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GISCOE

Geographical Systems Research Bureau

Imvelo

SOCIAL GRANT PAY POINT GIS PROJECT

PROJECT REPORT

Prepared for

National Department of Social Development

HSRC
GIS Centre

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ABBREVIATIONS USED

ABBREVIATION	EXPLANATION
ATM	Automated Teller Machine
DoH	Department of Health
DoHA	Department of Home Affairs
DoSD	Department of Social Development
EA	Enumerator Area
FSA	Financial Services Access
GCIS	Government Communication Information System
GPS	Global Positioning System
CSG	Child Support Grant
GSRB	Geographical Systems Research Bureau
HOSS	Heads of Social Security
HSRC	Human Sciences Research Council
IEC	Independent Electoral Commission
MDB	Municipal Demarcation Board
MPCC	Multi-purpose Community Centre
MRC	Medical Research Council
OAP	Old Age Pensioners
SocDev	Social grant pay point management information system
SocGIS	Social grant pay point web based GIS application
SocPen	Social grant pay point beneficiary database
URS	User Requirement Specification

1. BACKGROUND

The origins of the project go as far back as 2002 when the GIS Centre worked with the Department of Social Development (DoSD) in creating a pension pay point database for South Africa. The approach followed in this initial study was to send questionnaires designed by the Human Sciences Research Council (HSRC) to the provinces who in turn forwarded them to the different regions of the DoSD. Regional representatives then filled in the questionnaire for each pay point. This approach was not very successful with just over 5 000 pay points and their attributes being captured.

Nevertheless, this data enabled the department to obtain an initial idea of the extent and condition of their facilities. It also contributed to a better understanding of the needs and expenditure required to standardize its infrastructure. It was as a consequence of this study that the DoSD had to rethink its approach to providing infrastructure for the distribution of social grants. The possibility of using the infrastructure of financial institutions in South Africa to pay grants to beneficiaries, especially in urban areas, had now become a serious consideration. Therefore, as the DoSD required more accurate information on the pay points to optimize their infrastructure and to enable them to do annual budgeting for the improvement of their facilities, it became a necessity to repeat the mapping exercise.

However, a different approach was used. It involved the holding of workshops in the various regions of the country with regional representatives attending the workshops to fill in questionnaires and provide geographic locations for their pay points. Fortunately, FinMark Trust who was busy with research on the provision of financial services to the 'unbanked' in South Africa saw the importance of this project and, consequently, provided most of the funding for the project. This project would also be different to the first in that it identified the need to integrate the banking infrastructure into the pay point database so that the potential for social grant beneficiaries using the banking infrastructure, instead of pay points, could be investigated. Thus, an important synergy was created between the DoSD and the FinMark Trust.

Another important purpose of the project was to enable the DoSD to assess the existing access to services and infrastructure at their pay points and to ensure that they provided a satisfactory level of social security service. Over and above this, the DoSD had to ensure that all pensioners and those qualifying for grants in South Africa had suitable access to services that enabled them to receive their pensions and grants. Therefore, the Department also needed information from the project to standardize the quality of its service, improve on its operational efficiency and develop instruments for monitoring and evaluating its performance on a continuous basis.

A further component of the project was to develop a web based application that would allow the DoSD to build on the information that was collected during the project. This would include the adding and deleting of facilities from the GIS database as well as the abillty to update the attributes associated with pay points. The HSRC who had undertaken the original study was commissioned in collaboration with their partners to do the work.

A project consisting of five main phases was then designed – these included the inception, data collection, capacity building, reporting, and application development phases. The GIS Centre of the HSRC did the overall project management. The broad objectives of the study are presented in the next section and each of the phases will be reported upon in sections thereafter.

2. PROJECT OBJECTIVES

To enable the DoSD to optimise the provision of social grant services in South Africa, the geographic location of all pay points in the country had to be established. It was made clear by the DoSD at the start of the project that for them to do their planning and budgeting, a GIS database that contained all of the pay points with their associated attributes had to be developed. It was also clear that the success of the project was dependent on accessing the banking infrastructure and integrating it with the pay points. To enable the optimising of the pay points several important data sets had to be incorporated into the GIS, including the 2001 census data at an enumerator area level. Furthermore, there was a necessity for the use of a web-based application that would enable the DoSD to update their pay point information on a continuous basis. To achieve this, the following broad objectives had to be accomplished:

i. Provide a complete GIS dataset containing the geographic location of all pay points and their associated attributes, as defined by the DoSD.

ii. Integrate into GIS all other publicly available data sets required for the optimising of the social security service network, including:
   - Social welfare offices;
   - Post offices, postal agencies and Post Banks;
   - Multi-purpose community centres (MPCC) of the Government Communication Information Systems (GCIS);
   - Department of Home Affair's offices;
   - Hospitals and clinics of the Department of Health

iii. Obtain ancillary data from appropriate sources including:
   - Road network of South Africa (1:50 000 scale);
   - Rivers and streams (1:50 000 scale);
   - Towns and urban settlements;

- Administrative boundaries, including provinces, DoSD regions, municipalities and district councils. Other administrative boundaries such as the education and health districts could also be provided;
- 1996 and 2001 census data at an enumerator area level;

iv. Development of the capacity of staff in the DoSD to use the GIS database.

v. Design a web based GIS application for the updating of geographic and attribute data associated with pay points.

vi. Create an optimization model for the distribution of the pay points.

3. INCEPTION PHASE

The purpose of the Inception Phase was to allow the project team to meet so that the project activities, time schedule and allocation of team members to tasks could be finalized. The first workshop was held on the 26 March 2003. It included all consortium members, namely, the HSRC, Geographical Systems Research Bureau (GSRB), GISCOE, Imvelo, the DoSD and the FinMark Trust. Another purpose of the workshop was to allow the project team, DoSD and FinMark Trust representatives to meet for the first time. The project team also discussed all aspects related to the methodology and many recommendations were made to improve on the approach to the study. Some of the aspects that were highlighted included:

- The need to conduct a user requirement specification (URS). A more detailed synopsis of activities related to the URS is provided in the next section.
- The data collection phase should be extended to include a sourcing phase. This phase should include the following aspects:
  - Obtain electronic versions of pay point data from contractors.
  - Verify the above data sets.
  - Plan field visits according to data received from contractors.
- Meetings should be conducted with regional contractor managers to inform them about the project, questionnaire, increase their buy-in and to identify potential incentives for increased participation.
- Sending the questionnaires out to regional managers before workshops are held;
- Sending letters out to all regional pay point operators to encourage them to participate in the workshops;
- Doing checks on the quality of data obtained on the pay points from contractors and officials. A quality control activity should also take place after data has been captured to ensure accuracy.
- Time frames for the project seemed ambitious and it was suggested that time lines be adjusted. A preparatory phase of one month should precede the provincial workshops. The workshops should then be conducted over a two-month period.

- A workshop was suggested before the data analysis. The aim of the workshop would be to ascertain what decision-making analysis the DoSD would want from the data. It could be combined with analysing the training needs of the DoSD.
- A complete interface with the FSA project should be integrated into this project design.

An amended version of the project proposal was then forwarded to the members of the project team (Addendum 1), the DoSD and FinMark Trust for further input before a project protocol could be produced and the report for the inception phase completed. Unfortunately, the decision to incorporate a User Requirement Specification (URS) into the Inception Phase delayed the production of the report significantly. The putting together of a contract between the DoSD and the HSRC also delayed the production of the report.

As part of the inception phase, a steering committee was selected to guide the implementation of the project. At the first steering committee meeting, also held on the 26 March 2003, each member was given a Terms of Reference, which is included in this report as Addendum 2. Since the start of the project several project team and steering committee meetings were held. The minutes of these meetings are included in the report (Addendum 3) as a reflection of the activities addressed and the issues that arose. These minutes also reflect on the delays and the changes that were made to the Terms of Reference originally agreed to by the HSRC, DoSD and FinMark Trust.

The final activity that had to be accomplished in the inception phase was the signing of a contract between the HSRC and the DoSD, who had agreed to be the main contracting party with the HSRC. The project was initially delayed because no letter or contract was forthcoming to assure the HSRC that the project would go ahead. It was only after assurances were given to the HSRC that they would receive a letter to this extent that the project proceeded. After numerous requests from the HSRC to the DoSD for the contract, a letter was received from the DoSD on the 7 July 2003 stating that the project was being supported (Addendum 4). In the end no contract was received and the original arrangement of the contracting parties being the DoSD and the HSRC was nullified. Consequently, the financial arrangements for the project was handled directly by FinMark Trust.

3.1 User Requirement Specification (URS)

It was suggested and accepted at the first steering committee meeting that a user requirement specification should be undertaken. From the project teams perspective, this was a deviation from the original Terms of Reference, but an activity that was felt to be necessary by all parties involved in the project. Several meetings were then held between the project team, DoSD and FinMark Trust to discuss the format of the user requirement statement and who would be responsible for this activity in the project. The user requirement was to be incorporated into the inception report.

Although the HSRC felt that they had a clear understanding of what outputs were required from the project, which was supported by the fact that both the DoSD and FinMark Trust had signed off on the project proposal, the other members of the project team and steering committee felt that a user requirement statement had to be done. This was to ensure clarity on the part of the DoSD as well as the contractors as to what were the final products of the project. Much discussion was entered into at several meetings in the initial stages of the project a decision being taken that SITA would do the URS. This was because they were responsible for the development and maintenance of the database that housed all the grant beneficiary data (i.e. SocPen). They were also overseeing the development of the new management information system (i.e. SocDev) that would sit on top of the grant beneficiary database. Therefore, it made sense that SITA should undertake the URS.

After many more meetings, it was decided that FinMark Trust and the DoSD would take over the responsibility for conducting the URS. SITA would remain actively involved, because of their responsibilities in terms of SocPen, SocDev and GIS within the department. The URS would cover issues relating to reports to be produced by the system, hardware and software requirements and the human capacity needed to use the system. It is important to state at this point that the original proposal suggested a web-based system for updating the pay point data and using an existing PC-based system for reporting. However, during the project this was changed to enable the web-based system to do the reporting, which would also provide the provincial and regional offices with access to these reports. Consequently, the capacity of regional officials to use the system became a new issue to consider in the URS.

Another reason given for the URS to be conducted was the fact that the grant payments directorate of the DoSD was to become an independent agency that would have a different set of specifications for the system. Therefore, access at a provincial and regional level to reports from the web-based application became more important. The need for more functionality was also identified as an issue. Issues that were highlighted for incorporation into the URS included; security access for updating and retrieving data, especially the banking infrastructure data and the integration of the SocPen database with the SocDev system and web-based GIS application, which became known as SocGIS.

The FinMark Trust representative at the DoSD then produced an initial high-level URS on the 19 September 2003 (Addendum 5). After further discussions it was decided that the private company, KID, that had been commissioned by the FinMark Trust to develop the Financial Services Access (FSA) system, would take responsible for the development of the URS. This was all happening while the project continued to collect information and develop the web-based application. KID produced a proposal that was submitted to FinMark Trust for consideration. It was also at this stage that the decision was taken that the URS would not form part of the Inception Report, which had been a major delay in completing this phase.

Up until the last project team meeting on the 3 June 2004, no decision had been taken as to whether the more detailed URS should be undertaken. In discussion, it was initially felt that considering how far the project had progressed, there was possibly not the need now for a URS. However, concern was voiced by KID about the ability of SocPen and SocDev to deliver the type of management information that would be required by the social grant agency and, therefore, the meeting ended with the decision that further discussions would be held between FinMark Trust, the DoSD and KID.

3.2 Conclusion

The project was initially planned to start in early January 2003. The Inception Phase was originally supposed to be completed in a two-week period. The project did not start until near the end of March 2003 because of delays in the go-ahead being given for the project. The Inception Phase could not be completed up until June 2004, because of delays in the completion of the User Requirement Specification (URS) and the contract between the HSRC and DoSD not being signed.

Nevertheless, the inception phase did provide the means by which the multidisciplinary team could get to know one another and address problems and issues arising out of the project. The establishment of the steering committee allowed the project to be guided, although it became apparent later on in the project that members were often pulling in different directions. It must also be acknowledged that the gathering of information for the social grant pay points in South Africa is not an easy task because of the complexities of the SocPen database, government bureaucracy, the project team having different vested interests and the diverse ways of managing the pay points at a provincial level.

One of the main lessons to be learnt from this is that when conducting a multidisciplinary project of this nature, there is the need to allow project team members to gain a thorough understanding of the goals and objectives of the project at the onset. Where appropriate changes in the Terms of Reference should be made and signed off by the client. However, because of the time and cost implications these sorts of deviations should be properly managed. In some circumstances, factors remain out of the project management teams control, such as the contract between the DoSD and HSRC being signed. These factors clearly had an impact on the project.

The HSRC is of the opinion that this project did not require a URS and, therefore, the delays caused by this activity were unnecessary. The reason being that the HSRC, DoSD and FinMark Trust had agreed to a specific and concise set of objectives that were clearly stated in the original project proposal and had been accepted by the parties concerned. In other words, the parties had agreed to develop a GIS database of the pay point and a web based system for their maintenance and updating. Furthermore, the fact that the project could continue without a URS is some indication that it was not required. However, in the development of an entire system, such as SocDev and now the SocGIS, which is to become a corporate wide system for maintaining and

reporting on spatial and attribute information associated with the pay points for the new grant payment agency, it is recommended that a URS be done.

The lesson to be learnt is that where there are a distinct set of objectives and the parties are clear as to what will be produced within a defined budget, the conducting of a URS is not necessary. Therefore, in retrospect, the HSRC should have made it clear to the members of the project team that a URS would not be undertaken. On the other hand, by entering into discussions on the requirements of the system, modifications have been incorporated into the web-based application that will be of great benefit to the DoSD. However, there has been a time and financial cost that the HSRC has had to bear.

The only activity relating to this phase of the project is now to present this report to the DoSD and FinMark Trust.

4. DATA COLLECTION PHASE

This phase of the project was the most complex and, consequently, it had the most time allocated. After consultations with project team members several new activities were added to this phase and changes were made to the time allocated to certain tasks. This phase consisted of several sub-phases, namely; data sourcing, capturing pay point information into GIS, capturing social welfare offices into GIS, obtaining post office and agency information, obtaining GCIS MPCC's and Department of Home Affairs' (DoHA) data, obtaining Department of Health's (DoH) hospital and clinic data, obtaining ancillary data (e.g. roads, rivers, etc) and integrating and analysing data sets.

4.1 Data sourcing

The main purpose of this activity was to see whether other agencies that collect GIS data had captured the geographic location of pay points. Several agencies were identified in this regard, including the Municipal Demarcation Board (MDB) and the Independent Electoral Commission (IEC). The need to contact the contractors (e.g. CPS, Allpay) who are responsible for paying out grants to beneficiaries in the different provinces was also identified. It was hoped that at least these agencies would have the geographic coordinates of some of the pay points and the contractors would also have some attribute information.

The HSRC contacted the MDB and the IEC and they did not have any information on the pay points. SITA took the initiative to make contact with the contractors and meet with them. Several data sets were obtained from the contractors for the different provinces. This data in combination with the data sets that had been geocoded by the HSRC and DoSD became the foundation on which the new database was developed during the fieldwork. Quality control of the data sets was done by SITA and problems were encountered with some of the provinces. The quality of data sets

from some of the provinces was so poor that they could not be used in the project. Furthermore, not all the provinces were covered by these data sets.

For example, the pay point coordinates that were obtained initially from Allpay for the Western Cape and Eastern Cape were so inaccurate that the data was unusable. However, Allpay's data for the Free State was felt to be accurate enough to integrate into the database that would be used to check the geographic coordinates when doing the fieldwork. Data received from CPS for the Eastern Cape was accurate enough but approximately 400 pay points had no ID. However, later on in the project, more accurate information was obtained from the contractors that could be used in the fieldwork.

4.1.1 The master list of pay points

The obtaining of a master list was also part of the activities done in this sub-phase. The HSRC through SITA made a request to the SocPen people in the DoSD for a list of all active pay points. It was made clear from the start of the project that it was critical for the DoSD to provide a master list of their pay points in the country. They would also need to sign off on this list to indicate that on the date that it was issued, a complete list of pay points in South Africa had been provided. The reason for this was to ensure that when conducting the fieldwork a clear understanding could be obtained as to how many pay points needed to have their geographic coordinates captured and a questionnaire completed.

It became apparent in the time leading up to the fieldwork that it was not going to be easy to get a master list from the DoSD because of the complexity of the SocPen database and the high turnover of pay points in the different provinces. Therefore, it was agreed that a 'starting' list would be provided to the HSRC and this list would only be an approximation of all the pay points in the country. During the fieldwork greater clarity would then have to be obtained as to which pay points were still active and what new pay points had been recently opened. In other words, a master list would be created from the fieldwork. A 'starting' list was provided to the HSRC just before the fieldwork started and this list was used to create the registration list. The 'starting' list was received on the 20 June 2003 and it contained 'active' and 'inactive' pay points of the DoSD as of June 2003.

The registration list was used to get regional representatives of the DoSD to sign off against pay points for which they were responsible. By following this procedure, control could be maintained on the issuing of questionnaires for pay points on the registration list and new ones that were added by the representatives. This would also enable the fieldwork teams to keep control of what pay points needed their geographic coordinates edited or added. Unfortunately, the 'starting' lists provided by the DoSD were a highly inaccurate representation of what pay points actually existed in the field.

The main problem was that not only were there active pay points on the list, but also inactive, institutions and old pay points. This resulted in most lists having close to double the number of pay points that should have been dealt with in the fieldwork. Thus, in most regions, close to half of the pay points on the registration lists were classified by regional representatives as either duplicates of pay points already on the list or being inactive. Furthermore, many of the pay points had either changes in their names or pay point numbers. Many 'new' pay points were also added to the 'starting' list during the fieldwork.

This made the registration lists extremely complex and it became a difficult task to use these lists to create a master list, as was the original intention. The reason for this complexity is that the mechanism by which provinces allocate names and numbers to pay points is not strictly controlled nor is the mechanism by which pay points become inactive. For example, you find that in one province several pay points along a route will have the same pay point number while in another province each of the pay points along a route will have different numbers. This resulted in one questionnaire being filled in for several pay points because they had one pay point number while in the other instance, questionnaires were filled in for all pay points. Another example of the complexity of the system is that one pay point may have several pay point numbers. This happens when pay point numbers are allocated for the paying out of different grant types but from exactly the same locality.

4.2 Capturing pay point information

This sub-phase of the project ultimately resulted in a GIS database of pay points being created. The database contains the geographic location of just over 8 300 pay points with their associated attributes. To accomplish this several activities had to be completed. These included:

i) The organizing of the regional workshops;
ii) The preparing of the GIS data sets;
iii) The development of the questionnaire;
iv) Training of the people going into the field and the conducting of a pilot project;
v) Conducting the fieldwork and revisits;
vi) Coding and data capture from the questionnaires;
vii) Integration of provincial spatial data sets;
viii) Quality control and report production;
ix) Summary reports for provincial and regional offices.

4.2.1 Organizing regional workshops

It was identified throughout the implementation of the project that communication with the provincial and regional officials was essential to get their support for the workshops and their buy-in into the project. Therefore, a two-pronged strategy was used. Firstly, a presentation was given to the Heads of Social Security (HOSS) from the nine provinces on the 15 July 2003. Secondly,

letters were sent out to all the provincial departments requesting their support and the names of contact people in each of the provinces and social development regions that would help organize the workshops (Addendum 6). Once the DoSD provincial coordinators had been identified, they were also contacted telephonically and by E-mail. The schedule of visits to the different provinces was included in the letters to the provincial HOSS and a copy of the questionnaire accompanied the letters.

The letter also requested the HOSS to encourage their regional, district and service point staff responsible for particilar pay points to participate in the study. Telephonic contact was also made with the provincial and regional officials to confirm the dates when the workshops would take place, which pay points would be dealt with on the different days and arrangements were also made for venues where the workshops would be held. The workshops were schedule for a three-month period from the end of July 2003 to the beginning of September 2003 (Addendum 6). Because certain regions could not be completed in the time allotted to them and there being district officials who did not have enough information to complete the questionnaires or were unable to locate facilities, revisits to certain regions had to be done.

4.2.2 Preparing GIS data sets for the regional workshops

It was agreed at project team meetings that SITA would work with the HSRC in the preparing of GIS data sets needed for the workshops. SITA was given the responsibility of preparing the rural data sets while the HSRC was to do the data sets for the urban areas. The HSRC then also had the responsibility of integrating the rural and urban data sets at a provincial level. Eventually, the HSRC had to take the responsibility for preparing all the data sets for the 9 provinces.

The idea behind the workshops was that GIS Specialists would work with DoSD officials to identify on a computer screen the approximate geographic location of the pay points. As most of the data received from the contractors, the HSRC and the DoSD, had geographic coordinates already, the first task was to see if the pay points were in the database. If they were, then the task was to see if they were in their correct geographic position. If their geographic position was incorrect, then the points were moved to approximately their correct location. In the instance that the pay point was not in the existing GIS database then it was added by using the different GIS layers of information for reference purposes. Several different layers of information, which were prepared for this activity, were used to do this and are listed in the table below.

Table 1: GIS data layers used in workshops.

URBAN AREAS	RURAL AREAS
Land cadastre	Land cadastre
Streets	1:50 000 raster images of topocadastral maps
1:50 000 raster images of topocadastral maps	1:250 000 raster images of topocadastral maps
Stats SA sub-place names	Roads and rivers

URBAN AREAS	RURAL AREAS
Pay points	Stats SA sub-place names
Welfare regions	Geographical place names
	Pay points
	Welfare regions

4.2.3 Development of the questionnaire

The questionnaire from the previous pension pay point study done by the HSRC was used as the base to develop the new one. Originally, the questionnaire had been developed in consultation with the DoSD and had taken into consideration the Norms and Standards that the department had developed for pay points. The old questionnaire was found to be too lengthy and many of the questions were felt to collect inaccurate data or information that could not be used effectively for further analysis. Consequently, the questionnaire was shortened and the questions improved.

Demographers of the HSRC who specialize in questionnaire design were consulted before a first draft questionnaire was produced. This questionnaire was then circulated amongst project team members and to the DoSD. Inputs received from the different people were then incorporated into the final questionnaire (Addendum 7). The questionnaires were mail merged with the 'starting' list provided by the DoSD so that each questionnaire already had its own pay point number and name. The questionnaires were then produced and stacked in provincial and regional boxes. In most instances, the boxes were couriered to the relevant contact people in the provinces so that the GIS Specialist going into the field could collect them there.

4.2.4 Training people for fieldwork and the conducting of a pilot

A manual was produced by the HSRC for the training of the regional fieldwork teams. The main purpose of the fieldwork manual was to ensure consistency in approach and to ensure that critical aspects of the fieldwork were strictly adhered to. This included ensuring that regional representatives of the DoSD signed in against all the pay points that they were responsible for, so that a 'master' list could ultimately emerge from the fieldwork. Strict control also had to be maintained on the issuing of questionnaires and the geolocating of pay points to ensure that all pay points were accounted for in the field. A copy of the fieldwork manual is included as Addendum 8.

The fieldwork manual covered aspects such as:

- Preparing for the fieldwork (i.e. regions to visit, location of workshops, travel and subsistence arrangements, collection of data and equipment, filling in the necessary forms and proceeding to the workshop);
- Running the workshop (i.e. how to run the workshop);
- Filling in the questionnaires (i.e. instructions how to answer each of the questionnaires);

- Capturing of pay point geographic coordinates (i.e. instructions on locating pay points in rural and urban areas, updating information associated with pay points, use of GIS software);
- Recommendations that came out of the pilot study were also included in the manual.
- Auxiliary information such as the fieldwork schedule, letter to the provincial HOSS, provincial contact people, venues for the workshops and equipment required for the fieldwork was also provided.

GIS Specialists from the HSRC, DoSD, SITA and Imvelo participated in the training. The training of the fieldwork teams was conducted on the 30 July 2003. Part of the training involved the conducting of a pilot study that was conducted in two welfare regions in the Gauteng and Mpumalanga provinces, namely: Pretoria Central and Highveld (Nkangala). These two areas were mainly selected because they were close by and represented an urban and rural area, respectively. The pilot was conducted in these two regions on the 31 July 2003. The purpose of the pilot was to allow all fieldwork teams to put into practice what they had learnt the previous day and to go through the whole procedure that they were anticipated to go through when conducting a workshop. The pilot would also give them the opportunity to see where things did not work well and which ones did so that they could refine their approaches and be better prepared for the actual fieldwork.

4.2.5 Conducting the fieldwork

The initial phase of fieldwork was from the 4 August – 19 September 2003. The HSRC took the responsibility of organizing the dates and venues for the workshops with the provincial coordinators. The HSRC was also responsible for organizing the travel and accommodation for all the teams across the country. This was a mammoth task that was effectively managed with no real problems being encountered throughout the time of the fieldwork. Table 2 gives the schedule of trips to the different regions in the nine provinces.

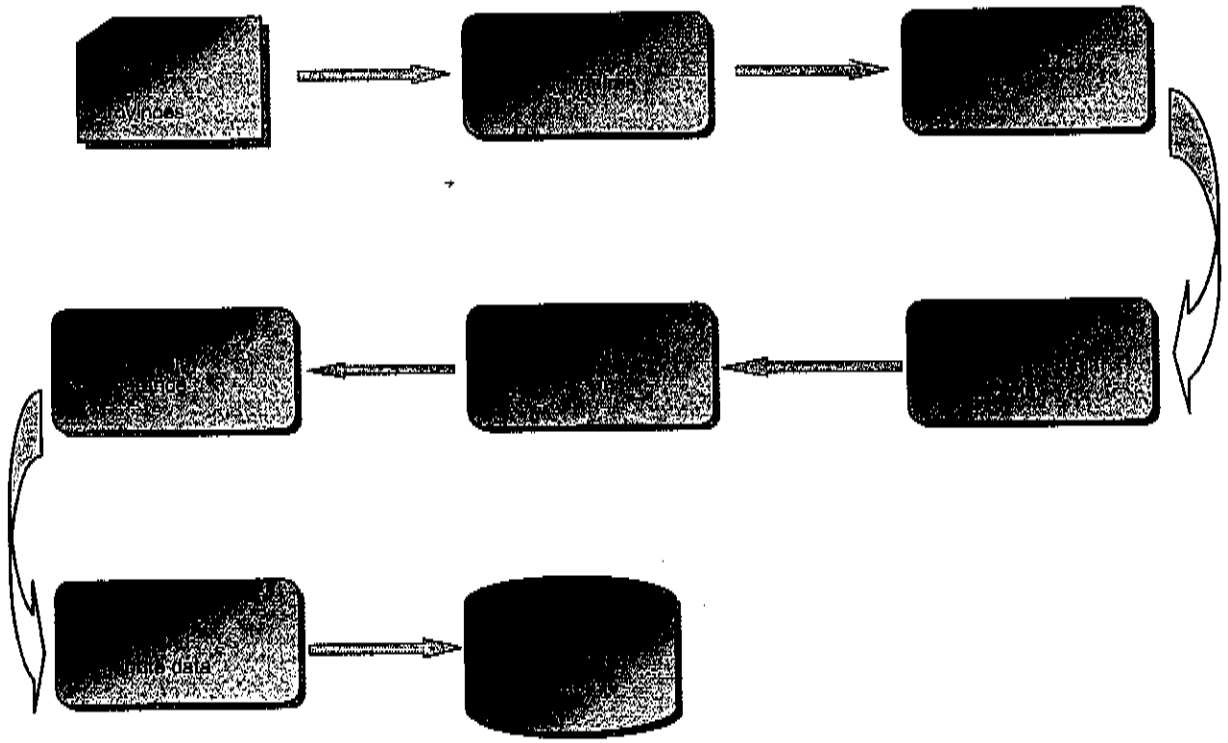
Table 2: Schedule of fieldwork trips

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
4-8 August	11-15 August	18-22 August	25-29 August	1-5 September	8-12 September	7-Oct
EC Workshop 1	EC Workshop 2			Pretoria	NW Workshop 2	NW Workshop 2
			MP Workshop 1	MP Workshop 2		
EC Workshop 3		LM Workshop 1	LM Workshop 2		West Rand	
		NW Workshop 1	LM Workshop 3		NW Workshop 2	
		NC Workshop 1	NC Workshop 2			
FS Workshop 1	FS Workshop 2		Johannesburg	East Rand		
			WC Workshop 1&2			
	KZ Workshop 1	KZ Workshop 2		KZ Workshop 3	KZ Workshop 4	

Several revisits had to be done because not all the districts in a region could be completed in the time allocated, problems were encountered with hardware, regional representatives were not properly prepared and had to return to their offices to collect the necessary information on their pay points. In this regard, three revisits had to organized. Two were to the Eastern Cape and one to the North West.

The process followed during this sub-phase of the project is illustrated in Figure 1 below. Once the teams had completed a particular workshop, they either moved to the next workshop or returned to Pretoria. At most, a team was in the field for a period of two weeks. On returning, the registration lists, completed questionnaires, updated GIS data of pay points and the equipment was handed over to the project management team in the HSRC. The questionnaires were initially collated with the registration lists before being coded.

Figure 1: Fieldwork process



4.2.6 Coding and data capture from the questionnaires

Coding is the process where textual responses to questions are allocated a code (i.e. given a numeric code for a predefined set of responses). Three questions had to be coded and these included the question about pay point opening time, town or village where pay point was located and municipality. The coding process is often a quite lengthy, but a necessary component of fieldwork. After the coding was completed, the responses to questions for each of the pay points could then be captured into a database.

The data management people of the HSRC facilitated the data capture and a professional data capture company was contracted to do the work. They double captured the data, which is a

standard procedure, to ensure that data is correctly captured from the questionnaires. Once the data capturing had been completed logical edits were done on the attribute data to see if the records match the answers captured on the questionnaire and whether the data makes sense. The data capture was completed in December 2003.

4.2.7 Integration of provincial spatial data sets

At the same time, the spatial data sets that had been received from the field for each of the nine provinces were integrated. The process that was followed initially was to standardize all the fields in the attribute databases linked to the pay points. This meant ensuring that the databases all had the same number and type of fields. This would enable them to be easily merged. Data sets coming from the field unfortunately did not adhere to the strict instructions given during the training which meant that much more work had to be done to get them into a format that would allow them to be integrated.

Furthermore, two separate databases were created for each of the provinces in the field. The first contained pay points that had been added while in the field. These pay points were added because they were not on the original registration lists and, consequently, were considered new pay points. The second data set contained pay points that were on the registration list and in the pay point database provided to fieldwork teams. However, the geographic positions of these pay points had to be checked and where necessary, moved to their correct position. In both databases edits were made to the names as well as the pay point numbers, where necessary. For each province these two spatial databases of existing and new pay points had to be merged. Thereafter, all the provincial data sets could be merged to obtain an integrated spatial data set for South Africa.

The final step that had to be taken in the development of the pay point database was then to integrate the spatial data with the attributes from the questionnaires. Initially, it was felt that using the pay point number that existed in both the spatial and attribute data sets could do this. It was immediately discovered that there were major problems. Firstly, there were pay points in the GIS database that had no attributes and, secondly, there were records in the attribute database that were not linking to a pay point.

After a more careful examination of the spatial and attribute databases, it was discovered, as was alluded to previously, that there were many pay points with the same pay point number or one pay point with many questionnaires filled in for it. Thus, when trying to link the spatial and attribute databases there were many uncontrolled links happening that were causing major problems. Consequently, to solve the problem the HSRC had to go through a series of stringent and time-consuming quality control processes.

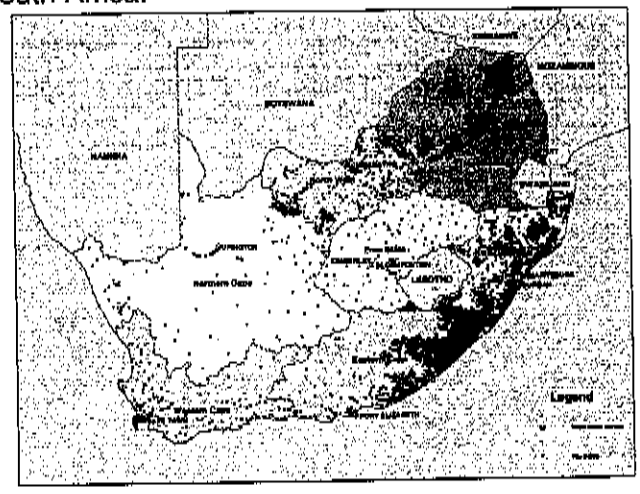
4.2.8 *Quality control and report production*

Several steps have had to be followed to enable the final pay point data set to be completed. The first was to try and allocate the unique identity key that had been given to each of the pay points when their questionnaire had been captured to the pay points in the spatial database. At that stage there were 9287 pay points in the spatial database and 8755 pay points in the attribute database that had been generated from the questionnaires. Consequently, the unique identity key from the attribute database had to be allocated to the spatial pay points. Initially, pay points that were unique in terms of their name and pay point number were separated and these linked to the attribute database. This resulted in 7185 pay points being given attributes.

In February 2004, version 1 of the spatial database was made available to the DoSD and contained mainly the geographic coordinates. This was provided so that the DoSD could start with the check-back procedure to see how accurately the pay points had been captured spatially and how accurate were the attributes collected on the questionnaires. For the remaining pay points that had not been linked to their attributes a painstakingly long and largely manual process had to be followed that allocated a unique identity key to all the pay points in the spatial database. After this process, a total of 7535 pay points had been linked to their attributes.

Version 2 was then made available in May 2004 and immediately the DoSD discovered that areas of the country had lost their pay points. A further examination of the data showed that pay points that had not been matched to a unique identity key had been excluded. Consequently, these pay points initially had to be identified from the original data sets that had come back from the fieldwork before they could be allocated their unique identity key so that their attributes could be linked to them. Version 3 of the pay point data set was then made available on the 15 June 2004. A total of 8313 pay points with their linked attributes are in this database (Figure 2). Version 4 of the data included a further refining of pay points to be included in and excluded from the data set. This data set contained 8138 points and was released on 12 July 2004. Reasons for excluding pay points from the data set was that it was not signed in on the registration list (therefore not part of the 'sign in' list), no attributes were attached to it or they had no geographic location.

Figure 2: Pay points in South Africa.



The finalizing of the master list was also completed (Addendum 9). This process involved checking the registration lists to see which pay points had signatures against them and indicating this in a 'master list' database. Furthermore, checks were done to see if there were any questionnaires that were not linked to a pay point in the spatial data set or if there were any problems with the attributes linked to pay points.

The DoSD also did a final stage of the quality checking. Representatives from the DoSD visited a selected set of pay points throughout the country where they usef GPSs to check the spatial accuracy of the pay points in the spatial database. They also checked to see how accurate the questionnaires were in providing attribute data for the pay points.

4.2.9 Summary reports for provincial and regional offices

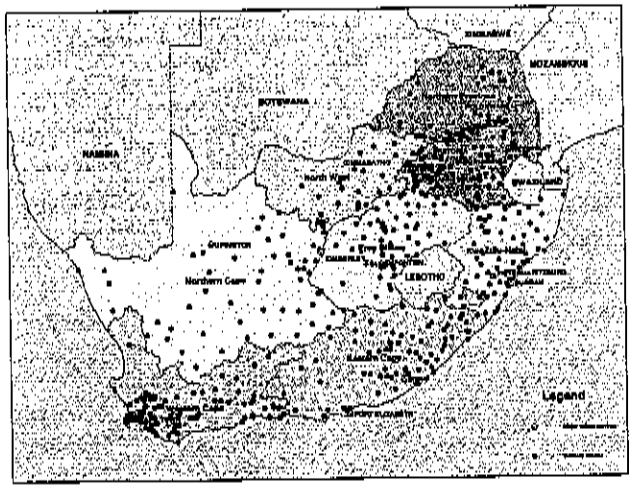
A final activity that was completed in this phase was the production of a set of summary reports for distribution to provincial and regional offices of the DoSD. In the initial project, provincial officials were critical of the study because they had not been given any feedback having contributed quite significantly to the work. These concerns have been raised again during the initial stages of this project. Therefore, the summary reports were produced to ensure that feedback was given this time. The summary reports consisted of provincial and regional maps showing the geographic location of pay points. Summary statistics on attributes associated with the pay points in the different provinces were also be presented (Addendum 10).

Initially, the idea was to use this process to enable the provinces and regions to give one final input into the accuracy of the data but because the process was so delayed, this would only create confusion as so much has changed in the provinces since the fieldwork was completed. What will now happen is that the final database that has been produced will be integrated into the SocGIS application and will form a foundation from which the spatial and attribute data of the pay points will be updated.

4.3 Capture of social welfare offices

The DoSD provided a complete list of the social welfare offices in South Africa to the HSRC. Using the physical addresses provided in the list, the social welfare offices were geocoded to a sub-place name level. The sub-place name database was provided by Statistics South Africa and originates from the 2001 census. Initially, a set of attributes were also collected for each of the social welfare offices but because of the difficulty in collecting this information, both during the fieldwork and telephonically, it was decided not to continue with this exercise. Figure 3 shows the distribution of these offices throughout the country. Quality control of this data set was also done.

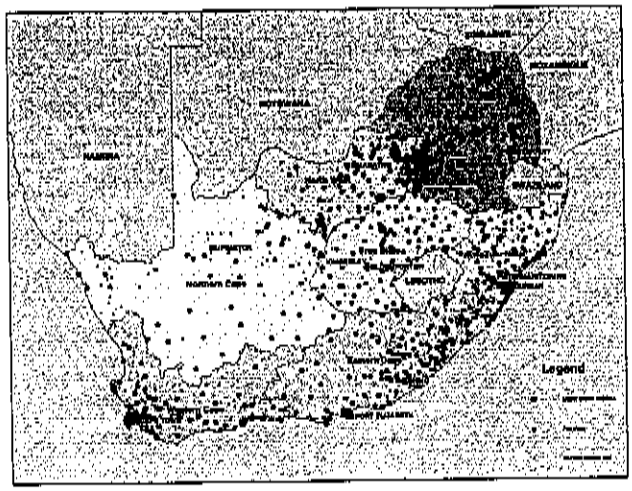
Figure 3: Social welfare offices in South Africa



4.4 Obtain Post Office and postal agency information

Fortunately, the HSRC's GIS Centre was busy with a project for the Department of Communications in developing a postal GIS system at the same time as that it was busy with the pay point project. This gave the GIS Centre all the necessary contacts with the South African Post Office who then made its information on post offices and postal agencies available for the project. The data was GPSed by the post office and, therefore, is reasonably accurate. Quality control of the data found some problems, which was brought to the attention of the Post Office and they were quick in fixing these problems.

Figure 4: Post offices and postal agencies in South Africa

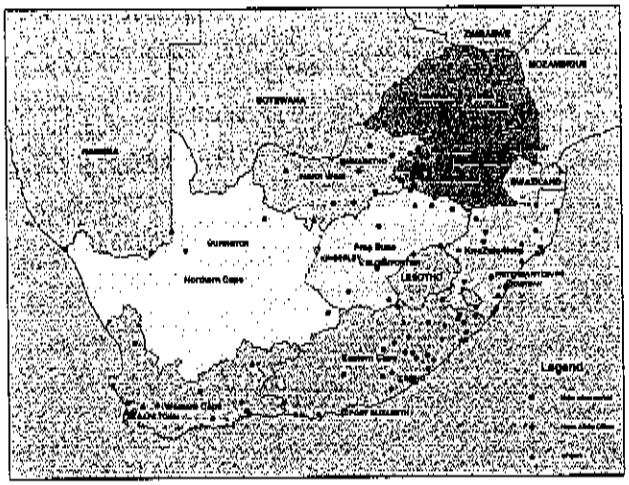


4.5 Obtain MPCC's and Department of Home Affairs' data

Both the Government Communication Information Systems (GCIS) and the Department of Home Affairs were contacted for lists of the Multi-purpose Community Centre's (MPCC's) and Home Affairs' offices respectively. A similar procedure was used to that of the social welfare offices in

geocoding the MPCC's and Home Affairs offices. Maps and tables of the MPCC's and Home Affairs offices were sent to their respective government departments for them to check the spatial and attribute accuracy of the data. Figure 5 shows the distribution of the MPCC's and the Home Affairs offices.

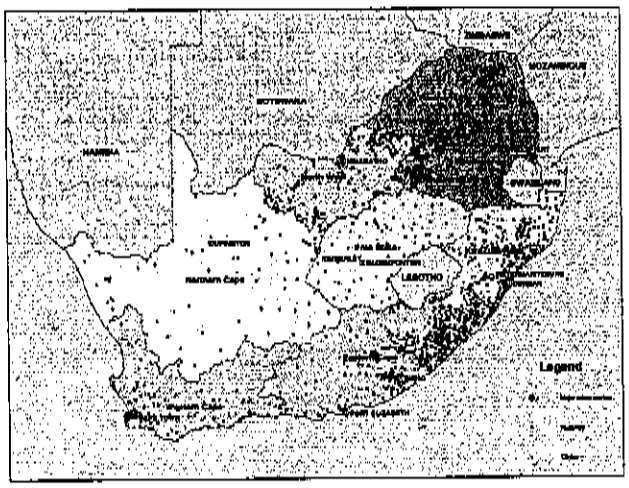
Figure 5: MPCC's and Home Affairs offices in South Africa



4.6 Obtain Department of Health hospital and clinic data

As part of a study done for the Department of Health in 2000, the HSRC was provided access to their hospital and clinic data sets. This data was compiled in 1996 and sourced from the original Rehmis data set of the department as well as from data sets of the HSRC and Medical Research Council (MRC). This data was captured using a combination of methods, including GPS and geocoding, which makes the data set inconsistent in its spatial accuracy. Furthermore, the attributes are also considered to be outdated and largely inaccurate.

Figure 6: Hospitals and clinics in South Africa



Therefore, a meeting was organized with the national Department of Health in 2004 to see whether a more recent data set for hospitals and clinics had subsequently been produced. The HSRC was

informed that funding had been made available for the updating of the health infrastructure data in Gauteng and that KwaZulu-Natal has consistently updated their data on an annual basis. The Department later confirmed telephonically that funding had also been secured for the hospital and clinic data in Mpumalanga to be updated and that this exercise was already underway. To supplement this data set of the national Department of Health, the HSRC's GIS Centre accessed hospital and clinic data from the provincial Departments of Health.

4.7 Obtain ancillary data

Firstly, the HSRC will provide the ancillary spatial data to the DoSD that were listed in the original project proposal. This included:

- national road and river data obtained from Surveys and Mapping;
- towns and settlement data from the 1996 and 2001 censuses of Stats SA;
- place name data sets from the HSRC's Plac database, the 1:250 000 and 1:50 000 place names databases of Surveys and Mapping;
- all the administrative boundaries of the country, including the provincial, district council, welfare regions, municipal and magisterial district boundaries;
- enumerator area and higher spatial levels of data from the 1996 and 2001 censuses from Stats SA.

Secondly, the raster images of the 1:50 000 topocadastral maps were purchased for the entire country to provide the DoSD with a reference layer of information to check the location of existing pay points and to enable them to digitise on screen the location of new pay points using the web based application being developed by GISCOE. One of the requests of the DoSD was that elevation data be acquired to enable them to do site location analysis for new pay points. Instead of accessing only the elevation data it was decided that it would be better to purchase the raster 1:50 000 topocadastral data because it provides the elevation data as well as many other important layers of information (e.g. hydrology, transport infrastructure, urban areas, rural settlements, etc). All of the data mentioned above is contained in CD's which were presented to the DoSD.

4.8 Integration and analysis of data sets

This sub-phase of the project was to enable the modelling of the social grant pay point data to see how they could be optimised in relation to the distribution of the beneficiary population, the banks of the financial industry and other government infrastructure, such as the MPCC's and the Post Offices. The unavailability of two data sets has significantly delayed this activity of the project. The first data set is the 2001 census data at an enumerator area level and the second is the banking infrastructure data. Initially, the 2001 census enumerator area data was to be released in April 2003 but was withheld by Stats SA because of confidentiality concerns and later because of

concerns about the quality of the data. In the past week a small area data set was released by Stats SA. The HSRC will acquire this and make it available to DoSD.

The second data set that delayed the project progress was the banking infrastructure (i.e. bank branches and ATMs). FinMark Trust took the responsibility of getting access to this data through the Banking Council of South Africa. The data would be made available through SABRIC, which is the arm of the Banking Council responsible for looking at the security of the banking infrastructure from a crime perspective. Before FinMark Trust could get access to the data a contract had to be signed between itself and SABRIC. In June 2004, FinMark Trust eventually got access to the banking data but could not make the data available to the project until all the major banking companies had given authority to do so.

In the meantime, the DoSD through SITA had negotiated with another arm of the Banking Council to get access to all the banking data. They were willing to release the spatial data only after the DoSD had given them access to the pay point data. This spatial data set was made available for optimization purposes to the project team.

To try and get this activity of the project started, it was decided that the project team could not wait for the release of the 2001 census enumerator area data and, therefore, the 1996 census data would be used. However, it was suggested that the 10% sample from the 2001 census be used to model the data to the level of the 2001 enumerator areas and this has only recently been done. Consequently, all the data sets needed for the analysis were integrated into ArcMap and transferred to Geographical System Research Bureau.

Metadata has been developed for all the data sets that were made available to the DoSD. The conducting of a workshop to look at the training needs of the DoSD has been forgone to enable funds for this activity to be allocated to the development of additional capabilities in the web based application that were not part of the original Terms of Reference (i.e. the reporting module).

4.8.1 Background to optimization of pay points

Stemming from a concern about the haphazard nature of the distribution network and the intention to broaden public access to pay points and improve the levels of services on offer, the Department decided to extend outlets for payment of pensions and grants to post offices and banks (ATM's), by utilizing modern electronic transfers of funds to beneficiary accounts.

Adding post offices and banks to the distribution system implies that some existing pay points may be unnecessary and could possibly be closed. A thorough investigation into the rationality and optimality of the existing distribution pattern of pay points was thus called for.

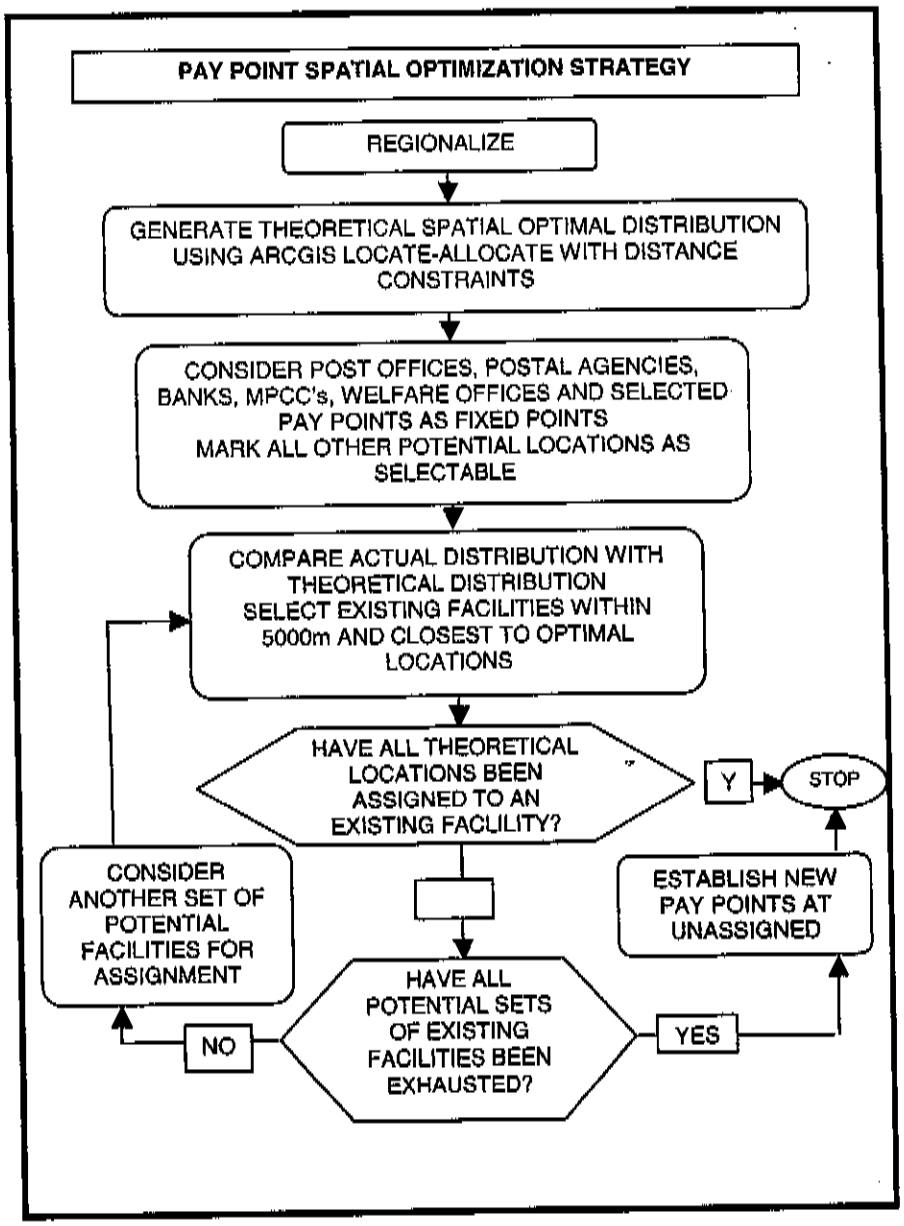
The purpose of this study was to research the current spatial distribution pattern and to propose a more optimal distribution network which would not only rationalize but also comply with the standards adopted by the Department. The methodology used and the results are discussed in the sections that follow.

4.8.2. Modelling methodology

The basic premise of this investigation was that pay points are a public good and that spatial efficiency should not be to the detriment of the populating being able to access such facilities. This meant that a methodology was sought that would provide a network of pay points that minimizes the total distance travelled and sets a maximum travel distance for beneficiaries. The latter is important to ensure that all individuals are within a predetermined travelling distance from a pay point in order to adhere to the service standards adopted by the Department. Various location-allocation models were investigated to select a solution that was most acceptable to the Department.

As beneficiaries live in diverse environments different maximum travelling distances were used in different types of regions. The methodology developed took this fact into consideration. The steps followed to derive an optimized distribution of service locations are shown diagrammatically in Figure 7 and are briefly listed below:

Figure 7: Flow diagram of pay point optimization procedure



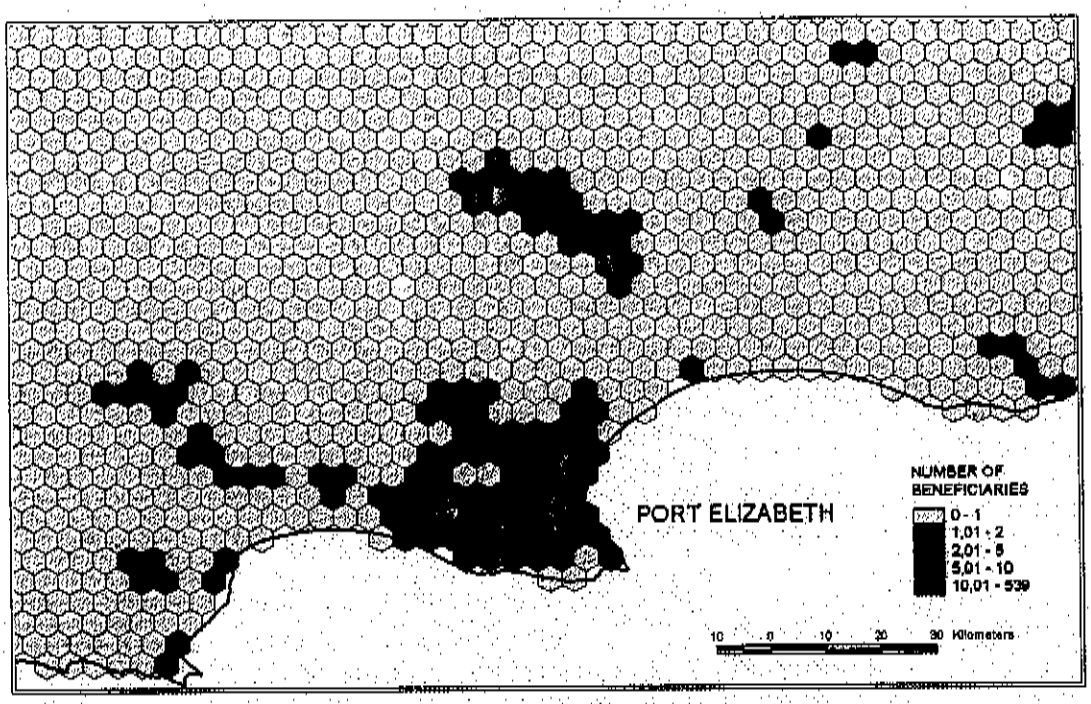
4.8.3 Regionalization and spatial disaggregation

Each province in South Africa was modelled independently to cater for the fact that welfare grants are currently administered at a provincial level. This regionalization was also dictated by the shear magnitude of the problem. To circumvent current computational limitations the problem was broken down into smaller subsets that could be solved within a reasonable time.

Another consideration was the fact that population densities vary substantially between different provinces. Models based on different spatial resolutions and maximum travelling distances were required depending on the nature of the area.

Spatial optimization modelling was done using regular tessellations or hexagons. The smallest spatial units on which analyses of most of the provinces were based were hexagons with side lengths (radii) of 2500m (Figure 8). Due to the high population concentration in Gauteng the size of hexagons in Gauteng was reduced to 1250m. At the other end of the scale the Northern Cape has extremely low population densities and a large spatial extent which resulted in hexagons with radii of 5000m being used.

Figure 8: Hexagons with 2500 m radii



Different maximum travelling distances in these three categories were necessary to find practical solutions. In most cases a maximum travelling distance of 20 km was used in the modelling process. Maximum travelling distances of 10 km and 50 km were used for Gauteng and the Western and Northern Cape respectively.

How the size and spatial distribution of the potential beneficiary population were determined from census data is documented in the next sections.

4.8.4 Definition of the beneficiary population

The spatial distribution of the beneficiary population was required in every province in order to determine where the optimum locations of service points should be.

4.8.4.1 Use of census enumeration areas

The only sources of information on the distribution of the potential beneficiary populations are the official population censuses. As was described previously the 1996 census data was used because the 2001 the data was not released at an appropriate spatial resolution. The smallest spatial units for which data from the 2001 census are available are at the level of sub-places.

Whilst these units may be acceptable for spatial modelling within the urban areas, they are too coarse for the rural component of municipalities. Rural parts of municipalities are handled as single large undifferentiated areas. It is extremely important to take population variations within these rural areas into consideration when locating service locations.

To overcome this problem it was decided that the 1996 population census data would be used to determine the spatial distribution of the beneficiary population, because the data was available at an enumeration area (EA) level.

4.8.4.2 Estimation of beneficiary population size

The numbers of grant beneficiaries in the Old Age Pensioner (OAP) and Child Support Grant (CSG) categories were determined from the 2001 Population Census by computing three sets of adjustment ratios between the 1996 and 2001 population census data. Census age categories that equated to these two beneficiary groups were identified. These census categories were male and female eleven years of age and younger, female aged sixty years and above and male sixty-five years and older. The income means test was applied to each of these categories by refining the population figures as set out in Table 3.

Table 3: Definition of census categories used for determining potential beneficiary populations and adjustment factors

Old Age Categories
1996 population figures for Single Female >= 60 yrs <R1000 pm
1996 population figures for Single male >= 66 yrs <R1000
1996 population figures for Married female >= 60 yrs <R2500 pm
1996 population figures for Married male >= 65 yrs <R2500
2001 population figures for Single Female >= 60 yrs <R1600 pm
2001 population figures for Single male >= 66 yrs <R1600
2001 population figures for Married female >= 60 yrs <R3200 pm
2001 population figures for Married male >= 65 yrs <R3200
(1) OldAge Ratio between 1996 and 2001 OldAge populations
Child Support Categories
1996 household heads <R1000 pm
2001 household heads < R1600 pm
(2) Ratio between 1996 and 2001 household heads
% 1996 heads <R1000pm with more than 1 member
(3) Household size adjustment factor = % 1996 heads <R1000pm with more than 1 member

The numbers of beneficiaries in the other grant categories cannot be determined directly from the census data. In order to estimate the total number of potential beneficiaries based on the 2001

census data, the number of potential beneficiaries in these other categories needed to be estimated. This was done by using the ratio between the OAP plus the CSG population and the Total number of grants in a province. This data was supplied by the Department of Social Development. The Grant Adjustment Factor was calculated as the inverse of this ratio. In the case of the Eastern Cape for example, this ratio was 0,93. This means that the age defined census categories account for about 93% of all beneficiaries and the other categories the remaining 7%. Thus a Grant Adjustment Factor of 1,07 can be applied to the age defined census categories to estimate the total number of potential beneficiaries in an area from population data in the Eastern Cape.

4.8.4.3 Estimation of spatial distribution of potential beneficiaries

The first step to estimate the spatial distribution of potential beneficiaries in a province was to adjust the 1996 population figures to the 2001 population totals. This was done by extracting the 1996 population totals for the age defined census categories to represent the Old Age Pensioners and CSG's as described in the previous section. The following ratios between the 1996 and 2001 population categories were calculated to determine the census adjustment factors for the province as a whole.

a) The Old Age Ratio between 1996 and 2001 was applied to the 1996 Old Age Pensioner categories per enumeration area to estimate the 2001 Adjusted Old Age per 1996 enumeration area;
b) The Household head ratios between 1996 and 2001 were applied to get the 2001 Adjusted 2001 CSG heads per 1996 enumeration area;
c) The 1996 Household size ratios were applied to get final CSG figures per 1996 enumeration area.

These ratios were applied to each census enumeration area (EA) in the 1996 population data set, assuming that the same provincial ratios are applicable.

Once the 1996 population data had been scaled up to the 2001 levels, the Grant Adjustment Factor was applied to the data in each EA in order to determine the total potential beneficiary population. The operational definition of the potential beneficiary population is thus the number of adults who collect grant payments on a monthly basis. This data set represents the spatial distribution of demand for social services and forms the basis on which service locations were modelled.

4.8.5 Determination of service capacities

The numbers of beneficiaries that can be serviced during a predetermined time period at the different types of service outlets were required. These values should ideally be determined per individual service point, whether it is a post office, bank or pay point. In the absence of any information of this nature a maximum capacity of 1000 beneficiaries was allocated to all service points, irrespective of its type. This value was derived from the Norms and Standards document

produced by Accenture. The value is not important for the location-allocation modelling process as it is not used by the model and does not affect the locations chosen by the model. However, it is useful to assess the allocated demand against the total capacity available in each hexagon, where more than one facility exists, such as where more than one post office, bank, or other selected service facility is located in close proximity to one another.

4.8.6 Specification of Location-Allocation model parameters

The ESRI ArcGIS model was used to optimize spatial locations of pay points in South Africa. This model provided most of the functionality required and had sufficient capacity to handle the large number of spatial units required by the application. The time used to complete a single run of the model was also acceptable. This allowed investigation of alternative scenarios, before choosing a final preferred solution.

To run the model required certain inputs that needed to be determined *a priori*, such as which locations will be considered as 'fixed' and which candidate locations as 'mobile'. 'Fixed' locations are automatically included in the final results (i.e. Banks, post offices, MPCC's, DoSD welfare offices etc.). Additional required locations are selected from the so-called 'mobile' set. Additionally, the type of model, the allocation heuristic and total number of points to be allocated had to be specified. In this particular case the Distance Minimization model was selected, so that it was also necessary to specify a maximum distance constraint. As most of these choices have already been motivated, it only remains to discuss the definition of 'fixed' and 'mobile' locations as well as the number of points to be allocated.

4.8.6.1 Determination of fixed locations

The location-allocation model used in this analysis allowed identification of certain locations as being 'fixed' and others as 'mobile' or 'replaceable. The locations of post offices, postal agencies, multi-purpose community centres (MPCC's), welfare offices and banks were considered as 'fixed' in the location-allocation model. This meant that these were all included in the solution of the model. These points were taken as 'given' as the Department of Social Development has no jurisdiction over their continued existence as they cannot be 'rationalized' by the Department. In addition to these facilities it was also decided to add certain pay points to this set of fixed locations, so as to utilize existing pay points that have good infrastructure. The criteria for including any pay points into the fixed set were those that had brick walls, roofs needing little or no maintenance, water and electricity. In terms of the model all hexagons that contained any of these facilities were marked as fixed locations. All other hexagons were candidates for selection of additional service locations in order to minimize the total distance travelled by beneficiaries in a province.

4.8.6.2 Specification of the number of locations to be allocated

Another parameter required by the location-allocation model was the number of locations to be allocated. As the number of fixed locations were known, given the distribution of post offices,

postal agencies, banks (ATM's) and selected pay points, it was necessary to find some method to determine the number of other locations. This was done by calculating the size of the beneficiary population located in hexagons that were not marked as fixed locations and by dividing this figure by 1000 (the maximum capacity per service location as specified by the Norms and Standards).

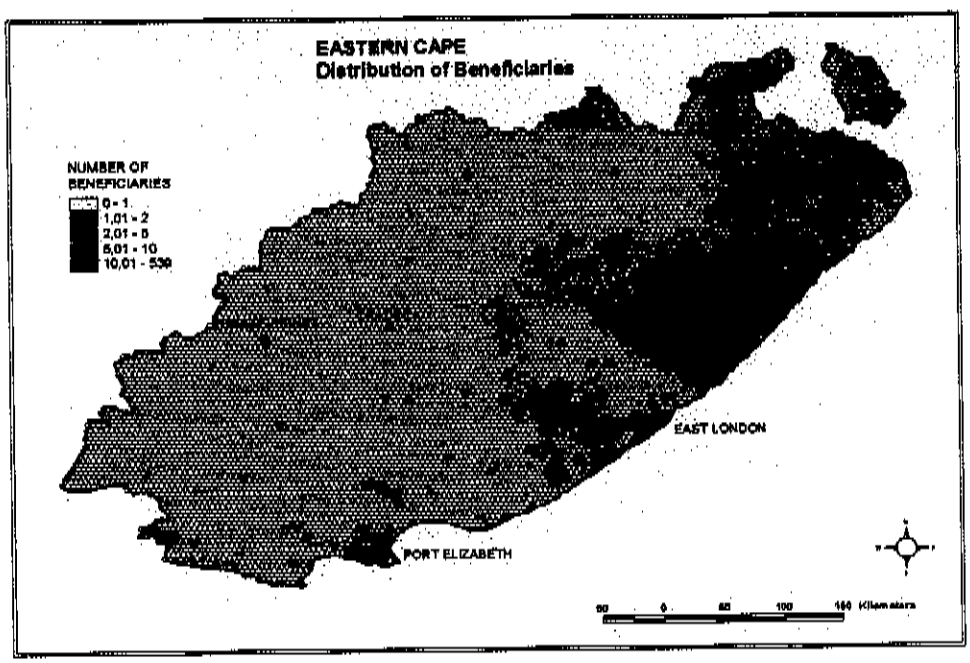
4.8.7 Location-Allocation modelling

This section details the processing that was done to prepare the beneficiary data for spatial modelling. It also describes the nature of the results obtained from the Location-Allocation model and the steps needed to relate these outputs to the actual locations and facilities that will be employed to service the beneficiary population.

4.8.7.1 Spatial data pre-processing

As the Location-Allocation model was run on a hexagonal mesh for each province it was necessary to determine the number of beneficiaries per hexagon. This was done by spatially intersecting the GIS layer of data containing the 1996 population census enumeration boundaries and adjusted beneficiary totals per EA with the boundaries of the hexagonal mesh created for each province. The beneficiary data in the intersected resultant layer of information was then recomputed per polygon by redistributing the population figures proportionally to the area of polygon in relation to the area of the EA of which it formed part. Once this has been done the beneficiary totals per polygon were re-aggregated (summed) per hexagon to obtain the final spatial distribution of demand based on the hexagons making up the province.

Figure 9: Distribution of beneficiary population per hexagon in the Eastern Cape.



4.8.7.2 Optimum theoretical location of service locations

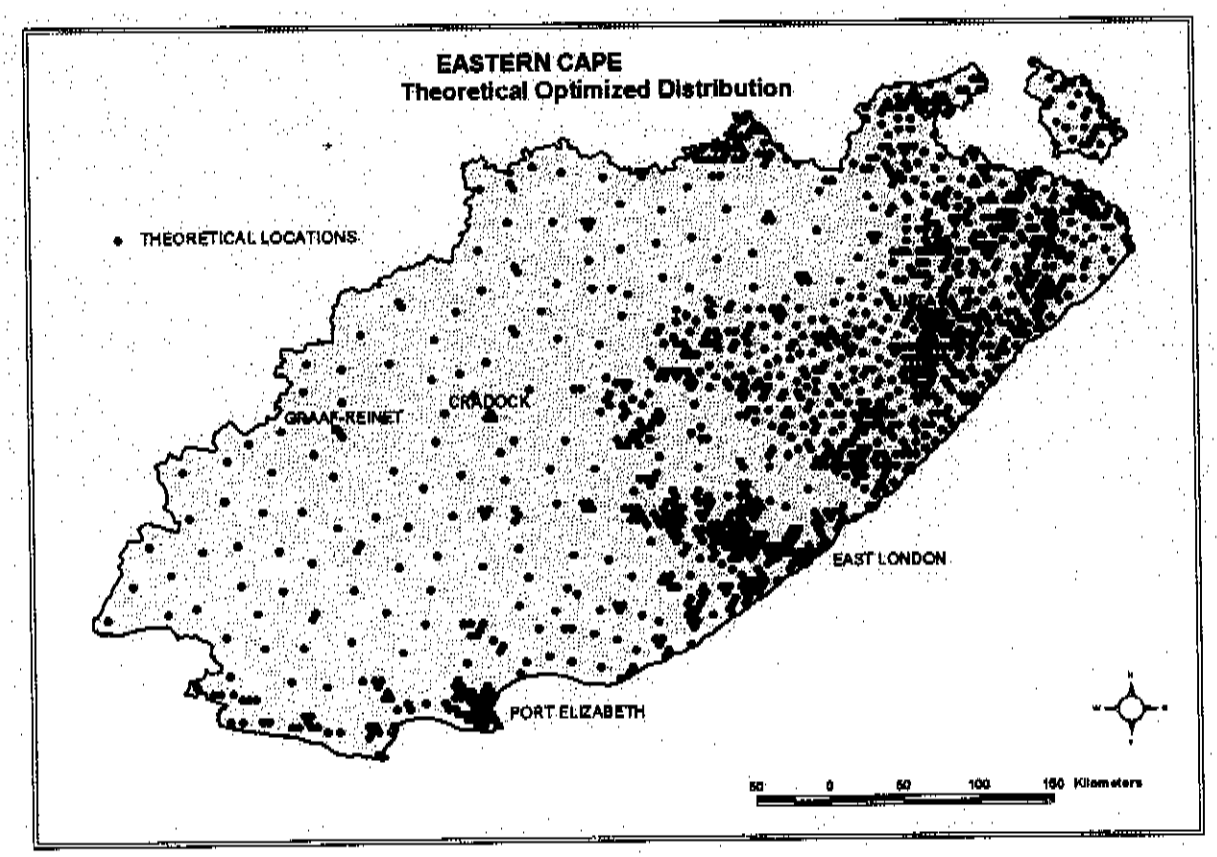
The Location-Allocation model produces an optimal distribution of service locations that incorporated all the fixed locations and those other locations that minimized the total distance

travelled by beneficiaries to reach these locations given the maximum travelling distance constraint. Additionally the model provided the following information for each selected location:

a) The mean distance travelled;
b) The maximum distance travelled;
c) The total demand at the location; and
d) The total capacity.

The distributions of optimal locations were based on the centroids on the hexagons. This distribution is referred to as a 'theoretical' distribution because the centroids of the selected hexagons could be located at a 'green field' location where there is no existing infrastructure or any other form of development. Although this result is useful as a benchmark, against which the current distribution of pay points can be assessed, it is not of any direct practical value.

Figure 10: Theoretical optimum location of service points in the Eastern Cape.



The results of the model needed to be made operational by finding the closest locations to these theoretical points with existing infrastructure and usable facilities. The model had to be 'put on the ground' as it were. The process whereby that was done is described in the following sections.

4.8.7.3 Assignment of actual service locations

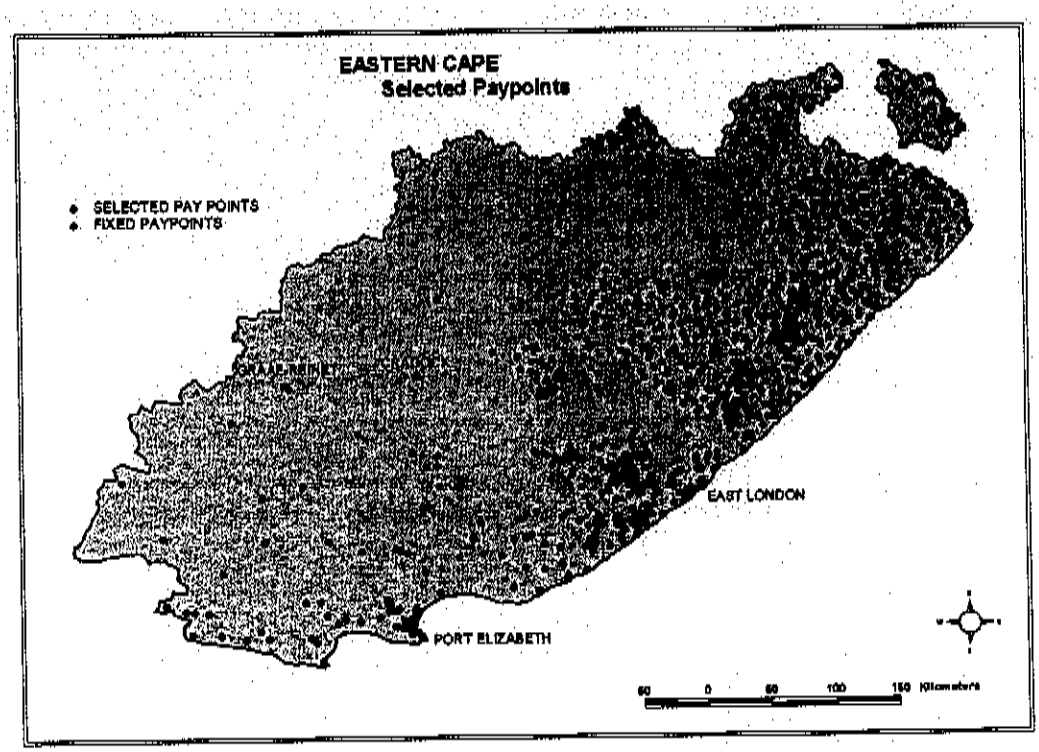
An iterative procedure was followed to determine which locations should be used as future pay points. All post offices, postal agencies, banks (ATMs), MPCC's and certain pay points had already been selected for inclusion in the results of the model as 'fixed' points, consequently these were retained.

In consultation with the Department of Social Development it was decided that the order of preference for selecting additional facilities would be:

a) Other existing pay points;
b) Government owned Schools; and
c) Clinics.

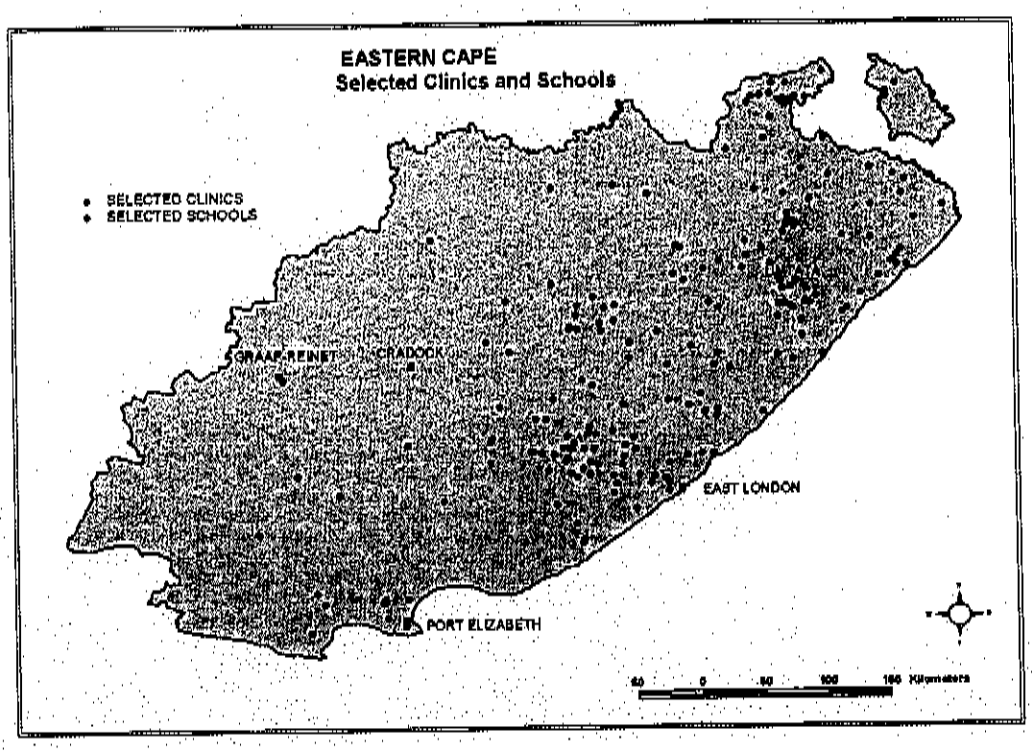
During the second iteration of the process the GIS was used to search for the closest pay point to each theoretical location. Only those closer than 5 km were retained. Each pay point found was assigned the ID of the theoretical location, and each theoretical location was assigned the ID of the pay point. This provided the necessary information to extract a list of pay points that should be retained for future use. It also marked those theoretical locations that had successfully been assigned an existing facility, so that the remaining subset of theoretical locations could be processed in the next step.

Figure 11: Pay points selected within 5km of theoretical locations in the Eastern Cape.



A similar process to that described above was followed to identify the closest clinics to theoretical locations, and the closest government schools in the final iteration.

Figure 12: Selected clinics within 5km of theoretical locations in the Eastern Cape.



Existing pay points, clinics and schools needed to be identified closest to the optimal locations, to act as geographical 'markers' for guiding the department of Social Development to locations where payments of grants should be made and infrastructure could be provided or upgraded.

Additionally, hexagons identified as fixed locations may also contain more than one existing pay point, so that it was also necessary to identify which of these pay points should be retained.

The procedure that was followed was to select the pay point that had the highest ranking and was the closest to the centroid of the hexagon. The latter condition was necessary in cases where more than one pay point existed with equal rankings.

These procedures also provided the following additional types of information:

a) Existing pay points, clinics and schools were identified that should be included in the list of future service points;
b) Existing pay points that could be phased out were identified;
c) Existing facilities that should be used to provide service to beneficiaries using the pay points that should be phased out were identified;
d) New service locations where there are no current facilities were located.

The next section gives an overview of the results obtained for all the provinces in the country.

4.8.8 Spatial Optimization Results

The methodology described was developed by testing the procedures on the Eastern Cape. This meant that all the required data processing and spatial modelling procedures were executed using the appropriate datasets for the pilot study on the Eastern Cape. During the experimentation phase various alternatives were tested to select the most appropriate procedures and parameters. Decisions were taken regarding the following aspects:

a) Estimation procedure for determining the size of the beneficiary population;
b) Methodology for distributing the beneficiary population spatially;
c) Calculation of the total number of service locations required;
d) Shape and size of smallest spatial units for modelling purposes;
e) Maximum travelling distance constraints;
f) Choice of fixed locations;
g) Type of spatial analytical model;
h) Methodology for assigning actual existing facilities to theoretical locations.

As already mentioned some of the model parameters were adjusted to suit local conditions in various provinces. The exceptions to the rule were the Gauteng, Northern and Western Cape. The size of hexagons in Gauteng was 1,25km and in Northern Cape 5,0km. Maximum travel distances were 10km in Gauteng and 50 km in Northern and Western Cape. Apart from these differences all provinces were processed in a similar way.

4.8.8.1 Accessibility Statistics

This section will firstly give an overview of the overall results obtained by the spatial optimization modelling and then discuss each province in greater detail in the sections that follow.

It is quite clear from the statistics in Table 4 that the country as a whole will gain substantially by applying the results of the analyses. Beneficiaries in all provinces will benefit to a lesser or greater degree. Those that stand to benefit most are the provinces of Mpumalanga, Free State, Gauteng, Northwest and Northern Cape. Limpopo and Eastern Cape will benefit least. In total more than 3 million beneficiaries (one third) will be better off after spatial optimization than before. On average people will have to travel shorter distances to service locations. The travel distances saved will amount to 58 million kilometres annually.

It is not only the individual beneficiaries that will benefit but also the Department of Social Development and eventually the taxpayers of the country, as the optimization will bring about a 24% reduction of the number of pay points that will need servicing by the department.

Table 4: Summary of accessibility statistics per province

PROVINCES	% With Improved Access	Estimated Number of People Benefitting	Shorter Travel Distance per Beneficiary (km)	Shorter Travel Distance per Annum (km)
Eastern Cape	9.5	135089	0.3	538269
Free State	71.8	485100	2.2	12832135
Gauteng	47.2	734272	1.2	10619369
Kwa-Zulu/Natal	21.5	368805	0.6	2505069
Limpopo	2.6	26254	0.1	38313
Mpumalanga	87.1	719608	2.6	22358032
Northern Cape	33.5	82789	2.6	2573998
North West	37.4	287795	1.1	3690092
Western Cape	24.2	247600	1.0	3107067
South Africa	**33.5**	**3087313**	**1.0**	**58262343**

Addendum 11 provides statistics on the size of the estimated beneficiary population per province and the number of service locations used in the optimization model. This is followed by Addendum 12 with statistics on the number of service locations selected by the model. Addendum 13 tabulates the model's accessibility output statistics. Addendum 14 contains all the maps showing current and optimized spatial accessibility surfaces for each province.

EASTERN CAPE

The model's results of Eastern Cape indicate that the number of pay points can be reduced by 49% by adding banks, post offices, postal agencies MPCC's and welfare offices and by locating pay points at more optimal locations.

Addendum 13.1 shows that the Eastern Cape is currently fairly well serviced by pay points. Optimization will bring about a more equitable distribution of service locations, so that some beneficiaries, notably those living within 2,5 km from their present pay points will be slightly worse off than before. If the minimum travel distance of 5km is used as the norm there is a 1,3% improvement on the current distribution. Overall 9,5% of the beneficiaries will benefit from the optimization. This equates to 135000 people. On average beneficiaries will be 0,3km closer to a service point. Total annual travel distance will be reduced by about half a million km.

The maps (Addendum 14.1 and 14.2) show that the eastern regions of the province will benefit most by a more even distribution of pay points. This sub-region is very sparsely populated, so that it may not be practical to provide fixed infrastructure at the identified locations. Alternative possibilities of serving these beneficiaries on mostly privately owned farms need to be found. The densely populated eastern sub-regions of the former Ciskei and Transkei are well serviced

spatially. Some rationalization could easily be achieved by reducing the number of pay points to those selected by the model, without compromising accessibility.

FREE STATE

The model results indicate that the number of pay points need to be increased by 57% to achieve a well-serviced solution in Free State.

The Free State stands to benefit greatly from an optimization of pay point locations. Table 4 shows that about 72% or nearly half a million of the beneficiary population will benefit by improved accessibility. Large gains are to be realized in all distance zones. This equates to 485100 people. On average beneficiaries will be 2,2km closer to a service point. Total annual travel distance will be reduced by about 12,8 million km.

The maps show that large rural areas are currently not well serviced by pay points. To solve this problem a similar solution to that sought for the eastern parts of the Eastern Cape is sought.

GAUTENG

In spite of the addition of a large number of banks and the addition of post offices and postal agencies, MPCCs and welfare offices and the retention of most of its current pay points, Gauteng will need to increase the number of pay points substantially to service the whole province more equitably (Addendum 13.3). By doing this the average travel distance will reduce by 1,2km resulting in a saving of 10,5 million kilometres in travelling distance annually. About three quarters of a million people will benefit from the proposed spatial optimization (Table 4).

LIMPOPO

Limpopo is currently well serviced by pay points. Spatial optimization will have a similar effect as in the Eastern Cape, by bringing about a more equitable distribution of service locations, so that some beneficiaries, notably those living within 2,5 km from their present pay points will be slightly worse off than before. Overall only 2,5% of the beneficiaries will benefit from optimization. This equates to 26254 people. On average beneficiaries will be only slightly closer to a service point. Total annual travel distance will be reduced only very little. The greatest benefit will be that these gains, although very modest can be achieved by reducing the number of pay points by nearly 50% (Addendum 12.4).

MPUMALANGA

Mpumalanga is also one of the provinces where additional pay points need to be established. By applying the recommended optimization 87% more beneficiaries will benefit from greater accessibility to a service location (719 608 people). The statistics show that people will on average be 2,5km closer to a service location. A huge reduction of 22 million kilometres in total distance travelled will be realized.

NORTHERN CAPE

The situation in the Northern Cape can be improved quite a lot, about one third of the beneficiaries, roughly 82000 people will benefit from better access to service locations even after reducing the number of pay points by 5%. Average travel distances will be reduced by 2,6 km per trip, resulting in an annual saving of 2,5 million km.

NORTH WEST

In North West the number of current pay points can be reduced by 21% (Addendum 12.7). About 37% more of all beneficiaries will benefit from the proposed spatial optimization. This equates to 287 795 people, who on average will travel 1,1km less per person per trip. For the province as a whole this will represent a saving of 3,1 million kilometres travelled less annually.

WESTERN CAPE

Western Cape is one of the provinces where additional pay points need to be established (addition of 54%). By applying the recommended optimization 24% more beneficiaries will benefit from greater accessibility to a service location (247 600 people). The statistics show that people will on average be 1,0km closer to a service location. An annual reduction of 2,6 million kilometres in total distance travelled can be achieved.

4.8.9 Final Comments

Any modelling exercise makes certain simplifying assumptions. It is not possible, practical or even desirable to incorporate all possible detail into a modelling methodology. A good model is a trade-off between complexity, completeness, efficiency, effectiveness, robustness and affordability. The art and science of modelling is to identify the most important elements that should be incorporated into the model and to ensure that choices made are reasonable and acceptable in order to achieve meaningful results without over-elaboration. The current model complies with these requirements and produces meaningful and useful results for improving the spatial efficiency of the current service delivery system. It brings service locations closer to the population thereby improving accessibility, whilst at the same time reducing the number of pay points needed by the Department of Social Development. If the results are applied it will lead to improved overall service efficiency at a lower cost, by reducing the number of pay points identified for future upgrading.

5. DATA MAINTENANCE AND DISSEMINATION TOOL

GISCOE was sub-contracted to design a web application tool for the DoSD through which pay point information can be updated, viewed, queried and mapped (Addendum 15). The application has been named SocGIS and runs on ArcIMS map service software. In order for the application to operate according to the DoSD requirements an input routine from the DoSD's SocDev has been established. This has been done successfully and data is downloaded to SocGIS within 10 days of the end of each month. The data is received in a read-only format. A major problem with the development of the application was the fact that pay point numbers were not unique. This delayed

the development of the product, because unique numbers had to be allocated and ways devised to indicate that a pay point number could refer to more than one physical facility.

Attribute data emanating from the fieldwork was aggregated to various spatial levels for this application. The DoSD can now obtain summaries of pay point data at a DoSD region level, municipality or provincial level. Region codes from SocDev are however not consistent with the spatial extent of DoSD regions and in consultation with the DoSD it was decided to standardise on the spatial extent of the latter.

Initially the application was to be housed on the HSRC server, but the DoSD preferred to buy their own server for this purpose. The application has been installed on the DoSD server and training has been provided to the relevant individuals.

The application interface consists of six tabs (Figure 13) and these will be discussed in detail to indicate the functionality of the system. These main tabs are:

a) Facilities
b) Editor
c) Maps
d) Report
e) Users
f) Help.

Figure 13: SocGIS main page

5.1 Facilities tab

The Facilities tab has a searchable list of facilities. One can use the SEARCH button to find a facility. If one searches based on the official number it is only necessary to type in the first few numbers before selecting the search button. All records that start with the search criteria will be displayed.

Once a facility has been selected seven sub-tab options become available and various attribute information can be captured on screen i.e.

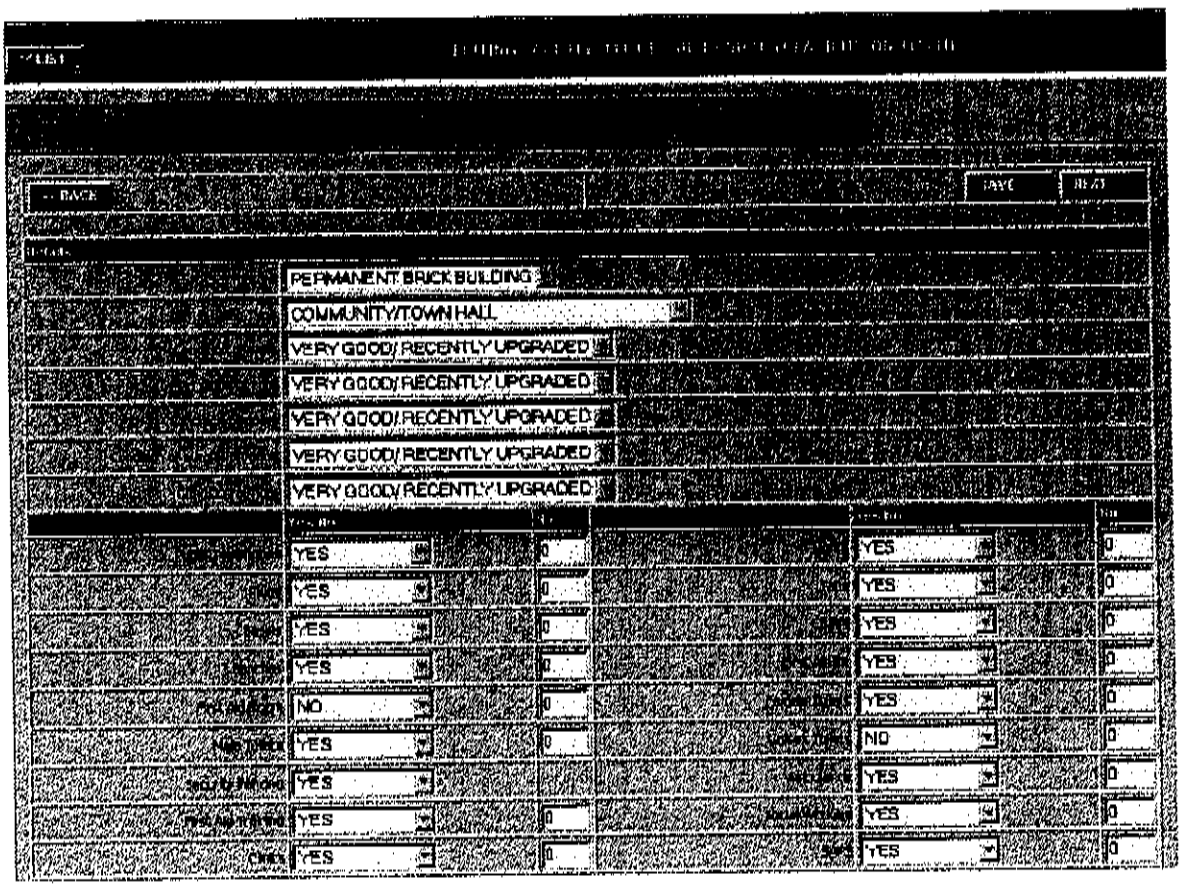
- Facilities general
- Facilities infrastructure
- Facilities operational

- Pay Point general
- Pay Point Social Grants
- Pay Point Child Beneficiaries
- Pay Point Grant Summary.

Facilities General tab contains the general facility information as well as the physical and postal addresses. Dropdown lists are available for some fields. Data contained in all the displayed fields can be edited.

The Facilities Infrastructure tab houses data on the pay point physical building structure. These include among others the building type, condition, water and electricity (Figure 14).

Figure 14: Facility Infrastructure tab



The Facilities Operational sub-tab contains information about operational issues regarding the pay point. This includes pay point opening times, number of beneficiaries served, data on helpdesk facilities and payment methods used. The Pay Point General tab houses only four fields of data. These include the pay point name, number, the region number and province.

The Pay Point Social Grants sub-tab generates reports for the following types of grants:

- Disability

- Grant in Aid
- Old Age
- War Veteran
- Children.

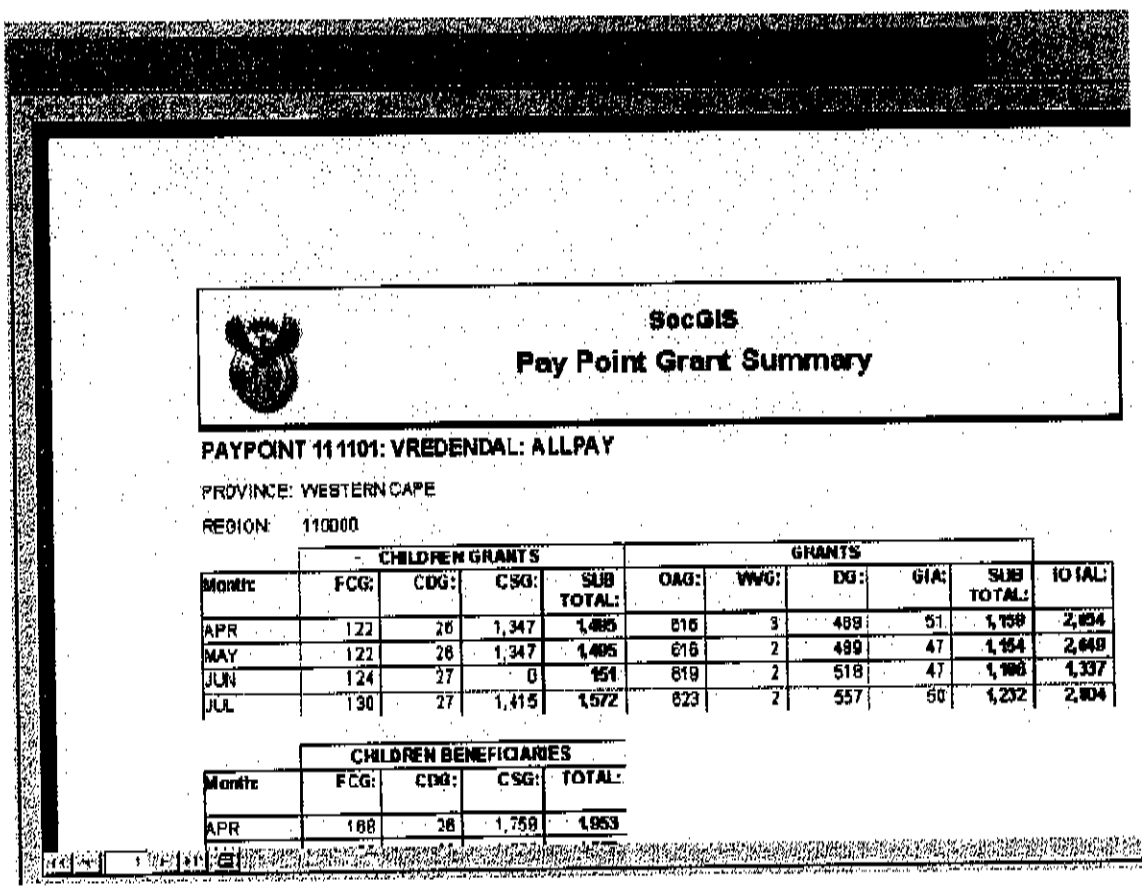
These reports give a breakdown by gender and age group of the number of beneficiaries in each of these categories per month. The reports are based on data received from SocDev monthly.

In the Pay Point Child Beneficiaries sub tab displays reports on the following categories of beneficiaries. These are also summarised by gender and age group per month.

- Foster care
- Care dependency
- Child support.

The last sub tab under the Facilities General is the Pay Point Grant Summary tab. This report lists the total recipients and child beneficiaries for all the grants for each month at a pay point (Figure 15).

Figure 15: Summary of all grants per pay point per month



SocGIS

Pay Point Grant Summary

PAYPOINT 111101: VREDENDAL: ALLPAY

PROVINCE: WESTERN CAPE

REGION: 110000

	CHILDREN GRANTS				GRANTS					
Month:	FCG:	CDG:	CSG:	SUB TOTAL:	OAG:	WVG:	DG:	GIA:	SUB TOTAL:	TOTAL:
APR	122	26	1,347	1,495	616	3	489	51	1,159	2,654
MAY	122	26	1,347	1,495	616	2	499	47	1,154	2,649
JUN	124	27	0	151	619	2	518	47	1,186	1,337
JUL	130	27	1,415	1,572	623	2	557	50	1,232	2,804

	CHILDREN BENEFICIARIES			
Month:	FCG:	CDG:	CSG:	TOTAL:
APR	168	26	1,759	1,953

5.2 Editor tab

This tab has the functionality to view the data spatially, search for a specific facility (pay point), move the location if required and manage facilities without a spatial point via the exception report. No GIS software or experience is necessary since the system is menu driven.

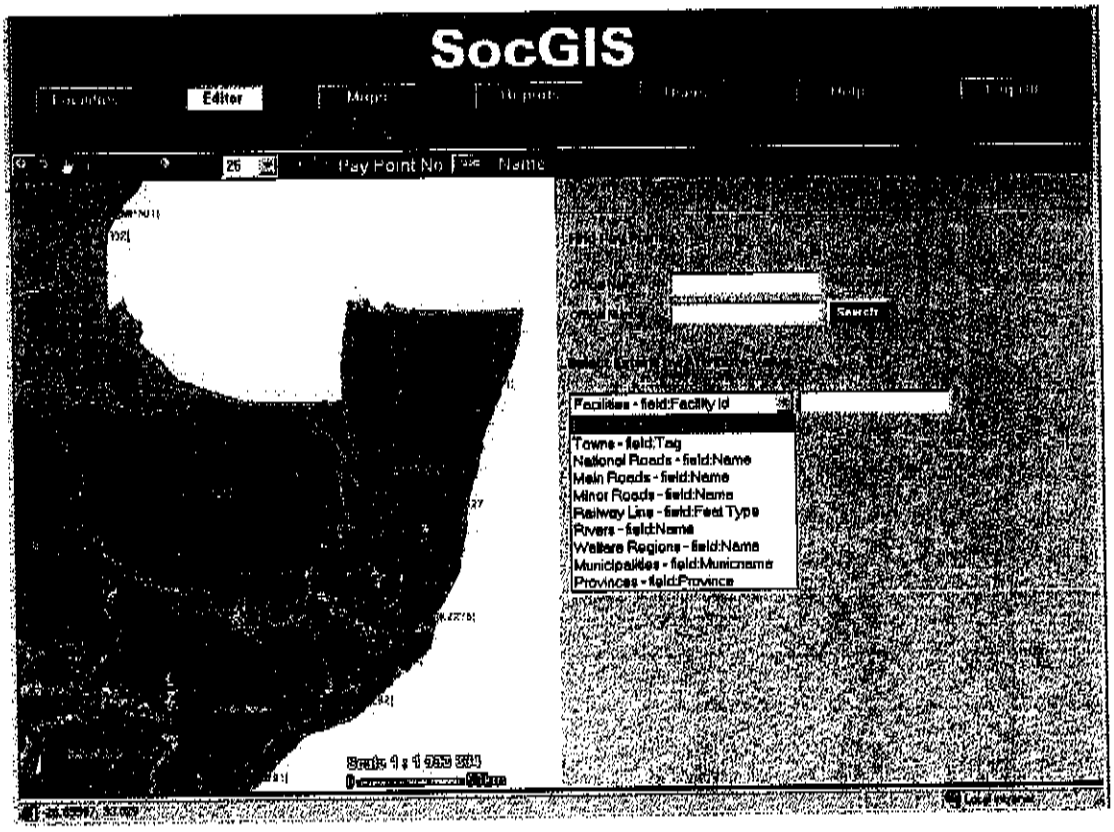
The Editor tab has the following sub tabs:

- Layers
- Search & zoom
- Editor
- Exception report
- Legend

The Layers sub tab allows the user to switch data layers on and off as well as choosing the active layer. The query function uses the current active layer, which is selected by clicking the radio button next to the layer name. The layers of data provided are: pay points, towns, national, major and minor roads, railway lines, rivers, welfare regions, municipalities and provincial boundaries.

The Search and Zoom tab (Figure 16) enables searches for a specific pay point by using either the Official Name or the Official number. Alternatively you can search on any feature or you can zoom to a point by giving the XY coordinates. In all cases one can simply use partial entries for searches.

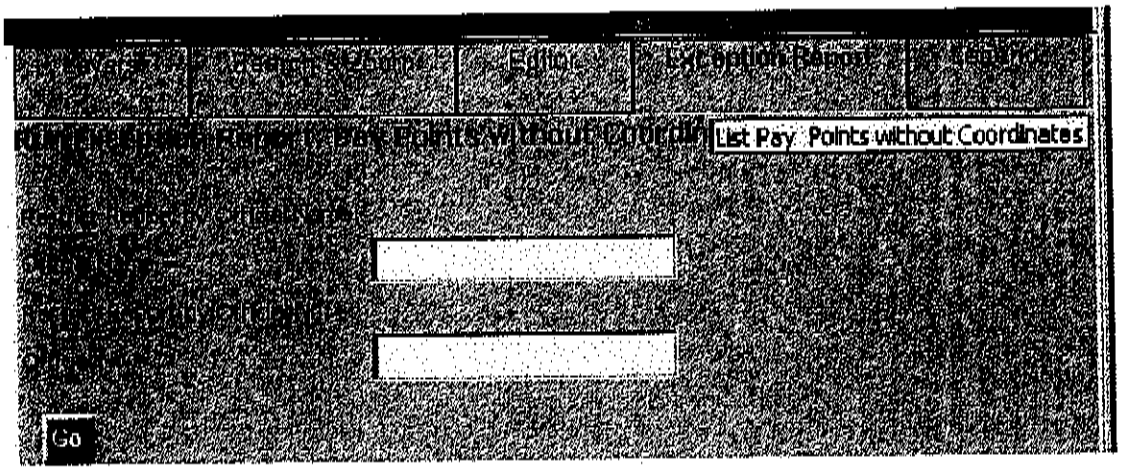
Figure 16: Search and Zoom tab



The Editor sub tab allows the adding of new pay point locations or updating of existing XY coordinates. Three options are available viz. new positions can be digitized, existing coordinates can be edited (by selecting the Edit XY button the current coordinates are displayed). It is also possible to zoom to a specific XY coordinate to edit. Once the correct coordinates have been captured the information must be saved. Errors can be deleted and replaced with the correct information.

The Exception Report tab produces by default a report of all the pay points without a spatial reference. By pressing the "Go" Button and leaving the search fields empty, the system will return all the records in the database (Figure 17). To filter the exception report one can look by official pay point name or official pay point number.

Figure 17: Exception report tab



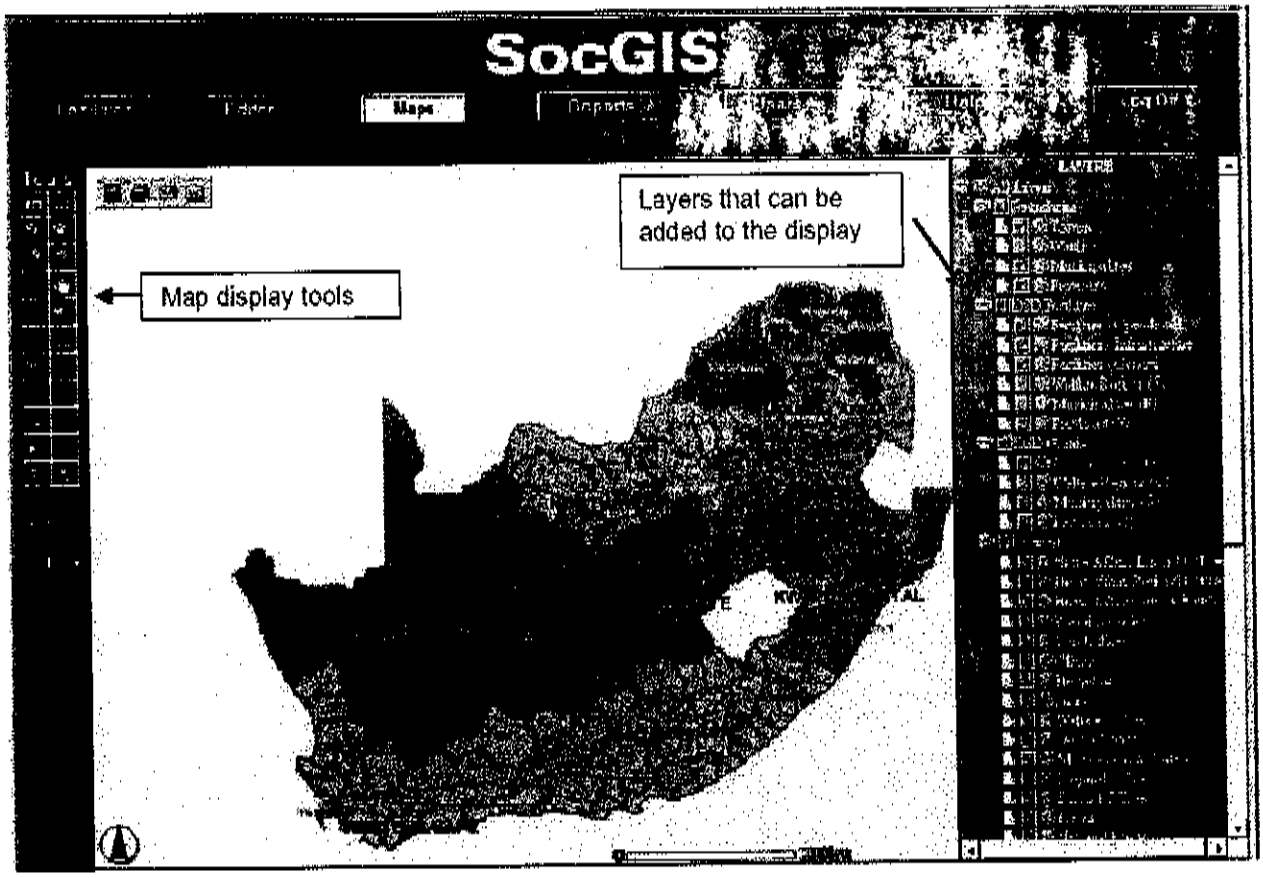
The Legend tab displays a legend of the visible map layers currently switched on.

5.3 Maps tab

The Maps tab is used to produce user-defined maps on the fly. A map service has been designed to enable the department to create their own maps to be used for reporting purposes. No GIS software or experience is necessary as the system is menu driven. An easy to use template has been included to create maps which can then be printed.

The map layers are grouped by scale and theme (Figure 18). The viewer allows the user to choose the layers to be displayed. The magnifying icon indicates that a particular layer is not visible at the current scale (the upper and lower scale limits are pre-defined).

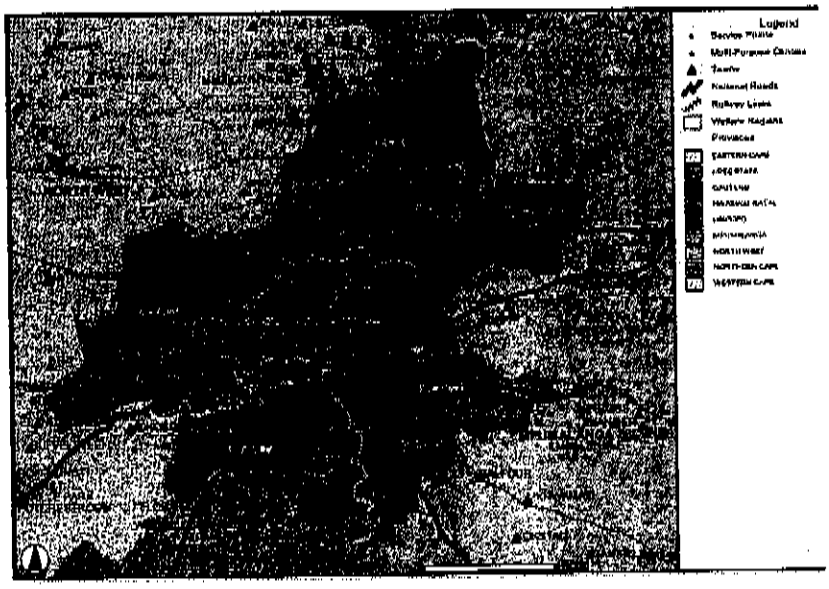
Figure 18: Maps tab



The toolbox is displayed on the left of the screen and is a button bar that carries various buttons or map tools. The buttons are decorated with pictures that try to suggest the button's use. These are discussed in more detail in Addendum 15.

The middle part of the Maps tab, contains the map frame (Figure 19). This area displays the main map.

Figure 19: Map frame



To the right hand side of the map frame is the table of contents. This displays a list of all layers available.

5.4 Reports tab

This tab allows a range of report formats and types to be created. Once generated these can be saved or printed. This is the additional feature that was created for DoSD and would increase their short-term decision-making. Reports are broken into two types, namely:

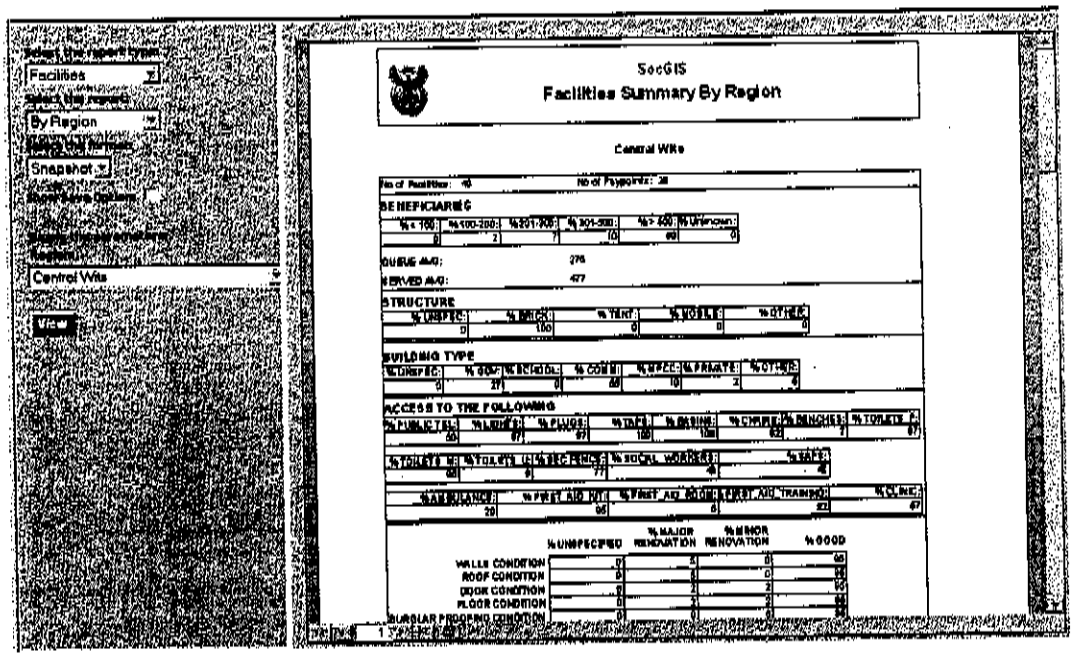
Facilities (see Figure 20)

Report Name	Description
By Municipality	Aggregation of facilities information to the level of municipality. Data is represented as percentages
By Region	Aggregation of facilities information to the level of welfare region. Data is represented as percentages
By Province	Aggregation of facilities information to the level of province. Data is represented as percentages
History	This indicates changes that have been made to the database.
List: General	This is a list of the general details per facility organised and sorted per municipality, region and province.
List: Operational	This is a list of the Operational details per facility organised and sorted per municipality, per region and per province
List: Infrastructure	This is a list of the Infrastructure details per facility organised and sorted per municipality, per region and per province
Without Spatial	This is the list of facilities that do not have a spatial reference

Grants

Report Name	Description
By Region	Aggregation of grants information to the level of the Region. Data is represented as average counts for the current financial year.
By Province	Aggregation of grants information to the level of the Province. Data is represented as average counts for the current financial year.
List: Averages	This is a list of the general grant details per pay point organised sorted per municipality, per region and per province.
List: General	This is a list of the general grant details (active/ non active) per pay point organised sorted per municipality, per region and per province.
PayPoint Summary	This is a summary of Pay point information per pay point.
Without Facilities	This is the pay points which are indicated to be active, but to which there are no facilities.

Figure 20: Summary report based on facilities



5.5 Users tab

The Users tab allows the system administrator to add users and manages their level of access to the system. Once assigned a user is able to edit their details. All users are able to view data, but not everyone can edit data.

6. CONCLUSION

From the onset, let it be stated that this is one of the most important GIS projects to be done in South Africa in recent years. Although delays and problems were experienced because of the complexity of accessing information on the pay point system in South Africa, the project has now been successfully completed. One of the most important lessons to be learnt from this project is that sufficient flexibility must be built into the project design to cater for such delays and problems. However, a balance needs to be negotiated between flexibility, an increase in the time to complete the project and cost. Considering the above and all that has been written in previous sections the project team has done well in completing this project. The end product being a database of 8138 pay points that have had their approximate geographic location defined and a set of attributes collected for them.

A further lesson to be learnt is the need to ensure that facilities or services, such as the pay points, should always have only one unique identity key. If this had been the situation with the pay points of South Africa then the delays in integrating the spatial and attribute databases and designing the application would probably not have happened. Presently, the allocation of numbers to pay points is complex (e.g. many to one or one to many), which makes the development of efficient

management information systems difficult. Consequently, it is strongly recommended that greater control on the allocation of numbers to pay points, including unique numbers, should be exercised.

This would also facilitate the DoSD being able to quickly produce a master list of all their pay points at any given time. In retrospect, and considering the experience gained in the initial pay point project, the work should possibly not have continued until such time as the DoSD was able to produce a list that at least resembled a master list. Fortunately, the DoSD has recognised that a master list could not be developed because of the complexity of the SocPen system and the high turnover of pay points. Consequently, the DoSD also recognized that the project at best would provide a solid foundation from which the spatial and attribute information of pay points could be updated through the web based application being developed for them.

Finally, some perspectives on using a workshop approach to collect the spatial and attribute information associated with the pay points. A positive aspect is the cost effectiveness of the approach as it provides a complete a picture of the pay points without field teams having to travel to each and every pay point on a particular day when it is operational and the necessary people are there to fill in the questionnaires. However, what is known is that it will not necessarily provide sub-metre spatial accuracy for the pay points. Nevertheless, it can be argued that this approach would probably provide more comprehensive and timely information on the attributes of a pay point.

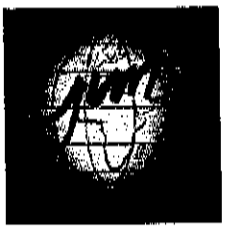
A further advantage is that it is believed that greater buy-in to the whole process is achieved when officials are brought together in a workshop to openly discuss their pay points and the problems being experienced. If the workshops are well organized, as was the case with this project, then it can be concluded that it is an acceptable method of collecting both spatial and attribute information associated with facilities such as the social grant pay points. However, when dealing with people and a complex system such as that of the pay points problems must be anticipated and sufficient flexibility built in to allow time to solve the problems.

The project has achieved significant milestones in the understanding of issues related to the delivery of social grants. Firstly, a database of all pay points in the country has assisted the DoSD in obtaining a working platform for future planning and service delivery. The creation of a web-based asset application has enabled officials from the DoSD to update and edit the national database on pay points from regional offices effectively. As the process of capturing and updating attributes of pay points can now be decentralised to provinces with storage and quality control being done centrally by DoSD, the responsibility is shared. The last milestone of the project, the suggested optimization of pay points, has allowed the DoSD to envisage the future network of pay points for the country. This project has provided the DoSD with a powerful planning tool that can be used to deliver services effectively to the most needy in South Africa.

ADDENDUM 1

AMENDED PROJECT PROPOSAL

HSRC
GIS Centre



CREATING A PENSION PAY POINT GIS FOR SOUTH AFRICA (VERSION 3)

ORIGINAL

DRAFT: FOR CONSIDERATION ONLY BY
DEPARTMENT OF SOCIAL DEVELOPMENT

Prepared by:
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Private Bag X41
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0001
In collaboration with:

Geographical System Research Bureau
SITA
Imvelo GIS
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GISCOE

Prepared for: Department of Social Development

1. BACKGROUND

This proposal is being developed in response to terms of reference provided by the Department of Social Development (DoSD) in South Africa and the FinMark Trust. These terms of reference stem from the DoSD's need to provide social security services to the people of South Africa, especially pensioners, and FinMark Trust's need to provide financial services to the "unbanked" population in the country. More recently, the DoSD commissioned a number of studies that enabled the Department to recognize that by integrating existing financial infrastructure, mainly in the urban centres, with pension pay points (hereafter referred to as pay points), could dramatically improve the Department's operational efficiency. As pensioners form an important part of the "unbanked" population in South Africa it is logical that the DoSD, which has access to information on pay points and the number of beneficiaries, and the FinMark Trust, which has access to financial infrastructure, collaborate with each other.

In recent years, the DoSD has found it increasingly difficult to provide a satisfactory level of social security service. This is because of the large number of different types of pay points that they have to maintain, shortages of staff and the diversity of services they have to provide. Over and above this, the DoSD has to ensure that all pensioners and those qualifying for grants in South Africa have suitable access to services that enable them to receive their pensions and grants. Therefore, the Department has committed itself to standardize the quality of its service, improve on its operational efficiency and develop instruments for monitoring and evaluating its performance on a continuous basis. To demonstrate its willingness to improve the conditions of such services, the DoSD has produced its own norms and standards to ensure efficient and effective delivery of its social assistance programme.

For the above to be achieved the DoSD recognized the importance of defining the geographic location of approximately 7 700 pay points and social security offices throughout the country. By having a spatial understanding of the location of all pay points, their related infrastructure and services the Department recognized that they would greatly enhance their decision-making capability, especially in relation to defining the extent of finances required to sustain the pension pay point infrastructure. The GIS Centre in collaboration with the DoSD undertook this study. A self-administered questionnaire was distributed via provincial and regional offices of the DoSD to collect detailed information on the pay points. By employing this methodology, just over half the pay points could be audited. Further attempts have been undertaken to add to this information using similar approaches, but with limited success. Therefore, a more comprehensive approach is now required to ensure that a complete register of pay points is produced for South Africa.

Although just over half of the pay points were initially audited, this data enabled the department to obtain an idea of the extent and condition of their services for the first time. It also contributed to a better understanding of the needs and expenditure required to standardize its infrastructure. It was as a consequence of this study that the DoSD was forced to rethink its approach to providing infrastructure for the distribution of social grants and to think of the possibility of using infrastructure of financial institutions in South Africa as a means of paying pensioners, especially in urban areas. However, for this to be put into operation a thorough understanding of the geographic location of all pay points and their associated attributes are required. The intention of this proposal is to provide the most cost effective approaches for this to be accomplished.

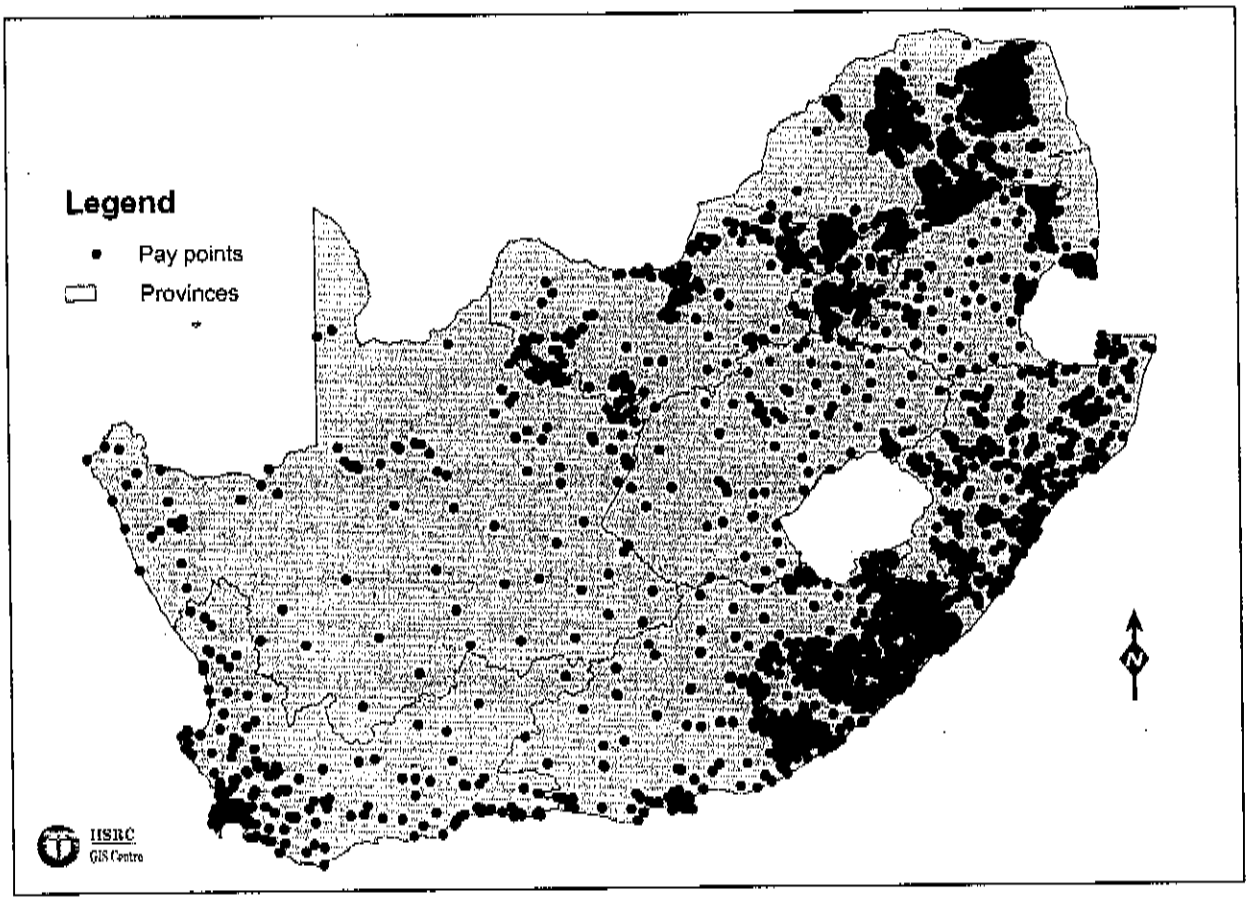


Figure 1. Spatial distribution of pay points in South Africa (Source: HSRC GIS Centre, 2002)

The HSRC has a thorough understanding of the GIS data relating to the pay points, because of its involvement in the process from the beginning. Figure 1 above shows the geographic location of just over 5 000 pay points (65%) that have already been captured into GIS. Previous reports on the findings published by the HSRC revealed consistently that there is an enormous discrepancy between the number of pensioners served and the total elderly per province. This finding greatly influences the planning of the DoSD because they will have to rely on their own population projections to get accurate estimates of the total number of pensioners for service provision. Other findings indicated that except for Eastern Cape, Gauteng, KwaZulu-Natal and North West, the

majority of pensioners travel on average less than 5 km to get to pay points. Therefore, it would seem that not all pay points are optimally located. The integration of the social security network with other infrastructure networks like banks and post offices could offer a solution to the DoSD and enable them to spatially optimise the social security service network in South Africa.

2. BROAD OBJECTIVES

In order to facilitate the optimising of the social security service network and the integration of the required data sets it is important to capture the spatial location of **all** pay points in the country. The location of all pay points will assist the DoSD in making decisions about the rationalizing, upgrading and locating of new facilities once the data has been integrated with financial infrastructure and demographic information of South Africa. The integration of this information is required to assist the DoSD in modelling the location of a future social security service network for South Africa. To achieve this, the following broad objectives will have to be accomplished:

i. Provide a complete GIS dataset containing the geographic location of all pay points and their associated attributes, as defined by the DoSD.

ii. Integrate into GIS all other publicly available data sets required for the optimising of the social security service network, including:
   - Social welfare offices;
   - Post offices, postal agencies and Post Banks;
   - Multi-purpose community centres (MPCC) of Government Communication Information Systems (GCIS);
   - Department of Home Affairs offices;
   - Hospitals and clinics of the Department of Health

iii. Obtain ancillary data from appropriate sources including:
   - Road network of South Africa (1:50 000 scale);
   - Rivers and streams (1:50 000 scale);
   - Towns and urban settlements;
   - Administrative boundaries, including provinces, DoSD regions, municipalities and district councils. Other administrative boundaries such as the education and health districts can also be provided;
   - 1996 and 2001 census data at an enumerator area level (2001 census data will become available in April 2003 and will be provided to the DoSD as soon as it is available);

iv. Development of capacity in DoSD to use the GIS database.

3. METHODOLOGY

3.1 Inception phase

The purpose of the Inception Phase was to allow the project team to meet so that the project activities, time schedule and allocation of team members to tasks could be finalized. The workshop was held on the 26 March 2003. This phase allowed the project team to meet with the DoSD and FinMark Trust. The project team also discussed aspects relating to the methodology and many recommendations were made to improve on the approach to the study. Some of the aspects that were highlighted included:

- Conducting a user requirement assessment;
- Sourcing spatial and attribute data from contractors responsible for pay points and possibly other agencies (e.g. Municipal Demarcation Board (MDB), Independent Electoral Commission (IEC));
- Meeting with regional managers of pay points;
- Sending the questionnaires out to regional managers before workshops are held;
- Sending letters out to all regional pay point operators to encourage them to participate in the workshops;
- Extending the preparation time before fieldwork (i.e. data sourcing) to one month;
- Extending the period for the conducting of the regional workshops to two months;
- Doing checks on the quality of data obtained on the pay points from contractors and DoSD officials.

This amended version of the project proposal will be forward to the members of the project team for further input before a project protocol or inception report will be produced. It has also been suggested that a user requirement assessment be undertaken. A meeting will be held between the DoSD, FinMark Trust and the HSRC to discuss the format of such a user requirement statement before it is decided to proceed with this activity in the project. The user requirement will be incorporated into the final inception report.

3.2 Data collection phase

3.2.1 Data sourcing

In collaboration with SITA, meetings will be set up with the pension pay point contractors and other agencies, such as the Municipal Demarcation Board (MDB) and Independent Electoral Commission (IEC) to find out what data they have on pension pay points. The contact details of

the contractors will be obtained from the DoSD. The primary purpose of these meetings will be to get the GPS[1] coordinates of the pay points, but other attribute information will also be sought, especially from the contractors. This includes obtaining a list of pay points under their responsibility and gaining an understanding of what incentives could be used to encourage their pay point operators to contribute all the data required in the project. It is known that some of the contractors (e.g. AllPay) already have most of their pay points GPSed and that they have other attribute data as well. The intention is to set up and hold these meetings as soon as possible so that a better understanding of the available data and gaps can be established.

It is anticipated that user agreements will have to be drawn up with the contractors to get access and use the data. This information will be integrated into GIS and quality controlled. A report on this phase of the project will be produced. The findings and the information collected during this phase will be used to redefine the project activities as needed.

3.2.2 Capture pension pay point information

The approach that the HSRC is suggesting in creating a register of pay points in South Africa is to hold regional workshops in each of the nine provinces. At these regional workshops provincial and regional offices of the DoSD as well as agencies or contractors responsible for the different pay points will attend. The purpose of these workshops is, firstly, to verify data collected on pay points in previous projects and, secondly, to provide information for any pay points that have not had any data collected for them in the past. The data to be collected and verified includes the geographic location of pay points and their associated attributes.

This approach is being suggested, as it is the experience of the GIS Centre in developing similar data sets for Telkom's telephone exchanges and police stations in South Africa, that it is the most cost effective approach. The use of other approaches such as Global Positioning Systems (GPS) is far more costly considering the fact that every pay point facility would have to be visited in the field and on such days and times that the pay point was open and appropriate attribute information could be collected. Considering level of accuracy required for the data, the intention for which the data is to be used and the wide range of attribute data that has to be collected for each pay point it is felt that the use of the workshop approach is more appropriate at this time.

GIS Specialists from the HSRC's GIS Centre, Imvelo GIS, SITA and the Geographical Systems Research Bureau will lead two person teams to each province to facilitate these workshops in each of the regions. The HSRC in consultation with the DoSD, provincial and regional offices and contractors, will organize over a period of approximately a month workshops in each of the regions

[1] GPS refers to a Global Positioning System which is used to gain exact coordinates of a specific location on the surface of the earth.

in all nine provinces. It will mainly be the responsibility of the DoSD to ensure that contractors responsible for pay points in the respective regions will attend the workshops on the defined dates. The project management team of the HSRC will also be willing to contribute to this process to ensure that all agencies/contractors attend the workshops. For the HSRC to assist with this, the DoSD will have to provide all the contact details of the provincial and regional offices as well as the contractors/agencies.

The HSRC's GIS Centre has recently received a "master list" of pay points from the DoSD. This list was obtained from the finance division of the Department and still has to be discussed with them to ensure that it is contains all the pay points in South Africa. Ultimately, the DoSD must sign off on this list that it is a "master list" of all their pay points in the country. This list will be used to make agencies/contractors sign off against the pay points they are responsible for at each of the regional workshops. Contractors/agencies will then be asked to check the questionnaires for pay points that have already had data collected to see that it is correct. Pay points not audited in the previous work done by the HSRC and DoSD will have questionnaires filled in and the geographic location of their pay points defined in a GIS by project team members.

A questionnaire to gather the needed attribute information associated with each pay point has already been designed by the HSRC in consultation with the Department. This questionnaire will be refined to ensure that all the required information for each pay point is accurately collected. The refinement will be done in consultation with questionnaire design specialists in the HSRC and DoSD. However, the intention is to change the questionnaire as little as possible so that data collected in the past for pay points will not be lost and will be comparable with new data collected. A full set of questionnaires for each and every pay point will be produced. Those that have had data collected for them already will show this data in the questionnaire for verification purposes at the workshops to be held with provincial and regional representatives as well as contractors. Pay points that have not had data collected for them in the past will be filled in anew.

The GIS Specialists will each take a laptop to the workshops. The laptops will be loaded with ArcMap 8.2 and a variety of data sets so that the geographic location of pay points can be checked and captured. The 1:50 000 topocadastral images of South Africa will be used in combination with Statistics South Africa's (Stats SA) placenames database from the 1996 census to verify and identify the location of pay points in the rural areas while land cadastre and MapStudio's street data will be used in the major metropolitan areas.

Before attending the regional workshops the GIS Specialists will be trained to use the GIS information to locate and verify the geographic position of pay points. They will also be shown how to fill in the questionnaires and the procedure to follow at the workshop to ensure that all the data

for pay points is verified and collected. The procedures that contractors/agencies will have to follow at the workshop will include:

(i) Sign in against contractor/agency name and pay points responsible for;
(ii) Hand out questionnaires for pay points to contractor/agency;
(iii) Check attributes and update or fill in new information;
(iv) Check geographic location of pay point or add new ones using the GIS;
(v) Sign off that all data has been accurately completed.

A pilot study will be undertaken in the Gauteng regions of the DoSD. The purpose of the pilot will be to test the entire procedure being proposed including making contact with regional representatives, undertaking the workshops and collecting the required information. After this pilot, the procedure will be modified to address any problems that might have been encountered in the pilot. The questionnaire will also be changed if required. The conducting of the pilot will be dependent on when authorization of the project is given.

The workshops will be conducted over a four-week period in February 2003 with each region being given a day and a half to complete. It is estimated that information for approximately 220 pay points will be updated and collected at each of these regional workshops. It is anticipated that some representatives of the pay points in the different regions will not attend the workshops and these will have to be tracked during this period and the relevant information collected.

The filled in questionnaires will then be taken to the HSRC where updated or new pay point attribute information will be captured. Part of this process is the validation of the date captured to ensure that it is as scientifically accurate as possible. This attribute information will then be integrated with the GIS data before it is further quality controlled. Accordingly, the data on pay points in South Africa will become available in first two weeks of March 2003.

3.2.3 Capture of social welfare offices

The idea here is for staff of the DoSD to collect this information. What it will require is for a "master list" of all offices to be obtained, which will be used to contact the offices so that both the geographic location and attribute information can be collected. MicroSoft Excel will be used to collect this information for the social welfare offices over the telephone. The Excel spreadsheet will then be integrated into GIS and the offices geolocated using Stats SA's placenames database. Geolocating is the process where geographic coordinates are transferred from one database to another based on the matching of names in identified variables in each database. This will be done by the HSRC who will also give members of the DoSD support. Finally, the data sets will be quality controlled by a member of the project team.

3.2.4 Obtain post office and agency information

The South African Post Office (SAPO) will be contacted to identify a source of information on post offices, agencies and Post Bank outlets. The GIS Centre has done a lot of work with the SAPO in the past and has a GIS database of post offices and postal codes. Written support from the DoSD will be sought to access this information from the SAPO. The Department of Communications' (DoC) Postal Business Unit (PBU) will also be contacted to see what information they have. Ideally, an updated version of the information will already be available that can be purchased, otherwise, a list of the facilities will be obtained from the SAPO so that they can be geolocated into GIS. A member of the project team will undertake the quality control and a short report produced.

3.2.5 Obtain GCIS MPCC's and the Department of Home Affairs data

The GIS Centre has a detailed list of Multi-purpose Community Centre's (MPCC's) from the GCIS that it has already captured into GIS. This information is somewhat dated and the GCIS has already been contacted to provide an up-to-date list. This information will then be geolocated in GIS. The GIS Centre also has a list of Department of Home Affairs (DoHA) offices but they will also have to be updated like the MPCC's. Once placed in GIS the two data sets will be checked for quality and a short report produced.

3.2.6 Obtain Dept of Health hospital and clinic data

Recently the GIS Centre completed a project for the Department of Health (DoH) where they obtained the most up-to-date information on hospitals and clinics in the country. The GIS Centre contributed to this data set in 1996. The DoH has informed the GIS Centre that they are busy updating certain provinces (e.g. Gauteng and KwaZulu-Natal) and that they hope to have completed the remaining provinces within the year. The DoH will be contacted to obtain the updated information and to see how far they have got with the remaining seven provinces. It is important to note that this data has inherently been inaccurate. If more recent information is available it will be requested from the DoH and quality controlled.

A data set that might also be of value to the DoSD is the schools data from the Department of Education (DoE). The HSRC's GIS Centre has the most recent version from the DoE's 2000 School Register of Needs (SRN). Permission will have to be obtained from the DoE for the GIS Centre to make this information available to the Department.

3.2.7 Obtain ancillary data

The ancillary or secondary data sets include the roads, rivers and streams, towns and settlements, digital elevation data, administrative boundaries and 1996 census data. The road, river and stream and digital elevation data is available at a 1:50 000 scale from the Chief Directorate: Surveys and Mapping in Cape Town. The cost of this information is in the region of R150 000. Considering that the HSRC will be able provide the road, river and stream, administrative boundaries and a derivative of the 1996 census data it is suggested that this information be used. The value of the digital elevation data to the project is questioned as it provides limited additional information for the optimizing of the social security service network and it comes at a very high cost.

The Small Market Area (SMA) data of the HSRC, which is a derivative of the 1996 census as well as the placenames information from the 1996 census, can be provided to the DoSD. The 2001 census data is expected to be made available in April 2003 and will be made available to the DoSD as soon as possible. The GIS Centre can provide administrative boundaries such as the provinces, DoSD regions, municipalities and district councils.

By the GIS Centre providing the data suggested above, the DoSD could make a saving of R150 000. However, if the DoSD decides that it would rather purchase the data as requested in the terms of reference from the relevant government sources then it must do so. The cost for purchasing this data has already been incorporated into the project cost.

3.2.8 Integration of all data sets

All the data sets obtained during this project and the financial services infrastructure that is to be collected in a separate project, will be integrated into ArcMap 8.2 software. This is the software called for in the terms of reference provided by the DoSD and it is also the GIS software presently being used by the Department. The integration will include the standardizing of the data sets in terms of coordinate systems, indexing and metadata. A final quality control of the data sets will then be done.

3.2.9 Analysis of data sets

The Geographical Systems Research Bureau (GSRB) will take the lead in undertaking analysis of the data collected during the project to answer pertinent questions that the DoSD and FinMark Trust will have identified. The spatial data will be analysed in a GIS system to provide answers to the following questions, for example:

- Which pay points are not optimally located in terms of the population and social grants network?
- Which of the above pay points can be successfully incorporated into other existing infrastructure (e.g. banking or post offices)?
- Which pay points are obsolete in terms of building condition and low eligible population, as defined by the Norms and Standards?

The project team will meet with representatives of the DoSD and FinMark Trust to identify the types of questions that need to be posed and on which analysis is to be conducted. Already a proposal has been developed by GSRB to undertake the analysis and the DoSD has accepted this proposal in principle.

A report will then be written up and will make recommendations about the rationalization and upgrading of existing pay points as well as the site location of new facilities. This will largely be done in consultation with the DoSD. The deliverables requested by the FinMark Trust will also be produced. Reports will then be formally presented to the Department and the FinMark Trust.

3.3 Capacity building

It is imperative that members of the DoSD have their capacity built in using GIS for decision making in the Department, especially in the social grants section. Therefore, it is proposed that a "scenario based" approach to training in the use of ArcMap 8.2 be undertaken. The "scenario based" approach involves holding a workshop with the DoSD to gain a thorough understanding of what types of decisions they will have to make when using the GIS and collecting data. This will mainly focus on the optimizing of the social security service network. The GIS Centre in collaboration with GIMS Pty Ltd will then identify the appropriate data sets to be used with each of the different decisions that have to be made as well as the GIS functions to be used in the development of a training course.

This approach to training is becoming more accepted because it speeds up the process by which people are able to use GIS on a day-to-day basis and also ensures its sustainable use in the long term. The GIS Centre has successfully implemented this type of training in many institutions but more recently in the Universal Service Agency (USA), which is the telecommunications regulator in South Africa. The course, having been designed by GIMS, will be presented at the training rooms of the HSRC. It is suggested that provincial DoSD people also attend the training so that they can get an understanding of why it is so important to collect the information and how it can be used for decision making in the DoSD.

It is also important to state at this point that the pay point data produced in the project will belong to the DoSD. Therefore, the GIS Centre in collaboration with SITA will examine the best mechanism by which the information can be transferred to the DoSD. This will enable the DoSD to use it on a daily basis for decision-making purposes. Data received from other agencies (e.g. banking infrastructure from SABRIC) remains that of the agencies that provided it. The HSRC's GIS Centre also makes the commitment to the DoSD to assist with ad hoc queries/problems after the project has been completed and the data handed over to the Department to ensure the sustained use of GIS.

3.4 Data maintenance and dissemination tool

The future will see GIS being used increasingly across the World Wide Web (Web). Presently, this is mainly for viewing and analyzing data. However, the GIS Centre has already developed several web sites (e.g. www.dacst.co.za) that enable the collection of data across the Web. Furthermore, technology has been developed that allows the point location of facilities to be accurately positioned on maps using the Web. This is the future of maintaining data sets such as the pay points of the DoSD and is a critical component in ensuring the sustainability of the pay point data.

This technology already allows quite sophisticated queries and analysis to be undertaken. In addition, applications can be easily developed to allow specialized queries and analysis to be done. To facilitate this, the GIS Centre often uses the services of GISCOE, a subsidiary of the GIMS group, who are the main distributors of ESRI GIS software in South Africa. They will take the responsibility of meeting with the DoSD to identify their specific needs before developing an ArcIMS application for the Web. The HSRC will work with GISCOE in integrating the data sets collected for the DoSD into this Web application. An On-line help and Metadata utility will also be incorporated into the Web application.

The web application will be hosted by the HSRC on their servers until such time as the DoSD obtains their own web application. This will result in a cost saving to the DoSD who will, therefore, not need to purchase any additional hardware or software, including ArcIMS, to run the application. Over a short period the project team will test the Web application in consultation with the DoSD. Any problems picked up will be addressed by GISCOE. GISCOE normally offers a six-month period within which they are willing to support a client in fixing bugs in the application.

A further critical part of developing such a tool is to make the provincial and regional offices as well as the contractors aware of the application and its capabilities. What they will be able to do having entered a particular username and password is to add and edit the location of new or old pay points and enter appropriate attributes. The system may be developed in such a way that only subscribers to the system can get access to the information. An annual fee could be charged that

will allow the project team to add updates to the application and new information to the system. However, the DoSD will have to decide as to whether they would want people to access the information in the first place and if so, whether they would want to charge people to get access.

In the longer term the DoSD with SITA may consider implementing a full asset/facility management system that allows detailed information, such as photographs, plans, directional maps and text, images and database attributes to be uploaded via the Web for facilities such as the pay points on an annual basis. This technology is already in existence and has been implemented by the GIS Centre for arts and culture facilities on its Arts and Culture GIS Web page (www.dacst.co.za).

3.5 Reporting phase

During the reporting phase the DoSD will be given time to do an independent quality control of the data collected. Any problems identified will be addressed by the project team to the best of their ability and in full consultation with the Department.

A report covering all aspects of the project will then be written up including recommendations. A report will then be formally presented to the Department and the FinMark Trust.

3.6 Project management

At the onset of the project, the project management set up a Project Committee as requested in the terms of reference. The Committee will meet on a monthly basis with representatives from the DoSD, FinMark Trust, HSRC and the State Information Technology Agency (SITA).

The DoSD in collaboration with the FinMark Trust have appointed a Project Manager (Mr Roland Pearson) at the DoSD who will play a lead role in overseeing the work of the project on behalf of the Department. He will play a crucial role in facilitating communication between the project team, DoSD and FinMark Trust. The complexity of the project necessitates short weekly teleconferences between all members of the Advisory and Operational team to monitor progress and address problems as they arise. The Technical Coordinator of the project will be Craig Schwabe, the HSRC Project Leader will be Gina Weir-Smith while the Project Administrator will be Pricilla Brussel.

4. PROJECT TEAM

An **HSRC**-led consortium will manage the project. The HSRC has extensive experience in undertaking national surveys of social scientific nature. Besides this, the GIS Centre of the HSRC has wide-ranging experience in the spatial analysis of social scientific data. The GIS Centre also has experience in the development of spatial information systems and databases. It will bring to the table an in-depth knowledge of constructing spatial databases and spatial decision support

software (SDSS). The GIS Centre has a large number of spatial databases, such as the 1996 census, geo-demographic information, poverty, income and other socio-economic statistics that can be used for analysis in conjunction with the pay point data.

The **Geographical Systems Research Bureau** brings advanced spatial modelling experience to the table and their experience will be used to identify the optimal location of pay points. The third member of the consortium is **Imvelo GIS** who is a black empowerment company and who will bring GIS analytical expertise and software solutions to the table. It was started in 1996 by former Black GIMS employees and its principal activities are GIS software and hardware sales, consulting, and data capture projects. Imvelo is backed by **GIMS**, the sole Southern African distributor of ESRI products and the leading GIS vendor in Southern Africa with a wealth of GIS implementation experience in most of the leading private and public institutions. GIMS will take the lead in developing and providing the GIS training. **GISCOE** is the consulting arm of GIMS and brings extensive experience in the development of GIS applications to the table including application development, needs analysis and database design.

The **SITA** GIS section will be invited to participate in the implementation of the project. These discussions will be held before the Inception Phase to see where exactly they would like to participate considering their expertise and capacity.

For a more detailed profile of companies forming part of the project team see Addendum 1. The DoSD will also be an integral part of the team operations and it is imperative for them to participate so that informal skills transfer and capacity building can take place effectively.

The Project Committee will consist of the members mentioned below and will oversee the running of the project.

Mr Selwyn Jehoma, Chief Dir Grant Administration, Dept of Social Development
Ms Darrell Beghin, FinMark Trust (Manager of FSA project which will be closely integrated with pay points project)
Mr Roland Pearson, Project Manager (FinMark seconded to DoSD)
Mr Craig Schwabe, Dir GIS Centre, HSRC
Ms Gina Weir-Smith, Chief GIS Specialist, GIS Centre, HSRC
Mr Adlai Davids, Chief GIS Specialist, GIS Centre, HSRC
Mr Sarel Naude, SITA

The Advisory and Operational team will consist of the following people:

Mr Craig Schwabe, HSRC

Ms Gina Weir-Smith, HSRC

Mr Adlai Davids, HSRC

Prof Larry Zietsman, Geographic Systems Research Bureau

Mr Henry Nkosi, Imvelo

Mr Peter Gill, GISCOE

Mr Cobus van Doorn, SITA (seconded to DoSD).

The CV's of prominent members of the project team are presented in Addendum 2.

5. TIMEFRAME

The timeframe of the project is largely dependent on the signing of agreements between the DoSD and FinMark Trust as well as the HSRC being given the go ahead for the project. It is anticipated that the project will start in April 2003. The project will then be completed by early December 2003. A detailed time frame is presented in Addendum 3.

6. FINANCIAL BUDGET

The updated cost of this project is R 916 179 (Excl VAT). It involves the collection of the pension pay point data, the integration of all identified and publicly available data sets, including the integration of the financial service infrastructure (FSA) data that is to be collected in the other project and the analysis of the data for optimising of the social security network in South Africa. The project incorporates a capacity building phase where members of the DoSD will be trained to use GIS and the data in their decision-making. There will also be the development of a web based data maintenance tool for updating information associated with the pay points in South Africa. The financial budget also allows for the writing of a final report and all project management associated with this complex project.

PENSION PAY POINT GIS DATABASE	
PHASE DESCRIPTIONS	COST
INCEPTION PHASE	R 36 927.00
DATA COLLECTION PHASE	R 629 378.00
CAPACITY BUILDING	R 29 200.00
DATA MAINTENANCE & DISSEMINATION TOOL	R 72 200.00
REPORTING PHASE	R 45 200.00
PROJECT MANAGEMENT	R 63 274.00
Sub-total	R 876 179.00
Disbursements	R 40 000.00
Total (Excl VAT)	R 916 179.00

ADDENDUM 1

COMPANY PROFILES

ADDENDUM 2

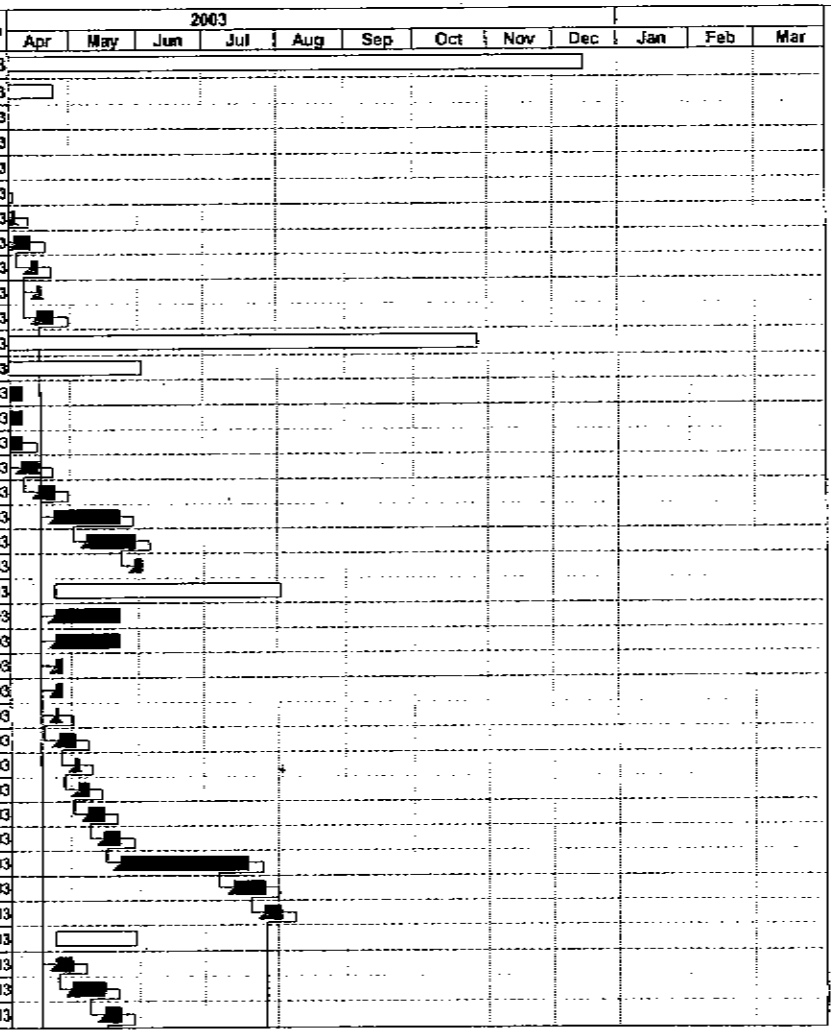
CV'S

ADDENDUM 3

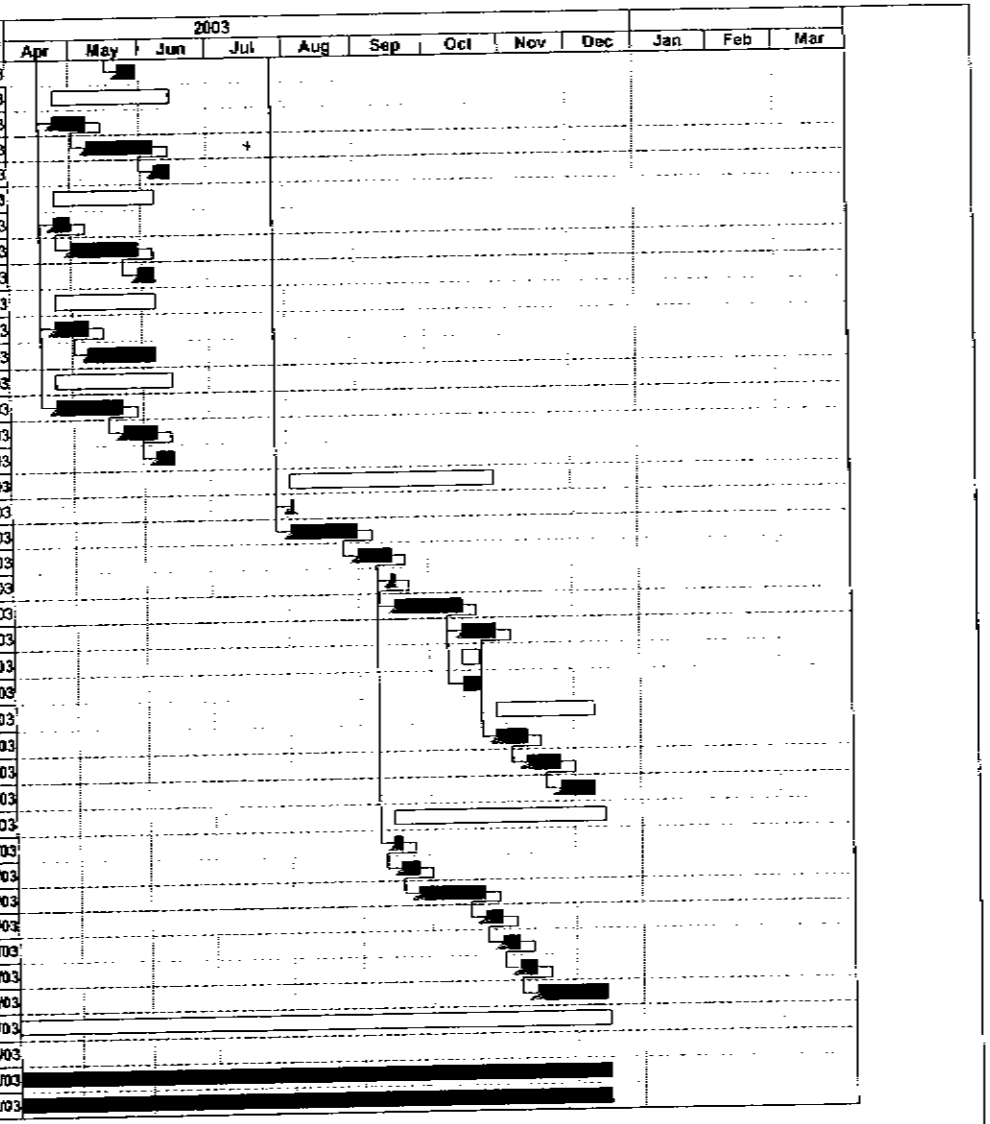
TIME SCHEDULE

Project Schedule

#	Task Name	Duration	Schedule Start	Schedule Finish
1	**PENSION PAY POINT GIS DATABASE**	187d	03/18/03	12/12/03
2	**INCEPTION PHASE**	23d	03/18/03	04/22/03
3	**Set up project team meeting**	2d	03/18/03	03/19/03
4	**Set up steering committee with DoSD, FinMark Trust and SIT**	2d	03/18/03	03/19/03
5	**Hold meeting with project team**	1d	03/26/03	03/26/03
6	**Hold steering committee with DoSD, FinMark Trust and SITA**	0.75d	03/26/03	03/26/03
7	**Meet to discuss User Needs Requirements**	1d	04/02/03	04/02/03
8	**Implement User Needs Requirement**	5d	04/03/03	04/09/03
9	**Write up Inception report**	2d	04/10/03	04/11/03
10	**Present Inception report to DoSD and finalize contractual ma**	1d	04/14/03	04/14/03
11	**Finalize agreement and contract with HSRC**	5d	04/14/03	04/22/03
12	**DATA COLLECTION PHASE**	146d	03/31/03	10/28/03
13	**DATA SOURCING**	42d	03/31/03	06/02/03
14	Obtain access to "starting" list of pay points from DoSD	5d	03/31/03	04/04/03
15	Make contact with MDB and IEC for data	5d	03/31/03	04/04/03
16	Get contact details of contractors and regional managers	5d	03/31/03	04/04/03
17	Make appointments with contractors and regional managers	5d	04/07/03	04/11/03
18	Meet with contractors	5d	04/14/03	04/22/03
19	Obtain data from contractors	20d	04/23/03	05/22/03
20	Quality check and integrate contractor data	15d	05/09/03	05/29/03
21	Produce data source report and gap report	2d	05/30/03	06/02/03
22	**CAPTURE PAY POINT INFORMATION**	70d	04/23/03	08/01/03
23	Prepare data sets for provincial/regional workshops and integra	20d	04/23/03	05/22/03
24	Organize provincial/regional workshops	20d	04/23/03	05/22/03
25	Compare starting list with contractor list and reconcile	2d	04/23/03	04/24/03
32	Devise incentives for increased participation	2d	04/23/03	04/24/03
26	Identify FSA input to questionnaire	1d	04/23/03	04/23/03
27	Refine and produce questionnaire	5d	04/24/03	05/02/03
28	Send letter and questionnaire to regional managers	1d	05/05/03	05/05/03
29	Hold training for project team	3d	05/06/03	05/08/03
30	Undertake pilot project and refine procedures	5d	05/09/03	05/15/03
31	Meet with regional managers	5d	05/16/03	05/22/03
34	Hold provincial/regional workshops	40d	05/23/03	07/18/03
35	Data capture of questionnaires	10d	07/14/03	07/25/03
36	Quality control data and produce report	5d	07/28/03	08/01/03
37	**CAPTURING OF SOCIAL WELFARE OFFICES**	25d	04/23/03	05/29/03
38	Get master list of social welfare offices	5d	04/23/03	04/30/03
39	Contact social welfare offices and capture information into Exce	10d	05/02/03	05/15/03
40	Geolocate social welfare offices	5d	05/16/03	05/22/03



#	Task Name	Duration	Schedule Start	Schedule Finish
41	Quality control data and produce report	5d	05/23/03	05/29/03
42	**OBTAIN POST OFFICE AND AGENCY INFORMATION**	35d	04/23/03	06/12/03
43	Contact SA Post Office and identify source of data or lists	10d	04/23/03	05/08/03
44	Obtain GIS data or geolocate post offices/agencies	20d	05/09/03	06/05/03
45	Quality control data and produce report	5d	06/06/03	06/12/03
46	**OBTAIN GCIS MPCC'S & DEPT OF HOME AFFAIRS DATA**	30d	04/23/03	06/05/03
47	Make contact with GCIS/DoHA and obtain list of MPCC's/DoH	5d	04/23/03	04/30/03
48	Geolocate MPCC data	20d	05/02/03	05/29/03
49	Quality control data and produce report	5d	05/30/03	06/05/03
50	**OBTAIN DEPT OF HEALTH HOSPITAL AND CLINIC DATA**	30d	04/23/03	06/05/03
51	Contact DoH and obtain latest version of hospital/clinic data pl	10d	04/23/03	05/08/03
52	Quality control data and produce report	20d	05/09/03	06/05/03
53	**OBTAIN ANCILLARY DATA**	35d	04/23/03	06/12/03
54	Purchase data sets from ancillary data providers	20d	04/23/03	05/22/03
55	Integrate into GIS	10d	05/23/03	06/05/03
56	Quality control data and produce report	5d	06/06/03	06/12/03
57	**INTEGRATION AND ANALYSIS OF DATA SETS**	61d	08/04/03	10/28/03
58	Obtain SABRIC data	1d	08/04/03	08/04/03
59	Integrate all data sets into ArcMap 8.2	20d	08/04/03	08/29/03
60	Quality control and metadata	10d	09/01/03	09/12/03
61	Workshop on decision-making and training requirements	1d	09/15/03	09/15/03
62	Analysis of integrated data	20d	09/16/03	10/14/03
63	Produce report and present to DoSD/FinMark	10d	10/15/03	10/28/03
64	**CAPACITY BUILDING**	5d	10/15/03	10/21/03
66	**Hold training course**	5d	10/15/03	10/21/03
75	**REPORTING PHASE**	29d	10/29/03	12/08/03
76	**Quality control of data by DoSD**	9d	10/29/03	11/10/03
77	**Address any data quality problems**	10d	11/11/03	11/24/03
78	**Produce final report and present to DoSD/FinMark**	10d	11/25/03	12/08/03
67	**DATA MAINTENANCE & DISSEMINATION TOOL**	63d	09/15/03	12/11/03
68	**Identify FSA integration and data protocols**	2d	09/15/03	09/16/03
69	**Design ArcIMS application**	5d	09/17/03	09/23/03
70	**Develop ArcIMS application and install**	20d	09/25/03	10/22/03
71	**Integrate data into ArcIMS server**	5d	10/23/03	10/29/03
72	**Develop On-line Help & Metadata**	5d	10/30/03	11/05/03
73	**Test system**	5d	11/06/03	11/12/03
74	**Awareness campaign with provincial, regional and contracto**	21d	11/13/03	12/11/03
79	**PROJECT MANAGEMENT**	187d	03/18/03	12/12/03
80	**Setup Project Committee and Progress Report meetings**	5d	03/18/03	03/25/03
81	**Hold monthly Project Committee meetings**	187d	03/18/03	12/12/03
82	**Hold weekly Project Progress teleconferences**	187d	03/18/03	12/12/03



ADDENDUM 2

TERMS OF REFERENCE FOR THE STEERING COMMITTEE

Creating a Pension Paypoint GIS for South Africa
Terms of Reference for the Steering Committee

Overall Objective

The role of the Steering Committee is to provide overall leadership in the implementation of all aspects of the project. In particular, the Steering Committee will be responsible for policy advice, operational guidance and programme orientation to ensure that the stated goals and objectives are fully met in a timely fashion and that the outputs generated are of the highest quality.

Specific terms of reference

1. Ensure that the policy-level protocols and related formalities for the initiation, development and implementation of the project are strictly adhered to by all parties and that the necessary communication channels are fully utilized to the mutual satisfaction of all the key players.

2. Ensure that the proposed business plan for the project is technically sound and that the proposed mode of operation conforms to and addresses standards set by the Department of Social Development.

3. Ensure that the proposed outputs to be generated by the project will provide direct assistance to the Department of Social Development in achieving an optimised pay point system in South Africa.

4. Provide oversight in the establishment and operations of any other team(s) as the committee may deem necessary to ensure that the specific roles and responsibilities (terms of reference) of these groups fully contribute to the efficient and effective implementation of the project.

5. Ensure that all the reporting requirements are fully met in terms of format, scope, content and timeliness.

6. Ensure that regular monitoring activities is undertaken and provide feedback to the various project team(s) and/or committees to take corrective action and thus enhance overall performance.

7. Ensure effective linkage and integration into the FSA (Financial Service Access) project.

Membership

The membership of the Steering Committee will comprise policy-level representatives of the HSRC, Dept of Social Development, Finmark Trust and SITA. The HSRC will chair to convene and provide leadership in conducting meetings of the Committee. Other ex-officio members will be invited to attend as and when necessary.

Meetings

The Steering Committee will meet monthly and will focus on strategic issues related to the project. The venue of the Committee meetings will be in Pretoria. The Committee will hold extra-ordinary meetings, as and when the demand arises.

Administration

The project implementing agency (HSRC) will be responsible for all the logistical arrangements related to the convening and organization of Steering Committee meetings including travel, accommodation, preparation of meeting documentation as well as the proceedings of the meetings.

ADDENDUM 3

MINUTES OF THE STEERING COMMITTEE AND PROJECT TEAM MEETINGS

PENSION PAY POINT STEERING COMMITTEE
Minutes 26 March 2003

DATE:	26 March 2003		
VENUE:	Forum C, HSRC building, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	rolandpearson@yahoo.com
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Isidore Parker (for Sarel Naude) (SN)	SITA	sarel.naude@sita.co.za
	Gina Weir Smith (GWS)	HSRC	gweir-smith@hsrc.ac.za
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
APOLOGIES:	Selwyn Jehoma (SJ)	DoSD	Selwyn.Jehoma@socdev.gov.za

Meeting 1

ITEM		DESCRIPTION	ACTION
1.		**Welcome**	
	1.1	Craig welcomed everybody to the first meeting of the steering committee of the pay point project.	
2.		**Introductions**	
	2.1	Roland – advisor to Selwyn Jehoma on this project Gina – involved in previous pay point project and will be project leader of current project Isidore – representing Sarel Naude from SITA Darrell – provides link FSA database project Craig – HSRC GIS Centre – overall coordinator of pay points and FSA project Adlai – HSRC project leader of FSA project	
3.		**Committee roles and responsibilities**	
	3.1	Discuss the Terms of Reference document distributed beforehand.	
	3.2	Suggested: Point 7 be added to section "Specific terms of reference" to mention effective linkage and integration into FSA project.	GWS
	3.2	Meetings will be conducted monthly and will focus on strategic issues related to the project.	GWS
	3.3	Selwyn (DoSD) represented by Roland who will ensure	

communication between them. He will feed information to Selwyn and visa versa.

4. Contractual

4.1 RP spoke to CFO of DoSD whose concerns were mainly procedural. They are meeting again on Friday (28/3/2003) to sort out changes to agreement and it is hoped that the contract will be signed by next week. RP

FinMark has no problems regarding the contract.

RP to finalise agreement between DoSD and FinMark.

4.2 Payment of HSRC by DoSD or FinMark to be finalized. Then contractual matters can be sorted out. DoSD remains the decision-maker.

5. Communication

5.1 Communication will take place via e-mail and phone.

6. Next meeting

6.1 12 May 2003 10h30 – 11h15 at Room 1215, HSRC Building

7. Other

7.1 Timelines of the proposed project is a concern. To be sorted out during workshop.

7.2 Provide copies of Gantt chart to committee GWS

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 26 March 2003

DATE:	26 March 2003		
VENUE:	Forum C, HSRC building, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	rolandpearson@yahoo.com
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Isidore Parker (for Cobus van Doorn) (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
	Gina Weir Smith (GWS)	HSRC	gweir-smith@hsrc.ac.za
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
	Ian van Vuuren (IV)	SABRIC	ianjvv@sabric.co.za
	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
	Larry Zietsman	GSRB	hlz@sun.ac.za
	Peter Gill	GISCOE	pgill@giscoe.com
APOLOGIES:	Selwyn Jehoma (SJ)	DoSD	Selwyn.Jehoma@socdev.gov.za

Meeting 1

ITEM	DESCRIPTION	ACTION
1.	**Welcome**	
1.1	Craig welcomed everybody to the first meeting of the pay point project.	
2.	**Introductions**	
2.1	Roland – project manager for DoSD and advisor to Selwyn Jehoma on this project Gina – involved in previous pay point project and will be HSRC project leader of current project Isidore – representing Cobus van Doorn from SITA Darrell – provides link FSA database project Craig – HSRC GIS Centre – overall coordinator of pay points and FSA project Adlai – HSRC project leader of FSA project Ian Janse van Vuuren – General Manager: Intelligence at SABRIC Henry Nkosi – will assist with fieldwork and technical solutions Larry Zietsman – involved in previous DoSD endeavours	

regarding pay points and will do integration and analysis of data.

Peter Gill – to provide technical expertise on application development

3. Project methodology

3.1 Inception phase should include a User Requirements Analysis (URA)

3.2 Data collection phase should be extended to include a Sourcing phase. This phase should include the following aspects:

- Obtain electronic versions of pay point data from contractors.
- Verify these data sets
- Plan field visits according to data received from contractors.

Since 79% of pay points are operated by contractors, the project should aim to collect as much information about pay points before going into provincial workshops.

3.3 A starting list containing all pay points to be audited in this project will be obtained from the DoSD. RP/CvD

3.4 Identify other potential sources of data on pay points, e.g. Municipal Demarcation Board (MDB) or Independent Electoral Commission (IEC). GWS

3.5 SITA received data on welfare offices (±600 records) – not sure whether it is geo-coded. SITA will provide feedback to team. IP/CvD

3.6 Due to a low response rate on a pilot undertaken in the Eastern Cape, it was suggested that meetings with regional contractor managers should be set up to inform them about the project, questionnaire, increase their buy-in and to identify potential incentives for increased participation. A prototype of the questionnaire should also be submitted to them.

3.7 Notification should be sent to all regional contractor managers to ensure the maximum and correct attendance of provincial workshops.

3.8 A quality control activity should take place after data have been captured to ensure accuracy.

3.9 Time frames for the project seem ambitious and it was suggested that time lines be adjusted. A preparatory phase of one month should precede the provincial workshops. These workshops should be conducted over a two month period.

3.10 Pay points rationalized at national level (not provincial) LZ

3.11 The questionnaire would be short (5 pages) and should include questions relevant and related to the FSA project.

3.12 GIS training should take place after the data analysis.

	3.13	A workshop is suggested before the data analysis. The aim would be to ascertain what decision-making analysis the DoSD would want from the data. The workshop would be combined to analyzing the training needs of the DoSD.	
	3.14	DoSD discussed the possibility of implementing SDE (Spatial Data base Engine). This will impact on the project design. SITA will provide feedback.	IP/CvD
	3.15	DoSD user requirements are not clear. HSRC, Darrell and Roland to meet to get clarity on it.	GWS
	3.16	A complete interface with the FSA project should be integrated into this project design.	DB
	3.17	Provide copy of original questionnaire to team members.	GWS
4.		**Team roles & responsibilities**	
	4.1	HSRC responsible for project management. Team roles stay as identified in the first proposal.	
5.		**Contractual matters**	
		Contract will hopefully be finalized by the end of next week (4 April)	RP
6.		**Communication**	
	6.1	Communication will take place via e-mail and phone.	
7.		**Next meeting**	
	7.1	Will be determined by progress made on collecting data from other sources.	GWS

Minutes: Architecture Meeting

DATE:	24/6/03
PRESENT:	AS, CAS, Carin Koster (SOCDEV Warehouse),, Rashaad Kimmie (SOCDEV Warehouse), Magda Myburgh (SITA SOCPEN),, Fanie Sithukga (SITA SOCPEN),, Anastacia Hartley (SITA SOCPEN), Sarel Naude (SITA IMS), Cobus van Doorn (SITA GIS)

Comments	Person	Date
• Agenda o Background and introduction to Integrated FSA and SITA projects o Architecture of integrated FSA		
• Sarel o Project "Gateway" – 10 years window and collecting all data o Corporate GIS for government – could be accessed for FSA integrated projects		
• Cobus o Plotting pay point and office data with attributes		
• Magda o SOCPEN – o 20-30 000 transactions pm o could link directly to SOCPEN o use Adabase database software o Better to create a central warehouse with monthly downloads		
• Carin • SOCDEV Warehouse o MIS extracts on a monthly basis		
• Sarel • SITA should be responsible for architecture of GIS database • Architecture of whole system – completion date to be provided	Sarel	
o Cobus o Have points on top of each other because pay different grants on different days		
CAS o Integration of mapping and SOCDEV o URS done by SOCDEV Warehouse – get a copy from Carin	Craig	
Fanie o Better to fully integrate SOCDEV MIS and GIS o Pay points change a lot – NB protocol about changes to GIS must be installed – must be responsibility of provincial system administrator o Date stamp linked to all pay points – to show operational vs decommissioned o NB pay points provincial function – need to meet with Head: Social Security ASAP o Letter to Head by Solly and Head must write to pay points tyo get to workshop – to discuss at workshop planning meeting on 1 July 2003	Gina	
o Carin o Important to get URS from national then inform provinces and meet with Head: Social Security		

Magda ○ Must speak to Head: Social Security as they may reject system ○ Speak to Head: Social Security and get information of pay points – use 'starting list' from national DoSD to identify pay points expected at different regional/district workshops – identify potential workshop venues ○ Project team to do meet with provincial Head: Social Security ○ Contractors have lot information on pay points from contractor – speak to Fanie about questionnaire ○ Use Stats SA placename as column – MIS should include drop down list of all national placenames	Gina	

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 24 July 2003

DATE:	24 July 2003		
VENUE:	Room 2, HSRC library, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	rolandpearson@yahoo.com
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
	Gina Weir Smith (GWS)	HSRC	gweir-smith@hsrc.ac.za
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
APOLOGIES:	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
	Larry Zietsman (LZ)	GSRB	hlz@sun.ac.za
	Peter Gill (PG)	GISCOE	pgill@giscoe.com

Meeting 3

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 2**	
1.1	Starting list – received on 20 June containing active and non-active pay points	
1.2	Received coordinates from contractors– Allpay of Free State and CPS of Eastern Cape, but Free State inaccurate – CPS Ecape coordinates correct but ± 400 of 1500 no pay point ID.	Cobus
1.3	Received letter from Selwyn to continue with project. Contract – with DG. To follow-up	Roland
1.4	Attended HOSS meeting - informed about fieldwork schedule. Currently regional coordinators contacted to confirm fieldwork dates. Potential problems with dates (1-5 September) for LM3 and MP2. Will sort out.	Gina
1.5	Budget – fixed to R916 179 (excl VAT).	
1.6	Provide list of regional maps produced – maps include pay points, roads, rivers, place names.	Cobus
1.7	Questionnaire – lot of questions cut because can access data from SocPen. Pay point name and number on registration document. Fax registration list to provincial coordinators daily. Include this procedure in training manual.	Gina
1.8	Discuss quality check, call back system and check back – must get statistician to design check back. • Have to decide on method of check back – maybe use	

provincial contact person to do check back.

- Possibly a 1% physical check back – regional HSRC coordinators to send out fieldworkers. Verify if 1% is statistically acceptable. — Craig

Aim of check back – define variance. Not included in project proposal and will have financial impact. Roland to provide HSRC with feedback on finances. — Roland

1.9 DB Architecture – Sarel Naude (SITA) to be completed by 8 Aug.

- SocGIS (Sarel) - is application that must integrate into SOCDEV and get access to SOCPEN data.
- FSA (Darrell) - FSA application must be able to access SOCPEN data.

Darrell to follow-up. — Darrell

1.10 Rural data – Gina received provincial CD. Urban data – to be completed by tomorrow and then integrate with rural data by Monday — HSRC

2. Progress in relation to Task List (4 July)

2.1 Fieldwork training – manual will be produced and training will take place on whole of Wednesday (30 July) – pilot on Thursday (31 July).

2.2 Next meetings – 18 Sept at 10h30 till 12h00 – full progress report back on fieldwork. Until then - send out weekly progress reports. — Gina

2.3 Provincial workshop equipment – take digital camera with. HSRC to provide.

3. Fieldwork and Travel cost

3.1 Fieldwork and travel - S&T will be organized by HSRC – daily allowance is R360 – includes accommodation and meals.

4. Contract Administration

4.1 Draw up contracts with Imvelo and GSRB for fieldwork — Gina

5. Team Expectations

5.1 Darrel – Adlai returns quickly from fieldwork – Gina get cell phone – successful project so can integrate into FSA

5.2 Roland – assist with the banking of the unbanked and dealing with the poorest of the poor – contribute to the policy debate and understanding of the demographics of beneficiaries (in the USA end of August)

5.3 Adlai – involved in first big fieldwork project at HSRC

5.4 Cobus – data capturing end as soon as possible and GIS analysis done

5.5 Craig – becomes a best practice project

5.6 Gina – develop skills as a project manager – achieve the best product possible to the satisfaction of the client

6. Other/URS/Regional maps

6.1 Draft completed – consist of two levels – finished by tomorrow

- Frontline user (managers/DoSD staff)
- Technical user (Db architecture, etc) Roland

SITA to participate heavily in 2nd line URS

6.2 DoSD offices - need to validate the data – send to provincial coordinators – Cobus to send list of DoSD offices to Gina or on CD – sign off and verification to take place during provincial workshop. Cobus Gina

6.3 Cobus not convinced of value of regional maps. Based on previous experience it proved useful to similar workshops HSRC conducted. Compromise will do a test with dense and less dense regions and then decide between HSRC and Cobus. Cobus

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 18 September 2003

DATE:	18 September 2003		
VENUE:	Room 1, HSRC library, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	rolandpearson@yahoo.com
	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
	Gina Weir Smith (GWS)	HSRC	gweir-smith@hsrc.ac.za
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
	Sarel Naude (SITA)		sarel.naude@sita.co.za
	Isidore Parker (SITA)		
	Neil Falconer (Contracter)		neil.falconer@absafreemail.co.za
APOLOGIES:	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
	Larry Zietsman (LZ)	GSRB	hlz@sun.ac.za
	Peter Gill (PG)	GISCOE	pgill@giscoe.com
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za

Meeting 4

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 3**	
1.1	Quality check from DoSD – target 2 magisterial districts per region – select ±10 pay points per magisterial district. Rather try to use systematic sampling – rank pay points, regions, magisterial districts. 18 visits per SA. To replace check back suggested by Roland. Stratification by critical variables – not possible, because attributes are not electronic yet. Time line – planning final by 27 Sept. Project team to meet once the report is completed – decide about	Cobus Craig Gina
2.	**User Requirement Specification**	
2.1	High-level business URS tabled – primary custodian/ secondary data/ tertiary data (non-spatial e.g. financial, beneficiaries). Standard report required. Cross-tabulation between any data within DoSD and data collected from fieldwork should be possible. Consider – PC capacity, HR capacity of provinces. Keep development of National Agency in mind, but ultimately the same structure as in Dept will be kept. 48 people would need access to the data - ± 35 managers, 13 analysts. 2 analysts permission to edit data. (Need for HIV/Aids data in long term.) Consider	Roland

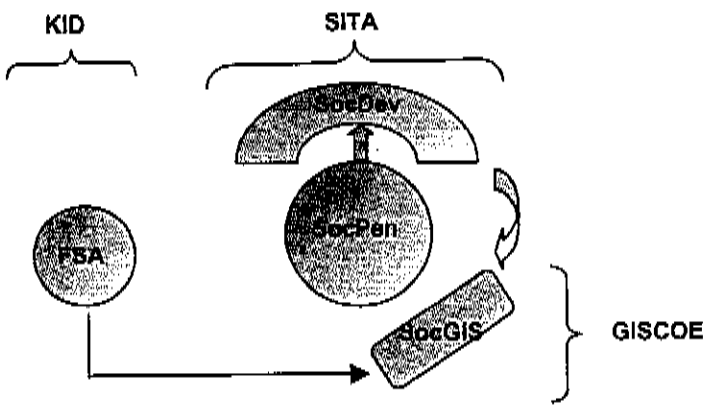
	updating records at provincial level. Document circulated to team – they provide input by 26 September. Architecture (Sarel) and Application (Peter) teams have workshop on 8 October 9h00 – 11h00 to fill in technical specification.	
2.2	Craig set-up meeting with GISCOE, SITA, KID to meet before 8 October. Who's doing what. What applications exist in DoSD.	
3.	**Fieldwork report**	
3.1	Tabled high-level fieldwork report. Mail copy to Cobus Complete record level questionnaire indication by 26 Sept Weekly updates to DoSD using their template.	Gina
4.	**Contract Administration**	
4.1	Contract approved by everybody in DoSD. Motivation has to be submitted to Tender Board -	Cobus
5.	**Other**	
5.1	Letter of thanks to HOSS. Follow-up fieldwork and reports to follow.	Gina
5.2	Summary reports to provinces –	Gina/Craig
5.3	Following Tuesday's meeting – clarification SocGIS will be standalone - will talk to SocDev and SocPen. KID will join project team to work with GISCOE and SITA on DB design.	Roland
6.	**Next meeting**	
6.1	31 October 2003 10h00.	

PENSION PAY POINT MEETING: SOCGIS MEETING ABOUT URS
Minutes 15 October 2003

DATE:	15 October 2003		
VENUE:	Breakaway #1, HSRC building, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	rolandpearson@yahoo.com
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Isidore Parker	SITA	isidore.parker@sita.co.za
	Gina Weir Smith (GWS)	HSRC	gweir-smith@hsrc.ac.za
	Chris O'Connell	HSRC	adavids@hsrc.ac.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
	Stan Watt	KID	stan@kid.co.za
	Geoff Liddiard	KID	hlz@sun.ac.za
	Etienne Louw	GISCOE	elouw@giscoe.com
	Mervyn	KID	
	Cobus van Doorn	SITA	Kobus.VanDoorn@socdev.gov.za
APOLOGIES:			

Meeting 1

ITEM	DESCRIPTION	ACTION
1.	**Introductions**	
1.1	Everybody introduced themselves	
2.	**Role clarification**	
2.1	GISCOE – do URS of SITA and DoSD. SocDev (management info system)	



New technology due in Jan 2004. ArcIMS9, but current

technology is adequate.

SocPen mainframe = IBM; using SAS

SITA – service provider to government. HSRC was willing to host data for DoSD, but was brought under impression that SITA will obtain these hardware. It will however not happen – SITA will advise client (gov) to

Suggestion – HSRC to host data. Cost saving (R200 000) for DoSD. SITA in process of transferring between SAS to Oracle (12 month process).

KID role
- design and implementation of DB warehouse
- programme management of deliverables
- change management?

Send skeleton of GISCOE reference to KID. Send ToR to Cobus and Chris. Gina

3. General questions

3.1

4. Detailed tasks

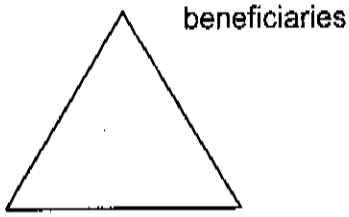
4.1 Finalise detailed ToR for GISCOE - discuss internally and then e-mail to wider team by Wed 22 Oct HSRC

5. Near term actions

5.1

6. Other

6.1



PENSION PAY POINT PROJECT TEAM MEETING
Minutes 31 October 2003

DATE:	31 October 2003		
VENUE:	Breakaway #1, HSRC library, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	roland@tiscali.co.za
	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
	Gina Weir Smith (GWS)	HSRC	gweir-smith@hsrc.ac.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
	Peter Gill (PG)	GISCOE	pgill@giscoe.com
APOLOGIES:	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
	Larry Zietsman (LZ)	GSRB	hlz@sun.ac.za
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
	Sarel Naude (SITA)	SITA	sarel.naude@sita.co.za
	Isidore Parker (SITA)	SITA	

Meeting 5

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 4**	
1.1	Planning for follow-up fieldwork to be in field by middle November 2003. Appointment being done by Dir Policy (DoSD). Training fieldworkers currently.	Cobus
	Provide NW and Limpopo (outstanding) pay points to Cobus.	Gina
1.2	ToR received from KID	Roland
	ToR GISCOE – shapefiles not suited for multiple user environment. Cannot guarantee results and delivery by end December 2003. DoSD will endeavour to buy ArcSDE and ArcIMS. Cobus to provide letter to indicate they are waiting for finances to be approved for ArcSDE then GISCOE will provide temporary licences.	Cobus/ Peter
1.3	HSRC acceptance letter to GISCOE to accept variation proposal and instruct them to start.	Gina
1.4	GISCOE to put status flag on new pay point for a week – Solly to confirm location.	Peter
1.5	HSRC to define what fields need to be included in SocGIS. GISCOE then to SocDev to request this.	Craig/ Gina
2.	**Fieldwork report**	
2.1	Add column to indicate what percentage of questionnaires captured. Add other columns:	Gina

- Total nr pay points on registration list per region
- Total questionnaires returned
- Total duplicates
- Total added
- Total non-active
- Total missing questionnaires

2.2	Provide ASAP to DoSD	Craig/ Gina
3.	**Terms of reference for other projects**	
3.1	Roland will review and pass comments to us. (mail GISCOE ToR after updating to Roland)	Roland Gina
3.2	GISCOE to talk to KID as well.	Peter
3.3	Dataset that had to be purchased for project, will not be freely available if application is hosted by SITA. Peter to follow up with HSRC	Peter
3.3	Set up meetings with KID and SocDev for GISCOE	Pricilla
3.4	Send database structure from questionnaire to GISCOE Mail questionnaire to Peter	Gina
4.	**Contract Administration**	
4.1	Legal section to finalise documentation. HSRC can invoice per phase – address to Selwyn.	Cobus
4.2	HSRC contract to GISCOE	
5.	**Other**	
5.1	Data sets procured – met with • GCIS – MPCCs will be provided. HSRC to geo-code • Home Affairs - regional district and service point data • Post Office – still to meet • Surveyor-General – follow up on HSRC request	
5.2	Send all data to GISCOE – list of what data included	Johann
5.3	EC outstanding to be completed the week of 17 November	Gina
5.4	Data capturing to be done by end November	Gina
5.5	Check with Larry – how long needed to develop model. Can anything be presented by 12 December?	Gina
5.6	User education in DoSD – people will use SocDev for some reports (e.g. nr of child support grants) and SocGIS for other application.	
6.	**Next meetings**	
6.1	Project Team meeting - Monday 1 December at 13h00 Application demo – 12 December 10h00 at GISCOE	

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 1 December 2003

DATE:	1 December 2003		
VENUE:	Breakaway #2, HSRC library, Pretoria		
PRESENT:	Roland Pearson (RP)	FinMark Trust	roland@tiscali.co.za
	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
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	Peter Gill (PG)	GISCOE	pgill@giscoe.com
APOLOGIES:	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
	Larry Zietsman (LZ)	GSRB	hlz@sun.ac.za
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
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	Isidore Parker (SITA)	SITA	
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za

Meeting 6

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 5**	
1.1	Done by another directorate in DoSD. No appointments have been made. No position have been captured, but questionnaires were captured. Part of KZN and FS has been done – to be completed.	
1.2	Process of ordering ArcSDE and ArcIMS ordered by DoSD.	
1.3	FinMark to meet with HSRC to sort out GISCOE variation in price. Organise meeting between two parties. (Monday or Tuesday would suit Roland.)	Gina
1.4	HSRC to provide completed fieldwork table – add fields as suggested. Variance column – between received and sign-in list. Also add field - % of spatial checking completed per province. Processes (add column for each process) – how much completed for each process per province.	
1.5	Cobus to send e-mail to HSRC about contact people in SocDev for meeting. (Carin Koster)	Cobus Gina
1.6	SMA data freely available to DoSD (if SITA hosts). Craig to clarify.	
1.7	Revised ToR of KID reflects outcome of GISCOE-KID meeting. Send minutes of meeting to Roland.	Gina
1.8	GISCOE – SocDev meeting – Magda promised list of paypoints	

	active, data dictionary. Cobus will mail list dated 27 November of active paypoints and data going to banks.	Cobus
1.9	Contract went for signature	Cobus
1.10	HSRC contract to GISCOE	
1.11	Post Office data – send to Cobus. Merge data and pass on to GISCOE. Surveyor-General – HSRC to continue with process. In meantime GISCOE version will be used.	
1.12	Data to GISCOE – MPCC's and Post Office outstanding.	
1.13	Eastern Cape return fieldwork being done this week. Rustenburg fieldwork done 2and3 December. Letters of appreciation posted.	
1.14	Waiting for response from Larry about data analysis.	
2.	**Fieldwork DoSD**	
2.1	See 1.1	
3.	**Fieldwork - HSRC**	
3.1	Eastern Cape outstanding being done this week. Rustenburg 2 and 3 December.	
4.	**Contractractual Administration**	
4.1	See above. Invoicing – format will follow soon. What we invoice for has to be discussed. Phase 1 completed. Finmark willing to consider to agree to pay portion of second phase – based on fieldwork report.	Roland
5.	**Application development**	
5.1	Revised ToR – verbal agreement between HSRC and GISCOE. Formalise contract	Gina
5.2	GISCOE cannot do integration with FSA data, because there is no FSA. DoSD understanding – SocGIS will be completed by end March, but will operate without FSA data.	
5.3	Met with SocDev – wrong people, but meeting was useful to establish procedures. Need to sort out how data will be requested and accessed.	
5.4	Request Lynfer to provide data for portion of province for GISCOE demonstration. Thematic mapping and pie charts dependent on data.	Gina
5.5	Welfare offices data – to GISCOE. Cobus will mail.	Cobus
5.6	GISCOE not sure about who will be updating data on application. Will hopefully be sorted out by KID URS.	
6.	**Other**	
7.	**Next meetings** Decide after 12 December at GISCOE	

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 5 March 2004

DATE:	5 March 2004		
VENUE:	Breakaway #2, HSRC library, Pretoria		
PRESENT:	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
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	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za
	Etienne Louw (EL)	GISCOE	elouw@giscoe.com
APOLOGIES:	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
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	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Sarel Naude (SITA)	SITA	sarel.naude@sita.co.za
	Isidore Parker (SITA)	SITA	
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
	Roland Pearson (RP)	FinMark Trust	roland@tiscali.co.za

Meeting 7

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 6**	
1.1	Checkback – Cobus has no control over process. This team will not be able to achieve timelines (they are still appointing people) – Cobus wrote e-mail to Craig in Jan to suggest that HSRC make alternative arrangements, but this was not part of HSRC proposal. Cobus to sort out whether they want HSRC to do check backs.	Cobus
1.2	Contact in SocDev – KID to continue.	Stan
1.3	Received list from Fanie listing active /non-active pay points. Cobus to send summary of data for SA.	Cobus
1.4	Send update of Post Office data to DoSD and GISCOE.	Gina
1.5	Eastern Cape Return fieldwork done and data integrated.	
1.6	Larry's analysis – priority for Selwyn. Cobus will contact the banks (without FinMark's approval) to obtain data – because this is priority for DoSD.	Cobus
2.	**Data issues**	
2.1	Database relations – picture drawn to clarify role between SocGIS/ SocDev/ SocPen (refers to Roland's memo of earlier). URS was done recently for SocDev – KID can use that as starting point.	Stan

2.2	Bank data – FSA needs letter from every bank to approve use of bank data – this is causing delays.	
2.3	Census data – Michael to do imputation using 2001 data for FSA. HSRC suggests optimum solution to Selwyn about which data to use (census 1996 at EA level vs 2001 at municipality level – short proposal.	HSRC
2.4	Paypoint data – when provided to KID please do so in MapInfo v3. Coding lists – DoSD wants names and not coding in application tool. Check with GISCOE – lookup table? Data quality – position checking??	Gina
3.	**Fieldwork – DoSD checkback**	
3.1	See 1.1	Cobus
4.	**Contract**	
4.1	Contract still not signed – Selwyn to take it in person to DoSD.	Cobus
5.	**Application development**	
5.1	DoSD wants HSRC to indicate expenses for data budget (R64 000)	Gina
5.2	Selwyn will make decision by week 22 March	Cobus
5.3	Time frame for delivery based on decision by Selwyn – current date of delivery 17 May (including training)	
5.4	Issues that will effect outcome: • FSA data structure is not known and therefore impact won't be known • Had preliminary meeting with SocDev last year – nothing final. GISCOE not willing to continue if there is no clarity about application development.	
5.5	URS – KID to do three: SocGIS, ..., ... (Eventually SocGIS will incorporate SocDev).	Stan
5.6	DoSD software & hardware has been delivered. GISCOE will do basic installation as soon	Peter
6.	**Module building** Larry's work – dependent on delivery of final GIS data set and Census 2001 data.	
7.	**Other**	
7.1	DoSD willing to forego GIS training in order to use the money for web application.	
7.2	Mail updated project proposal to Cobus and Stan	Gina
8.	**Next meeting** 26 March 3004 10h00 **End**	

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 26 March 2004

DATE:	26 March 2004		
VENUE:	Breakaway #2, HSRC library, Pretoria		
PRESENT:	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
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APOLOGIES:	Henry Nkosi (HN)	Imvelo	henry@imvelo.co.za
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	Stan Watt (SW)	KID	stan@kid.co.za

Meeting 8

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 7**	
1.1	Stan & Cobus had meeting with SocDev – sorted out technical issues.	
1.2	Update of post office data to DoSD and GISCOE. Send MPCC's to Cobus.	Gina
1.3	Extra R12 000 to be recovered from DoSD somewhere (import & export routines) – depending on HSRC letter. GISCOE is still holding back on development until finances is sorted out. HSRC to send letter to DoSD and GISCOE about savings to cover GISCOE costs – by today. By Wednesday – Cobus provide letter of intent to GISCOE. HSRC letter to GISCOE to indicate carry on with development.	Gina Cobus
1.4	KID to do URS for SocGIS, SocDev, FSA and integration between the three.	
2.	**Data Issues**	
2.1	Bank data – DoSD has swop agreement with AfriGIS – will obtain data as soon as pay points delivered. Not a sensitive data set - contains only locations to be used in advanced analysis. FSA will obtain a different banking data set – will contain sensitive information. FinMark concerned about duplication of effort in	Cobus Roland

	SocGIS and FSA – take decision middle April.	
2.2	Census data – DoSD requested data at EA level from StatsSA – to assist with advanced analysis. Contact Michael and Darrel to assess progress with Census data (GWS and RP to keep in contact).	HSRC
2.4	Paypoint data – coding lists – DoSD wants names and not coding in application tool. To finalise data by today – delegate to CAS or ASD next week.	Etienne Gina
3.	**Contractual administration**	
3.1	DoSD to provide contract to HSRC by end next week – FinMark cannot pay HSRC unless contract between HSRC and DoSD. HSRC to invoice FinMark for work completed before Tuesday.	Cobus Gina
3.2	HSRC to draw up contract with GISCOE.	Gina
4.	**Application development**	
4.1	GISCOE to continue.	
5.	**Advanced spatial analysis**	
5.1	Larry requested data on grant type ratios - SocPen contains such data per province – HSRC has received. Cobus to send updated Norms and Standards to Larry via Gina.	Cobus
6.	**Other**	
6.1	Timelines – GISCOE dependent on bank data definitions.	
6.2	GISCOE to give presenation to HOSS 6/7 April	
6.3	Larry expected to meet with DoSD in next month	
7.	**Next meeting**	
	30 April 10h00 at GISCOE	
	End	

PENSION PAY POINT PROJECT TEAM MEETING
Minutes 3 June 2004

DATE:	3 June 2004		
VENUE:	Breakaway # 2, HSRC library, Pretoria		
PRESENT:	Cobus van Doorn (CvD)	SITA	Kobus.VanDoorn@socdev.gov.za
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	Larry Zietsman (LZ)	GSRB	hlz@sun.ac.za
	Darrel Beghin (DB)	FinMark Trust	dbeghin@mweb.co.za
	Craig Schwabe (CS)	HSRC	caschwabe@hsrc.ac.za
	Stan Watt (SW)	KID	stan@kid.co.za
	Chris O'Connell (CC)	KID	chris@kid.co.za
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	Peter Gill	GISCOE	pgill@giscoe.com
	Adlai Davids (AD)	HSRC	adavids@hsrc.ac.za

Meeting 9

ITEM	DESCRIPTION	ACTION
1.	**Matters arising from Meeting 8**	
1.1	Post Office data to DoSD, KID, GSRB – try to deliver Friday. Try to ensure that no duplicated data sets are circulated – HSRC is main contact..	Gina
1.2	KID URS only for FSA and SocGIS. Reporting from SocDev sorted out by GISCOE.	
1.3	SABRIC data available from 1 June - contains banks & ATMs. Fields are bank name, unique number, physical address.	
	• Stan to clarify with Darrell who has access to data.	Stan
	• Chris to send e-mail to specify content of data.	Chris
	FinMark has to sign contract with 4 major banks within 4 months. Therefore not available to SocGIS. Roland: need to sort out who has legal access to data and need for non-disclosure agreements with HSRC and GISCOE.	
	Bank data from DoSD contains only locations – suitable to use for modelling purposes.	
1.4	Census data – DoSD requested data at EA level from StatsSA – nothing yet. Will use 1996 census data.	
	Cut CD's of ward level data for KID. Chris to contact HSRC.	
	2001 EA data is still outstanding (2 months) – use 1996 EA data	

	level – discussed with Selwyn – provide latest version of 1996 census data to Larry. (Cannot impute data to 2001 because 10% sample not available – use ward level data for FSA.)	HSRC
1.5	Paypoint data – coding lists – DoSD wants names and not coding in application tool.	Etienne
1.6	HSRC to draw up contract with GISCOE – waiting for feedback from DoSD about copyright and financial implications.	Gina
1.7	Larry requested data on grant type ratios – Larry & Gina to discuss. Cobus to send updated Norms and Standards to Larry via Gina.	Gina Cobus
2.	**Data Issues**	
2.1	Bank data – see 1.3	
2.2	Census data – see 1.4	
2.3	DoSD field survey back yesterday - send results to us – will update SocGIS later.	Cobus
2.4	(See Gantt chart)	
	Gina: Master list created complexity in doing fieldwork – duplicates, instutions, non-cash pay points. Two fieldwork trips – re-visit EC. Coding and capture question in Dec. 1st integrated data set in Feb – problems duplicate records and many-to-many relationships in the data sets – created unique ID to solve – 2nd data set May. Pay points without unique ID deleted – another quality check to solve problem complete by the end of the week.	
	Pay points - aim to finish data by Monday (7^{th}).	Gina
	Craig: Application is tool to carry on with updating pay points.	
	Cobus: DoSD is setting up common set of rules to determine active/duplicate pay points and future data capture.	
	Roland: Point of survey was not audit, but a survey. Therefore lack of master list is not critical – we knew beforehand data from SocPen was bad. Survey conducted to get an idea of what is out there	
	All relevant data sets to Larry by Tuesday/Wednesday – includes beneficiary ratios, MPCC and welfare offices. Ancilliary data – schools, clinics later on (next week or two).	HSRC
2.5	Social Welfare offices – compare latest DoSD data with HSRC. (Send existing HSRC data to Cobus.) Copy to KID.	Gina Cobus
3.	**Contractual administration and finances**	
3.1	Invoiced FinMark for R694 234.92. Invoiced signed by DoSD.	
3.2	DoSD cannot sign contract with HSRC. Enough legal ground	

between DoSD and FinMark for FinMark to pay HSRC on their behalf.

4. Application development

4.1	Aiming to complete everything by the end of June.	Etienne
4.2	SocDev need workshop had impact on application – Cobus to send minutes to Gina.	Cobus
4.3	Rashad Kimmie is writing SQL to access data from SocPen through SocDev for data aggregated to pay point – to be used by FSA.	
4.4	Bank data – needs field definitions from Chris	Chris
4.5	Training will take place – ±15 July.	Peter
4.6	Type of reports coming out of application – see minutes of SocDev meeting. Aggregated beneficiary data – from SocDev to application.	
4.7	Fields of data accessed by GISCOE from SocDev to send to KID and vice versa.	Peter/Stan

5. Advanced spatial analysis

5.1	Copy of Larry's proposal was e-mailed to everybody.	
5.2	DoSD conceptual idea is to move people from pay points to banks. Bank vs ATM – DoSD to indicate preference. Priority order for DoSD is: ❶ Banks, ❷MPCC, ❸post office, ❹service centre (mini branch) then ❺ATM.	Roland
5.3	Capacity constraints – cannot apply to banks. Roland will talk to Larry to sort out these and to provide average figures about occupation, service delivery, etc.	Roland
5.4	Migration not taken into consideration. Not part of project scope. Will be an extra model. HSRC has ability to model migration and annual population – expert researchers and model being developed with GISCOE.	
5.5	DoSD want to provide borderless services (SA), but analysis will be done within existing provincial borders. Larry to put in computer constraints for borders.	Larry
5.6	CSG beneficiaries prioritised above pensioners to move to banks. That will be complex because will have to run model twice – once for other beneficiaries and once for CSG beneficiaries. Our contractual obligation is to analyse an amorpheus entity (not broken down into types of beneficiaries).	
5.7	Furthur queries about modelling – contact Larry	Larry

6.	**Next steps and timelines**	
6.1	URS for DoSD – Stan to discuss with Roland re resources and time available. Above dependent on SocDev – SocGIS was not designed as a warehouse, but as spatial system with reporting capabilities. If SocDev (warehousing source of DoSD) can satisfy DoSD analytical's needs then no URS required – but this is not the reality. Chris - FSA is based on a dynamic model, therefore SocDev will not be able to do all the analytics required for management.	Stan
	KID suggested an audit of SocDev, but Roland to give go ahead. Stan to give feedback by next week.	Stan
	Rather change "URS" to "Proposal for DoSD"	
	URS falls outside scope of this project – therefore deleted from HSRC consortium timelines.	
6.2	Inception report by 11 June.	HSRC
6.3	Pay point gap report – not necessary anymore	
6.4	Check backs – completed Friday 11 June. Will provide shapefile with attributes. To compare with HSRC data.	DoSD
	WC welfare offices data to HSRC – to compare with data captured by HSRC	
6.5	Field report by 9 June	HSRC
6.7	Provincial summary reports completed by 15 June – then posted.	HSRC
	DoSD provided maps to North West at magisterial districts (contained locations only). Pass cover letter via Cobus (to make sure we cover developmental aspects).	Gina
6.8	Provincial feedback - not going to integrate, because it will delay the process too much and might cause confusion at local level (situation as at 20 June 2003).	
6.9	Data report by 9 June	HSRC
6.10	SABRIC data received 1 June, but contracts to be sorted out.	
6.11	SABRIC data report from KID – this will suffice. Therefore no report from HSRC.	
6.12	Advanced spatial analysis – clarify starting date with Larry (six weeks from receiving pay point data). Completion 30 July.	
6.13	DoSD quality check dependent on final data set.	
6.14	Integrate spatial data set into ArcIMS – send latest data sets to GISCOE by 9 June	HSRC
6.15	Import/export routines – sorted out at SocDev meeting (see meeting minutes).	
6.16	Complete application – done by 30 June	GISCOE

6.17 Project final report - Final report by 10 August

Report – interim report from HSRC before Larry's application.

Week of 21st June.

7. Next meeting

25 June 2004 at 9h00

End