than sending letters because it helps build trust. Group members like their leadership to visit them in their homes. Sometimes group members use letters and mobile phones to communicate with people like Eva (AMSDP- PA). Relationships with other groups are good, especially since AMSDP started. Before there was a lack of unity, now they share information – and there is greater communication and better understanding. From other groups, he has learned about contract farming and about village savings and loans groups. Through AMSDP, warehousing facilities are being established – all four producer groups are communicating about this.

Information needs

He gets information about prices from the billboard – placed there by the market monitor. No information is available about coffee markets and this is a problem. In the past there were ward-level meetings of coffee producers – but they are no longer held. He doesn't know where to ask for information about coffee markets. For general information he listens to the radio and buys the newspaper a few times a week. He's interested in what is happening nationally – about politics, economics and development issues.

Communication media

He doesn't own a mobile phone. However his wife has one and he uses it to phone relatives and his children, who are in school. His children have mobile phones. He uses SMS. He doesn't use the mobile to get market information. He would prefer to go to Sanya Juu, nearest market town, to get the information he needs. He has no electricity, no landline phone and no television. He sometimes watches TV in the village shop, or the homes of friends. He has never used a computer – but has seen one in town. Has never used email or Internet. Although he has heard of them, he doesn't know what they are.

MSC

The biggest change is that he has been getting better prices due to the drought. Production is down, therefore demand is high for maize, beans and coffee. In the next few years, he expects the warehousing system will be an advantage – and he will be able to get better prices. A good improvement in communication would be more regular updates of the price information on the billboard.

Interview 2:

Mongushi village; Kwamamukuu locality: David Hamisi, 44 years old, five children aged from four to 20 years.

Production

One acre of land. Grows maize, beans and sunflower. Sells maize and beans mainly to middlemen, although he sometimes sells his own produce at market. He is not in a group – mainly because he cannot afford the “entrance” fee. However, he is now seeing that members of producer groups are starting to get results and finding it useful. He is thinking of joining a producer group and is now looking for someone who would help him to join one.



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Information needs

He sometimes goes to the market to get prices, then comes back and negotiates with the middlemen. He gets most of his information through face-to-face contact with other villagers. Those who go to market daily share information about prices. He would like to have information about prices, including from different markets around the country. When he has a problem, for example with production, he might go to the agricultural extension officer for information. Otherwise, he gets information from other farmers, face-to-face. He gets general information from the radio – he has one. He listens to Radio Tanzania – the farming information programme. He gets information about official matters pertinent to the district, village, sub-village from billboards.

Communication media

He has no electricity, and no mobile phone. He has paid someone in the village – who provides such a service – to use a mobile phone to call a relative. He uses this service only when there is an urgent need. He has friends who have mobile phones. He thought it would be a good idea for a group to combine resources and buy a mobile phone that would be used to get market information – not for social use. He has never seen or used a computer and does not know anyone who has. He has heard of email and the Internet, but has never used either and does not know anyone who has. He has never been in an Internet café. He likes the idea of linking up with other people to get information about prices.

MSC

Biggest change in past five years has been the formation of groups, through which people are getting trained and getting access to information. In the next few years he hopes to get more information and training that will help him improve production and get better prices at market. This would come through joining a producer group. Re: communication – he wants market information posted on billboards in the village. His biggest problem is that he has no access to information at all. He thinks that billboards with up-to-date market information would help solve this problem.

Interview 3:

Mongushi village; Kwamaku locality: Bashiri Shabani: 44 years old, male, seven children aged from two to 23 years. Secretary of the Jikomboe producer group (connected to AMSDP).

Production

He has 2.5 acres of land Grows soya beans, peas, maize, beans and sunflower. Also has a trial plot, where he is experimenting with a number of other crops, as are other farmers in his group. He sells his surplus at the market. No middlemen. His producer group meets formally every three month in the village “office”, which I understood was a communal meeting place. If there’s a need, meetings will be called in the interim. They meet to discuss production, where and how to sell. They also discuss how their trial plots are going – which crops are doing well. They share their experience and what they learn. Between meetings they communicate by writing letters, which they post on the village billboards, at the mosque, and on the AMSDP billboard. They communicate with other producer groups in the village. They meet every few months to discuss “serious” issues such as production and markets, and they share their learning. They have exchange visits between farmers of the different groups to share information and learning – especially about their trial plots. They also share market information – including on prices, if they have it.

Information needs

He gets information about markets, especially prices, from the AMSDP billboard. However, the prices are updated only once a week, at the end of the week. He also communicates daily – face-to-face – with other members of his producer group. He couldn’t pay for information – due to “income problems”.

Communication media

He gets general information as well as agricultural information mainly from the radio. He owns one. He also reads the newspaper three times a week. He looks at the main headlines and reads any information of agriculture, livestock and business (didn’t specify what). He has no electricity, so goes to the house of friends on rare occasions to watch television. Does not own a mobile phone. His children have mobile phones and they have the mobile phone number of his neighbour – in case of emergency. He sometimes uses the phone of a friend, or pays the village service provider to use a mobile phone to contact his children. He finds mobile phone use expensive – and calls only when it is urgent. He prefers to use SMS. His producer group is going to pool money and buy a mobile phone. However, the group leader already has a mobile and currently the group uses that phone to organize group meetings. He has never used a computer – but has seen one at the bank. Doesn’t know what email and the Internet are – although once it was explained to him, he liked the idea of linking up with people who do use them to get information. He thinks



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his group should get an email address, so they could get agricultural and livestock information, as well as information about new farming technologies.

MSC

Major change in past five years: formation of producer groups has helped him get better access to information. Future change: he would like to have electricity. He would also like to have more access to market information, as well as training on how to improve production. His problems re lack of access to information have been partly solved since the market information billboard was set up.

Interview 4

Mongushi village: Matilda Arnoldi, 35 years old, female, two children, aged seven and nine years. Husband away working.

Production

Has 2.5 acres of land. Grows maize, beans and sunflower. Grows vegetables on irrigated land after maize harvest (it seems there is an irrigation project in the area). Sells to a middleman. Belongs to a producer group, called Amkeni, which meets monthly in the village office. They discuss any issues that have arisen during the month and plan any future activities. The group has 20 members and is connected with AMSDP. Between meetings they communicate face-to-face and use the AMSDP billboard for information on prices. They meet with other groups, but rarely. Three years of drought mean they have had low production and they feel there is little to discuss. There is a good relationship between groups, and she would like to see them meet more regularly to share ideas and information.

Information needs

When she needs market information, or information about production she sometimes goes to group members. She also uses the billboard for information on prices. She would like to have up-to-date information of prices of maize, beans and vegetables. If she has a serious problem, she will go to the district office and ask for an agricultural extensionist to come to her farm.

Communication media

Radio – owns one – uses it to get general information, including news, and for entertainment. She does not listen to the Radio Tanzania farm info programme, because she says it is “backward” and “not good”. No electricity. No landline phone. Has a mobile phone, which she uses to communicate with her husband and other relatives. She says it is expensive and uses it only for urgent communication. She uses SMS a lot – more than voice calls – because it is cheaper. She has many friends with mobile phones. Very rarely watches television – doesn’t own one. Computer – never used one, but has seen them in friends’ offices. Email and Internet – never used, but has a “superficial” idea of what they are. She has friends who use both. She likes the idea of linking up with people who use email and Internet she could get more information, especially about market prices. She would also like to exchange ideas and information with other groups, so she could improve the quality of her produce and get better prices.

MSC

Biggest changes has been the introduction of irrigation through PADEP (a project – not checked). In the next few years she would like to see price information on the billboard updated at least twice a week. She would like to get email access – and would like at least one group member to get training in how to use it.

Interview 5: 14 June

Shirin Joro village: interview with leaders of various groups in the village, including producers groups, women’s groups and others.

The AMSDP is about to move into the area. They want to start SACCOS through the programme and have an “agenda to promote women” – therefore, about half the group leaders were women. There is no tradition of information sharing in the village, however this is starting to change, and villagers are keen to form groups to share info and take initiative together. They want to start a farmers’ network and link up with Mwiwata – the national farmers network (there was a representative at the exploratory workshop). They believe this will enable them to discuss their problems with each other, and then seek solutions through the network. They also believe it will help them get stronger links to markets in other parts of the country, more information on prices, standard measures (?). Currently, there is no information on prices coming in to the village. They just go to the market and sell for whatever price they can get, or sell to middle men. All of them have a radio and listen to Radio Tanzania for price announcements – they find the info inadequate, because it provides price info on very few crops. Eight out of the 15 people at the meeting have mobile phones. There is also a pay for use service offered at a local shop. Of those who don’t own mobiles, all



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have used that service. All use mobiles for family contact, seldom for business. Three had used a computer. They said that about 85% of villagers were literate.

Interview 6

Shirin Joro village; Mailisita locality: Juliana Raphael Kulaya: 45 years old, female, six children aged from 17 to 27 years. Husband abandoned the family and she now lives alone.

Production

She has one acre of land. Grows green vegetables, banana and fruit. She takes her own produce to Mbuyuni market in Moshe town. She has thought about joining a group, when it is possible (I asked what that meant, but her answer wasn't clear). She said she would need to be convinced that joining a group was a good thing, and that she would expect a lot, including access to assistance and loans.

Information needs

When she needs information, she has no-one to go to for advice. She is very isolated, although she lives in the village. When she has a sick animal, she goes to the village veterinary officer. Extensionists never come to her (I asked about this later and was told that the area's agricultural extensionists are being retrained – for two years!) When there's a problem, she tries to solve it herself. She would like to have information about new technologies in agriculture (she currently uses a hand-held hoe), as well as about pesticides and medicines. She never has any information about markets. She sells for any price she can get.

Communication media

She has a radio, but doesn't have time to listen to it (she kept hoeing the ground while we talked). She has used a mobile phone, but doesn't own one. She pays to use the mobile phone service offered at the village shop. She uses it to communicate with her kids, who all have mobile phones – and she phones only when it is urgent. She doesn't use SMS. She has heard about computers, but has never seen one. She has never heard about email or the Internet.

MSC

She hasn't seen much change in the past five years. In the next few years, she'd like to buy a mobile phone, so she can communicate with other farmers and get information that would allow her to get higher prices for her vegetables. She would also like to see better market facilities. She liked the idea of village billboards where prices were posted – and said she'd use them.

Interview 7

Shirin Joro village; Mailisita locality (same road as Juliana).

Jerome Soka, 31 years old, no kids. His parents have both died of HIV/AIDS. He is the second born of four boys and three girls. The girls are married and live elsewhere. He and the oldest brother have taken responsibility for the younger two and continue to work the family farm. He also has a small grocery shop in the village. Difficult to say if this interview was useful – we agreed afterwards Cecilia, our host and I) that he was claiming not to own a phone, but probably does have one – our host thought he was worried about taxation and was suspicious of why we were there).

Production

He has about eight acres of land. They grow maize and vegetables and keep dairy cows, and sell the vegetables at Mbuyuni market in Moshi town. A middleman comes to buy the corn. He doesn't belong to a group – and doesn't have time to join one, due to his grocery business. However, he would be interested in the idea of sharing information with other farmers.

Information needs

He goes to Moshi to check on prices, then negotiates with the middleman. If he needs market information, he goes to the market. He has never used an extension service – he does everything himself. In fact, in the past he has used pesticides without getting any advice or guidance. There's no particular information he'd like to have about markets or agricultural production and he says their production isn't big enough to warrant seeking out markets other than the one at Moshi. They sell the milk at a low price (250 shillings) to middlemen – who then get 400 shillings when they sell to hotels. They don't have the information needed to sell direct to hotels. He listens to the radio and watches television – mainly for entertainment. He owns a TV. He says he uses the mobile phone service in the local shop, and that his brothers have mobile phones – but he doesn't. They use the mobile to phone other family members and friends. He also uses a mobile phone for his business. He says the first time he used a mobile phone was almost 10 years ago. He both sends and receives SMS, but prefers talking. He has seen a computer, but never used one. He knows about



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email and the Internet, but has never used them. He would like to use the Internet to find out about how other people do business in other parts of the world.

MSC

He says he hasn't seen any significant change in the village. He would like to see roads improved, and Internet and email available in his village.

Interview 8

Shirin Joro village; Mailisita locality: Esther Lema, 40 years old, three children aged 16 to 20 years. She doesn't own land – works as a house-maid and field hand for the owners of the house where we interviewed her.

Communication media

She doesn't own a mobile phone – instead uses the mobile of her employer. She uses it for very infrequent communication with her children. She prefers to visit them. One of her daughters had a mobile phone, but it was stolen. She listens to the BBC news and religious programmes on the radio. She watches the household television – for news and entertainment. She has seen a computer – the employer's son has one. She has seen him using email – but she was only passing by. She would like to learn how to use a computer, and knows that you can use email to communicate with people far away – because the woman she works for uses it to communicate with her children and other family members.

MSC

The biggest change in her village was the opening of a secondary school. In future, she'd like to see more women's groups – and more women joining them. She says she is too busy to join one. She'd also like to see better roads.

Interview 9

Shirin Joro village; Mailisita locality – further down the road from the previous two households Magdalena Lema, about 55 (I didn't ask), four children, all adults. Three have completed university and one is currently at university. She is also educated and teaches at a secondary school in Moshi.

Production

She has 25 acres. Grows maize, beans and other food crops. Also grows “rosella” apparently a type of hibiscus. Keeps dairy cows. Household/farm workers take the produce to market, including the milk, which they carry by public bus. She also sometimes goes to market. She doesn't belong to a group, but would be interested to join one if it meant she had access to better information, especially about prices.

Information needs

She doesn't go to anyone if she needs information about agricultural production or markets, because she wouldn't know who was responsible. Agricultural extensionists don't come to the village. She would like to have information on better farming methods – for example, she has a problem with rodents and doesn't know what to do. She would pay if information was useful. In the past, when she had a problem she would speak to the extensionist. She would even use her mobile phone to call someone for assistance – if she knew who to call.

Communication media

She had a landline phone, but had it disconnected because other people were tapping into the line and using it. She was the first person who mentioned to me that there are wireless landlines in Tanzania. She has a mobile phone, as does every member of her family. She uses it to speak with her children – never for business. She listens to the radio – BBC and weather. She has a television, which she watches for entertainment. She has a computer, but doesn't use it much – mainly because she is not very computer literate. She wants to take a computer course. She uses email to communicate with her children. She doesn't use the Internet – yet. She would like to learn how to use it. She feels that email would be a good way to communicate with other farmers – to share information. She thought she could use the Internet to get information on markets, especially prices. However, she pointed out that even if she does have good information, transport would still be a problem.

MSC

The biggest change she's seen relates to education – more schools, including secondary, in the village and more kids going to school. In future, she would like to see farmers forming groups, especially so that they can get access to loans. She would also like to see better roads.



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Interview 10

Shirin Joro village; Kitifu locality: Tumsifu Lema, 68 years old, male, five children. . He is a cousin of Magdalena Lema's husband.

Production

He has two acres of land. He farms organically, growing mixed crops including vegetables, maize, fruit, sunflower, coffee, millet and oil palm. He sells at Mbuyuni market in Moshi – going to market himself most days. Middlewomen come once a week to buy produce. He belongs to a group of organic farmers. The group meets twice a week in a common area of the village to plan and discuss common projects and to share experience and information. For example, they are planning to start a mushroom growing project (don't know if this is with external funding). In between meetings, the group communicates through letters and mobile phones (to organize meetings). They also speak face-to-face. Their group is connected to a project, which, from what I could understand, is run by the local agricultural extension service. The idea is that they get together to exchange information and learn from each other's experience – then each of them will work individually on their own farms and sell their own produce. He is very happy about being in a group – for example, through the group he found out about a project through which he was given goats. He now sells goat milk and goat kids. Apart from his own group, there is a local farmer growing rosella who shares information with neighbours.

Information needs

He talks with his group when he needs information. Market information is very important – but he doesn't have access to much information about prices, or what is in the markets at any given time unless he goes there. He would go to an extension officer when he has problems – however there have been few in the village.

Communication media

He has a radio and listens to the BBC and religious programmes. He doesn't have electricity – so no TV. Once, a long time ago, he watched TV. He has a mobile phone – and uses it mainly to communicate with his children and other family members. He is a church elder – so also uses his mobile to speak with other church elders to organize assemblies. He also uses the phone to speak with other members of his farmer group – to organize meetings, or, if he misses a meeting, to find out what was discussed. He uses SMS, but prefers to talk. He has seen a computer, but never used one. He would be very happy to use one – if someone trained him – but feels it wouldn't be much use in his situation. However, after a bit of thought, he said it could be useful in his activities as a church elder. He has heard of both email and the Internet – but has never used either. The church pastor uses them. He likes the idea of using email to link up with other farmers – for example, he had heard that a group of organic farmers in Uganda had successfully used a molasses-based organic fertiliser. His group had wanted to contact them – but had no way to do so. In this type of situation he felt that email would have been very useful.

MSC

The most significant changes had been the introduction of the dairy goat group (a project of Haifa International, I believe), plus the opening of the secondary school in his village. The introduction of tap water was also a significant change. In future, he wants to have better roads, better access to improved agricultural technologies, and better market links. He'd also like to have access to storage facilities.

