EILAT 2009 - ISRAEL
FIG Working Week
3,8 may 2009

Surveyors Key Role in Accelerated Development

Technical Programme

Wednesday 6 May 2009 16:00-17:30

Mr. **Eric Thalgott**, France:
Modernisation and decentralisation f Land Tenure Services in Madagascar (3483)

LAND REFORM IN MADAGASCAR

CONFERENCE BY Mr Eric THALGOTT (France)

1- THE MADAGASCAN CONTEXT:

***- Geographical Situation**: in the Indian Ocean, 9 000 km from Paris, 400 km to the East of the coast of Africa, south of the Comores and Mayotte, to the West of Mauritius and La Reunion.*

*- **Population**: 20 Million inhabitants (estimation in July 2008) and 27 Million inhabitants expected in 2023.*

*- **Density**: 34.1 inhab./km².*

-Area: 587,000km² (4,800 km of coastline).

*- **Capital**: Antananarivo or Tananarive. 1.1 Million inhabitants; around 2 Million in Greater Tananarive.*

-Life expectancy: according to unofficial sources, slightly under 60 years.

*-**Official Languages**: Malgache, derives from the Merina dialect of the Highlands, with regional dialectal variats. French is the 2nd official language and is commonly spoken in towns and slightly less in rural areas.*

*- **Currency**: The Ariary (Ar) officially replaced the Malgache Franc (Fmg) in January 2005.*

*-**Government**: Democratic republic of a presidential nature*

*- **President of the Republic**: Marc Ravalomanana since 2002 (re-elecetd in 2006 for 5 years).*

*- **Ethnic groups:** 18 official groups, without counting sub-groups. These main groups include Indo-Pakistani, Chinese, Comorian and European communities, the latter including a large French community (about 25,000 people)*

*- **Religions**: Ancestral cults, Catholicism and Protestantism, whilst preserving traditional rites; Muslim communities also exist.*

2- REVIEW OF THE LAND TENURE SYSTEM IN MADAGASCAR BEFORE THE REFORM

The Land Tenure system currently in place in Madagascar is a « Torrens » registration-based system (as in many post-colonial countries which were subject to colonisation by anglo-saxon or latin countries). In the case of Madagascar, the system is the heritage of its French colonisation.

Land is presumed to belong to the State. If an inhabitant valorises the land on which he works, the State attributes a land title which is registered in the land register. Once registered in the land register, the person holding the title has exclusive right to the land which may not be questioned or opposed by a third party.

Today in order to obtain a land title, the beneficiary must apply to the Land Tenure services (*Services Fonciers)*. The service processes the application, issuing the Land ownership title and registering it in the Land registry book, filing all the elements in an Individual Land administration file. The processing of these requests is shared between two organisations '*Circonscription domaniale' (Estate registry)* (CIRDOMA) and « *Circonscription Topographique » (Topographic registry)* (CIRTOPO).
However, many land titles were registered before the country's independence in 1896 and the documentation has hardly ever been updated. Today a large proportion of plots of land which have ownership titles, are registered in the name of deceased owners. These plots of land are nowadays occupied by the descendants of farm workers from the colonial concessions which like the

documentation, have not been updated, the occupants thus being considered as squatters in jurisdictional terms.

3- WHY IS LAND REFORM NEEDED IN MADAGASCAR?

Today there is a land tenure crisis in Madagascar confirming the fact that the system currently in place has not functioned for a long time.

This realisation brought the Madagascan government under the impetus of the president Marc Ravalomanana, to write on 2nd April 2005 the *Lettre de Politique Foncière* (Land Tenure policy letter) which was validated on 3rd May 2005 by the government council and which describes the land administration system in Madagascar objectively, framing the orientations of the new Land Tenure policy.

'The Land Tenure policy letter is a preliminary stage in Land reform. This declaration details the government's orientations concerning state-owned land and land administration. Resulting from a major consultation process, this letter proposes an overall vision for improvements in land rights management and is the basis for a Land tenure policy, providing the strategic framework to ensure the coherence of state measures. The actions detailed will concern land administration programmes in both rural and urban sectors, the preparation of new laws which are adapted to the current economic, institutional and technological context and a national training plan for land administration sector careers.

The government has declared that the land tenure crisis has major impacts on the country's economic and social situation.

1. ***Reluctance towards investment*** *– Private investment is impeded by the imbroglio surrounding land tenure: the situation does not encourage rural farmers to make sustainable investments on their land. It is not in these farmer's interests to make improvements to their plots when they have no guarantee of their right to cultivate the land in the long-term.*
   This incertitude condemns any hope of reforestation, of which the country is in dire need, as it does the payment of water charges or any other investment which would enable an increase in productivity of the fields. Business people cannot take the risk of investing in production or commercial infrastructures as far as their rights to a plot of land are not guaranteed in a clear and reliable way. Certain development projects have their financing arrangements cancelled when the legal status of land is not clarified.

2. ***Deterioration of the social climate –*** *The proliferation of land conflicts is harming the social climate making it difficult to maintain public order.*

3. ***Court congestion–*** *Land disputes are among the most common cases to be brought before justice and contribute to the saturation of courts and the malfunctioning of the legal process.*

4. ***Barrier to the decentralisation process****—Development by local authorities is held up by the lack of clear and regularly updated land use and cadastral mapping. No local land taxation can be put in to place and communal budgets remain dependant on subsidies granted by central government.*

5. ***Loss of State credibility*** *– In reality the majority of agricultural and urban land is no longer managed by the state, and as a consequence the State and the land administration services credibility is deteriorating proportionally with the decrease in quality of this public service.*

The main motives of the new Land tenure policy result from the inefficiency previously mentioned, within the current system (around 7 years to obtain a Land title), the cost of establishing a Land title (500 USD environ) and the weakness of Land administration services which do not properly fulfil their public service role (corruption, slow processing, operational incompetence).

6. ***Land users appear to ignore the law – This explanation is questionable.*** *The laws which govern access to land, having cumulated over several decades, are complicated, only partially updated and mainly written in French. It is rare that a citizen has full access to these texts, and is able to understand their nature and the procedures in them.*

7. ***The land registration procedure is long, complex and costly*** *– This procedure which culminates in the individual registration of land plots is made up of 24 stages and requires the invention of various different administrative bodies. The application is dealt with at the highest level of administration. The Faritany President, the Minister in charge of estates and the Prime Minister are the only ones with the power to approve the appointment of acts for state land: only 8 people have the authority to sign the titles that half a million land users are awaiting. Hence the average cost for the obtention of a title is estimated at around 3 000 000 Fmg and the duration of this procedure is sometimes over 15 years. However, land registration consists of recognition of entitlement carried out directly between the State and the citizen. The land administration services must ensure the legitimacy of the claimant's application and that the land has indeed been valorised, this requiring a number of meticulous checks which obviously result in a complicated and expensive process.*

8. ***The land administration services are lacking resources and are backlogged*** *— Over the last 10 years, the estate registry and the topographical registry have lost a quarter of their staff; staff turnover is worryingly high. The operational budgets allocated to the registries are absurdly low; some of them operating with less than 400 000 Ar (200 US $) per year. Furthermore, equipment has not been renewed in several decades.*

9. ***A key explanation: Centralisation of the estate and land administration system***
   According to the state land rule, all non-registered or non-taxable plots of land belong to the state, the latter having to manage these, without financial resources or the adequate skills. This theory tends to ignore the previously given rights to use and makes the state the unique, yet penniless, owner of the majority of the national territory. The implementation of this rule leads to an extremely pyramid-shaped state-owned pattern: the recognition of rights upon the national private domain is carried out by the means of 29 weak and congested decentralised departments, which are supposed to handle millions of claimant's applications. This recognition of land rights carried out directly between the state and the citizen, unavoidably drives the system to its own demise. The state land system does not rely on any intermediaries between Central government and the land user. Notaries are uncommon and are rarely certified in land administration issues, whilst there are no more than 25 independent chartered surveyors.

10. *Improving the public land administration service requires* ***a change in approach and the adoption of a new state-land regime and land tenure management system****.*

The 'land tenure policy letter' clearly defines the policy's objectives whilst maintaining an approach which is coherent with that of the government's orientations (i.e. a move from a subsistence economy to a market economy, poverty reduction, rural development etc.).

11. ***Aim–*** *The Land administration policy's aim is to attain a land tenure management system which will encourage:*
    - *Private national and international investment,*
    - *Agricultural production,*
    - *Natural resource management, protection, restoration and renewal,*

- *Decentralised local authority development via the implementation of territorial and tax management tools,*
- *Reinforcement of social cohesion at a local and community level.*

12. ***Main objective – The main objective is to meet the massive need for securing land ownership, in the shortest possible terms and at a cost which is suitable to the economic context, by making official the un-issued land rights and through the conservation and regularisation of existing written land titles.***

13. ***Specific objectives–*** *Land tenure policy will be built around a renovated legal framework, a decentralisation of land administration, the modernisation of tools and competence building through training.*

14. *A* ***new institutional and legal framework will be designed and implemented****. This implies a review of the state-owned land and land administration system and the adoption of new laws which are properly suited to the social and economic set up of rural and urban areas, thus enabling procedures to be simplified. The new framework will partly rely on the intervention of private sector professionals and will offer an adaptation of regulations to allow for the use of new technologies.*

15. ***Decentralisation –*** *The modernisation of the state-land and land administration system will take into consideration changes in the territorial administration system and in particular the decentralisation process, by sharing out land management skills and resources between the devolved public services and the decentralised authorities.*
The law will encourage partnerships of a public-private nature, through the systematic use of professional skills from outside of the public administration system as well as support from technical and financial partners capable of implementing the new procedures.

16. ***New tools,*** *which use the latest advances in alphanumeric and geographic information management technology, will be made available for land administration stakeholders. The topographic and land registry department's equipment will be systematically modernised and made digital according to the specific needs defined, enabling the new legislation to be implemented. The operation and maintenance of this new equipment will be considered within the restructuration of the land administration services.*
Local authorities will also be aided in investment in appropriate equipment.
The operational cost of this equipment will, in the long run, be covered by local council budgets.

17. *New and additional* ***skills*** *will be made available for the implementation of Land Policy. Support programmes will enable the auxiliary land administration professions (certified land surveyors) to be reinforced by updating skills and supporting private enterprise creation. Professional training programmes will allow rural and urban authorities to strengthen capacity in the areas of state-owned land management and decentralised land administration. Training programmes culminating in formal qualifications will be established through agreements with secondary education institutions and universities.*

Land tenure policy is not devoid of economic considerations: it requires, in parallel to the other measures, a local tax regime to be set up, anticipating a way to make the system durable and in the long run, financially autonomous (on a local or even district level, the latter housing the common technical centre with several customer counters).

Finally the land tenure policy letter clearly defines the four strategic axes for the implementation of the measures.

4- APPLICATION OF THE REFORM

As explained in the previous paragraph, the reform began with the Land tenure policy letter of 2nd April 2005.

This letter was followed up by actions that have allowed the land tenure policy to be put into place.

1.1 THE FOUR STRATEGIC AXES OF THE REFORM

1. Restructuration, modernisation and digitisation of land tenure registers and topographic data.
2. Improvement and decentralisation of land tenure management
3. Updating of the land administration and state-owned land regime regulation
4. National Training plan for the land administration sector

Introduced and presented in detail in the Land administration policy letter, these strategic guidelines today show, variable levels of progression.

Work on Axis 3 began immediately after the publication of Land administration policy letter and has culminated in various laws and acts which will be stated hereafter.

Axis 1 and 2 are being developed upon through the realisation of several land administration operations financed by international donors. The functional processes of these operations will be explained further on.

Work on Axis 4 does not seem to have been initiated and thus does not present any visible results.

1.2 – A NEW LEGAL FRAMEWORK

- ***Law n°2005-019*** *of 17th October 2005, so-called framing law, establishing the governing principles of land statutes.*

Among the most significant points of the 2005 law are the following:

- ✓ Decentralised land management and greater devolution within the administrative services in charge of land administration;
- ✓ **Recognition** of land **occupation** and **use** as a form of ownership.

In addition is the creation of a **Land administration observatory** (tool for monitoring and evaluating the situation and measuring impact)

- ***Law n° 2006-031*** *of 24th November 2006 establishing the legal regime for private non-entitled land*

Other laws and acts have been progressively added to complete the legal framework:

- ***Law n° 2008-013*** *of 3rd July 2008 concerning Public property*
- ***Law n° 2008-014*** *of 23rd July 2008 concerning State-owned land, decentralised councils and legal persons governed by public law.*
- ***Acts*** *for the previously mentioned laws*
- ***Circular*** *from the MRFDAT regarding the procedures for provision of state titled property exploited by occupants in February 2009*

1.3 – ESSENTIAL FINANCING

13 **donors have taken interest in the project and are federating their actions.**
European Union, FAO, FIDA, MCA, ONG etc.

The budget for the remainder of the reform is 45 M USD of which 35M USD is being financed by the MCA.

The MCA is the largest donor and is financing the implementation of the land tenure project as well as cross-cutting projects (micro-loans, agriculture, infrastructure, land management etc.).

A partnership chart has also been drawn up defining the role of each donor.

1.4 – PILOT OPERATIONS PRECEEDING PROJECT KICK OFF

The National Land tenure Programme (NLP) is, as stated in the land tenure policy letter, in charge of the implementation of the 4 strategic axes. The NLP is the master-builder of Land Tenure Policy

The land tenure policy letter accounted for a preparatory phase and a kick-off phase in order to trial the new decentralised land management, modernisation and conservation techniques.
This kick-off phase enables official decisions to be made as to different methods and approaches, the most suitable equipment to be chosen and the staff in charge of implementing the Land tenure Policy at the central level to be trained.

Under the close guidance of the NLP, various trials have taken place such as the creation of 19 *guichets fonciers* - land administration counters (GF 19) using equipment which remains basic (e.g. Local land occupation plans produced from non-rectified satellite images and photos of land tenure taken with a digital camera); the results of the trials allowed the reforms to be improved, but were not taken into account for the first deals.

The Land tenure policy letter also set out an extension phase which would use the methods and tools tested during the kick-off phase to implement the Strategic axes of the Land Administration policy on a national scale, according the needs of the councils and the decentralised land tenure services.

This phase, through MCA financing, allowed different tenders to be launched for the application of the Land tenure policy in Madagascar.

Some of the tenders included were:

- The creation of an orthophoto plan to be used as the base for the realisation of the Local land occupation plans (LLOP) and to provide topographical backup for the issuing of land titles (LT031).
- The deployment of the land administration reform to different regions of Madagascar (LT033, LT034, LT035).
- Supervising and monitoring of works

5- EXECUTION OF MODERNISATION AND DECENTRALISATION OF LAND ADMINISTRATION SERVICES PROJECT

The following paragraphs will explain in detail the rollout of the Modernisation and decentralisation of Land administration service project for (Vakinankaratra, l'Amoron'I Mania and Menabe).

This is the first project of such to take place in the country and allows the land administration reform to be fully deployed in Madagascar.

5.1 – PROJECT DESCRIPTION

This project lot concerns the first 2 axes of the Land tenure policy as described in the Policy letter of 2005:

I. Restructuring, modernising and digitising of land tenure and topographic documentation
II. Improvement and decentralisation of land tenure management

1 DONOR: **Millenium Challenge Account** – Madagascar (MCA): http://www.mcamadagascar.org

1 INSTITUTION: ***Ministère de la Réforme Foncière, des Domaines et de l'Aménagement du Territoire*** - Ministry for Land Tenure Reform, State land and urban planning (MRFDAT): http://www.mrfdat.gov.mg

1 OVERALL PROJECT MANAGER: **National Land administration Programme** (NLP): http://www.foncier-developpement.org/liens-ressources/pnf-de-madagascar

1 PROJECT LOT (LT034) AWARDED TO A FRENCH COMPANY: **FIT Conseil**: http://www.groupe-fit.fr

5.2 – THE 3 PROJECT COMPONENTS

ACTION 1: SAFEGUARD AND DIGITISATION OF LAND ADMINISTRATION AND TOPOGRAPHIC INFORMATION WITHIN THE REGIONAL LAND TENURE SERVICES

This concerns the processing of Land registers and topographic plans (localisation plans, cadastral maps, individual plans): Inventory, restoration, digitisation, map vectorisation and alphanumeric data extraction (DIADEIS), document packing.

ACTION 2: CREATION OF INITIAL LOCAL LAND OCCUPATION PLANS AND STAFF TRAINING

This concerns the creation of the local land occupation plans (LLOP), a digital cartographic tool that enables the staff of the Land administration service counters to know which zones are available (eligible) for the issuing of land titles: Private domain, out of public domain, out of already titled land, out of zones with special status.

ACTION 3: CREATION OF A LAND TENURE MANAGEMENT SYSTEM

The first stage in the implementation of the decentralised Land Tenure management system included:

- Creation of Local Land administration service counters (Support provided to local councils for deliberation, budget, etc.)
- Recruitment and Training of 2 staff per counter, for 125 municipalities i.e. 250 persons
- Creation of Resource and Land tenure information centres (RLIC) (Support provided for the creation of Inter-municipality offices for Public cooperation).
- Recruitment and Training of 2 staff per RLIC, for 16 centres: i.e 32 persons (technicians)
- Recruitment and Training of Local Recognition Commission members (at Fokotany and hamlet level): 7 500 persons

The next stage (after the preliminary organisational and realisation phase) was a support-consultancy phase involving the constant mobilisation of 20 Land administration coordinators from FIT.

CROSS-CUTTING ACTION

Initial and ongoing training of agents from the existing Land administration Services, for 5 districts (CIRDOMA and CIRTOPO): 20 persons.

5.3 – PROJECT ORGANISATION & RESOURCES

5 Work sites:

Vakinankaratra Région : Antsirabe (Headquarters) and Ambatolampy (annexe)
l'Amoron'I Mania Région : Ambositra (Branch) and Fandriana (annexe)
Menabe Région: Morondava (Branch)

Persons directly involved in the project:

Position	N°	Observations
Staff (1 Programme manager, 3 Activities managers, 1 General manager, 1 Logistician, 1 Archiver, 1 IT manager, 2 GIS experts, 2 medium-term Consultants)	12	Based in Antsirabe
Branch managers	2	
Secretarial and administrative assistance	7	Divided between sites
Drivers	3	
Maintenance and security	10	
CAD operators, including team leaders	16	Based in Antsirabe
Restoration agents, including team leaders	51	Divided between sites
Digitising operators, including team leaders	50	Divided between sites

Quality controllers	9	Divided between sites
Land tenure coordinators	20	
Total :	**180**	Around 65 % of staff - female

Equipment:

Item	N°	Observations
4 x 4 vehicles	3	
Motobikes	11 + 9	
Scanners	17	A1 and A0 Formats (2), A2 format (3) and A3 and A4 formats (12)
PC	19 + 7	(7) = laptops
Various		Power Generators, Regulators, printers, copiers, office equipment, tables and chairs

5.4 –SAFEGUARDING AND DIGITISATION OF LAND TENURE AND TOPOGRAPHIC INFORMATION WITHIN THE REGIONAL LAND ADMINISTRATION SERVICES

Land tenure documents represent a national asset, often left to ruin, poorly maintained and handwritten (Land title registers and Land tenure files including all the documents relating to the administrative stages leading up to registration) as well as cartographic documents (Localisation plan which is used for roughly situating the titles plot of land, Cadastral maps, in the case where cadastral activities have been carried out and Individual Plans drawn up for each registered plot of land).

INVENTORY
The documents are extracted from the State district and processed at the service providers' premises.

RESTORATION
The documents and files depending on their state of deterioration are processed accordingly with the most suitable method: unfolding, removal of creases, repair of edges and filling in of missing parts.

BINDING AND MARKING

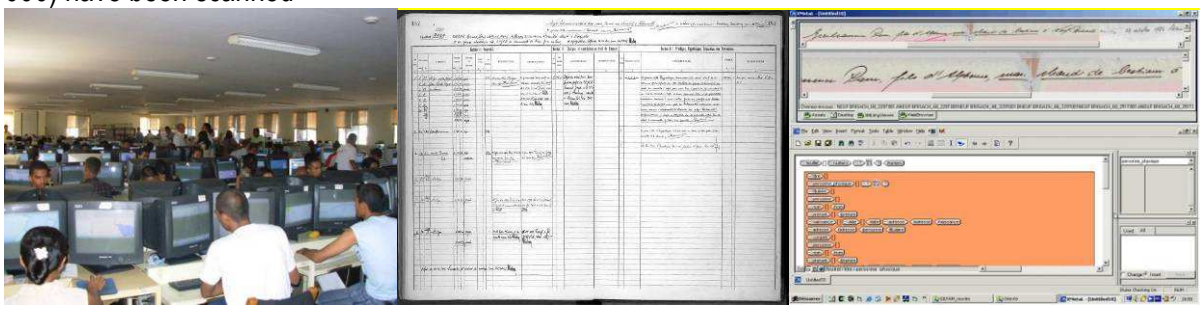
The Land title registers in particular (each book contains on average 50 booklets of 4 pages allowing for 50 Land titles), must be undone and completely recovered using traditional binding techniques. Finally the registers are marked with their volume number and the index reference for the titles contained.

DIGITISATION

All documents are scanned in colour in 300 dpi resolution (in recto-verso format if necessary); digital documents are filed by document type (LP, CM, IP and LR, LF). Thus virtual Land registers from which the alphanumeric data is integrated by DIADEIS, subcontractor.

The plans are vectorised on screen after geometric readjustment aimed at correcting imperfections caused by scanning with the sweeping scanners used for large formats.

To date more than 1 600 cadastral maps and localisation plans (scales varying from 1/1 000 to 1/50 000) have been scanned



QUALITY CONTROL

All activities are controlled by an IQC (Internal quality controller provided by the service provider) and a EXC (External Quality Controller) using a sampling method designed to conform with ISO2859 standards (AQL = 4% Normal Inspection).

NUMBER OF VOLUMES

The definitive figures are yet to be known as the Inventory and work validation certificates are currently awaiting signature by the State district leaders.

The current (provisional) figures are as follows:

Districts	***Antsirabe***	***Ambatolampy***	***Ambositra***	***Fandriana***	***Morondava***	***LT034***
Hand-written Documents						
Land title registers	*386*	*179*	*94*	*72*	*70*	***801***
Land tenure files	*22,800*	*8,950*	*4,883*	*3,688*	*3,742*	***44,063***
Topographiques Plans						
Localisations plans	*238*		*141*		*122*	***501***
Cadastral maps	*443*		*1,133*		*61*	***1,637***
Individual plans	*33,464*	*6,905*	*3,939*	*1,263*	*3,430*	***49,001***

These figures correspond to around 6 months intensive production and 2 months of checking, filling in and filing of data; during which in total more than 600 000 'shoot-scans' were done as, although the plans are made up of a single image, the land registers include several pages (approximately 200 pages per register) and the land tenure files involve scanning several different documents (around 7 documents and 12 pages for each LF).

5.5- ACTION 2 : CREATION OF INITIAL LOCAL LAND OCCUPATION PLANS AND STAFF TRAINING

CREATION OF INITIAL LOCAL LAND OCCUPATION PLANS (LLOP)

A Land administration service counter cannot be opened or land titles issued without the existence of the LLOP.

The legislator intends to provide (in paper format at basic counter level and in digital format at RLIC level) a cartographic document which shows the existing land tenure situation (parcels for which titles are already given), public domain, territorial boundaries and areas with special status (protected areas, etc.). Indeed, any other parts of municipal territory are known to be available for the issue of land titles. The recognition of parcels for which titles have already been given is drawn from the existing land tenure documentation, mainly from the localisation plans and the individual plans.

The orthophotography which constitutes the cartographic pattern of all the LLOP documentation, using a specific projection (Madagascar Laborde projection) was progressively supplied to the service provider.
Therefore the decision was made to produce intermediary documents called 'LLOP without ortho' for which the Land administration counter agents were obliged to identify the boundaries using a GPS solution.
Initially, the service provider produced 30 of these LLOP (based on background maps supplied by IGN or FTM) which have enabled more than 1 500 Land titles to be given to their beneficiaries.

Furthermore, as a transitional measure, whilst all the old cartographic documentation is still undergoing processing, ortho background maps are supplied (enabling the borders of plots among untitled land to be defined) with several thousand of land titles having been issued using this method, to date.

Soon, 146 municipalities will possess full, classic LLOP for which the basic tasks (vectorisation of cadastral maps, assembling, geo-referencing, etc.) are nearing completion.

Once the work is finished the LLOP will be installed in digital format at the 16 Resource and Land administration information centres (RLIC), which will be responsible for updating them.

STAFF TRAINING
All 3 project components involve (initial and ongoing) training of various future stakeholders of the land administration reform, including:

- ✓ Existing Land administration Service agents (LTS) :
- ✓ Land administration counter agents (LC):
- ✓ Resource and Land administration information centres agents (RLIC):
- ✓ Local Recognition Commission members (LRC) :

These activities, organised into modules constituting a training plan, represented a total of 9 600 days of training/person taking place either on the service provider's sites or in the municipalities.

5.6- ACTION 3 : CREATION OF A LAND TENURE MANAGEMENT SYSTEM

The creation of the land tenure reform system takes place in several phases:

Preliminary Phase, during which the municipalities are contacted in order to obtain all the conditions required for the opening of Land administration counters and RLICs.
Contracts with defined objectives are set up between the client (MCA) and the municipalities, in order to organise operations and their financing throughout the project's lifetime (at the end the land administration counters should be autonomous).
125 new land administration counters and 11 RLICs are planned adding to the 19 land administration counters and RLICs which already exist.

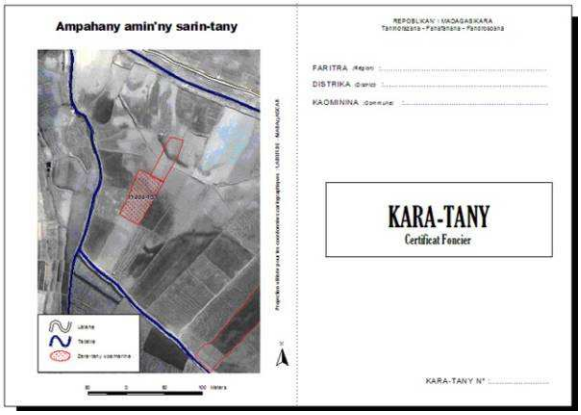
Land administration counter and RLIC **Installation phase**, during which agents are recruited and trained by the service provider, and Land administration counter and RLICs are installed and equipped with office equipment.

Operational and Support-Consultancy Phase, during which the service provider launches the Land title issuing operations and assists the Land tenure counters and RLIC, bringing them progressively to become completely autonomous. A 2 month period is planned for training, followed by a 1 month evaluation period as well as another 1 month period to allow for any useful adjustments to be made.

For these 3 phases the main tasks are carried out by a team of **land administration coordinators**, recruited and trained by FIT Conseil.

Results to date are as follows: (figures date from end of February 2009):

Requests for land titles:	54.000
Request processed:	35.000
Land title edited:	27.000
Land titles awarded (rights payed) :	18.000



6- TECHNICAL EQUIPMENT USED

6.1- ACTION 1 - DIGITISATION

- Hand-written and cartographic documents were scanned in colour using a minimum resolution of 300 dpi ; This choice of method was essential for the following reasons:

  - Heterogeneity and dilapidated state of map and plans (drawn on tracing paper, cartridge paper, on plastic);
  - Various inscriptions on the Land tenure registers and administrative documents from the land tenure files (black ink, annotations in colour or leaded pencil)

- Large scale plans (A1, A0 or more) were scanned using a sweeping scanner (KAISER Icoss Scando 3 et 9 ®) ; NB : The project manager should have supplied a roller scanner, but this never worked.

6.2- ACTION 2 - LLOP

The cartographic pattern is a 1 : 5.000 orthophoto produced from an aerial colour photo at 1: 20 000 scale. The orthophoto's ground pixel size is 50cm. This resolution is sufficient for the land tenure markers to be identified during the ground recognition process carried out by the municipal commission.

Vectorisation, topology and map assembly are done using Arc.GIS (version 9.2);

It was necessary to establish a specific graphic layout with 3 levels of municipal representation of the Titles layer (Assembly map at 1 : 25 000 to 1 : 100 000, detailed maps at 1 : 10.000 and orthophoto background maps at 1 : 2 500 or 1 : 5 000.

All titled land plots identified on the localisation and cadastral maps are reported onto the LLOP (digitalisation of contours on the individual plans which were used during registration and adaptation and adaptation onto ortho backgrounds); it cannot be said to be 100% complete as many plans have been lost are in too poor a state to be processed;

The Laborde-Madagascar map projection system (Oblique Transverse Mercator) used is very difficult as the control points on the different primary networks of points or secondary later thickenings have disappeared.

2 specific programmes were created (MAKY Engineering) in order to use the land tenure documentation:

- « LLOP programme », installed at the RLIC and used for issuing Land title certificates; it also enables the updating of the LLOP (Title and certificate)
- « Madagascar Land Management » (MLM), installed within the existing Land tenure services, enables the management of land tenure information; the 2 systems can exchange data (Certificates and titles).

7- PROVISIONAL EVALUATION OF RESULTS

For now, the evaluation of results can only be vague; however the following ideas have been put forward:

7.1- DELIMITATION OF LAND PLOT BORDERS– LAND TENURE CERTIFICATES

Even though it has been proven that GPS surveys (metric accuracy) can be used to define land boundaries, using them requires the training of Land tenure agents and careful use in order to obtain good results. Land relief in steep areas (many micro-valleys) can produce unusable results and in some areas of Madagascar, signals are not received properly and the GPS cannot be used.

The accuracy (50cm) of the orthophoto plan is satisfactory in many cases as land plot boundaries are well defined and the land tenure markers (ditches, channels, trees etc.) are visible on the photographs. Nevertheless it is sometimes difficult to identify zones with small plots (many rice fields are farmed on terraced land with a surface are of 10a00 or less).

High resolution satellite imagery (80cm resolution) has been tested but does not give very good results due to the level of detail that is essential for the DTM because of the country's topography (mini- zones of relief).

There is no perfect solution for the demarcation of land plots, it is sometimes difficult or even impossible to carryout the GPS survey and the outlining of borders on the orthophotoplan. Land sketches are thus drawn and signed by the neighbouring parties and are used as the basis for establishing the land registration certificate.

Once the land registration certificates have been given they should be indexed on the LLOP. There are therefore developments to be made to the LLOP updating process by the RLIC, especially in the case where the land registration certificate is established using a land sketch (identification of a centroid on the orthophoto to which the number of the land sketch is associated.

7.2- NEW LAND TENURE MESURES

The land administration counters managed by 2 persons are directly in contact with the local situation and the influx of requests. Technically these are linked to the RLIC (around 10 land administration counters per RLIC) however they are physically based at municipal level. It would be appropriate to explore the idea of the RLIC becoming a unique and essential unit, with mobile land tenure counter agents, travelling according to land title applications avoiding problems at the municipal level.

The sustainability of the land administration counters is not 100% guaranteed and the establishment of a local tax regime will exhaust the limited financial resources of farmers who, although extremely motivated to apply for land ownership certificates, will find it difficult to maintain the cost, even if low; the current special incentive measures (low costs in application) linked to international donor's support, distort the future reality.

Classe 1 Ha - 2 Ha	Mini (Ariary)	Maxi (Ariary)	Average (Ariary)	Average (Euros)
Paddy fields	400	100 000	47 000	19
Crops	5 000	70 000	38 000	15
Steep plots of land or land destined for reforestation	17 000	45 000	31 000	12

The turnover of Land administration service counter and RLIC agents is relatively high (around 15%) and can be explained by reasons of physical and psychological isolation in the work place (often without electricity), interpersonal difficulties between the Mayor (employer) and the employed agents as well as lack of professional skills or high pressure and refusal regarding the incorrect or unjustified issuing of land ownership certificates.

Certain difficulties are linked to climatic setbacks (cyclonic events and large scale coastal flooding or other phenomenon lasting months) considerably slowing down land recognition procedures.

There are still very few appeals (opposition procedure) against the certificates issued (just 150 out of 27 000 certificates issued).

There are various land ownership conflicts, these being quite well resolved using mediation methods when they are area-based (protest over boundaries, inheritance problems, etc.) yet more difficult to manage when the subject lacks a full legal framework (for example in the case of land titles of deceased colonists).

It is necessary to redefine the role of the existing Land Administration services (Career progression, functions etc.) as well as the links with the new Land Administration counter/RLIC system, the latter having at first led a rearguard battle against what they perceived as an institutional threat (and a loss of revenue).

7.3- THE PRIVATE SECTOR

The role of civil society (notaries, land surveyors) has yet to be redefined but it can be said that in Madagascar this function is currently practically inexistent. However considering the enormity of the task, it should not be unimaginable to associate the private sector in the issuing of land titles.

The preparation of future actions should include more consequent preliminary studies in terms of municipal/urban planning and environmental management, indeed various issues have not been resolved (Can a land certificate be issued which recognises and gives right to property with agricultural activities within a protected area? Can private ownership rights be obtained at parcel level without easement, whilst the land houses enclaves of residents? Can the issue of collective water management be ignored in mountainous irrigated areas? etc.).