

## EXPERIENCE IN SUDAN – DARFUR

### 1. INTRODUCTION

Development work in Darfur and Sudan by HTSPE, formerly called Hunting Technical Services Ltd., commenced during 1957 in Western Darfur, with the Jebel Marra Investigations, a pioneering regional reconnaissance study in the heart of Africa.

During the subsequent four decades, HTSPE has provided consultancy services on numerous projects in Darfur that have covered all aspects of development planning and implementation of projects.

### 2. RURAL DEVELOPMENT PROJECTS

HTSPE has had long-term involvement in two major development projects in Darfur: the Jebel Marra and South Darfur Savannah Rural Development Projects. On these HTSPE and its associate partners assembled large teams of highly experienced technical and administrative specialists who were established on each project for several years. In both of these areas initial reconnaissance studies were followed by more detailed and exhaustive studies on all aspects of the (then) current natural resource situation. These were drawn up into development prospects in a series of feasibility and planning reports, and finally detailed planning procedures for phased project implementation. HTSPE was fortunate to be involved in all these aspects of the project cycle over many years in Darfur.

Brief details of these projects and how they relate in time and space are given below. Additional details on projects, including the client and funding agency, the number of staff months and key staff involved, the full scope of the services provided by the Consultants, and the costs of the project are given in the project Summary Sheets.

#### *Jebel Marra*

The exploratory Jebel Marra Investigations of 1957 were based on the hope that irrigation would be possible in this partly mountainous area. The study examined also the hydrogeology, engineering geology, forestry, ecology and soils of the region as well as the agricultural and rural economy. Recommendations were that a number of small-scale irrigation projects were possible; several pilot farms should be established; and that hydrological networks should be set up.

As a consequence the FAO initiated the Land and Water Resources of the Jebel Marra Area (1963-67) and HTSPE provided technical staff to make the soils and vegetation surveys (1965-66). The study covered the same area as the earlier JM Investigations but examined the development potential in more detail. In particular the importance of hydrological data resulted in four years of (varied) rainfall and surface water flow data, and also groundwater data, all essential in planning for planning irrigation and water storage. The study concluded that development was feasible and recommended that UNDP fund a project that would demonstrate the use of agricultural resources with diversified crops and shift away from resource surveys.

The next stage was again funded by UNDP / FAO and included investigations that were leading in the direction of a diversified agricultural project. The study, termed the Agricultural Development of the Jebel Marra Area (1976-77), gave particular emphasis on land resources, livestock and range and groundwater studies over some 40,000 km<sup>2</sup> of Western Darfur.

This was followed by an EDF funded Project Preparation Study (1979) that reviewed the project preparation plans for the Jebel Marra Rural Development Project made in the previous phase.

These efforts culminated during 1980 in the implementation of the Jebel Marra Rural Development Project (Phase I:1980-1986; Phase II: 1986-1992) with HTSPE teams based in Zalingei leading the administrative, financial, monitoring & evaluation, adaptive research, agricultural extension and mechanical engineering departments. Special studies were made of livestock and range and forestry. Despite conflicts within the project area the JMRDP was able to achieve many of its goals in improving rural livelihoods in Western Darfur

From 1993-1995 the EDF funded the Phase II Extension, which in addition to the supervision of the M&E and Extension Departments saw additional inputs in micro-projects, the future role of the project, extension and land use planning. The latter examined hydrological data, the state of the vegetation in western Darfur, and prepared land use planning units based on ecological zone identified in the earlier studies. Plans were drawn up for pilot studies in participatory catchment management but in 1995 the European Union suddenly withdrew funding from Sudan and HTSPE involvement in Darfur ceased.

#### *Southern and Northern Darfur*

From 1971 until 1991 HTSPE was also active in the adjacent and considerably drier province of Southern Darfur on the Nyala based Savanna Development Project. This project was also some considerable time in the development cycle and passed through regional assessments, feasibility studies, detailed project planning and finally into project implementation.

The initial UK Government funded Land Use Planning Survey in Southern Darfur (Phase I) (1971-74) covered base line studies on, *inter alia*, agriculture, land use planning, groundwater, ecology, rangelands and livestock.

This was followed by the FAO funded Savannah Development Project Phase II (1975-76), with emphasis on inventories of the natural resources and agriculture and finalisation of a Development Plan (DP) for integrated development. Implementation of the Development Farms and Agricultural Workshop Programme were the first stages of the DP (1975-77), and these led in to the South Darfur Savanna Development Project Implementation (1977-81) funded by the UK Government.

Implementation of the savanna project was made in two phases. Funded by UK Govt, IDA and Saudi Fund in Phase 1 (136 staff months), and by UK Govt in Phase 2 (140 staff months). An interim phase lasted until mid 1986. From 1982-86 saw the implementation of the Western Savannah Project Phase I, also known as the Western Savannah Development Corporation. This covered some 92,000 km<sup>2</sup> and HTSPE fielded a large multidisciplinary team with expertise in economics, land use planning, agriculture, livestock and engineering.

From 1986 until 1991 Western Savannah Project Phase II was implemented with greater emphasis to on-farm adaptive research and agricultural extension. Some twenty years of UK funding ended in 1991.

### **3. SURFACE AND GROUNDWATER STUDIES**

In 1969-70 HTSPE was involved in the Water Survey and Development Project, a groundwater investigation and water supply project over a large part of adjacent North Darfur. During 1976 it was again in North Darfur conducted soil, groundwater and irrigation work on the Saq El Na'am Evaluation and Pre-Investment Study.

Following the drought years of the 1980s an assessment was made groundwater over a large area for the Rehabilitation of Water Yards study (1987-91). This was a technical mission to develop an operation manual for the wateryard equipment, monitoring procedures, servicing and maintenance. Map shows location of 232 wateryards and 334 borehole pumps.

Hydrological and Groundwater studies had been central parts of the development programmes in both the Jebel Marra and Savanna projects from the start and involved extensive drilling programmes. Studies were continued in Jebel Marra up to 1989.

Of considerable relevance to our knowledge of this area, lying in the exact centre of Africa, are the groundwater and surface water studies made in adjacent territories: Abeche Town Groundwater Study, Chad (in 1986), and along the shores of Lake Chad in Nigeria on the South Chad Irrigation Project (1974-1978).

### **4. ASSISTANCE TO DROUGHT REHABILITATION**

HTSPE also made numerous key contributions to assist with rehabilitation efforts during and after the very severe drought and famine conditions of the mid 1980s. This participation was largely in western Sudan where HTSPE had an ongoing presence and projects included the following:

- Revision of the 1:250,000 Sudan Survey maps of Darfur with a Landsat base and assessment of Land Systems (1985-86);
- Project planning study of the Qureida Settlement Scheme (1985);
- Assessment of the Rehabilitation of Household Gardens (1985), a National Survey, which included Darfur, and involved the distribution and monitoring of seeds suitable for cultivation in household gardens. This study provides a useful background to suitability of crops for household use;

- Investigation of selected rural councils in Northern and Southern Darfur as part of the UNDP funded Area Development Schemes, at that stage the largest component of UNDP Country Programme (1988-91). HTS with Tracey White & Partners were consultants to UNDP on the Area Development Schemes (ADS) during 1990. Projects were established in North Darfur (Umm Kedada Rural Council), South Darfur (Idd el Ghanam, Kibbum, Kateila, and Rahad el Birdi RCs); and elsewhere in Sudan. The consultancy developed and drafted project documents for each ADS area, including schedules, budgets and terms of reference for staff. The Mission Report also gives useful reviews of the project proposals for North and South Darfur.
  
- Drawing up proposals for a refugee settlement project in Geneina District of Northern Darfur to provide establish forestry plantations and provide work for refugees (1987);
  
- Broad based agricultural project preparation in Darfur and other provinces of Sudan (1987) funded by EDF for the Commissioner for Refugees;
  
- The completion of several short-term remote sensing studies examined land use change in the South Darfur and Jebel Marra areas during the 1980s. These made use of multi-temporal satellite imagery and aerial photography to assess change in land use and vegetation and included:
  - Southern Darfur Land Use Change Pilot Project (1984);
  - Darfur Mapping Cropped Land from Landsat Imagery (1985) centred on the wadi Azum area of Jebel Marra;
  - Monitoring Vegetation & land Use Change in selected areas of South Darfur using SPOT Imagery (1989). This was a benchmark study whose objectives were to evaluate land use & vegetation change using 1988 SPOT imagery and earlier 1971-72 aerial photography. Aims were to determine the extent of change and develop a methodology for future monitoring. Four sample areas over 7847 km<sup>2</sup>. Results: high resolution SPOT is well suited for monitoring change; optimum months for image acquisition are Feb-June; since 1971/72 & 1988: 1 - climax woodland in sandy soils decreased markedly; 2 - small areas of cropped land increased in Qoz lands; 3 -density of cropping decreased markedly in the Baggara areas small areas of high density cultivation being replaced by low density over large areas; 4- areas of short / long fallow have increased due to woodland clearance and extension of cultivation. In each sample area two thematic maps at 1:100,000. Comprehensive report with images and ground photographs.
  
- An update of land use change in Darfur was made as part of the EDF funded TA for the Drought Preparedness and Desertification Unit that provided training in remote sensing analysis and GIS operated in Khartoum during 1993-94. The project involved analysis of weather satellite imagery to assess the NDVI index of greenness over Sudan, data compilation of climatic stations. Results were presented at the Sudan Workshop in Berlin in November 1994.

## **5. NATURAL RESOURCE DATA ASSESSMENTS**

The identification of previous studies in natural resources is a standard process of any HTSPE development project. Computer assisted searches of databases make this a comparatively simple task at present but much of the older literature is unlikely to be retrieved by this method.

HTSPE has had specific experience of making significant assessments of resource data in Darfur in the past, and the present assessment has drawn on these:

- Preparation of an Index of Research for FAO, Sudan (1968). This covered all of Sudan and transferred data from reports onto index cards so that this material could be used for extension work;
- Report on Experience in Sudan & Ethiopia (1986), was produced for GRID-UNEP in Nairobi, and provided a list of all HTSPE projects in Sudan, their locations, details of the contents of each report and availability of maps. This was later incorporated into a GIS in the Global Environmental Monitoring System (GEMS);
- The Sudan Resource Management Study, a Natural Resource Data Assessment of Kordofan and Darfur (1987) funded by the World Bank brought together all the compilations from the two earlier surveys and the more recent published information on papers, books and maps, as well as unpublished reports and details of satellite imagery. It provides 1- an extensive renewable resources bibliography of published and unpublished materials divided into 21 categories; 2- Available Maps (HTS and others); 3- Air Photo coverage; 4- satellite imagery coverage; and 4- projects made by HTS in Darfur.

## **6. DETAILS OF REPORTS FOR SPECIFIC PROJECTS**

In the case of multi-volume reports on large projects, reports have been classed according to their usefulness in providing key technical information on the project so that the reader can obtain an understanding of the project from a few documents. The classes are:

- 1 = key documents that give comprehensive assessments on topics;
- 2 = useful to important documents that are necessary if one is wanting to obtain a fuller picture of the workings and technical research highlights of a project;
- 3 = other documents of marginal use to the general reader, but may often contain data and information on the progress of the project.

### **JEBEL MARRA RURAL DEVELOPMENT PROJECT (JMRDP)**

**Phase I:1980-1986;**

**Project Summary Sheet: 2-15**

**Phase II: 1987-1992**

**Project Summary Sheet: 2-15F**

**Phase II Extension 1993 -1995**

**Project Summary Sheet: 2-68**

**HTS Library Reports:**

**317 (Phase I & II)**

**836 (Phase II extension)**

### *Key JMRDP Documents Class 1*

#### JMRDP Land Use Planning Studies 1995 (836D).

Phase II Extension: Comprehensive report by R.N. Munro that discusses the resource base (land, soil, vegetation, water & animal resources); analysis of climate data; hydrology; changes in land use cover; desertification; sustainable development and JMRDP; legislation and land tenure; planning units; questionnaire; Arabic summary; maps. (160 pp).

#### JMRDP Project Reorganisation – Proposals and Progress. December 1994.

Document outlining the proposals made to the EU to justify a further extension to Phase II. Author: Tony Watkins. (42 pp).

#### JMRDP Micro-Projects Report. 1994. (317DO)

Phase II Extension. Report by Andrew Russell of ITDG on 4 micro-projects: small scale Jaggery and Syrup production; oil production; stoves projects; drying technology.

#### JMRDP Agricultural Extension Report. 1994 (836C)

Phase II Extension: Useful compilation by J. Boocock of extension messages drawn up in the final years of the project (70pp).

#### JMRDP Mechanical Engineering Report. 1994. (836A)

Phase II Extension: Discusses workshop management, mechanical stores, and plant machinery assessment.

#### JMRDP Potential for Crop Processing in JMRDP. 1990. (317CM).

Phase II. Report by Keith Machell of Intermediate Technology for HTS. Very useful compilation covering: traditional and improved processing and storage practices; potential for utilisation of fruit crops; packaging, grading and marketing techniques; other crop processing potentials; market surveys. (93pp).

#### JMRDP Small Scale Irrigation. May 1988 (317BT).

Useful report by Anne Clift Hill on ODA sponsored field studies made between Oct 1985 to Nov 1986 on irrigation covering: soils, water quality, reclamation trials, irrigation efficiencies, irrigation requirements, water lifting, alternative irrigation methods, water resources. Data annexes. (94 pages)

#### JMRDP Groundwater Development 1988. (317BE).

Useful data on the groundwater situation and investigations made in 1988 including new wells, well inventory. (ca 100 pp)

#### JMRDP Darfur Historical Rainfall Records: Oct 1986. (317AU).

Phase II. Very useful compilation of data covering period 1946-1985. By Anne Clift-Hill. More complete Revised version produced in October 1987. (317 AX). (155 pp).

#### Project Preparation Study Phase 2. 1985.

Report 317AO. Review of First and Interim Phases – Interim Report.

Report 317AL. Programme for Phase 2. Final Report (draft)

Mapping Cropped Land from Landsat Thematic Mapper. 1985.  
Report 317AD. G Griffiths. **See PSS: 10-10B**

Range and Livestock Development in Jebel Marra. Final Report. 1985.  
Report 317 AG. Livestock study of the project.

Forest Management Plan: Golol Plantations 1980-1990. 1983.  
Report 317 L. D.W. Smith. **See PSS: 4-07**

JMRDP Advance Preparation Study. 1979.  
317C. Vol 1 Main Report  
317D. Vol 2 Housing and Building Rehabilitation  
317E. Vol 3 Plant & Vehicle Rehabilitation

*Useful JMRDP Documents - Class 2*  
JMRDP Groundwater Development 1989. (317BX).  
Report on second input of groundwater specialist. (about 40 pages)

JMRDP Rural Road Construction. April 1989. (317 BS).  
Consultancy visit on roads in JMRDP covering the network, design standards, construction, maintenance. (40 pages)

JMRDP Irrigation Survey. 1988 (317CB).  
Irrigation survey trials at three Extension Centres (Dankuch, Garsila and Nyertete).  
(18 pages)

JMRDP Preharvest Surveys.  
1988. (317BM). Prepared the M&E Department.

JMRDP Harvest Surveys.  
Prepared by the M&E Department of JMRDP.  
317CH, 1989; 10 pp.  
317CD. 1987-88. 41 pp.

JMRDP Report on Trials Programme. 1986 (317AY).  
Useful summary of trials with data presentation and analysis.

JMRDP Annual Reviews. Papers presented at the Annual Reviews of JMRDP.  
6<sup>th</sup> Annual Review, Zalingei, 18 April 1989. (317BV)  
5<sup>th</sup> 1985. Zalingei March 1988 (317BD).  
4<sup>th</sup> 1985. Zalingei 13 February 1985. (317AC).

JMRDP Handing Over Notes, Chief Adaptive Research Officer. 1984. (317AZ).  
Useful summary.

JMRDP Crop Protection Reports.  
1983. (317T). Prepared by the Agricultural Services and Adaptive Research Division.  
Useful information of crop pests.

JMRDP Adaptive Research in Jebel Mara Area. 1981-1986. AR Div. Technical Note 2/86. (317AV). Summary of progress and findings. (22 pages).

JMRDP Annual Reports. (317 various). From 1980-1994. Cover the Agricultural Services (Extension, Adaptive Research, Horticulture, Forestry, Credit and Marketing); (Wet Season Survey, Small Scale Irrigation, Post Harvest Survey, Camel Plough Survey, Dabar Assessment Survey, and Monitoring & Evaluation Departments. Last Report issued October 1994.

### *Other JMRDP Reports - Class 3*

JMRDP Quarterly Reports. 317 various. 1982-93. Progress reports and records of project activities for each Department. Provide comments on the issues affecting the project.

JMRDP Work Programmes for Phase II. 1986. (317AP). Lays out in detail the proposed activities. Includes financial and economic analysis. Could be useful to compare with actual progress.

JMRDP Work Programme and Cost Estimates. 1987 -1995.  
Cost estimates for following years of the operation of JMRDP.

### JMRDP Financial Statements.

Report 317. 1980-1986

Report 317BB 1986- 1987

Report 317BK 1987- 1990

Report 317DP 1990-1994

Annual review of the financial records of JMRDP.

JMRDP Research On The Millet Head Worm (Raghuva sp) 1985. (317DA).  
Placement report by Duncan Rhind. Discusses all aspects of this pest and its control.

JMRDP Briefing Notes for the Agricultural Economist 1981. (317S).  
In-house study by David Johnson, based on reading of HTS reports in UK. Useful compilation for background data.

JMRDP Introduction to the JMRDP. Jan 1988. (317BC).  
Brief prepared by project for a visit to JMRDP by EC officials in January 1988.

JMRDP Kebkabiya District. 1988. (317BW). Summary of project activities in the Kebkabiya District of North Darfur based on a visit there by project staff. 10 pages.

JMRDP Traffic Survey. 1988 (317CE). 1992 (317DG).  
Survey was conducted outside Zalingei on Nyala road. (7 pages)

JMRDP Improved Sorghum Variety P9 Assessment. 1992. (317DH).  
Report from M&E Dept. 25 pages.

JMRDP Market Prices Analysis. 1991. (317CX).  
Part of Annual Report from M&E Department. 38 pages.

JMRDP Project Preparation for Phase II. Part A: Review of First and Interim Phases. (317PO). **NOT** an HTS report. This study was assigned by EC to Royal Tropical Institute. Category: Useful.

317 AL. JMRDP Project Preparation for Phase II. Part B: Programme for Phase II. **NOT** an HTS report. This study was assigned by EC to Royal Tropical Institute. Category: Useful.

**Area Development Schemes (ADS). UNDP. 1990.**

**HTS Report 696.**

**PSS: ?**

The ADS were the largest component of UNDP Country Programme (1988-91). The consultancy developed and drafted project documents for each ADS area, including schedules, budgets and terms of reference for staff. The Mission Report also gives useful reviews of the project proposals for North and South Darfur.

**Monitoring Vegetation and Land Use Change in Selected Areas of South Darfur.**  
**Western Savannah Development Corporation. 1989. (675A). PSS: 10-10D**

A benchmark study whose objectives were to evaluate land use & vegetation change using 1988 SPOT imagery and earlier 1971-72 aerial photography. Aims were to determine the extent of change and develop a methodology for future monitoring. Four sample areas over 7847 km<sup>2</sup>. Comprehensive report with images and ground photographs. *Class 1*

**Refugee Project Consultancy. 1987**

**HTS Report: none; PSS: 2-15G**

HTS provided a socio-economist to draw up a project that would rehabilitate and expand forest nurseries and associated infrastructure in the El Geneina Area. Funded by the EDF. *Class 2*

**Wateryard Rehabilitation Project. Western Savannah Development Corporation. 1987. (615A, B). PSS:**

Inception and Main Reports. Technical mission to develop an operation manual for the wateryard equipment, monitoring procedures, servicing and maintenance. Map shows location of 232 wateryards and 334 borehole pumps. *Class 2*

**Sudan Resource Management Study – Natural Resource Data Assessment Report. 1987. (613A). PSS: 2-15J**

Drawing on the earlier (1968) Index of Research this report covers Kordofan and Darfur provinces. It provides 1- an extensive renewable resources bibliography of published and unpublished materials divided into 21 categories; 2- Available Maps (HTS and others); 3- Air Photo coverage; 4-satellite imagery coverage; and 4- projects made by HTS in Darfur. (161 pp). *Class 1*

**Southern & Western Darfur Revision of Base Maps Using Landsat Imagery. 1985-86.**

**Report 574A Maps. PSS: 10-10C.**

Preparation of 19 map sheets at 1:250,000 scale in two themes: settlements and land systems. *Class 1*

**Qureida Settlement Scheme. 1985.**

**HTS Report 581; PSS: 2-15E.**

Study made for UNDP to identify factors that would influence the establishment of a settlement scheme at Qureida in South Darfur. Recommendations made for a 650 family settlement scheme. *Class 2*

**Western Darfur Mapping Cropped Land from Landsat. 1985.**

**HTS Report: 317AD; PSS: 10-10B.**

The areas of cropped land were mapped in the Jebel Marra area. *Class 1*

**Western Savannah Development Project.**

**Phase 1. 1982-1986. PSS: 2-15A**

**Phase 2. 1986-1991. PSS: 2-15H; 14-58**

**HTS Reports 381**

Implementation of the savanna project was made in two phases. Funded by UK Govt , IDA and Saudi Fund in Phase 1 (136 staff months), and by UK Govt in Phase 2 (140 staff months). An interim phase lasted until mid 1986. Many reports similar to the JMRDP.

*Class 1*

Report 381AZ. Pilot scheme for rehabilitation of wells in South Darfur. Harriet Nash. 1990

Report 381AS. Review of Agronomic Research Work undertaken in the WSDC project area 1976-1988 & recommendations for future work. By Dr F. Margaret Quin. 1989

Report 381AT. Review of Agronomic Research Work undertaken in the WSDC project area 1976-1988. Annex A Agronomy Research Catalogue 1976-89-90. 1990.

Report 381AU. Review of Agronomic Research Work undertaken in the WSDC project area 1976-1988. Annex B Rainfall Records of Dimsu, UmmRakuba & Jumeiza development Centres 1976-88. 1990

Report 381AV. Review of Agronomic Research Work undertaken in the WSDC project area 1976-1988. Annex C. Supporting data for results. 1990.

Report 381AI. Land Use Planning Section Notes. Part 1,2,4,5,6. 1987-88.

Report 381AJ. Land Use Planning Section Notes. Part 3. 1987-88.

Report 381AA. A sociologist's view of the WSDP. 1988

Report 381AC. Impact of WSP-2 Wateryard Programme on land condition and agricultural development in South Darfur. 1987.

Report 381P. Development in Darfur. A Review of the geographical, historical and economic background to development in the region. By: James Morton. 1986. Internal Monograph.

Report 381AE. Report on ODA/BDDEA Supervision Mission. NOT an HTS report. 1986.

Report 381Y. An Indicative Land Use Plan for WSDP. 1986.

Report 381C. Interim Review. by IDA / ODA. Not an HTS Report. 1983.

Report 381. WSDP Project Review. 1979.  
Appears to have been written during earlier project phase.

### *Class 2*

Report 381BD. Terminal Report. WSDC and National Corp. For Development of Rural Water Resources Wateryard Rehabilitation Programme. 1991

Report 381AR. Report on trials at 3 experimental sites. Research document 4. 1990.

Report 381N; 381AN; 381BA; 381BB; 381BJ. Annual Reports of the Agronomy Section. 1984, 1985, 1988, 1989, 1992 respectively.

Report 381W; 381BE; 381BI. Research highlights and Reviews of Research. 1985-1986; 1990; 1991 respectively.

Report 381AX; 381AW; 381BH. Programme of work. 1988-1989; 1990; 1992 respectively.

Report 381V. Inception report by Senior Agronomist. 1986

Report 381U. Inception report by Land Use Planner. 1986

Report 381BG. Report on visit of consultant for technical supervision of agronomy. 1990.

### *Class 3*

Report 381BC. Report on Consultant for technical supervision of agronomy programme. Aug 1990.

Report 381AY. Report on Supervisory visit by J. Evans. Mar-Apr 1990. 1990

Report 381AP. Report on Supervisory visit by J. Evans. Apr-May 1989. 1989

Report 381AY. Report on Supervisory visit by J. Alexander. Feb 1987. 1987

Report 381R. Summary Report of Consultant Agricultural Engineer. 1982-86. 1986

Reports 381A to 381H.

Phase 1. Annual Work Programmes; Quarterly Reports; Semi-annual reports Various years.

Reports 381AG, 381X, 381AK, 381AI, 381AM, 381AH.

Phase 2. Annual Reports. Quarterly Reports; Semi-annual reports. Various years.

Report 381S. Inception Report of Mechanical Supervisor. 1986.

Report 381AF and 381AB. Mechanical Supervisor Monthly Reports: for Sept-Oct 1987 & Jan-Feb 1988.

### **JMRDP Project Preparation Study. 1979**

#### **Report 317. PSS: 2-14A.**

Study funded by EDF to prepare an implementation schedule.

317A. Final Report.

317B. Final Report – Revised Economic Analysis.

### **JMRDP. October 1978**

Volumes 1, II, III. Costs of the JMRDP.

## **Southern Darfur Rural Development Project (Western Savanna Development Corporation) 1977-81**

### **HTS Report 282. PSS: 2-14.**

The project aimed to halt degradation over 92,000 km<sup>2</sup> of S Darfur and implement the proposals given in the 1971-76 land use planning survey.

#### Reports

- 282A. Development farms annual report. *Class 2*
- 282B. Interim report to the Sudan Govt. *Class 2*
- 282C. Supply of building materials, plant & furnishings. Drawings. *Class 3*
- 282D. Livestock and Range Development Programme. *Class 1*
- 282E. Report on Trials at 3 experimental sites. Seasons 1976-1981. *Class 2*
- 282F. Vehicle Management and Organisation. *Class 2*
- 282G. Report on visit of consultant agronomist May-June 1982; 1981 trials result; 1982 proposals. *Class 3*
- 282H. Report on visit of consultant agricultural engineer. May-June 1982. *Class 3*
- 282I. Report on Trials at 3 experimental sites. Seasons 1982. *Class 2*
- 282J. Construction of headquarters at Nyala: proposed method. *Class 3*
- 282K. Report on visit by consultant livestock sp. Apr-May 1983. *Class 3*
- 282L. Report on Trials at 3 experimental sites. 1983 results. *Class 2*
- 282M. Report on visit of consultant agricultural engineer. Feb-Mar 1984. *Class 3*
- 282N. Report on visit of consultant agronomist. May-July 1984. *Class 3*
- 282O. *coding not used*
- 282P. Report on visit to Dimsu Research Farm, SDRD Oct 1976. By R. Roome. *Class 2*

## **Agricultural Development in the Jebel Marra Area. 1976-78**

### **Report 295. PSS:**

Detailed investigations in the Jebel Marra area that led to project implementation. Funded by UNDP / FAO. The preliminary Working papers are useful discussion papers on the future of the project.

#### Working papers and documents:

- 295A. Working paper No 1. What will the Phase IV studies do? 1976. *Class 2*
- 295B. Working paper No 2. Resource surveys. Project prospects and possibilities. 1977. *Class 2*
- 295C. Working paper No 3. Summary of the Development Plan. 1977. *Class 2*
- 295D. Working paper No 4. Components of the development Plan; Groundwater studies. 1977. *Class 2*
- 295E. Livestock Census & Natural Resource Inventory of J Marra Apr-Oct 76 (Murray Watson). 1977. *Class 2*
- 295F. Irrigation development in pilot development areas. 1977. *Class 2*
- 295S. Draft Engineering / hydrology report & report on analyses. 1977. *Class 3*

#### Final Report:

- 295G. Main Volume. 1978. *Class 1*
- 295H. Annex 1 Land Resources (David E Parry). 1977. *Class 1*
- 295I. Annex 2 Vol 1. Hydrogeology (David Ball) 1977. *Class 1*
- 295J. Annex 2 Vol 2 Hydrology and Engineering 1977. *Class 1*
- 295K. Annex 2 Supplement. Runoff Data 1977. *Class 1*
- 295L. Annex 3. Livestock and Range Resources (R. Trevor Wilson) 1977. *Class 1*
- 295M. Annex 4. Agriculture 1977. *Class 1*
- 295N. Annex 5. Social Organisation and Structure 1977. *Class 1*
- 295O. Annex 6. Infrastructure of the region 1977. *Class 1*
- 295P. Annex 7. Economics and Evaluation of specific projects 1977. *Class 1*
- 295R. Annex 8. Forestry 1977. *Class 1*

## **Saq el Na'am Evaluation and Preinvestment Study. 1976**

### **Report 286. PSS: 7-46B**

Groundwater study in northern Darfur. *Class 1*

## **Savanna Development Project Phase 2. 1975-76.**

### **HTS Report 255; PSS: 1-27.**

#### Reports:

- 255 A. Working Paper 1. 1975. *Class 3*
- 255 B. Working Paper 3. 1975. *Class 3*
- 255 C. Development Plan. 1976. *Class 2*
- 255 D. Agronomic Investigations: Umm Rakuba 1975. *Class 3*
- 255 E. Annex 2. Part 1. Hydrology. 1976. *Class 1*
- 255 F. Livestock marketing. 1976. *Class 2*
- 255 G. Livestock & range Investigations Ghazala Gawazat 1975. *Class 2*
- 255 H. (not listed)
- 255 I. Annex 1. Soils and Vegetation. 1976. *Class 1*
- 255 J. Annex 2. Part 2. Hydrology and Engineering. 1976. *Class 1*
- 255 K. Annex 3. Livestock and Range Resources. 1976. *Class 1*
- 255 L. Annex 4. Agriculture. 1976. *Class 1*
- 255 M. Annex 5. Social Organisation & Development Administration. 1976. *Class 2*
- 255 N. Annex 6. Economics and Project Evaluation. 1976. *Class 2*
- 255 O. Interim report on South Kordofan. 1976. *Class 3*
- 255 P. Final Report. 1976. *Class 1*
- 255 Q. Working Paper 2. 1975. *Class 2*

#### Maps.

##### Ref 255. Boxed Set of Development Plan Area. 1976

- Development Plan Area. 1: 500,000
- Domestic herbivore biomass density. 2 sheets Oct 1975 and April 1975. 1: 500,000
- Communications. 1: 500,000
- Base Map & Land systems. 1: 500,000
- Distribution of cultivated land. 1: 500,000
- Village Distribution. 1: 500,000
- Proposed Land use. 1: 500,000
- Cultivated Land 1971-72. 1: 500,000
- Land Systems. 1: 500,000

##### Maps in Cabinets: ref 19-05-118 and 19-05-19

- Vegetation. 1: 500,000
- Groundwater availability. 1: 500,000
- Existing hafirs. 1: 500,000
- Cattle tracks (Maraheel). 1: 500,000
- Borehole Locations. 1: 500,000
- Hydrogeological boundaries / depth to basement complex. 1: 500,000
- Topography and watertable contours. 1: 500,000
- Water Quality. 1: 500,000
- Groundwater availability. 1: 500,000
- Interim Report Area – hafirs. 1: 500,000

## **Prospect for Planning of the Integrated Water and Agricultural Development of Savanna Belt. 1972.**

### **HTS Report 202. PSS: ?**

202. Hydrogeological study of the Qoz resettlement area. *Class 1.*

## **Land Use Planning Survey in Southern Darfur. 1971-1975**

### **HTS Report 172. PSS: 9-24 and AQ1-23.**

A key planning study of the savanna lands of Darfur with a multidisciplinary HTS team in place for four years.

#### Reports

- 172A. Preliminary Appraisal. *Class 3*
- 172B. Interim Report. *Class 3*
- 172C. Economics Report. *Class 3*
- 172D. Veterinary consultants report. *Class 2*
- 172E. Development Plan. *Class 1*
- 172F. Development Plan. Annex 1. Soil & Vegetation Resources (DE Parry & G Wickens). *Class 1*
- 172G. Development Plan. Annex. 2 Water Resources Engineering *Class 1*
- 172H. Development Plan. Annex. 2 Map and Plates annex 2. *Class 1*

172I. Development Plan. Annex. 3 Animal Resources and Range Ecology. *Class 1*  
172J. Development Plan. Annex. 4 Agriculture *Class 1*.  
172K. Development Plan. Annex. 6 Economics & project evaluation . *Class 2*  
172L. Development Plan. Annex. 5 Social Organisations. *Class 1*  
172M. Hydrology and Engineering Vol 1 Main Report. *Class 1*  
172N. Hydrology and Engineering Vol 2 Plan Supplement *Class 1*  
172O. Hydrology and Engineering Vol 3 1973 Supplement. *Class 2*  
172P. Sociology Report. (Jon Hales). *Class 2*  
172Q. Qoz development project and water spreading schemes. *Class 2*  
172R. Report on visit to survey fish resources. *Class 3*

Maps: Ref: 19-05-16

Topography, Contours and watering points. 1:250,000  
Sub-Nubian Topography. 1:250,000  
Regional Hydrogeology. 1:250,000  
Groundwater quality. 1:250,000  
Vegetation. 1:250,000  
Proposed Land Use. 1:250,000  
Soils and Geomorphology. 1:250,000

### **Water Survey and Development Project in Darfur Province. 1968-70.**

#### **HTS Report 131. PSS: 11-25.**

Survey of some 10 million hectares in Darfur. Photo-geology, geophysics, well drilling and testing. UK Govt funded. The maps remain an important baseline data source.

#### Reports

131 Report no 1 Preliminary appraisal – Annexure. *Class 2*  
131 A. Report no 1 Preliminary appraisal. *Class 2*  
131 B. Report No 2 Interim Report. *Class 2*  
131 C. Report No 3 Surface water studies season 1969-70. *Class 2*  
131 D. Report No 4 Hydrogeology. *Class 1*  
131 E. Report No 4 Hydrogeology Appendices. *Class 1*

Maps: Ref: maps 19-05-28

Hydrogeology. 2 sheets, colour printed at 1: 500,000.

### **Land and Water Resources Survey in the Jebel Marra Area. 1965-68**

#### **HTS Report 157. PSS: 9-25**

UNDP funded and FAO executed study with HTS land resources staff. Upgraded study covering same area as Jebel Marra Investigations.

#### Reports

157 A. Draft appendices of reconnaissance vegetation survey. *Class 3*.  
157 B. Reconnaissance & semi-detailed soil survey (L.P.White). *Class 2*.  
157 C. Land use survey. *Class 2*.  
157 D. Reconnaissance vegetation survey. *Class 2*.  
157 E. Geology. *Class 2*.  
157 F. Agronomy. *Class 2*.  
157 G. Final Report (published by FAO) *Class 1*.

#### Maps:

Isohyets of mean annual rainfall.  
Index map of aerial photography.  
Geological map.  
Reconnaissance soil map. 1: 250,000  
Reconnaissance vegetation map. 1: 250,000  
Present Land Use map. 1: 250,000

## **Jebel Marra Investigations. 1957-58**

### **HTS Report 24. PSS: 7-42**

HTS first project in Sudan (though many of its staff had worked in the country before on Colonial service)

#### Reports:

The Phase 1 Report (24C) remains a very useful document for providing a good description of this area. *Class 1.*

24A Report on Forest Resources. *Class 1*

24B Report on Forest Resources – Illustrations. *Class 1*

#### Maps:

Isohyetal map 1: 1 million.

Generalized geology 1: 1:million.

Key map for Phase 1 studies 1: 250,000.

Forest Map 1: 250,000

## **Other Information on Western Darfur**

1. Archival black and white photography of Western Darfur held at HTSPE. Negatives are held at Aerofilms.
2. RNM Munro holds various coverage of aerial photography runs and mosaics of Western Darfur from the 1950s and 1960s.

*Information compiled by Neil Munro, June 2004.*

## DARFUR

### Chronological List of Project Summary Sheets (most recent at top)

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*Information compiled by Neil Munro, June 2004.*