63. FAO assisted Guinea-Bissau to formulate a proposal for a study on the role of NGOs/CSOs in national development.

64. A joint FAO/IRED proposal for capacity building targeted to small scale NGOs/CSOs from SADC countries has been formulated with FAO technical assistance.

65. FAO SPECIAL PROGRAMMES

66. Emergency interventions in outbreaks of Rift Valley Fever (RVF) in Tanzania, Kenya, Uganda, Somalia and Ethiopia, Mauritania, Senegal and Mali were made and a TCP project was implemented for West African countries.

67. Regional Reference and Training Laboratories for African Swine Fever (ASF) were developed in Côte d'Ivoire and Senegal to handle laboratory technicians training.

68. Prevention and Control activities in regard to Contagious Bovine Pleuropneumonia (CBPP) were implemented in Botswana, Malawi, Tanzania, Uganda, Kenya and Zambia. A Regional TCP project has been developed to address this disease problem in Burkina Faso, Côte d'Ivoire, Ghana, Guinea-Conakry, Mali, Mauritania, Niger and Senegal.

69. EMPRES continued to provide support for:

70. the development of Newcastle Disease Vaccine V4 and thermostable vaccines, at vaccine production centres;

71. research on development of effective vaccines against CBPP, Newcastle Disease and Rinderpest

72. control of Foot and Mouth Disease in Guinea-Bissau and Rwanda.

73. eradication of African Swine Fever (ASF) and enhancement of logistical and technical capacities of the department of livestock services in the Gambia and Tanzania.

74. enhancement of the Early Warning Capacity in Member Countries against the major epidemic diseases through provision of Good Emergency Management Practice CD-ROMs, TADinfo software and technical assistance.

75. linkages to the Pan African Programme for Control of Epizootics (PACE) implemented in 32 countries.

Emergency prevention - Study tours

16．ガーナ「灌漑小規模農業振興計画」事例紹介で用いた関連資料

ガーナ灌漑小規模農業振興計画の概要

1．　プロジェクトの背景

農業セクターはガーナ国経済の基幹産業であり、就業人口の 70%を吸収し、国内総生産の 47%と外貨獲得額の 57%を占めている。農家当たりの耕作面積は狭く、約 2 百万戸の農家の 60%が 1.2ha 以下の面積を、85%が 2ha 以下の面積を耕作している。農林水産業総生産における各サブセクターの比率は、ココア以外の農作物 61%、ココア 17%、畜産 7%、水産 5%、林業 11%である。ガーナの総面積は 238,539 ㎢（23,853,900ha）である。その内の約 22%に当たる 530 万 ha が農地として利用されている。

ガーナ国における灌漑農業の歴史は新しく、1960 年代に灌漑開発事業が始められ、1977 年にガーナ灌漑開発公社（GIDA）が設立された。GIDA は現在 22 カ所の灌漑事業地（総面積約 1 万 ha）を管轄している。しかしながら、灌漑事業地においては、水管理・営農技術の未熟さ、灌漑施設の維持管理の不徹底に起因する機能低下、用水量の不足、事業地区農民に対する営農支援サービスの不備等の要因により、農業生産性が低迷している。そのため、灌漑施設を有効に活用した農業生産の多角化とそれを指向した複合営農体系の確立、営農を持続的に維持発展させる技術的・制度的な支援体制の整備が求められている。

2．本計画の協力内容（英名：Small-scale Irrigated Agriculture Promotion Project in Ghana）

・協力期間：1997 年 8 月 1 日～2002 年 7 月 31 日（2 年間のフォローアップ協力を準備中）
・相手方実施機関：ガーナ灌漑開発公社（GIDA）
・管轄官庁：食糧農業省
・プロジェクトサイト：灌漑開発公社本部と研修センター（Accra）、灌漑開発センター（IDC）とアシャマン灌漑事業地（56ha、その内 2 ha は IDC 直轄試験圃場、2 ha は種子生産農場、94 農民、Greater Accra Region）、オチェレコ灌漑事業地（81ha、131 農民、Central Region）
・プロジェクト目標：灌漑開発公社管轄下の灌漑農業地域においてモデル営農システムが確立する。
・活動・成果：①農民の現状や営農システムの分析、②個別技術の改善、③2 モデル事業地での営農システムの実証、④2 モデル事業地での農業支援システムの改善、⑤普及員、農民組織職員、農民の研修（全 22 灌漑事業地対象）。
・日本側の投入：①長期専門家（6 分野）：チームリーダー、業務調整・研修、栽培、水管理、農民組織・営農、農業機械に 11 名、また、16 名の短期専門家を派遣、②研修員受入れ：これまでに 17 名を本邦研修に受入れ（研修中を含む）、③機材供与：車両、事務機器、研修・普及資機材の供与、④ローカルコストの一部負担。

3．本計画の特徴

・無償資金協力（灌漑施設改修計画）や草の根無償（オチェレコ診療所建設）といった他の援助スキームと連携し、生産性の向上だけでなく地域住民の健康にも配慮している。
・水利費を財源とした灌漑施設維持管理と営農投入財クレジット運営への農民組合参加を通じて、農民を灌漑事業地運営のパートナーとして位置付けている。
・全灌漑事業地（22 ケ所）の事業所長と農民組織リーダー、普及員と中核農民の合同研修を通じて運営改善にも協力している。

4．長期派遣専門家の活動紹介（カウンターパートや農民と協力しながら主に以下の業務を実施）

・富高元徳（リーダー）：本計画の目標である「営農システム改善を基盤とした農民参加型灌漑事業運営」に向けて、農民組合（主役）と灌漑開発公社（脇役）の役割や任務を検討する。
・伊藤秀雄（調整員／研修）：臨時会計役ならびにリーダーの補佐／全分野が協力して実施する灌漑事業地の職員や農民を対象とした個別技術、営農システム、支援システム運営に係る研修の企画・運営を担当する。
・森田信晴（農民組織／営農）：①農民組合の活動強化、②投入財融資制度の運営、③FSR/E による営農モニターの推進を中心に据え、営農支援システムの改善を図る。
・田中敬一（農業機械）：①灌漑農業に適した農具・農業機械の開発・改良、②農業機械オペレーターの研修、③地域農民を主体とした維持管理体制の強化、等を通じて営農支援システム改善に貢献する。
・榊道彦（水管理）：官側と農民が共同で限られた水を農業に有効に利用するために、効率的な灌漑水利用と施設の維持管理運営についての技術を確立し実際の運用を目指している。
・清治有（栽培）：農民の稲栽培技術改善に向けて高収量・高品質品種の選抜や種子供給等の活動をしている。また、野菜栽培技術の改善に向けて新品種の導入、総合病虫害防除等の試験を行っている。

オチェレコ灌漑事業地（81 ha、131 農家）：周囲に広大な畑地があり、天水農業に依存して生活してきた人々は、灌漑農業の安定性や収益性を観察しながら営農を変化させつつある。ポンプを含めた灌漑施設のため水利費が高い。

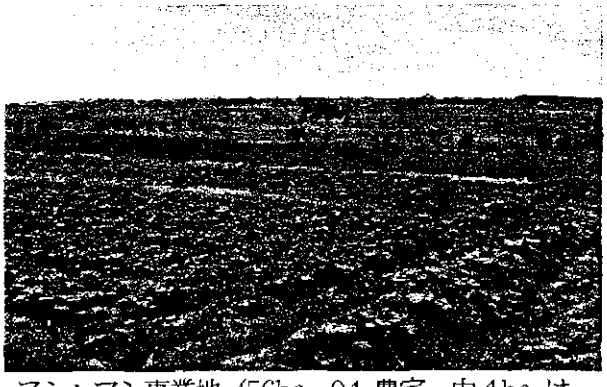
技術検討：試験圃場、モデル事業地等で栽培、水管理、農業機械、営農／農民組織、研修の各分野が協力して高収益・低コスト技術を検討している。（写真：食料農業祭で国産米の食味調査をして品種選定の参考とした）

農民銀行理事会：農民組合代表、プロジェクトスタッフ、JICA 事務所員と共に営農投入財融資状況についてモニタリングを行う。

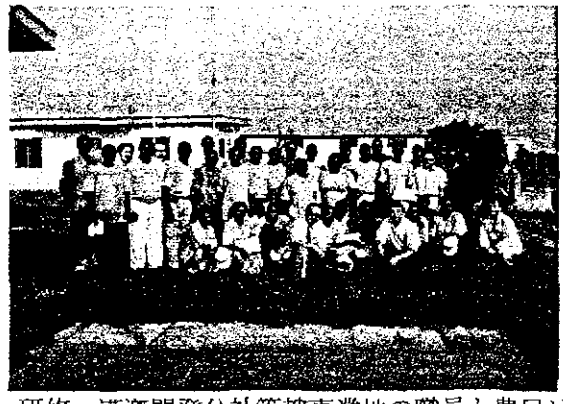
2モデル事業地での稲収量（籾、t/ha）

	アシャマン	オチェレコ
1998 年調査 （聞取り調査）	3.6（雨期作） 3.0（乾期作）	3.7（乾期作） 当時は年1作
2000 年雨期	5.5	4.2
2000/01 乾期	3.9	4.0
2001 年雨期	5.6	4.4

モデル事業地における営農システム発展の方向：①農民が負担する水利費を財源とした灌漑施設の維持管理。②営農投入財クレジットを活用した圃場準備・管理。③農民組合（リーダーとメンバー）の研修を通じた①と②の能力向上。④収益性・市場性の高い作物・作期の選定。



アシャマン事業地（56ha、94 農家、内4ha は灌漑開発センターが試験圃場と種子生産に利用）：アクラ首都圏に隣接した立地条件を活かして稲二期作、稲作＋野菜、野菜輪作等の作付け体系によって、年間 200%以上の作付け率になっている。重力灌漑のため水利費は安い。（写真：前方はオクラ、後方は稲。）



研修：灌漑開発公社管轄事業地の職員と農民リーダーを同時に研修し、営農システム改善に協力している。政府の緊縮予算のなかで灌漑事業地の運営が維持されるには、「自助努力」（農民組合）の意識が強化される必要がある。灌漑事業地運営の主役は農民（組合）となりつつある。農民の活動を支援する政府職員（脇役）の能力向上も重要である。

FARMER PARTICIPATORY IRRIGATION PROJECT MANAGEMENT. A CASE STUDY OF THE SMALL- SCALE IRRIGATED AGRICULTURE PROMOTION PROJECT IN GHANA.

SAMMY M. AKAGBOR, DIRECTOR, PROJECT OPERATIONS DIRECTORATE, GHANA IRRIGATION DEVELOPMENTAUTHORITY (GIDA)

1 INTRODUCTION

Agriculture continues to play a central role in the social and economic life of the nation. In 2000, the agricultural sector directly employed about 65% of the work force, accounted for 41% of total export volume and contributed 41% to Gross Domestic Product (GDP), amounting to US$ 430 per capital. The agricultural sector comprises five main subsectors. Crop and livestock production together contribute 27.8% to total GDP, cocoa 7.2%, forestry and logging 5.0%and fishing about 1.4%. It is estimated that only about 35% of the "arable land area" of 13.6 million ha is actively cultivated, leaving in most zones scope for expansion. Some soils are of poor quality and many areas are presently inaccessible.

The country is and will continue to remain heavily reliant on rainfed crop production for its food supply. Indications are, however, that the rainfall pattern is deteriorating over time leading to greater food insecurity. Provided that it is economically viable, increased irrigation could become a key source of agricultural growth as well as of poverty alleviation for farmers who otherwise unduly depend on low and erratic rainfall. It would help to increase the productivity of land, reduce, albeit to a limited extent, the need for extending the cultivated area for feeding the rapidly growing population.

2 IRRIGATION IN GHANA

The development of formal irrigation in Ghana is comparatively recent, with the first schemes being initiated in the early 1960s. Out of a total area of 1.9m ha of potential irrigable lands only 19,000 ha (0.1%) are under irrigation both public and private. Out of the irrigated area 22 formal public schemes account for a potential command area of 12,700 ha, of which 8,600 ha have been developed. At present only some 5,600 ha are operational due to non-completion as planned and/or to deterioration. Many of these are programmed for rehabilitation under donor funding projects.

Public irrigation schemes are presently operating at low levels of efficiency, due mainly to the deteriorated infrastructures, management weaknesses, and lack of sense of project ownership by the farmer beneficiaries. Efforts to rectify the situation are so far limited and constrained by the lack of financial and manpower resources. The restoration of the operational efficiency of these existing schemes is considered the first step and basic prerequisite for the gradual change in the management and service delivery system and a corresponding greater farmer's involvement and self determination. Budgetary resources to carry out such a rehabilitation and support programme are inadequate and the required expertise scarce, necessitating outside assistance.

3 THE SMALL- SCALE IRRIGATED AGRICULTURE PROMOTION PROJECT (SSIAPP)

Returns on investments in public irrigation development appear to be sharply below acceptable levels. This has given impetus to seeking remedies in various directions. Initially the focus has been on advocating only physical rehabilitation and modernization. However,

over recent years it has become widely accepted by Government of Ghana that such physical measures need to be combined with or substituted by "soft" interventions in line with the recommendations of the 1986 World Bank report of the irrigation sub-sector such as institutional improvements, better farmer involvement, training, extension, and the remodelling of scheme management, including the break up into smaller units, privatisation and creation of Water Users Associations.

Further to this notion a request was made by the Government of Ghana to the Government of Japan through JICA to assist in the improvement of irrigation practice. A technical co-operation project was started in 1988, which later developed into a mini project and finally a project-type technical co-operation.

The SSIAPP is a "project-type technical co-operation" between the Government of Japan and Ghana. It is a 5 years project, which started on the 1st of August 1997 based on the record of discussion, signed on the 27th May 1997. The Irrigation Development Centre (IDC) is used as project office, and there are 6 JICA experts and about 20 Ghanaian Counterparts working for the SSIAPP.

The target irrigated areas of the SSIAPP are is located at Ashaiman in the Greater Accra Region and Okyereko in the Central Region where the system had been rehabilitated for 56 ha and 81 ha respectively. The project was conducted with the active participation of the 94 farmers at Ashaiman and 131 farmers at Okyereko co-operatives involved in the production of rice and vegetables.

The main goal of SSIAPP is to establish a sustainable farming system for small scale irrigated farming and consequently to increase income of farmers on the two projects. The agreement is a commitment of inputs from both Governments of Ghana and Japan for a successful implementation of the project.

3.1 Recognition of Current Farming Situation

The first activity under the project is the baseline studies to analyse and evaluate the current situation of the irrigation projects. From the baseline studies data and analysis thereon, various limitations, and problems were identified for the sections to develop appropriate component technologies to address the problems raised in the studies.

The farmers were of the opinion that capital, machinery and/or water were major factors affecting the start of rice cultivation. Their views were incorporated into the approaches of SSIAPP. It was recognized that, besides crop cultivation technologies, proper irrigation facility management, timely land preparation and timely application of farming input materials were important in irrigation farming improvement.

3.2 Improvement of Component Technologies

The baseline survey revealed that the development and improvement of component technologies were necessary pre-requisites to achieve the project purpose i.e. improvement of the farming system.

Each section therefore developed and prioritized a number of activities that needed to be carried out for the development and improvement of the component technologies in crop cultivation, water management, agricultural machinery, farmers management and farmers co-operatives. The integrated approach for the technologies were adequately discussed at the technical committee for adoption.

3.3 Supporting Systems

Promotion of irrigated agriculture is related to farming system of the area and individual farmers' families. It was necessary for the farmers to shift from the single crop management style to a diversified farming system. Moreover, there was a possibility to improve family incomes as well as generate employment opportunities in Ashaiman and Okyereko. More importantly, the women in the village have been given the chance to improve their living conditions and be recognised as equal partners in the development process. It has been therefore extremely important to promote the strengthening of farmers' co-operatives as the core organisation. The co-operatives are the main locus of operation for the success of the SSIAPP. Their functional state determines the overall ability of performance of the project.

Apart form the farmer field school held by the sections during the verification trial to educate the farmers, there have also been formal training programmes for the executives of the farmers' co-operatives and lateral canal leaders from the model sites. The purpose was to improve their record keeping, accounting and co-operative management, water management, crop production, credit management and revolving fund.

3.4 Training

A comprehensive training programme was drawn and supported by JICA under the project. It includes training programmes of extension officers from the 22 irrigation projects, project and regional managers and other senior staff from the head office, and SSIAPP. In order to achieve the objectives of the collaborative operation, and maintenance as well as management of the project, it was deemed important to bring the project staff and farmers together as a group.

The training has helped in explaining the strategy of farmer participation in the management of Irrigation projects. The entire stakeholders now appreciate their roles and responsibilities for the smooth run of the projects. Farmers are better informed about their responsibilities and rights.

4 POSITIVE IMPACTS FROM THE SSIAPP

(1) ***Farming input credit (FIC):*** To minimize the dependence of farmers on informal credit facilities, applicability of FIC was put in place. The FIC covers land preparation, seeds, fertilizer and agro-chemical. The farmers apply for the loans with farm plans before a farming season; they repay the loans with the interests after harvesting (marketing). Total amount of about 300 million cedis are managed at the moment (including stock of input materials).

(2) ***Irrigation Service Charge (ISC):*** Under the current government policy of reduction of subsidies to the agricultural sector, the farmers shoulder the cost for operation and maintenance of irrigation facilities. Farmers of the two model schemes pay ISC at a rate of 250,000 cedis and 1,000,000 cedis per ha per season for Ashaiman (gravity irrigation) and Okyereko (pump-up and gravity irrigation) respectively.

(3) ***Reactivation of farmers' co-operative:*** The farmers' co-operatives of the model schemes have been reactivated and, together with SSIAPP, they manage the irrigation facilities and the revolving fund. High rates of payment of ISC and repayment to FIC indicate the commitments of executive and members of the farmers' co-operatives. It should be noted that monetary bases are important to the sustainability of co-operatives.

An observation of the prevailing system and focus group discussions with farmers reveal that the problems of untimely and inadequate levels of inputs, which, hitherto, characterised the pre-project period, have been successfully surmounted after the inception of the project by the reorganisation and empowerment of the co-operative society.

Irrespective of the disparity in the rate of development between the two models, farmers on the whole, have acquired more knowledge and skills in land preparation, seed preparation, water management, fertilizer application, soil improvement and co-operatism. The project period is characterized by better farm management and more effective management of resources.

There is an overwhelming acknowledgement of the positive impact of SSIAPP on farming activities by the farmers. All respondents in both locations made this confirmation. The impact of the project is evidenced in increased yields at both sites. A significant comment by farmers is their satisfaction with the regularization of their income during the project period. The following are some of the important factors for sustainability of the initial success.

5 INSTITUTIONAL CAPACITY BUILDING & SUSTAINABILITY

Japanese ODA pays attention to the self-help efforts of development partners. The following are some indications of what have been done.

(1) ***Key-players:*** It is quite evident that the farmers (the farmers' co-operatives) are the key-players of irrigation farming. Sustainability of irrigation farming may depend on the commitment and contribution from the farmers' side. They have to make considerable efforts to play key-roles in agricultural development which should be accompanied with supporting roles of the government.

(2) ***Marketing aspects:*** With improvement of agricultural production, post-harvest aspects become important in irrigation farming. Some farmers' co-operatives are making efforts to establish group marketing especially on rice. Management of the co-operatives will be adjusted to be a marketing oriented one.

(3) ***GIDA Research Account:*** The GIDA Research Account has been re-activated in March 2001 at the sixth steering committee meeting purposely to generate income from the facilities and other activities of the Irrigation Development Centre (IDC) and SSIAPP in support of extension delivery.

This account is mainly to augment the financial running of the IDC as well as support some activities of the SSIAPP. Income for the account has accrued from the seed farm, "U" framers, rice mill, hiring of training school facilities, agricultural equipment and other income from the research plots. To date an amount of over ¢25m has so far been generated and used to support SSIAP activities.

6 RELEVANCE OF SSIAPP TO IRRIGATION IN GHANA

(1) An up-to-date information on the 22 GIDA projects has been compiled into a document "Brief on GIDA Projects". The information for the document was mainly from the questionnaire of project staff and farmers who participated in the training courses organised under the SSIAPP.

(2) The GIDA and Government Policy of Farmer Participation in Irrigation Project Management have been explained to all stakeholders. The SSIAPP training of both staff and farmers had been a good forum for dialoguing between the GIDA and farmer beneficiaries, for both to understand each other to adopt a partnership approach in the roles and responsibilities for the sustained crop production under irrigation.

(3) The training programme has empowered the co-operatives on all 22 GIDA projects are being strengthened and many are sourcing assistance from District Assemblies and other NGOs for both equipment and credit for effective crop production.

(4) The IDC is developing into a creditable centre for research especially in rice production. Rice researchers have been visiting the centre to exchange views on many of the trials conducted at the centre. Under the SSIAPP, the IDC has become a centre endowed with both equipment highly trained staff in Japan. The counterpart staff had also gained much experience from working with the experts in adaptive research and training.

(5) The centre has put in bids to compete with other institution for the contract of adaptive research for the Small Scale Irrigation Development Project being funded by the African Development Bank. The contract would generate income for the sustainability of the centre as well as building the capacity of the centre. Proposals have also been sent tot he Directorate of Agricultural extension for the IDC to use the training facilities and experience to train the decentralised agricultural extension agents in the Districts in Irrigation Extension. This is to enhance their capacities to handle many small scale irrigation projects being developed in the country.

(6) The Irrigation Development Authority as the name indicates is expected to develop irrigation facilities for agricultural production in the country. Hitherto the emphasis has been mainly on the development of irrigation facilities. The SSIAPP is the first project that has taken a look at the development and improvement of the irrigation practice. This is very relevant for the future development of irrigation in the country as the water resources become more scarce and various regulations put in place for the efficient use of the natural resource. It is very necessary for the technologies to be developed to improve the practice of irrigated agriculture.

7 CONCLUSION

Together with the rehabilitation of irrigation facilities, SSIAPP has been contributing to the improvement of irrigation farming in the two model schemes. Outputs of SSIAPP can be assessed by (1) improvement of production technologies, (2) improvement of supporting services and (3) improvement of co-operative management. Although there are some problems at the moment (e.g. low cropping intensity of Okyereko scheme, marketing of agricultural produce), according to an impact survey conducted in 2001, most farmers in the two model schemes agree that SSIAPP has contributed to the improvement of their farming. The stakeholders understand each other on their respective roles, responsibilities, strengths and weaknesses in irrigation farming improvement. After the construction of GIDA Training Centre in 2000, GIDA staff and farmer leaders of 22 irrigation projects have been trained together (e.g. managers and farmer leaders, extension officers and key-farmers) on the aspects of irrigation project management. Farmer participatory irrigation project management is not an easy task, but it is the direction for sustainable irrigated agriculture in the country at the moment.

Promotion of Smallholder Irrigation in Kenya in collaboration with JICA (1996 to date)

Prepared by Mr. K. TSUJISHITA
JICA Expert
IDB, MOARD
Kenya

A REPUBLIC OF KENYA COUNTRY PROFILE

A-1 Introduction

Kenya is one of the EAST African Countries and has common borders with Indian Ocean, Tanzania, Uganda, Sudan, Ethiopia and Somalia.

Area: 582, 646 Km^2
Population: 29 Million (51% women and 49% men)
Climate:

- 80 % of the country is classified as arid and semi-arid (ASAL) with under 750 mm rainfall annually.
- Has a bimodal rainfall pattern i.e. March – May and October December
- Mean temperatures 20°C

History: Kenya was colonized by Britain in 1895. It became an independent state in 1963 and a Republic in 1964.
Cities: Nairobi – Commercial and Administrative capital
Mombasa
Kisumu
International Time Zone: GMT +03.00
Main Geographical features:

Mt. Kenya	this is a landmark for the country with a snow-capped peak at 5199 m above sea level.
Lake Victoria:	Second largest fresh waters lake in the world and jointly shared with Uganda and Tanzania.
Rift valley:	The Great Rift Valley traverses the country north to south and is the home of several fresh-water and salty-water lakes.
The Indian Ocean Coastline:	The Indian Ocean forms the South Eastern Border of Kenya. The coastline is resplendent with sunny beaches that make the coast a sight to behold!

A-2 Socio-Cultural Issues

Kenya has rich culture based on its multi-racial and multi-ethnic nature. The African population comprises the largest race (99%) with 42 ethnic groups. Agriculture and pastoralism are a way of life for about 80% of the population that lives in rural areas.

Kiswahili, a prominent language among the East Africans, is the national language while English is the official language.

A-3 Agriculture

1) Agriculture is the mainstay of the economy providing employment to an estimated 70% of the economy directly and indirectly.
2) It accounts for about 28 % of GDP.
3) Out of approximately 10 million ha under cultivation, 99 % is rain-fed with only 0.01 % under irrigation.
4) There is potential to increase
5) Main crops under rain-fed agriculture are maize, pulses, millets, root crops, Coffee, Tea.
6) Main crops under irrigation are Horticultural, Rice and cut flowers.
7) Agriculture is a major foreign exchange earner (60%) through export of Tea; Cut flowers, fruits; Vegetables and coffee are the major export crops. Indeed Kenya boast of the best tea and coffee in the world!
8) Livestock farming through pastoralism and range management are major economic activities in the ASAL that constitute 80% of the country. Dairy farming is practiced in the wetter areas often under a mixed farming regime.

B Overview of Irrigation development in Kenya

B-1 Experience with Irrigation

Irrigation development in Kenya dates back to about 400 years when traditional systems were established along river Tana and other rivers in Marakwet, West Pokot, Taita Taveta and Baringo Districts. In the early 19th century (1901-1905) small schemes were also developed in Makindu/Kibwezi areas.

Formally organized and developed irrigation dates back to 1953, when the African Land Development Unit (ALDEV) embarked on broad agricultural development program, which included irrigation schemes such as Mewa, Hola, Perkerra, Ishiara and Yatta. These schemes were developed with the main aim of containing agitation for land occupied by the European settlers. The management of some of these schemes was taken over by the National Irrigation Board (NIB) which was formed through an Act of Parliament in 1966.

B-2 Irrigation Development

Total national irrigation and drainage potential is 540,000ha. Three major categories of irrigation development are recognizable based on the management function. Out of the national potential of 540,000ha, only 87,000ha (16%) is developed.

1) Smallholder irrigation schemes

These are group-based schemes that are operated and managed by the farmers through their Water users' associations. Currently about **34,000ha** is under this category. The schemes vary in size depending on number of members. The mean irrigated area per farmer is 1ha. In the high and medium potential areas, horticulture is the main enterprise whereas food crops are irrigated in the drier and more remote areas.

2) Large-scale Private Schemes

These are privately owned with the entire investment done by respective farmers/companies. These concentrate on production of high value crops like coffee, fruits, and cut flowers. Usually there is no Government intervention in such schemes as these employ their own skilled labor. Currently about **41,000ha** is under this category

3) Public schemes

These are publicly owned schemes under the management of government agencies e.g. Regional Authorities and the national irrigation board. Currently about **12,000ha** are under this category.

B-3 Trends in irrigation development

The Government of Kenya efforts in irrigation development after independence, focused mainly on establishing large-scale tenant based irrigation schemes. These schemes are still under central management. Later in time, it was realized that, due to the massive capital investments and the apparent complexity of the organizational and management functions, large-scale tenant based irrigation schemes were expensive to develop and maintain. In view of this, there was policy shift to assist in development of smallholder irrigation schemes. These schemes were viewed to be cheaper in development due to their low cost investment, and whose operation maintenance function was to be the *responsibility of the beneficiaries*.

B-4 Smallholder Irrigation and Drainage Development

1) Establishment of Irrigation and Drainage Branch (IDB)

In 1977, Small Scale Irrigation Development Project (SSIDP) was established under an agreement for technical cooperation between the Government of Kenya and Dutch Government. The main objective of the SSIDP was two folds, one to promote and develop a participatory model of smallscale irrigation. The second objective was to establish a nation institutional framework for the planning and implementation of smallholder irrigation and drainage programs within the ministry of agriculture.

IDB was renamed from SSIU in 1978, and given the responsibility of promoting and development of smallholder scheme. Throughout the 1980s and early 1990s through externally funded projects, IDB developed its manpower, guidelines and initiated community-based smallholder irrigation schemes.

2) Organization Structure

IDB has decentralized to the provinces and districts whereby each irrigation unit has an agricultural engineer. The IDB has staff strength of over 200, consisting of agriculturists, engineers, and technicians.

3) Functions of IDB

The mandate of or mission of IDB is to coordinate the promotion of sustainable SHIDD in the country. To achieve this mission, IDB has categorized its functions into core and non-core.

Core functions to be performed by IDB

1. Policy formulation, monitoring and review
2. Planning, budgeting and acquisition of funds
3. Coordination of major players i.e. donors and other agencies
4. Regulation and supervision of SHIDD
5. Monitoring and evaluation

Non-core functions to be performed by private sector, NGOs and other Government departments

1. Field surveys I.e. soils, topographic, Socio-economic
2. Technical design
3. Construction and implementation works
4. Community mobilization
5. Supervision of major irrigation works
6. Credit disbursement and recovery
7. Staff and farmers training

C IDB, MOARD-JICA Collaboration (1996-to date)

C-1 Background Information on Smallholder Irrigation and Drainage Development (SHIDD)

The Community-based smallholder irrigation promotion is a project under implementation by the Irrigation & Drainage Branch (IDB) of the Ministry of Agriculture & Rural Development (MOARD). The project was formulated with the main aim of contributing to achievement of the country's National Goals (Attainment of food security, creation of employment, Foreign exchange earning).

The strategy being promoted during SHIDD development is that of involving the participating communities at all stages of scheme development to enhance sustainability.

To date most of the SHIDD schemes developed under this project are either performing below expectations or are dormant or abandoned.

C-2 JICA/IDB Collaboration

In 1996, MOARD (IDB) requested JICA to aid in carrying out a development study and prepare an Irrigation Master plan, aiming at improving of SHIDD Schemes in Kenya. Between 1997-1999, JICA in collaboration with IDB carried out the proposed development study, a project formulation survey and workshops, which identified constraints and problems in SHIDD, through participatory approaches.

Some hindrances to SHIDD promotion among those identified were related to social matters, "people"," behavioral pattern" and type of organization within IDB, which was not related to engineering technology matters.

Currently, JICA and MOARD (IDB) have an ongoing comprehensive collaboration project, "program type technical cooperation".

The fundamental idea of the program is farmer oriented in order to guide them into their desired mechanism because the farmer always aims at maximization of self-profits. To realize a situation, a rule should be considered and an organization put in place in order to implement/monitor the rule and the person to carry out the rule.

1) Dispatch of JICA Experts:

Long Term Experts: - Two long term JICA Experts in the areas of Irrigation development and Farmers organizations are working in IDB.
Short Term Experts: - These experts are availed by JICA based on specific areas of concern as per the request of the Government.

2) Country Focused Group Training Course
The program started in January 1999. It targets MOARD staff and a staff from selected collaborating stakeholders from the private sector, for two months training in Japan and the Philippines. To date 39 such persons have been trained. Program ends in year 2002.

3) In- Country Training program for farmers
This is a five-year program (1999-2003) that aims at training SHIDD farmers together with their extension staff. To date 150 such persons have been trained. At the close of this program 200 SHIDD farmers and 50 frontline extension workers will have been trained.

4) Counter-part Training Program
The program aims at training and exposing the MOARB-IDB policy makers to other countries with similar programs to SHIDD. It mainly targets staff from the Headquarter and Provincial offices.

5) Technical Exchange Program
This program aim at exposing the MOARD staff involved in SHIDD development to other countries with similar programs.

6) Third Country Expert Program
Through this program MOARD-IDB can request for an expert in a specific area of interest from a third world country (Philippines, Thailand etc.) One such expert has been fielded to IDB from the Philippines between January-March 2000 and September-November 2001.

7) Community Empowerment Program

The program aims at the development of SHIDD schemes but through a Non-Governmental Organization (NGO). Through this program IDB can pilot some of its outputs/ideas of the mini-project projects. The collaboration is with IDB is still at the planning stage.

8) Mini-Project type of Technical Collaboration

In addition to the above areas of collaboration JICA/MOARD signed an agreement for implementation of a Mini-Project type of Technical Cooperation with the objective of coming up with three outputs in the next 3 years starting August 2000-August 2003.

- Appropriate Smallholder irrigation guidelines
- Appropriate Training master plan for Irrigation and Drainage Branch (IDB) Staff
- Appropriate Framework for formation/management of Water Users Associations

C-3 Strategy being applied

Step-1. Training of irrigation people from decision-makers to irrigation engineers at the field level to change the behavior, from specialty store to KIOSK type

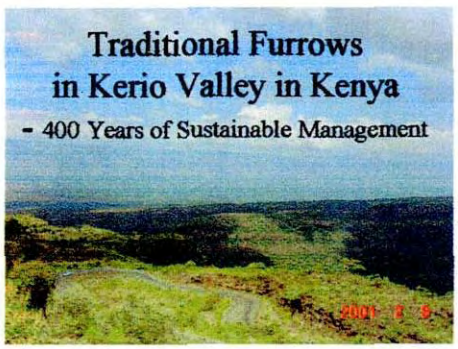
Step-2. Develop the vision of SHIDD through preparation of smallholder irrigation guidelines and human resources development plan in the Mini-pro

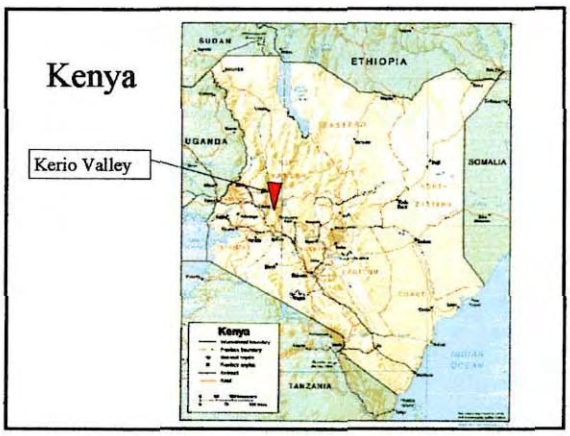
Step-3. Test of developed guidelines at the experimental farm and implement the training program

Step-4. Strengthening of Farmers Organization to receive the Government assistance

Step-5. Preparation and arrangement for financial cooperation

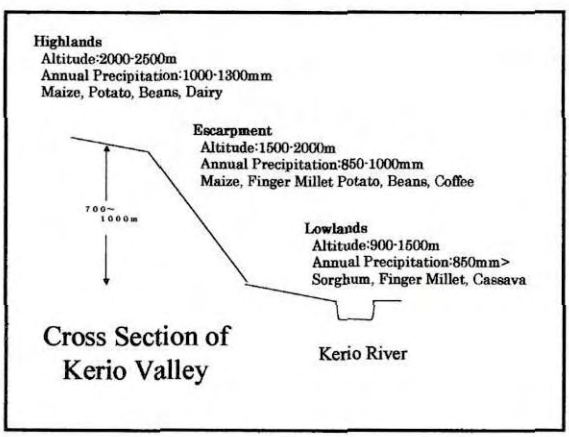
18．ケニア「半乾燥地農村開発」事例紹介で用いた関連資料



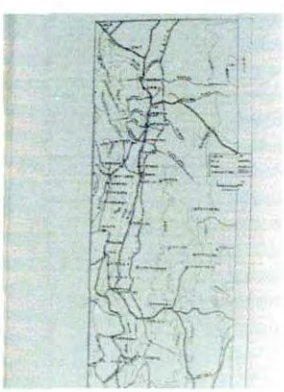


Marakwet District

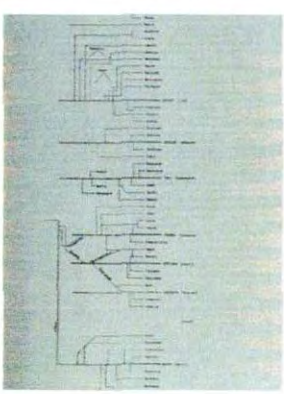
Area:	1,709km^2
Forest Land:	645km^2
Population:	157,503(1999)
Annual Growth Rate of Population:	3.75%

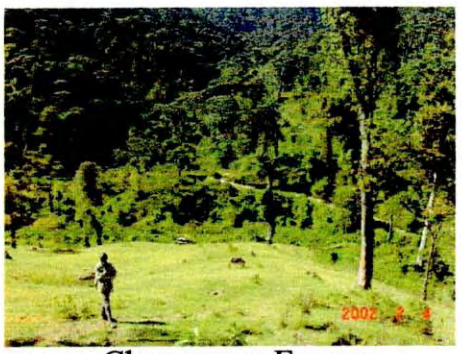


Map of Upper Kerio Valley



Marakwet Irrigation Systems





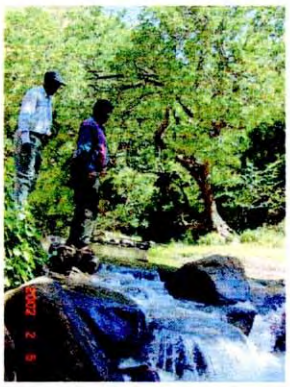
Chemwaror Furrow

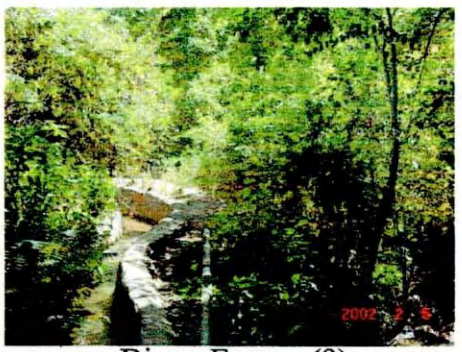
Chemwaror Furrow 2

Arror River

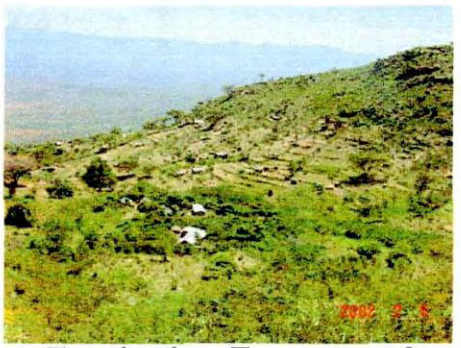
Farmland on Escarpment

Embamon River





Biyaa Furrow(?)



Farmland on Escarpment 2

WUA Committee Members

Roles of WUA

1 Systems Maintenance

Routine work on water level and flow

Cleaning up and repair work

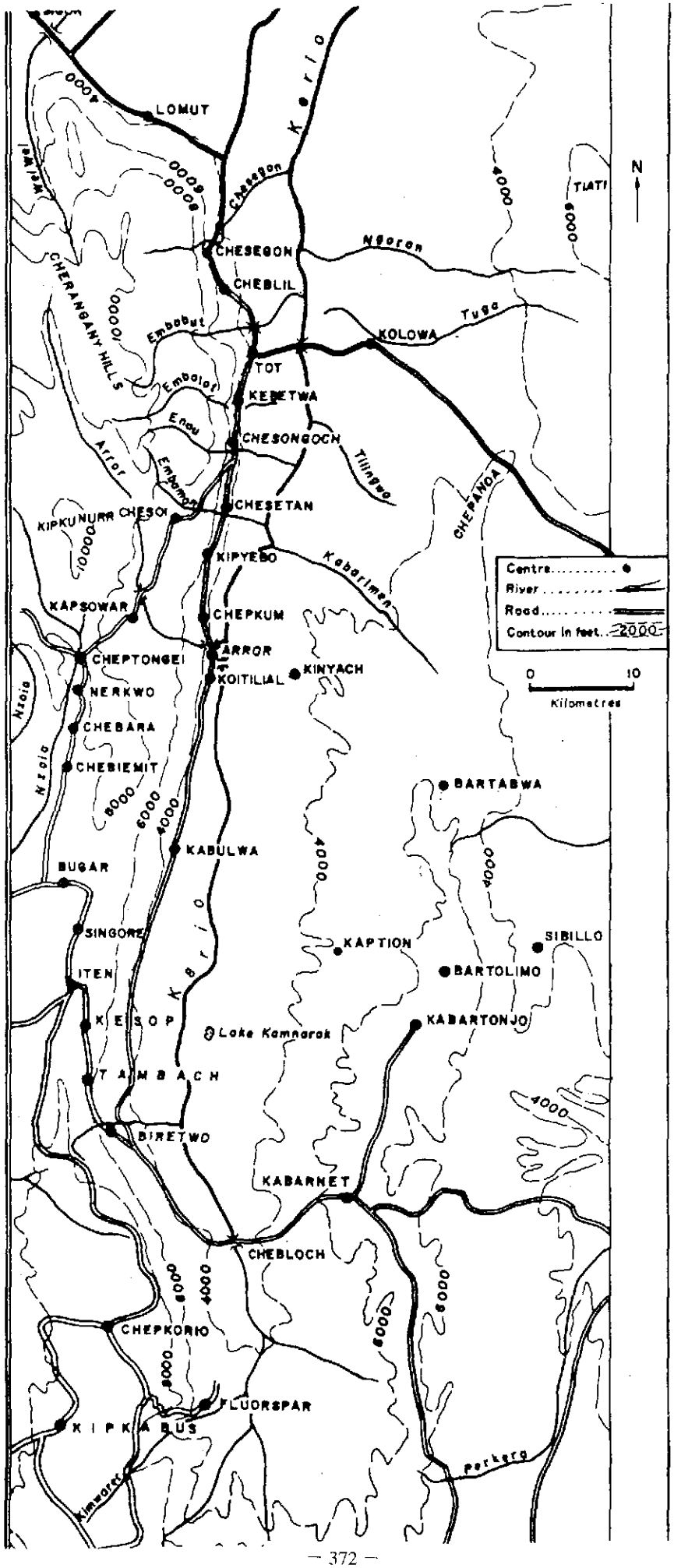
2 Allocation of access rights

3 Conflict management

Lessons Learnt

- Traditional social systems
  - Clans
  - Kechub (=Social Ostracism)
- Kenya Rural Development Strategy

  Merger of Districts and County Councils
  - Decentralization
  - Administration Reform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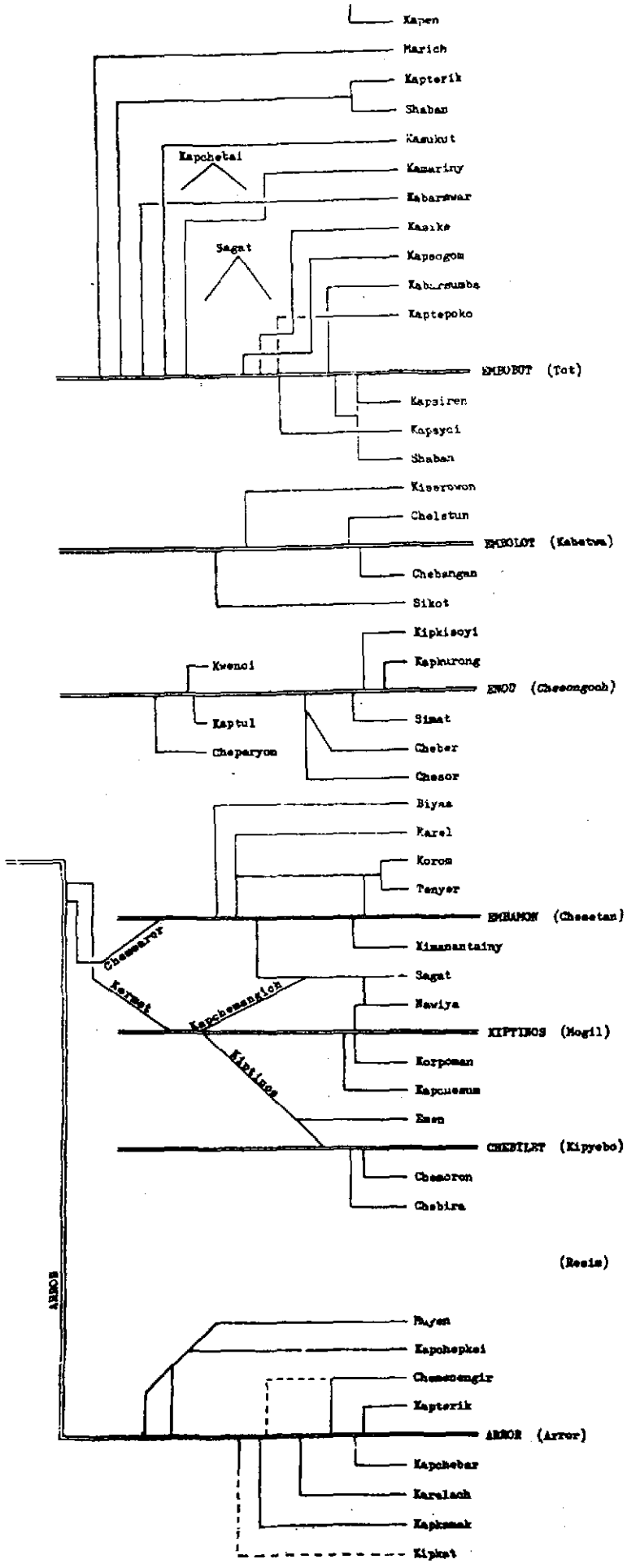
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ARROS
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Kapchepkai
Chemosengir
Kapterik
ARROR (Arror)
Kapchebar
Karalach
Kaphamak
Kipkat

19．課題別研究会議現地報告書

平成 14 年 4 月 5 日

ガーナ事務所長殿

課題別研究会議現地報告

農業開発協力部　計画課長

アフリカ・中近東・欧州部アフリカ課阿部

標記会議の結果について，下記の通り概要を報告いたします．

記

1）他セクター専門家および他国専門家との意見交換，特に，個別派遣専門家との意見交換は，個別専門家とプロ技専門家の融合をすすめようとしている現在，非常に効果的であったと感じた．

2）また，全体として，25 名くらいの会議は，非常に濃密で，これまでのリーダー会議にはなかった活発な意見がかわされ，プログラム協力のやり方やプロジェクト管理の方法について理解を深められたと考える．

3）結論として，参集した専門家の間では，アフリカ諸国においても，技術協力は日本側による事業実施型ではなく，自助努力を求める現在のやり方が必要との意見が多かった．

4）また，欧米のドナーのように，C/P に対して賃金を払って一定生活賃金を保証するやり方は賛成できないという意見が大勢を占めた．

5）しかし，ローカルコストの負担については，C/P の賃金は出さなくとも，他の運営・活動経費については JICA の柔軟な対応を求める声が多かった．

6）連携には R/D，TSI の中で位置付ける連携もあるが，現場活動の中で連携することも多くあると考えられる．例えば，専門家はなにも日本から呼ぶ必要はなく，第 2 国，第 3 国で活動中の日本人専門家ないしは第 2 国・第 3 国専門家の活用もある．同じガーナで，北部で活動している社会開発総合プログラムにおいて，籾摺り機の問題があるにも関わらず，ガーナ灌漑の専門家が支援していない．まずこのような連携から始めるべきと考えられる．

7）地域開発においては最初からマルチセクトラルな活動にすべきで，かつR/D や PO で細かく決めておくのではなく，専門家が現地の状況に応じて柔軟に活動を行えるようにしておくべきとの意見がだされた．

8）一方，あまりにもマルチセクトラルな案件にすると，実施機関のオーナーシップが薄れるという指摘もあった．

9）よって，要請主義に基づく案件を形成している以上，協力開始時はコアとなる活動をおいたとしても，その活動中に起こる問題について，いかにセクター横断的に対応する体制を取るかである．

１０） タンザニアの社会開発プロジェクトは大学の地域開発センターを C/P 機関とし，NGO などを活用した特徴のある活動をしており，農業農村開発も参考にすべき活動と考えられた．ただ，当該プロジェクトはプロで活動予算が少なく，新海外技術協力事業費の新設で，かかる活動がいかに変わっていけるか，今後の展開を注視したい．

１１） かかる会議は有効と考えられるが，アフリカにおける農村を取り巻くあらゆるセクターの参加を得た会議にすることと，共通のテーマをいかに設定できるかによって会議開催を検討すべきと考えられる．

なお，今回の会議の結果については，その意義，成果も含め，事務局としての報告をお願いしたい．

以上