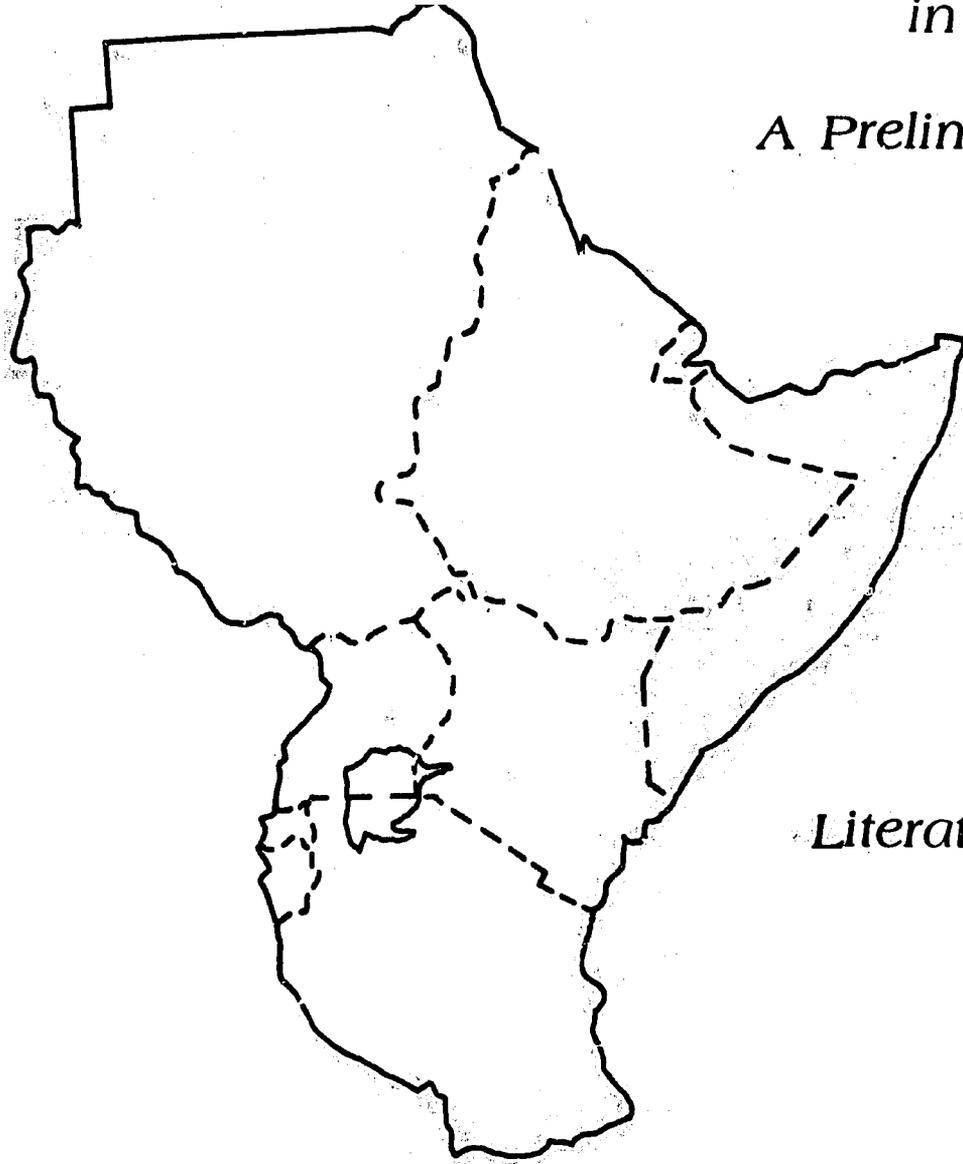


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15N-31820  
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# Eastern Africa Regional Studies

*Trends and interrelationships  
in food, population, and energy  
in Eastern Africa:*

*A Preliminary Analysis*



*Volume III*

*Literature Summaries  
and Reviews*



December, 1980

Program for International Development  
Clark University  
Worcester, Massachusetts 01610

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TRENDS AND INTERRELATIONSHIPS IN FOOD,  
POPULATION, AND ENERGY IN EASTERN AFRICA:

A PRELIMINARY ANALYSIS

VOLUME III

L I T E R A T U R E   S U M M A R I E S  
A N D  
R E V I E W S

Eastern Africa Regional Papers are prepared on behalf of the United States Agency for International Development, under contract, by:

The Program for International Development  
Clark University  
Worcester, Massachusetts 01610  
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December, 1980

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FOREWORD

This annotated bibliography is the third of three volumes of working papers concerned with interrelationships in food production, energy use and population growth in Eastern Africa. Volume I is a brief overview document; Volume II is a set of background papers.

The three volumes are intended as a quick and preliminary response to a long and deep seated problem. Although much is available on the individual issues of food, population, or energy, there is a dearth of material which analyzes linkages and interactions among the three.

Many individuals have worked to produce this set of materials in such a short period of time. AID mission directors and their staff, REDSO/EA, AID/W East Africa office and AFR/DR agriculture have been especially helpful. International organizations in the United States, Europe, and Africa supplied many documents. Colleagues in African government and university departments have given freely of their time. The reviews were compiled by the research staff listed on the title page. Production was coordinated by Pat Hart, with Lu Ann Renzoni and Jane Bachand typing the final document. Editorial assistance was given by Gloria Johnson, Jim Blair and Janet Pane. Professors Len Berry and Dick Ford provided helpful guidance and supervision for their compilation.

I N T R O D U C T I O N

This annotated bibliography complements volumes one and two of the Food/Population/Energy study by providing a record of the material reviewed and a preliminary literature catalogue of the subject.

The bibliography is arranged from the general to the specific, starting with a general or global examination of the literature on food, population and energy and their interrelations. This is followed sequentially by sections on Africa, East Africa and each of the nine countries covered in our review. The general and global literature is quite extensive reflecting an increasing awareness of the problems of food, population and energy as discrete topics and to a lesser extent on their interrelationship. In the African and East African literature it becomes increasingly difficult to discover studies dealing with the interrelationship between food, population and energy.

We do not pretend that this is a systematically complete survey of all the literature, a brief glance at our statistical chart will show that there are telling gaps and inconsistencies. The difference in our degree of literature coverage for each country is due in part to availability of material and in part to temporal limitations.

Since this volume "went to press" additional material has come to hand including a wealth of citations emanating from a computer search of the FAO library in Rome. At this stage it is possible only to list the number of citations in the FAO search (see last column in Table I).

(iii)

Another computer search of eleven data bases was undertaken during the reviewing process. The most pertinent citations and abstracts from this search are included with our own reviews. In order to distinguish them from the other reviews we give a source notation at the end of the entry with C.S. (computer search) and the data base e.g. CAB/ABS given.

Most of the annotations have been prepared by our own researchers - staff and faculty working on the project - as well as East African nationals contracted to work on the material for each country.

Where possible the arrangement of the entries is alphabetical within each section; however, reviews received after the first typing was completed are included at the end of the appropriate section under the heading "Addendum."

We would welcome any comments or criticisms from readers that would help to make this volume more useful.

(iv)

TABLE 1 A STATISTICAL SUMMARY OF FOOD/POPULATION/ENERGY DOCUMENTS REVIEWED

	FOOD	POPULATION	ENERGY	FOOD/ ENERGY	FOOD/ POPULATION	POPULATION/ ENERGY	FOOD/ POPULATION/ ENERGY	RELATED ECONOMIC & SOCIAL DEVELOPMENT	OTHER	TOTALS	FAO SEARCH
GLOBAL	39	9	12	7	5	2	3	4		80	
AFRICA	12	6	4		2			1	3	28	
EAST AFRICA	14	8	7		2			2		33	
BURUNDI	2	2			1					5	BURUNDI-22
DJIBOUTI			1					2		3	DJIBOUTI-0
ETHIOPIA	3				2	1		3		10	ETHIOPIA-69
KENYA	53	12	58		3		1	20	8	155	KENYA-138
RWANDA	4	3			2					9	RWANDA-7
SOMALIA	3		1		2			2		8	SOMALIA-17
SUDAN	16	9	4		4		1	3		37	SUDAN-64
TANZANIA	42	28	12		15		4	10	2	113	TANZANIA-106
UGANDA	21	7	1		1			2	2	34	UGANDA-25
OTHER	4			1						5	
TOTALS	213	84	100	8	47	3	9	51	15	520	

1. The count was taken before all the reviews were received, hence does not reflect precisely the number of documents here abstracted. Some documents are counted twice if they refer to two countries.

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## GENERAL

Agricultural Development Indicators; A Statistical Handbook 1978. New York: International Agricultural Development Service.

SCOPE: FOOD (AGRICULTURAL DATA)

CONTENT: Broad worldwide data in 52 African, 49 Asian-Pacific and 39 American countries in 26 classifications, Most data 1970-77 from secondary sources.

EVALUATION: A useful background summary.

Basler, A. 1979. Neucere Entwicklungspolitische Theorieansatze und ihre Bewertung in Hinblick auf Nahrungsversorgung und Weltagrarrhandel. Agrarwirtschaft 28(8):217-26.

Title in English: Recent theoretical approaches to development theory and their evaluation in the light of food supply and world agricultural trade.

SCOPE: FOOD

Two major changes in development strategies have become important since the first development decade. The basic needs approach makes the satisfaction of basic needs of the whole population, and particularly of marginal groups in rural areas, a major objective. This is sometimes considered as complementary to more traditional development policies. The analysis of its implications and consequences suggests that it is not possible to include the whole population in development without far reaching change in production structures and development policy plans. The second proposal is to dissociate the economies of developing countries from the world market. This is based on the older theory of a peripheral economy which blames underdevelopment on the linking of underdeveloped economies to those of industrial and former colonial powers. This theory envisages development through the expansion of agriculture and labour intensive crafts in different regions (examples are China, Tanzania, Algeria); though it also requires a parallel development of some capital intensive heavy industries to provide agriculture and small scale industries with essential inputs. The effects on world trade and food supply are difficult to assess. The basic needs concept is considered as hardly helpful for an overall development strategy, the dissociation concept is considered to be at least theoretically consistent. It is considered that neither can be applied without far reaching changes in the political and economic power structure in the developing countries.

SOURCE c.s/CAB.ABS

Bigman, D and Reutlinger, S. 1979. National and International Policies Toward Food Security and Price Stabilization. American Economic Review 69: 159-163.

SCOPE: FOOD

PURPOSE: To analyze the effectiveness of intervention policies in the national and the international food grain markets in achieving pre-specified stabilization goals.

RESULTS: 1) Food grain production in today's world proceeds under a great diversity of ecological and technological conditions. Poor harvests in some regions are offset by favorable harvest in other regions. 2) Internal and international trade have been greatly facilitated by sophisticated means of transformation and needy areas can draw on the supplies available in other

areas. 3) At current food production levels, supplies are adequate to feed the world's population even in lean years. 4) Current food crises are characterized not by overall scarcity but by gross maldistribution of food. 5) The free market economy is unable to prevent frivolous uses of food at the same time that other people are starving. 6) While trade and buffer stocks can play a major role in stabilizing food grain supplies, effective insurance against hunger will also require special financial measures. Even poor nations can seek to safeguard against their vulnerability to climatic instability by intervening in the market to secure minimally adequate consumption for all, by means of price discrimination or rationing in favor of low-income consumers.

DATA: Estimates are generated for a large sample of grain productions and aggregated into frequency distributions.

CONCLUSIONS: "Our analysis shows, however, that such national food security measures are very costly, involve substantial transfers of income, and require massive intervention by the government in the free market with possible undesirable consequences in the long run. Alternatively, or at least in addition, we propose an international financial undertaking which would enable developing countries to acquire food in times of need".

COMMENTS: The policy instrument, which is being used by the authors, is divided into three categories: Operating buffer stocks, adjusting foreign trade and Implementing price subsidy and support programs for specific groups and sectors. But effects of these policies may be desirable for some objectives and undesirable for others. In addition, some programs cannot be implemented effectively without drawing on resources beyond the means of most developing countries.

Brookhaven National Laboratories. 1978 Energy Needs, Uses and Resources in Developing Countries. Brookhaven: Brookhaven National Laboratories. (USAID PASA no ERDA/TAB-995-18-76)

SCOPE: ENERGY

CONTENT: Good general overview worldwide. Useful background material.

Brown, Lester. 1974 By Bread Alone. New York: Praeger.

SCOPE: FOOD

PURPOSE: To present how and why the world has moved from a situation of food surplus to one of food scarcity. The author's primary purpose is to call upon the international community to ACT.

RESULTS: (1) 30 million additional tons of grain per year are currently needed to feed the growing world population. (2) Little unused land. (3) Depleted water resources. (4) Finite supply of energy. (5) Fertilizer shortage. (6) Potential negative effects of high technology. (7) Overfishing. (8) Stopgap nature of nonconventional food sources. (9) In the short run we must focus on large farms while in the long run on small farms.

CONCLUSIONS: "Their disturbing, almost alarmist, conclusion is that the next generation will suffer catastrophic consequences unless the international community recognizes the problem and takes appropriate and immediate action to alter the present, unsustainable trend".

COMMENTS: The tone of the book is unmistakable alarmist and pessimistic, and this may be unwarranted. It has an excellent argument on the rationale of small and large farms.

Brown, Lester R. 1980. Food or Fuel: New Competition for the World's Cropland. Worldwatch Paper, no. 35. Washington: Worldwatch Institute.

SCOPE: FOOD/ENERGY

PURPOSE: To discuss the "new interest in fuel crops" which "could be a historic landmark", by focusing on: the technology and economics of energy crops, national plans to produce energy crops, the impact on food supplies and prices, choosing food or fuel.

RESULTS: 1) The economic conditions for the large-scale commercial production of alcohol from high-yielding energy crops appear to be favorable. 2) Brazil, U.S.A., South Africa, New Zealand and Australia produce ethanol for fuel or are actively considering it. Within this group Brazil is the leader. 3) Diversion of food resources to nonfood uses raises food prices. A carefully designed alcohol fuel program would help ensure future food supplies. 4) Farmers see fuel crops as a way not only of expanding the market and boosting the price for their products but also, if they distill their own fuel, of becoming energy self-sufficient. Alcohol fuel has a powerful political appeal to motorists ... these attractions must be set against the impact on world food prices.

CONCLUSIONS: "Over time an expanding agricultural fuel market will mean that more and more farmers will have a choice of producing food for people or fuel for automobiles. They are likely to produce whichever is more profitable."

COMMENTS: It is an excellent paper, highly recommended. "In the absence of governmental limitations on the conversion of agricultural commodities into fuel, the price of oil could set the price of food."

Brown, Lester R. 1979. Resource Trends and Population Policy A Time for Reassessment. Worldwatch Paper, no. 29. Washington: World Watch Institute.

SCOPE: POPULATION/ENERGY

PURPOSE: To discuss the need for reassessment of the world population projections with regard to the petroleum constraint, economic and social stresses and population policies.

POINTS:

1. "As world population has moved toward four billion and beyond, human needs have begun to outstrip the productive capacity of many local biological systems."
2. "The per capita production of fish, forest products, and meat peaked when world population was between three and four billion."  
"In some countries a 'depletion psychology' will act to slow production as the extraction of oil begins to substantially exceed new discoveries."
4. "Inflation could become a powerful contraceptive force in the future."
5. "The lack of national population policies is as luxury that the world can ill afford."

COMMENTS: A necessary reading for understanding energy - population problems.

Brown, Lester R. 1975. The Politics and Responsibility of the North American Bread Basket. Worldwatch Paper, no. 2 Washington: Worldwatch Institute.

SCOPE: FOOD

**PURPOSE:** To discuss the new role and responsibility of North America since the world is becoming overwhelmingly dependent on North America's food supplies.

**CONCLUSIONS:** "The scarcity of basic resources required to expand food output, the negative ecological trends which are gaining momentum year by year in the poor countries, and the diminishing returns on the use of energy and fertilizer in agriculture in the industrial countries lead me to conclude that a world of cheap abundant food with surplus stocks and a large reserve of idled cropland may now be history ... current dependence on North America will likely continue to increase, probably being limited only by the region's export capacity ... the U.S. and Canada need to move toward an explicit North American food policy and to use it to support a comprehensive global food strategy. Food policy can no longer be treated as an isolated agricultural issue independent of the overall world food situation nor can it be treated as a narrow national issue".

**COMMENTS:** Very convincing.

Brown, Lester R. 1976. World Population Trends: Signs of Hope Signs of Stress. Worldwatch Paper, no. 8. Washington: Worldwatch Institute.

**SCOPE:** FOOD/POPULATION.

**PURPOSE:** To review "the seventies that have witnessed many changes in both population policies and trends, perhaps more than any comparable period in history."

**CONCLUDING REMARKS:** "In a world without an adequate system of food reserves, rising world food prices translate into rising death rates among the poorest of the poor. In such a world, crop failure in a rich country has an economic impact, but in a poor country it can have a measurable demographic impact as well".

**COMMENTS:** This paper offers a good understanding of the interconnection of food and population.

Brown, Lester R. 1978. The Worldwide Loss of Cropland. Worldwatch Paper, no. 24. Washington: Worldwatch Institute.

**SCOPE:** FOOD

**PURPOSE:** To discuss the changing global cropland situation which indicates a growing worldwide shortage of productive cropland, acute land hunger in many countries, and soaring prices for farmland almost everywhere."

**RESULTS:**

1. "During the third quarter of this century, world population increased by 1.5 billion, or 59%, while the area in grain expanded from 602 to 731 million hectares, a gain of 21 percent. This was almost certainly the first generation during which the growth in human numbers so greatly exceeded the growth in cropland. It led to a precipitous drop in area per person from .24 hectares to .18 hectares. Such a drop did not initially pose any problems because the yield per hectare was rising rapidly throughout most of this period. Once that began to slow, however, as it did in 1972, a global food shortage developed."
2. "Given population projections and the projected gains in income, every nonfarm claimant on cropland-urbanization, transportation - is certain to be greater during the last quarter of this century than during the third."

3. "Both economic pressures and political instincts encourage a short-term focus, a desire to expand current output to satisfy immediate needs. But this pressure to wring more food out of the land can have devastating consequences for the soil."
4. "Efforts to produce more food are now leading to a slow but gradual decline in the inherent fertility of soils".

CONCLUSIONS: "The times call for a new land ethic, a new reverence for land, and for a better understanding of our dependence on a resource that is too often taken for granted."

Brown, Lester R., McGrath, Patricia L. and Stokes, Bruce. 1976. Twenty-two Dimensions of the Population Problem. Worldwatch Paper, no. 5. Washington: Worldwatch Institute.

SCOPE: FOOD/POPULATION/ENERGY

PURPOSE: To explore some of the facets of the population problem, which are economic, social, ecological, political ... that can be expected to get much worse before they get better."

RESULTS:

1. Upward pressure on food prices affects people everywhere.
2. Food production has lagged behind demand in virtually every geographic region except North America.
3. Population-related energy problems are not confined to the poor countries.
4. Less than three percent of the world's known coal reserves are in Africa and Latin America, where population growth is rapid.

CONCLUSIONS:

1. The population problem is not one but many.
2. If the person is affluent, then the pressure on resources will be far greater than if the person is poor.
3. The population problem is not a local one but a global one.
4. Population growth threatens rich and poor alike.
5. More attention is required.
6. A sharp increase in requests from the developing countries for assistance in family planning.
7. The problem concerns us, our children and grandchildren even more.

COMMENTS: An excellent insight into the problem of food-energy-population.

Chambers, R.; Longhurst, R.; Bradley, D.; and Feachem, R. 1979. Seasonal Dimensions to Rural Poverty: Analysis and Practical Implications. Falmer (UK): Sussex University Institute of Development Studies, (IDS Discussion Paper).

SCOPE: POVERTY (case studies from Kenya and Tanzania)

This paper reports on a conference on seasonal dimensions to rural poverty. Presentations included specialized papers on climate, energy balance, vital rates, individual tropical diseases, nutrition, rural economy, and women, and also multi-disciplinary case studies of tropical rural areas from the Gambia, Nigeria, Mali, Kenya, Tanzania, India, and Bangladesh. While care is needed in generalizing, the evidence suggested that for agriculturalists in the tropics, the worst times of year are the wet seasons, typically marked by a concurrence of food shortages, high demands for agricultural work, high exposure to infection especially diarrhoeas, malaria, and skin

diseases, loss of body weight, low birth weights, high neonatal mortality, poor child care, malnutrition, sickness and indebtedness. In this season, poor and weak people, especially women, are vulnerable to deprivation and to becoming poorer and weaker. Seasonal analysis is easily left out in rural planning. When applied, it suggests priorities in research, and indicates practical policy measures for health, for the family, for agriculture, and for government planning and administration.

SOURCE: c.s/CAB.ABS

Chou, Marilyn, and Harmon, David P. eds. 1979. Critical Food Issues of the Eighties. Pergamon Policy Studies 39,. New York: Pergamon Press.

SCOPE: FOOD

PURPOSE: Within the framework of food as an institutional (social, political and economic) problem this is a collection of papers aimed at the short-term issues of concern to the US. Addresses the conflicts between society, industry, government and individual over food policy in four topic areas:

1) Socioeconomic 2) Nutrition and food policy 3) Technology and regulation 4) U.S. agriculture policy

RESULTS: Seven key issues or trends come out of the study for the 80's.

1. Greater concern over health, diet related diseases and national nutrition policies.
2. Food safety as toxic substances and carcinogenic chemicals are concerned.
3. Proliferation of regulations and laws to enhance food safety.
4. Sensitivity in marketing and promotion to new lifestyles and consumption patterns.
5. Move toward agricultural self-sufficiency in LOC's and DC's.
6. Agricultural crops as exports to offset costs of goods and energy.
7. Growing interdependence internationally.

Conde, Julien: Paraso, M. J.; and Ayassou, V.K. 1979. The Integrated Approach to Rural Development Health and Education O.E.C.D. Development Centre Studies. Paris: Organization for Economic Co-operation and Development.

SCOPE: POPULATION (examples from Tanzania)

SOURCE: C.S./POPULATION BIBLIOGRAPHY

Cook, C.W. 1977. Use of Rangelands for Future Meat Production. Journal of Animal Science 45(6):1476-82.

SCOPE: FOOD/POPULATION/ENERGY

Future agricultural production is discussed in relation to the requirements of an increasing population and the use of fossil fuel energy in food production. The relative efficiency of feed conversion among various animals is compared. Although livestock production is considered to be less efficient than crop production in terms of consumption of energy, the value of grazing animals on rangeland that has no potential for crop

production is stressed. The biological efficiency of rangelands under domestic livestock grazing and wildlife ranching is compared.  
SOURCE: C.S./CAB.ABS.

Council on Environmental Quality and United States Department of State  
The Global 2000 Report to the President. G. O. Barry Study Director.  
Washington: USGPO.

SCOPE: FOOD/POPULATION

PURPOSE: Assess macro world food and population trends for year 2000 - follow-up type work on Club of Rome study.

RESULTS: If no changes in public policy, institutions, technological advances, then serious stress on population-resources-environment and most of humanity will be poorer.

DATA: Macro level on population, food production, GNP. Resources by continent and some countries.

Cummings, Jr., Ralph W. 1976. Food Crops in the Low Income Countries. The State of Present and Expected Agricultural Research and Technology.  
Rockefeller Foundation. Working Papers. New York. Rockefeller Foundation

SCOPE: FOOD CROP PRODUCTION (L.D.C's)

PURPOSE: "State of the Arts" paper on productivity of variety of food crops. Assessment of productivity by crop and by region; each major crop is discussed by use, characteristics, yields, and research programs.

RESULTS: Yields of every crop are generally less than half their potential. One approach to improve is "systems, meaning the various intercropping, relaycropping, and other procedures which may be alternatives to monocropping.

CONCLUSIONS: Agricultural research still new in LDC's much land still available for cultivation and increased intensity possible on current cultivated land. This will require substantial investment. Next research breakthroughs to include durum wheats, tropical maize, and barley. Other crops are several years in the future. With less funds, priorities must be established.

DATA: Good documentation of sources - macro level data.

COMMENTS: Macro level data could be used to assess data from Africa micro level evidence.

Devres, Inc. 1979 The Socio-Economic Context of Fuelwood in Small Rural Communities. Issues and Guidelines for Community Fuelwood Programs  
Washington: Devres Inc. (USAID Contract AID/SOD/PDC-C-0187)

SCOPE: ENERGY

PURPOSE: Analyze fuelwood use in a socioeconomic perspective and show how those factors can be taken into account by project planners. Draws on anthropological/sociological literature.

RESULTS:

1) Review of literature 2) Review of past and current community fuelwood programs 3) Identifies and shows how to resolve project design issues - six issues confronting programs:

1. Goals - usually multiple

2. Type of program (locale specific, need specific)
  3. Local participation (all groups need to be involved, basic knowledge of community is necessary, all needs must be accounted for, including immediate and long-term incentives and education)
  4. What resources required (land, labor)
  5. Management requirements (community fuelwood projects require more management and social inputs)
  6. Benefits and costs (must be conceived from villagers point of view, consider costs of not having program, look carefully at alternatives)
- Three guidelines for fuelwood projects:
1. Local participation is a must (for planning, implementation and evaluation)
  2. All programs must be locale specific
  3. Constant consideration of alternatives

Eckholm, Erik. 1975. The Other Energy Crisis: Firewood. Worldwatch Paper, no. 1. Washington: Worldwatch Institute.

SCOPE: ENERGY

PURPOSE: "...To identify emerging threats to human well-being and bring them to public attention ... to investigate the ecological undermining of food production systems caused by overfishing, deforestation, overgrazing, desert encroachment, soil erosion, and the silting of irrigation systems."

RESULTS: "The scarcity of firewood directly affects that one third or so of mankind which uses wood as fuel. Indirectly it affects everyone, putting pressure on fossil fuel reserves and, as it diverts animal manure from fertilizer to fuel use, further aggravating the global shortage of food."

CONCLUSIONS: "In a world of deepening interdependence, even local resource scarcities can have a global impact." "Awareness is spreading that the simple energy needs of the world's poorest third are unlikely ever to be met by nuclear power-plants, any more than their minimum food needs will be met by huge synthetic-protein factories."

Eckholm, Erik. 1979. Planting for the Future Forestry for Human Needs. Worldwatch Paper, no. 26. Washington: Worldwatch Institute

SCOPE: FOOD/ENERGY

PURPOSE: To discuss the relationship between forests and human needs, to indicate the importance of forests as a basic factor in the food-energy problems.

- Some points:
1. "Each year the average American consumes about as much wood in the form of paper as the average resident in many third world countries burns as cooking fuel."
  2. "Many developing countries, especially those in the humid tropical belt, are now experiencing rapid and massive forest destruction."
  3. "An inadequate supply of forest products is already an inflationary force worldwide".

COMMENT: A necessary reading for understanding food-energy problems.

Eckholm, Erik and Brown, Lester R. 1977. Spreading Deserts - the Hand of Man. Worldwatch Paper, no. 13. Washington: Worldwatch Institute.

SCOPE: FOOD

PURPOSE: To examine the food prospects of the desert lands (including Ethiopia, Sudan).

RESULTS:

1. Many desert countries have fallen far behind in efforts to boost food output.
2. Global grain output per person rose by more than a third. Few of the desert countries, however, shared in this progress.
3. Only two out of sixteen countries - Senegal and Sudan - boosted per capita grain output significantly (by irrigating and cropping).
4. An increase in the dependence of many of these countries on outside food sources is readily documented.
5. Net grain imports have more than tripled...
6. The demographic transition to smaller families is likely to take decades or longer.

CONCLUSIONS: Brightening the food prospects of the desert lands will require arresting and reversing desertification rapidly. It will entail implementing rural agricultural reform and distributing the fruits of development more equitably. It will also require slowing population growth. In the absence of such progress, economic and nutritional deterioration in many desert countries will continue. If it does, those individuals and countries able to afford it, will buy their food on world markets; others will do as best they can.

Flavin, Christopher. 1980. Energy and Architecture: The Solar and Conservation Potential. Worldwatch Paper no. 40. Washington: Worldwatch Institute

SCOPE: ENERGY

PURPOSE: To discuss the solar and conservation potential of energy in architecture.

RESULTS:

1. The next decade will see some of the most rapid and far-reaching changes in the history of architecture.
2. The formerly unbroken curve of spiraling fuel use in buildings has now been interrupted nearly everywhere.
3. The beauty of passive solar design is that there are a great number of ways to harness the sun's energy effectively.
4. A nearly equal investment in conservation and solar measures would yield the lowest total cost over the life of the building.
5. Even assuming substantial growth in housing, the world's buildings may be using 25% less fuel and electricity in the year 2000 than they do today.

CONCLUSION: "Improving the energy efficiency of poor people's homes should be a major priority of all energy ... efforts."

DATA: Energy use figures are author's estimates based on data from other sources.

COMMENTS: One designer recently observed, "Our buildings would be more beautiful if they responded to energy concerns and had a more natural configuration."

Fleuret, Patrick and Fleuret, Anne. 1980. Nutrition Consumption and Agricultural Change. Human Organization 39 (3):1250-60

SCOPE: NUTRITION AND AGRICULTURAL CHANGE

PURPOSE: State of knowledge about Agricultural Development Projects on Food (Nutrition).

Traditional Economy Characterized: Mostly adequate in food production, assisted by exploitation of non-staples, hurt by poor storage facilities; food distribution geared toward group, not individual.

RESULTS: Effect of agricultural programs:

1. Change to export crop = more risk, less stable food supply because of market, less subsistence, less crop diversity
2. Agricultural labor requirements may require more work and less time for good preparation - women spend less time in food preparation and substitute less nutritious foods
3. Market causes food available to gravitate to urban, less rural - that is income inequalities are created
4. Raising income thought to help rural people raise nutrition-hence move to market agriculture - but often this does not happen because:
  - a. transition from subsistence to market = loss of nutrition
  - b. improper land allocations that follow

CONCLUSIONS: Programs must consider:

1. That agricultural development will necessarily lead to nutritional advantage.
2. That poor or equal - discrepancies exist: poorest of poor most affected.
3. That decline in crop diversity will hurt nutrition.
4. That traditional staples should be considered.
5. That work/labor role changes will impact nutrition.
6. Economy favors urban over rural.
7. Nutrition monitoring as part of projects.

DATA: Literature Study

Food and Agriculture Organization of the United Nations 1979. Agriculture Toward 2000 (FAO conference 20th Session Rome, 10-29 November 1979) Rome: FAO.

SCOPE: FOOD/ENERGY

CONTENT: The study on a continental aggregate level considers agricultural production, possibilities of acceleration of production, input requirements, technological "advancement", nutritional development, agricultural trade perspectives; related policy issues; foreign assistance and food aid. For us the section on power input and fertilizers is particularly important. Data appears to be all secondary and aggregated from unspecified sources. There are numerous tables.

EVALUATION: Interesting from the viewpoint it presents and even more from the facts it ignores. It for instance, blissfully declares the need for more mechanization, basically tractors, estimates their costs, adds 15% for parts and maintenance and totally forgets fuel infrastructure, etc. An unstated assumption which appears is that maintenance, fuel, spare parts, transportation exist as needed. Energy is mentioned only on page 233, the second to the last text page and there, only very superficially.

Food and Agriculture Organization of the United Nations 1979. Agriculture Toward 2000 (FAO conference 20th Session Rome, 10-29 November 1979) Rome: FAO. Draft of Energy Chapter for Revised Report

SCOPE: FOOL/ENERGY

CONTENT: An excellent exposition of the problem of energy use in agriculture and energy production from agriculture. There are few data but sound reassuring.

EVALUATION: One paper that really discusses the energy problem.

Food and Agriculture Organization of the United Nations. 1976. FAO Studies in Food and Population. FAO Economic and Social Development Series no. 1. Rome: FAO.

SCOPE: FOOD/POPULATION

PURPOSE: Give an account of the development of the thinking on the issue of food and population over last two decades. Change in emphasis from adapting food production to population requirements to a realization of need for action in both areas.

RESULTS: Papers on a range of subjects from authorities or leaders. All dealing directly with the relationship between food and population - many making predictions or prescriptions. None are specific to East Africa but address it as a pressure point.

CONCLUSIONS: No real summary conclusions of the book except that both population and food must be dealt with and that present programs aimed at controlling birth rates are not conclusively successful.

COMMENTS: Most of the papers are not studies or do not reveal any new ideas. They merely articulate and illuminate the existing (historical problem) and the need for action.

Food Corps and Rural Development at the Village Level. 1979 New York: Rockefeller Foundation. Report of the Second International Workshop. Bellagio.

SCOPE: FOOD

PURPOSE: Food corps concept assessment - How can low income groups in rural localities improve food systems - Self Help. Discusses food corps concept and provides outline of two projects.

RESULTS: Themes:

1. Aim for full village participation.
2. Aim for local aid workers.
3. Consider village technology.
4. Food Corps as go between for scientist and farmer.
5. Stress capital saving technology.
6. Need equitable distribution, diet and rise in standard of living. Also provide appendices on "successful" projects in Mexico and Srilanka, General approaches to food development, project proposals for Tanzania - 5 year project pending Tanzania approval.

COMMENTS: This proposal provides brief description of economic, agriculture research, etc. Goals of Food Corps Project - provide link between researchers and villagers. Year 1 - identify villagers for project and determine needs by on site collaboration with villagers - identify candidates for village workers, liaison officers, apprentices - select 20 villages in Mbye region. Year 2 - Expand operations throughout year 5 -

5 year cost 1.5 million. Village Level - Involve farmers (women) directly in research on agricultural improvements. - This related to agricultural stations - these relate to experts at Uyole. Research - focus on national objectives of using organic inputs - therefore, research on labor constraints, productivity, blending organic and chemical fertilizer, returns. Interesting approach but specific objective lacking.

Freedman, David H. 1975. Oil Commodities and Prices: Economic and Social Consequences of an Evolving World Situation. International Labour Review 111: 69-87.

SCOPE: POPULATION (EMPLOYMENT)

SUMMARY: "Recent changes in the price and supply of oil and certain other commodities have had pronounced effects throughout the international economic order. Most studies carried out in this field to date have focused on the economic, technical and political dimensions of the new situation; much less attention has been given to the very serious threats it presents to such social objectives as full employment and rising living standards. The author here examines the more critical economic impacts of current and prospective developments in so far as they have actual and potential social consequences. Special emphasis is placed on the implications for labour."

Gemmill, Gordon and Eicher, Carl K. 1973. A Framework for Research in the Economics of Farm Mechanization in Developing Countries. African Rural Employment Study. African Rural Employment Paper no. 6. East Lansing: Michigan State University. Department of Agricultural Economics.

SCOPE: FOOD (MECHANIZED FARMING)

PURPOSE:

1. Outline tentative framework for analysis of impact of mechanization on L.D.C.'s.
2. Note major types of short - long term policy decisions.
3. Review selected economic studies of mechanization.
4. Suggest redirection in research.

RESULTS: Short term policy = directly impact rate and type of mechanization. (Choice of mechanization options for a project), medium term policy = impact more indirectly (minimum wage), long term policy = short and medium taken over the long run; economic studies have problem of dealing with changes in institutions economic aggregates.

CONCLUSIONS:

1. Research must be based on explicit policy question.
2. Research must involve multiple mechanization options.
3. Data on productivity impact from mechanization is poor.
4. Small or single studies need to distinguish between financial (profitability to individuals) with economic (society) impact with need to recognize limitation of data/studies, need to use linear programming
5. Expand mechanization to include agricultural systems and package alternatives.
6. Mechanization must be weighed in terms of social trade offs.

Gustafsson, Yngve. 1977. "Variations in Rainfall as a Natural Constraint on Agriculture. Ambio 6(1): 34.

SCOPE: FOOD (EXAMPLE FROM TANZANIA)

SURVEY REPORT: Rainfall and water supplies vary with time considerably more in arid and semi-arid regions than in temperate, humid regions. Food production in these areas is much less stable. Because of their location, developing fluctuations and lack of strong compensatory measures have often allowed for consequences on a catastrophic scale. Rainfall and food production in arid regions are discussed. (8 graphs).

SOURCE: c.s./ENVIROLINE

Hadler, Sandra. 1976. Developing Country Foodgrain Projections for 1985. World Bank Staff Working Paper, no. 247. Washington: World Bank.

SCOPE: FOOD

PURPOSE: To present base-line projections for 21 major countries. To get some insight into the dimensions and incidence of the long-run foodgrain problems so as to provide a basis for long range planning.

RESULTS:

1. Net deficit of 75 million tons of grain in 1985 - compared with 17 million tons in 1969-71 and 9 million tons in 1961-65.
2. The only way in which the low income countries with large food deficits can provide an adequate caloric intake for the entire population - and the least costly way - is by increasing their food production. (The potential is enormous).
3. The record shows that agricultural development is both slower and more difficult than industrial development.

CONCLUSIONS: "...little doubt as to the future inadequacy of developing country food production in the absence of a considerably greater effort to improve on their agricultural performance." To "increase the rate of growth of food grain production from 2.7% per annum to 4.5%, is neither a realistic nor a worthwhile goal to pursue."

COMMENTS: See Annex I, "comparison with other studies". Tables and charts are very interesting.

Harwood, Robert R. 1979. Small Farm Development: Understanding and Improving Farming Systems in the Humid Tropics. Boulder: Westview Press.

SCOPE: FOOD/AGRICULTURAL DEVELOPMENT

Hayes, Denis, 1976. Energy: The Case for Conservation. Worldwatch Paper, no. 4. Washington: Worldwatch Institute.

SCOPE: ENERGY

PURPOSE: To stress the need for energy conservation. In the author's words: "We have to stress the need for energy conservation because it does not require the curtailment of vital services; it merely requires the curtailment of energy waste."

RESULTS: "In 1975, Americans wasted more fossil fuel than was used by two thirds of the world's population. We annually consume more than twice as much fuel as we need to maintain our standard of living."

CONCLUSIONS: "Energy conservation could reduce our vulnerability in foreign affairs and improve our balance of payments position...in the past, conservation was viewed as a marginal activity. In the immediate future,

saved energy is our most promising energy source. Instead of consuming even more fuel, we can choose to consume the same amount of fuel even more efficiently."

Hayes, Denis. 1977. Energy for Development: The Third World Options. Worldwatch Paper, no. 15. Washington: Worldwatch Institute.

SCOPE: ENERGY (EXAMPLE FROM TANZANIA)

PURPOSE: To stress the importance of research and development in energy for development.

RESULTS:

1. "Many solar technologies will make economic sense for the third world before they do for the industrial world".
2. Widespread use of solar equipment in the Third World, where it is already cost-effective, would have positive effect in the industrial nations ... but lack of market large enough to justify investment in mechanized mass production".
3. "In August 1977, a team from the United States National Academy of Sciences, conducted a joint workshop on solar power with the Tanzanian National Scientific Research Council. At this workshop, the cost of electricity for Tanzanian villages from diesel generators and from the national power grid was compared with the cost of power from five decentralized, renewable sources: wind power, small-scale hydropower, biogas, solar refrigeration, and photovoltaics. Comparative costs were found to depend heavily upon how much energy was needed, how remote the village needing the energy was, and under what financial terms the equipment was purchased. For some purposes, each of the five renewable technologies had an economic advantage over both the national grid and diesel generation. Three of the five were economically competitive under all circumstances; for uses in which the biogas could be burned directly rather than converted first into electricity, four out of five were competitive. Even the least competitive technology- photovoltaics- will hold an economic advantage over conventional sources of electricity by the early 1980's if the costs drop in accordance with most recent forecasts."

CONCLUSIONS: "The conclusions of the studies in Tanzania, the Ivory Coast, and Chad are based upon the assumption that the renewable technologies will be financed with conventional loans. If, instead, they are financed over long periods of time at low rates of interest, with so-called "soft" loans, the economic advantages of the renewable energy sources are even more striking."

Hayes, Denis. 1976. Nuclear Power: The Fifth Horseman. Worldwatch Paper, no. 6. Washington: Worldwatch Institute.

SCOPE: ENERGY

PURPOSE: "To evaluate the future of nuclear power, subjecting it to several tests - those of economics, safety, adequacy of fuel supplies, environmental impact, and both national and international security."

RESULTS:

1. Nuclear power is not cheap.
2. Nuclear fission entails risks. (Meltdown)
3. Nuclear power cannot lead most countries to national energy independence.

4. Fission is opposed by almost every major environmental organization in the world.
5. Nuclear terrorism.

CONCLUSIONS: Nuclear power is viable only under conditions of absolute stability. The nuclear option requires guaranteed quiescence - internationally and in perpetuity.

Hayes, Denis. 1978. The Solar Energy Timetable. Worldwatch Paper, no. 19 Washington: Worldwatch Institute.

SCOPE: ENERGY

PURPOSE: "Despite the attractions of a solar-powered world, surprising little thought has been given to the sheer physical requirements of a global solar transition. Considering the increasingly tight constraints under which all conventional energy resources are operating, the time has clearly arrived for serious thought to be given to the implications of converting the world economy to solar energy ... it is an attempt to describe a feasible course for a world that needs to move rapidly toward increased reliance upon renewable energy resources."

RESULTS:

Figure 1: Proposed world energy production timetable 80-2.25

Table 1: World solar energy timetable, 1980-2025

CONCLUSIONS: "Diverse lands with different geographies, climates, and cultures are turning toward the sun. This is no cause for surprise. The resources base is abundant. Many proven technologies can be employed to harness renewable energy sources. Tapping such resources avoids many of the more disturbing consequences of conventional energy growth. The important question is no longer whether solar energy will be developed. The questions today are how much and how soon?"

Hicks, Norman L. 1979. Growth vs. Basic Needs: Is There a Trade Off. World Development 7: 985-994.

SCOPE: FOOD (BASIC NEEDS)

PURPOSE: To marshal some further evidence of the growth-basic needs trade-off by undertaking econometric estimates of the variables explaining LDC growth during the 1960-1973 period. (Critics of the basic-needs approach to development have argued that it implies a reduction in the rate of growth. Proponents point to the human capital aspects of basic needs, which could be instrumental in increasing productivity and growth in output.)

RESULTS:

1. Countries making substantial progress in meeting basic needs do not have substantially lower GNP growth rates.
2. The attainment of a higher level of basic-needs satisfaction appears to lead to higher growth rates in the future.

CONCLUSIONS: Not only does a basic-needs program appear unrelated to a reduction in growth potentials, it appears to offer long-term benefits which will raise the rate of growth as well. What this analysis does not explain is how countries meet basic needs without reducing growth, and why some countries appear to do much better than others in meeting basic needs. These questions must be left to further research.

Hopfen H.J. 1969. Farm Implements for Arid and Tropical Regions (Revised ed.) FAO Agricultural Development Paper no. 91. Rome: Food and Agriculture Organization of the United Nations.

SCOPE: FOOD (FARM TOOLS)

PURPOSE: Catalogue of Tools, Machines, Animals used in tropical areas - Illustrated. Describes no purpose per se.

RESULTS: Provides data of man power energy with animal power - only section of immediate use to Food Population Energy is Chapter 3 - Mechanization - Here the traditional mechanized agriculture argument given: that efficiency increases with large tractors - 60 HP + for 200 HA + - bigger mechanization needed. Small farmer mechanization said to be viable within Japanese context, but not transferable to African context because of factors including government subsidies and African soils.

Hoskins, Marilyn, 1979. Women in Forestry for Local and Community Development. A Programing Guide. Washington: U.S. AID W. ID.

SCOPE: ENERGY (WOMEN'S ROLE)

PURPOSE: To understand and find solutions for the problems that arise from community wide forestry projects looking at the Sahel in particular.

RESULTS: Failures have occurred as a result of ignorance of the local customs and values. Community projects have had no inherent or motivating benefit for community members.

CONCLUSIONS: Women are often the best resource available for evaluating a program that deals with everyday activities. i.e. forestry. They can impart area specific information that would take years for an outsider to collect if s/he could at all. Especially cultural variables.

COMMENTS: This study gives some good advice for implementing forestry projects that has wider applicability. The issue of community development and involvement is thoroughly discussed and a framework for its achievement is set out. Project Management Plan.

Hughart, David. 1979. Prospects for Traditional and Non-Conventional Energy Sources in Developing Countries. World Bank Staff Working Paper, no. 346. Washington: World Bank.

SCOPE: ENERGY

PURPOSE: To review the prospects for traditional and non-conventional energy sources in the developing countries through 1990.

RESULTS: "1. Widespread shortages of the traditional fuels on which an estimated one-half of the world's population relies for cooking and other energy needs. 2. Collection of these fuels, which include firewood, charcoal, dung, and the inedible portions of agricultural crops, has become in some areas an important demand on the labor and cash resources of low-income groups as well as a threat to the soil resources on which agricultural development depends."

CONCLUSIONS: "1. Consider programs to increase fuelwood production. 2. Improve charcoal production techniques, raise cooking equipment efficiencies. 3. Survey and exploit wind and small-hydro resources. 4. Utilize combustible residuals from agro-industrial and forest-industrial plants." "In many of the most densely populated parts of the developing world, forests have been reduced to insignificance as a result of land-clearing for agricultural purposes and scavenging for fuelwood. This leads not only to the use of dung and crop residuals to meet basic energy

needs, but also to shortages of wood for other essential purposes such as housing, and, in some areas, environmental damages that compromise the soil and water resources on which future food production depends."

DATA: "Estimates of traditional fuel supply and demand are presented, but the data base in this field is too weak to allow much confidence to be placed in them. Non conventional energy technologies, including biomass conversion, solar, wind and small-scale hydro are surveyed.

International Food Policy Research Institute. 1977. Food Needs in Developing Countries. Washington: IFPRI Research Report no. 3.

SCOPE: FOOD

PURPOSE: Projection for food needs for 1990 from 1975 base year accompanying population projections, GNP growth rates, income elasticities.

RESULTS: See report for specific countries.

DATA: UN Department of Economic and Social Affairs; USDA-FAS, FAO, World Bank.

COMMENTS: Useful appendix.

International Food Policy Research Institute. 1977. Recent and Prospective Developments in Food Consumption. Washington: IFPRI Research Report no. 2.

SCOPE: FOOD

PURPOSE: Measures the task of the effort to eradicate hunger in a decade in terms of estimates of number of people who are underfed and amount of food grain needed to provide caloric standard. Investigates some national and international policies that need to be altered.

RESULTS: In subsaharan Africa, 12% less food available than recorded in 1975. Significant undernourishment (70%). Other specific information.

CONCLUSIONS: Developed countries must respond to LDC needs with global reserve stocks. LDC should maintain prices to producers in order to encourage output. (Special programs for least advantaged). Participation of small farmer and landless labourer are required.

Isenman, P. J. and Singer H. W. 1976. Food Aid: Disincentive Effects and their Policy Implications. Economic Development and Cultural Change 25: 205-237.

SCOPE: FOOD

SUMMARY: According to Isenman and Singer, "The disincentive argument is that the increase in food supplies provided by food aid depresses prices received by farmers and causes or supports inadequate agricultural policies by recipients which together lead to decreases in food production. "Their conclusion is that the deep concern about the disincentive effects often expressed in the literature is unwarranted. For a number of reasons, they argue, the disincentive effects are small and the increases in the total supply of food brought about by food aid have several positive external effects on development in the recipient country.

COMMENT: Peter Svedberg emphasises that food aid which substitutes for commercial food imports will not cause any other decline in farm prices.

REPLY: Evidence suggests that in many developing countries 1/3 to 1/2 of wheat imports financed by food aid were the primary cause of the observed decline in farmer prices.

COMMENTS: The authors, in sum, are arguing for a balanced approach - a serious concern for disincentive risks and a strong awareness both of the ways to deal with them and of the substantial potential benefit of food aid.

Johnson, B. F. and Meyer, A. J. 1977. Nutrition, Health and Population in Strategies for Rural Development Economic Development and Cultural Change 23: 1-23.

SCOPE: FOOD/POPULATION

PURPOSE: To focus on the proposition that strategies for rural development should embrace a "composite-package" approach to the delivery of nutrition, health, and family planning services in rural areas.. The main points are:

1. An increase in food consumption among poor families which makes the difference between serious malnutrition and diets that permit normal growth, health, and vigor is much more significant than an equal increase in food consumption in higher income brackets.
2. A reduction in birthrates depends on whether changes in various socioeconomic and cultural variables modify attitudes, motivation, and ideas about optimal family size sufficiently to induce decisions and behavior which result in smaller families.
3. In the countries of east Africa where unused land is relatively abundant, the rapid growth of rural population during the past two decades has already resulted in serious population pressure in a number of areas. In Kenya, for example, overcrowding in areas of high agricultural potential has led to rapid migration into marginal areas of low and erratic rainfall where it is frequently difficult for farm households to produce enough to meet even their own subsistence requirements, at least with the farming technologies presently available.
4. Our understanding of the determinants of fertility is still inadequate.
5. Families must be actively involved in socioeconomic change in order for it to have significant effects on the decisions that determine family size.
6. Success in overcoming nutritional problems depends on a simultaneous expansion in food production and increases in the effective demand of low-income households which will enable them to raise their levels of food consumption - improve nutrition and health and foster wide diffusion of family planning in rural areas.
7. Uma Lele is calling attention to a very real danger when she cautions that "substantial allocation of central resources to social services frequently occurs at the cost of more immediately productive investments in rural areas and, therefore, may prove self-defeating in the long-run."
8. The communication process is a key element and it needs a systematic examination and study for its application.

COMMENTS: The article, in general, stresses the need to give a higher priority to rural development and to the expansion of agricultural production involving broad participation of the farm population in the process.

Johnson, Bruce F. 1977. Food Health and Population in Development. Journal of Economic Literature 15 (3):879-907.

SCOPE: Food/Population

PURPOSE: To review current literature on health, population and food within the context of development within the developing countries to identify important themes and to identify the "wisdom" that is encompassed in this body of work.

CONCLUSIONS: The article indicates that there is little consensus on the type of programs which will make impact on growing populations, and malnourished and ill people. It indicates that due to the "enormous importance" of improved health and nutrition and of decreasing population growth, there is a major need for multidisciplinary research to identify effective procedures for addressing these problems.

Josling, T. 1980. Developed Country Agricultural Policies and Developing Country Food Supplies: The Case of Wheat. Washington: International Food Policy Research Institute. Research Report no. 14.

SCOPE: FOOD

PURPOSE: To examine wheat sections of developed countries then determine what effect they have on supply variability in developing countries. Two policy aspects considered: impact of support prices on production and consumption and changes in stocks.

RESULTS: Wheat production in developed countries varies significantly. LDC's imports were 20 to 35 million tons. Price policies caused supplies to range from surplus of 31 million tons in 1973 to deficit of 11 million tons in 1977.

CONCLUSIONS: 1) Policy influences are important as 2) production fluctuations to LDC's. Stock policies reinforce impact of price policies. Problem (lack of) response of developed countries domestic policy to world market situations.

DATA: Wheat producer and consumer subsidy equivalents for Australia, Canada, EEC, Japan, UK, US from 1968 to 1976. FAO, USDA-FA data.

Kocher, J.E. 1973. Rural Development, Income Distribution and Fertility Decline. New York: The Population Council.

SCOPE: POPULATION

The population of low-income countries are still 70 percent or more rural and will remain predominantly rural at least to the end of this century. It is argued that, in the absence of rural modernization, sustained overall fertility decline in rural areas cannot be anticipated. It is quite possible, however, for rural development to take place despite high fertility and rapid population growth. The primary mechanism available for stimulating development is a dramatic increase in effective demand in the labour-intensive sectors through a more equal distribution of income. The greater the participation of the rural population in development, the earlier and faster will be the decline in overall fertility and population growth rates.

SOURCE: C.S./CAB/ABS

Korte, R., ed. 1977. Nutrition in Developing Countries. A Seminar for German Technical Assistance Personnel. Limuru Kenya 5-13 December 1977. Eschborn: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH. SCOPE: FOOD (NUTRITION)

The purpose of this seminar was to bring together scientists and field workers to discuss how best to improve the nutritional status of communities everywhere but it was hoped that the outcome would be an improvement in health services in general, and lead to the development of health training centres in Kenya. The discussion covered a wide range of subjects including nutrition and the socioeconomic causes of malnutrition, nutrition and family planning, bottle feeding, nutritional requirements, vitamin deficiencies, nutrition and infection, the role of vaccination and the treatment of parasitic diseases in the improvement of nutrition and nutrition education. Although most of the contributions are of universal interest, some refer specifically to Africa as a whole or to individual countries including Kenya, Uganda, Malawi and Tanzania. Protein-energy malnutrition is the most important disorder in nearly all tropical countries, including Kenya. The causes are manifold and may be attributed to geographic, climatic or other environmental conditions. Malnutrition is a socioeconomically linked affliction and therefore any health training scheme must teach people to choose food for its nutritional value, while at the same time exploiting locally grown foods such as cassava and groundnuts.

Most, but not all, papers conclude with references to the original literature and there are summaries of the questions and discussion which followed the presentation.

SOURCE: C.S/CAB.ABS

Loftas, T. 1976. Food and Environment: Recognising the Demands of Agriculture with Global Conservation. Rome: Food and Agriculture organization of the United Nations.

SCOPE: FOOD

PURPOSE: To describe in general terms FAO's concern with the environment to point up some of the threats and their answers as seen by FAO experts and scientists, technologists.

RESULTS: The key pressure points are soil, forest land, rangeland (both vanishing) insects and pests, animal species, waters.

CONCLUSIONS:

UNEP two components:

1. Assessing and monitoring state of resources.
2. Managing them along ecological lines.

The bottom line is feeding the hungry.

COMMENTS: This is a p.r. booklet of little use.

Makhijani, Arjun. 1976. Energy Policy for the Rural Third World. London: International Institute for Environment and Development.

SCOPE: ENERGY/FOOD

PURPOSE: To focus on energy resources and their vital role in providing for the most basic human needs...to show that there are exciting technical opportunities for transforming the energy economies of poor communities in

the rural third world and demonstrate that these cannot be grasped without parallel social and political changes.

RESULTS: 1) The amount of useful work which the poor obtain from the energy they use is small. 2) The energy content of the crops plus the crop residues exceeds the energy inputs to farming including energy for irrigation, manufacture of chemical fertilizers and the energy to make and power farm machines. 3) Subsistence agriculture which barely supplies enough food and fodder for the poor can be transformed into one that provides surplus energy (in the form of excess food and crop residues) to other parts of the economy. 4) Success in meeting domestic energy needs involves the following considerations: a) reducing the use of wood, crop residues and dung as fuels as soon as possible while meeting the requirements of cooking and keeping warm. b) Large scale reforestation programs. c) Organizing fuel wood supply for entire villages and planting village wood lots. 5) The basic criteria for windmill design must be: low cost, sufficient power to enable irrigation of a small plot (1/4 to 1/2 hectare), it should be made of local materials and with local skills. 6) Biogasification could be among the most important energy technologies for the third world.

CONCLUSIONS: Listing a few of the important items in energy research.

1. Basic research about human needs.
2. Basic, theoretical and experimental work relating to promising approaches for fulfilling rural energy needs.
3. Harvesting tropical and subtropical bogs for fuel.
4. Extensive testing of cooking stoves made with local material all over the third world.
5. Drip irrigation using earthenware pots or pipes.
6. Synergistic systems in which food or some other needed item is the principal product and energy, fertilizers, raw materials are by-products.
7. Small biogas plants costing less than \$50, made with local materials for use by village families.
8. Pilot community biogas plants.
9. Solar cookers. A practical stove should cost less than \$20 to \$30.
10. Using sewage gas for buses and trucks.
11. Small scale hydropower pilot projects. (the techniques that are used in China could serve as useful examples.)

Mattei, F.; Gibbon, D.; and Abd El-Raham, A.A. 1972. "Crop Potential Productivity and Energy Conversion Efficiency in Semi-arid Climates:" In Eco-physiological Foundation of Ecosystems Productivity in Arid Zone. International Symposium. USSR June 7-19, 1972. Leningrad: 'Nauka'

SCOPE: FOOD/ENERGY (case study from Tanzania).

Maize and sunflower were grown at (a) Rome, (b) Cairo and (c) Morogora, Tanzania and sorghum at (a) and (c) only, at  $2.08 \times 10^4$ ,  $8.33 \times 10^4$  or  $33.33 \times 10^4$  plants/ha and given 30 kg N. P205 and k20/ha. Irrigation water was applied when necessary. The effect of plant density on yield varied with site. The highest yields for all crops growing at the lowest density were recorded at (a) and the lowest at (c). As plant density increased, significant increases in yield/ha occurred at (b) for both maize and sunflower yields trebled as density increased to  $33.33 \times 10^4$  plants/ha.

Exceptionally high energy conversion efficiencies were noted for both crops at (b) and for sorghum at (a); (b) received the highest amount of solar radiation. Crop production potential was estimated for each crop according to the regression  $1/Y_p = a + bx$ , where  $Y_p$  = yield/plant,  $x$  = plant density and  $a$  and  $b$  were constants indicating plant genetic and environmental potential, respectively. Values for 'a' varied widely with site and crop, the only consistent trend being an increase with reduction in latitude. With 'b', values for the 2 crops at (b) were similar, as were those of the 3 crops at (c), indicating that these crops of widely differing genetic background reacted similarly to increasing competition when grown in the same environment.

SOURCE: C.S./CAB.ABS

Mellor, John W. 1978. Food Price policy and Income Distribution in Low Income Countries, Economic Development and Cultural Change 27: 1-26

SCOPE: FOOD

PURPOSE: "To delineate the component parts of a general equilibrium analysis relevant to the relation of price policy to income distribution; to present data as to the relation of price change to a variety of those components parts' and to suggest the nature of the various interactions among those parts."

RESULTS: "1. The income effect on low-income people of food price change is large, and that the bulk of adjustment to reduced food supplies is made by low-income people. Conversely, changes in the income of low-income people are reflected to a large degree as change in the demand for food. 2. An employment program, or an income transfer program for the poor, will be inefficient in assisting them unless provision is made for an enlarged supply of basic food commodities. 3. One monetary unit of income transferred from the richest to the poorest classes releases demand for .02 units of foodgrain but creates a new demand for .59 units, an imbalance in the ratio of 30 to 1."

CONCLUSIONS: "Barring a strict rationing system, increased agricultural production may be a necessary precondition for improving the incomes of the poor...a program of foreign food aid and...commercial imports can be effective in facilitating an employment increase particularly in the short run."

National Academy of Sciences. 1978. Postharvest Food Losses in Developing Countries. Washington: N.A.S.

SCOPE: FOOD

PURPOSE: Assess validity of data on food loss after harvests and examination of such losses for various crops and fish-developing world.

RESULTS: Food loss (post harvest) are enormous; until recently estimation methods and standardization procedures not good; Recommendations: national policy body; national implementing agency; structure for communication among agencies, decision makers, and villagers.

DATA: Synthesis of various works.

COMMENTS: Good introduction to agricultural storage;/loss problems-directly applicable to FPE. (Food Population Energy Project)

Newland, Kathleen. 1977. Women and Population Growth: Choice Beyond Childbearing. Worldwatch Paper, no. 16. Washington: Worldwatch Institute.

SCOPE: POPULATION

PURPOSE: An effort to understand the link between women's role and population growth.

RESULTS: 1. The impact of education and work, affects population growth negatively. 2. Programs and policies do the same if undertaken.

CONCLUSIONS: "Where women are isolated within their families, lack opportunities for remunerative employment, and are blocked by illiteracy from contact with the larger society, their choices among possible means to fulfillment are so narrow that child bearing stands out clearly as the preferable alternative."

North South Institute. 1978. World Food and the Canadian "Breadbasket". Canada North South 1977-1978. vol. 4. Ottawa: North South Institute.

SCOPE: FOOD

PURPOSE: Clarify global food problems and prospects and suggest improvements in Canada's contribution to food self-sufficiency.

RESULTS: There is a growing food dependency of developing countries along with growing hunger and malnutrition. Food, self sufficiency must be reached. The international grain reserve system examined in terms of costs, benefits and political and organizational difficulties especially 1. Whether price or quantity should "trigger" the reserve system action, 2. Who will pay for it, 3. Price ceilings and floors. 4. Level and control of reserve stocks. Food aid is discussed in terms of the necessity of transfer of productive capacity to the developing countries and how it may be hindered by food aid programs. (Emergency food aid and project food aid aside). A strategy for Canada's involvement in meeting medium and hopefully long term food needs is outlined.

CONCLUSIONS:

1. Intensification of support for food self-sufficiency in poorest developing countries (building programmes involving Canadian industry and agencies, institutional support, policy review).
2. International agreements to stabilize food markets and secure food supply (overhaul or internal and external food programmes).
3. Public participation and research (projected needs and import demands estimated, study of the international food system-distribution problem).

Openshaw, Keith. 1980. "A Comparison of Metal and Clay Cooking Stoves", in Energy and Environment in East Africa, proceedings of an International Workshop, Nairobi, March, 1980.

CONCLUSIONS: The present method of cooking on a metal charcoal stove is inefficient when compared to clay stove. This is because of superior thermal insulation of properties of clay. Up to about 50% of time and money can be saved by introduction of clay stove.

DATA: Experiments were conducted and time taken to bring 1 litre of water to 96° C in different stoves was recorded.

Openshaw, Keith. 1978. "Woodfuel, a Time for Reassessment." Natural Resources Forum. 3(1): 35-52.

SCOPE: ENERGY (Data from Tanzania)

Research Report: Patterns of wood fuel consumption and end uses in several developing countries are examined. Although wood is the third most important fuel source after oil and coal in terms of total energy requirement wood may be the world's primary fuel in terms of numbers of consumers: per capita consumption and end use patterns in Gambia, the Sudan, Nigeria, Thailand and Tanzania are tabulated. Household per capita consumption of wood fuel in developing countries is about one metric ton/yr; cooking accounts for 50%; and heating, 30%. Future supply and consumption patterns are projected. Increase production from improved management of forests and plantations is needed to offset decreasing forest areas and increasing population and energy cost. (12 references, 11 tables)

SOURCE: E.C.S./Energy Line

Oram, Peter. 1979. Investment and Input Requirements for Accelerating Food Production in Low Income Countries by 1990. Washington: International Food Policy Research Institute. Research Report no. 10.

SCOPE: FOOD

PURPOSE: What is the feasible investment requirement needed to accelerate country by country food production.

RESULTS: Specifics included—here general 3.5 to 4.5 annual output increase. For 36 countries \$98.7 billion, half for water resource development; land road energy fertilizer are significant.

CONCLUSIONS: Problems in Africa are most intractable as most of cultivable land is in semi-arid tropics depend on rainfall with little prospect for irrigation and intense competition for land from export crops and grazing. Probably many will not meet needs by 1990.

Palmer, Ingrid. 1977. Rural Women and the Basic-Needs Approach to Development. Mimeographed paper, source unknown.

SCOPE: POPULATION (WOMEN) (Example from Kenya)

PURPOSE: To discuss, the nature of women's work in rural areas and how and why the characteristics of this work are affected by changes in the structure of production, what a basic-needs approach to development should aim at, some factors likely to determine the efficacy of such an approach for rural women.

RESULTS: 1) In many rural areas of developing countries, especially in Africa, absentee husbands are a widespread phenomenon. The 1969 census showed that in Kenya about 525,000 rural households were headed by women; some 400,000 of them had male "Heads of Households" living in towns. The women in these households are left to protect and provide daily necessities for themselves and their children. 2) Consequences of modernization schemes are: longer working day, continued employment in labour-intensive, low productivity work, decline in the family's purchasing power. (It is based on a comparison of two villages in Kenya, one traditional and the other a newly settled irrigated village producing rice) 3) Changing production structures are likely to lead to a "North-South" situation—a dichotomy similar to that existing between the developed and the developing worlds—of unequal exchange between men and women.

**CONCLUSIONS:** A basic needs approach must go further and "open-up" the production and exchange relations within the household to the wider community. The institution of supra-family relations would diminish the negative aspects of the traditional of male household heads and, by seemingly not posing a direct challenge to their status in the home, might help to overcome their resistance to change.

**COMMENTS:** It gives you a good understanding of the often neglected aspect of women's role in development.

Pimentel, David and Pimental Marcia. 1979. Food, Energy and Society. New York: John Wiley and Sons.

**SCOPE:** FOOD/POPULATION/ENERGY

**PURPOSE:** Explore interdependencies of food, energy and their impacts on society. (Look at energy costs of the diverse food production systems we now have and balance them against the supplies of energy that will be available).

**RESULTS:** Population will reach 6,000 million by 2000, Improvements in healthcare mean increased population growth rates and energy expenditures. 48% of world food lost to pests-green revolution grain varieties aggravates this. Protein production can keep pace with population if man shifts to a more vegetarian diet. Available land is a serious constraint even in most favorable conditions-erosion adds to the problem but has been counterbalanced by energy intensive fertilizers in U.S. In developing countries erosion rate is twice that of U.S. with no inputs available. Irrigation expansion is expensive in terms of water, capital and energy plus environmental costs (salinization). Water is inevitably being taken from agriculture, while too much water in some areas causes erosion, crop loss.

**DATA:** USDA, FEA

**COMMENTS:** Growing season & production are decreasing. Carbon dioxide accumulation from burning fossil fuel will have an unknown effect on climate-sure to affect food production. Short term climatic patterns increase international interdependency and food reserve needs. Besides CO2, pesticides present serious environmental pollution, kill species & humans, affect soil & water. Resistant pests that develop require higher energy inputs. Standard of living must be reduced just to accomodate present population, vegetarian diet, smaller living quarters, energy use strictly for essentials.

Presidential Commission on World Hunger. Overcoming World Hunger: The Challenge Ahead. Report of the Presidential Commission on World Hunger. March 1980. Washington: U.S. Government Printing Office.

**SCOPE:** FOOD (HUNGER)

**PURPOSE:** Assess world hunger, U.S. role, and recommend means of combating.

**RESULTS:** U.S. should attempt to help overcome problem-1) Major problem is malnutrition. 2) Problem becoming increasingly worse. 3) Poverty is principal cause. 4) Major global crisis appears likely in next 20 years. 5) Rising food demands must be met within resource constraints. 6) problem is long term in solutions. 7) Equitable access to food as important as total production. 8) Need programs geared to local food preferences. 9) LDC's must improve national policies. 10) U.S. has major

role in problem solution. 11) Elimination of Hunger can be achieved. 12) U.S. domestic & foreign policies and private activities often hinder problem. 13) Some U.S. population vulnerable to hunger. 14) Federal funded programs-hot lunch-have worked in U.S. 15) Famine relief hindered by local governments refusal to recognize problem.

COMMENTS: Recommendations U.S. take major role by: 1. Restructuring trade and debt arrangements to help LDC's and to assure stable studies of food. 2. Private corp./agribusiness also help. 3. U.S. keep food stocks and help others develop same. 4. I.D.C.A. be increased and director given cabinet status. 5. Target aid to poorest LDC's. 6. AID beef up its agricultural and managerial competence. 7. Beef up research. 8. Support agrarian reform. 9. IDCA & AID emphasize integrated policies aimed at food opportunities for poor. 10. Reverse PL480.

Reutlinger, S. and Selowsky, M. 1976. Malnutrition And Poverty: Magnitude And Policy Options. World Bank Occassional paper no. 23. Baltimore: Johns Hopkins University Press.

SCOPE: FOOD (Poverty and Malnutrition)

PURPOSE: To analyze the global dimensions of malnutrition (especially in reference to income distribution) and to analyze cost effectiveness of special policy instruments which are intended to reduce malnutrition in urban areas.

RESULTS: Specific conclusions:

- a. World calorie deficit-419 billion calories daily.
- b. Target group oriented programs are more cost effective than general subsidies on food in relation to reducing undernutrition in urban areas.

DATA: A variety of county level documents provided study data.

Rogers, S.C. 1978. Woman's Place: A Critical Review of Anthropological Theory. Comparative Studies in Society and History 20: 123-62.

SCOPE: WOMEN'S ROLE

PURPOSE: Review of theory (current, 19th and 20th century) of status of women-intellectual and political stances examined, looks at sexual differentiation, focus on women to make explicit some of the assumptions and points of contention appearing now and to clarify issues for further study.

RESULTS: Poses set of problems and analytical framework from which to approach them. Looks at power distribution in sex relationship context/behavioral and ideological (ethos) differentiation of both - when ideas and behavior differences exist then balance of power. When behavior differences differ then hierarchical, when no difference no power imbalance.

CONCLUSIONS: Theories about women may at this time tell us very little about any but our own society. Relationship should be examined in terms of power (control of valuable resources) and ideological and behavioral differential. To learn about women in any societal context need to learn about relationship.

COMMENTS: Suggests that the indirect rule of British colonizers kept traditional political systems intact but minimized role of women to that of

European middle class women (homecare and motherhood) - upset of previous power balance.

Theoretical approach to role of women in society - how it can be altered through ideological or behavioral differentiation.

Schofield, Sue. 1979. Development and the Problems of Village Nutrition (Institute of Development Studies, Sussex.) London: Croom Helm.

SCOPE: FOOD (Nutrition)

PURPOSE: To demonstrate that nutritional problems are best solved by selective community level programs rather than indiscriminate programs which provide dispersed coverage. There was also an attempt to analyze a large number of village nutrition surveys to identify deficits in survey methods.

CONCLUSIONS: The first purpose was not really accomplished but the study did develop a number of conclusions regarding deficiencies in existing village level nutrition surveys. The author also concluded that there is a need for much more micro-level information on nutritional problems and their causes.

DATA: Three hundred and sixty less developed world nutrition surveys were included in this analysis.

Staudt, K. 1979. Women and Participation in Local Development Cornell University. Monograph no. 4C15. Ithica: Cornell University. (especially Chapter on "Agricultural Productivity")

SCOPE: Women in Agriculture

PURPOSE: The monograph: to give perspective on women in different economic strata and a household typology. The agriculture section: looks at women's role in agriculture production, efficiency, risk taking.

RESULTS: Women may be more energy efficient. Risk taking levels vary with end use of food.

CONCLUSIONS: Women's work needs to be enumerated and remunerated in both use and exchange value, both at household and national level.

COMMENTS: The agricultural section is most relevant to FPE but the monograph is a valuable resource for the issue of women in development-which is inherently central to our study.

Staving, G.R. 1978. The Impact of Population Growth on the Economy of Countries. Economic Development and Cultural Change 27: 735-50.

SCOPE: POPULATION

PURPOSE: To examine the relationship between population growth and changes in the economy during the 1955-71 period by using data from 94 countries.

RESULTS: Rapid population increase had a negative impact on changes in many crucial economic indicators during the above period. Indicators like change in per capita gross capital formation, government consumption, manufacturing, and exports are each correlated to change in per capita GNP at .75 or higher.

CONCLUSIONS: While it is difficult to predict the magnitude of the correlations in future decades, we can expect a reduction in the size of the scopes for many of the pairs of variables used in this study.

Stolte-Heiskanen, V. 1977. Population and Underdevelopment. Helsinki: University of Helsinki, Institute of Development Studies.

SCOPE: POPULATION (example from Tanzania)

The five essays included here deal with different aspects of population dynamics and problems of development and have a common theme of emphasizing the primacy of socio-economic development. The first chapter, by P. Khalatbari analyzes the relationship between overpopulation and underdevelopment within the Marxist theoretical framework, and emphasizes the need for radical agrarian reform to feed and provide employment for rural people. B. Egero studies the relationship between migration and underdevelopment in Africa in general and in Tanzania in particular. In the third essay, K. Poikolainen stresses the role of nutrition along with preventative services as two of the most influential factors in the decline of mortality, using as an example a nutrition and infection field study in Guatemalan villages. In the following chapter on population growth, health care and development assistance. K. Leppo summarizes the development of traditional Western views on population control and stresses that the problems of population growth are broad social and political ones that cannot be solved simply by contraceptive technology or family planning clinics. The last paper, by E. Hofsten, deals primarily with some classical demographic issues of population projection methods.

SOURCE: C.S./CAB.ABS.

Strategies For Agricultural Education in Developing Countries, Second Bellagio Conference 1975. 1976. Rockefeller Foundation Working Papers. New York: Rockefeller Foundation.

SCOPE: FOOD (Agricultural Education)

PURPOSE: To assess education for agricultural development - developing world.

RESULTS: Provide a series of papers and discussions dealing with curriculum development for agricultural studies.

CONCLUSIONS: Undergraduates need intensive, practical training on general level, Graduate-stress relevance of thesis work to national problems, universities need strong contacts with government agencies.

COMMENTS: of little use to study

Talbot, Ross B. 1979. The European Community's Food Aid Programme. Food Policy 4 (4): 269-84.

SCOPE: FOOD (European Aid)

PURPOSE: Brief assessment of aid by EEC's. 1) Aid given to enhance donor countries reputation-so bilateral aid, multilateral aid more appropriate. 2) Suggests aid may have political underpinnings. 3) Questions handling of counter part funds-that is, food given as a grant, but local country may sell food. 4) EEC must continue to produce food surpluses.

United States. Department of Agriculture Economics Statistics and Co-operative Service. 1980. Global Food Assessment-1980. Foreign Agricultural Economic Report, no. 159. Washington: U.S. Government Printing Office.

SCOPE: FOODPURPOSE: Assess world food production.RESULTS: Serious problem in per capita grain availability 1972-79 in Africa; sub-Saharan Africa is worst due to poor weather, resource constraints, political instability, and administrative inefficiencies. Imports increasing and they are distributed poorly - provides regional summaries - production, net imports, and per capita availability of grains data for each country.CONCLUSIONS: Djibouti - no data, will need food aid; Ethiopia - uneven growing conditions and social instability - food shortages, 1978-79 grain consumption 89 kilo., 900 projects have failed; Somalia - drought and refugees and, 1979 grain production down 10% in 78, Sudan - dry grazing season 79 + refugees and increased pressures on food, self sufficient in all staples except wheat; Burundi - heavy rains hurt 1979 crop but provide subsistence; Kenya slightly down due to weather/marketing, decrease agricultural inputs; Rwanda - severe population pressure; Tanzania - 79 grain production down but due largely to marketing bottlenecks, production dropped 5% in 79, will not meet 1980 needs, transportation energy costs hampering agricultural development; Uganda - big problems, need much aid to prevent starvation.DATA: Summarization of macro level production and population data.COMMENTS: Use as baseline for future project designs.

Valentine, William, and Lappe, Frances Moore. 1980. What Can We Do? Food and Hunger, How You Can Make a Difference. San Francisco: Institute for Food and Development Policy.

SCOPE: FOODPURPOSE: Give an overview of what is being done about world hunger and what people can do to help. How and why to work for social change as learned from efforts that are current and working. Case studies.RESULTS: Define progress as a just sharing of power not just increased production. Root of hunger & poverty factors which generate the inequality: resources are viewed strictly as sources of private gain; power is self reinforcing, planning done by and for resource controllers, decisions based on profit lead to waste.CONCLUSIONS: Need equitable sharing of control of productive resources and democratic planning for peoples needs/community planning calls for long reaching social "economic change".

Vogel, S. and Graham, M. eds. 1979. Sorghum and Millet, Food Production and Use. Report of a Workshop held in Nairobi, Kenya 4-7 July, 1978. Ottawa: International Development Research Centre (no. 123e).

SCOPE: FOOD (Information from Kenya, Sudan, Tanzania and Uganda)

To complement efforts in field and laboratory experimentation in sorghum and millet breeding and selection, this workshop brought together food scientist and home economists from Ethiopia, India, Kenya, Nigeria, Sudan, Tanzania, Uganda, and Canada. Its aim was to exchange ideas on local sorghum and millet preferences, to gather information on the current use of sorghum and millet in the participants' countries, to discuss methods of establishing utilization and consumer-product tests, and to establish a procedure for

collecting sorghum samples to be sent to a central place for analysis of quality. The presentations covered the whole realm of sorghum and millet quality and use; harvesting, drying, threshing, storage, milling, enrichment, and marketing. In addition, a sorghum breeder's viewpoint on the potential for improvement and a home economist's view on utilization and consumer product tests were presented. On the last day of the workshop the participants prepared a few of the most common sorghum and millet foods eaten in their countries. As a result, each participant was convinced that there was sufficient similarity in certain foods and beverages for the same criteria of quality to be applied in all sorghum and millet screening programmes. The information from the various papers has been combined in order to give an overview of sorghum and millet use throughout the area and the recommendations and conclusions made at the workshop have been summarized.

SOURCE: C.S./CAB.ABS

Weeks, John. 1975. Policies for Expanding Employment in the Informal Urban Sector of Developing Economies. International Labour Review 111:1-13.

SCOPE: POPULATION (Employment)/LDC's

SUMMARY: "Many developing countries have found that wage-earning employment lags behind rapid growth of output. The author believes that this is partly illusory, owing to the fact that large numbers of small urban establishments are never included in the labour force statistics. Here he sets out to identify and analyze the determinants of growth of output and employment in this "unenumerated" sector, drawing a distinction between the informal and the formal sector - which he prefers to the more usual one between a traditional and a modern sector. He proposes an analytical framework for studying the interaction between the enumerated and unenumerated urban sectors of less developed economies and puts forward a number of policy suggestions whereby growth in the informal sector might be stimulated."

1975. "What Now: The Dag Hammarskjold Report." Development Dialogue Report N 1-2 (128).

SCOPE: FOOD /ENERGY

Special Report: The question of future international development is examined and a new development approach is proposed. International cooperation, economic systems political constraints, the role of the third world nations, and environmental limits are discussed. The satisfaction of human needs, starting with eradication of poverty is the central focus of this new development. Science and technology can increase availability of food worldwide, sustain an ecology balance, and effectively utilize natural resources. International resource transfers and their financing should be based on a nation's respect of human rights. International government should undertake development and management of the oceans, outer space and popular regions. The U.N. must be reorganized and strengthened.

SOURCE: C.S./Enviroline

Wilkinson, Maurice. 1979. The Economics of the Oceans: Environment, Issues, and Economic Analysis. American Economic Review 67 (2):251-4.

**SCOPE: FOOD (FISHING)**

**PURPOSE:** To review briefly the changing ocean environment, ocean policy issues, and some of the areas of economic theory and measurement most relevant to ocean economics.

**RESULTS:** 1) In fishing policies management will have to operate in the near future with simpler rules of thumb (such as reducing fishing effort in response to reductions in yield and revenues from harvesting) until additional research is completed with regard to both data collection and empirical econometrics. 2) Data on ocean economic activity are gathered by individual nations and compiled by UN agencies such as the food and agriculture organization. No nation currently produces a consistent set of estimates of the income and product resulting from ocean economic activity. The U.S.A. has made one prior attempt to estimate "the value of its oceans". The UN publishes some estimates of general ocean output. 3) Empirical studies of the demand and supply and supply of ocean output are for all purposes limited to fishing and to lesser extent shipping.

**CONCLUSIONS:** The shortage of empirical research largely reflects the lack of biological knowledge and data...political conflicts proliferate in such a setting where no competing party or interest group is really informed about the economic value of the resources involved.

Willet, J. W. 1976. The World Food Situation vol. 1 & 2. Dobbs Ferry: Oceana Inc.

**SCOPE: FOOD**

**PURPOSE:** A collection of articles on the World Food Problem ranging from consumption and production trends, alternative plans, problems of developing countries etc. with special emphasis on nutrition and research to increase production. A reference document.

**RESULTS:** Articles on supply and demand, present, past and future, international aspects, specifics for LDC's and USA role, research needs.

**CONCLUSIONS:** Generally, the food crisis is seen as a result of a number of factors-weather, energy crisis, population, strong demand and high prices, economic (financial) over production by developed countries, increasing imports by LDC's. The situation is salvageable as increased LDC production is possible, good potential for livestock fisheries and human resources development. This will require serious policy changes, institutions, large investments, research. Shortrun, critical problems must be dealt with in order to prevent long run unpredictable crises.

Winikoff, B. ed. 1978. Nutrition and National Policy. Cambridge: M.I.T. Press.

**SCOPE: FOOD (Tanzania case study)**

The book first presents a group of national case studies in which the nutrition policies of eleven governments (Chile, Colombia, Ghana, Nigeria, Indonesia, Jamaica, Panama, the Philippines, Tanzania, Zambia and the USA) are outlined and analyzed. It is shown that malnutrition is not primarily caused by food supply limitations but by problems of food distribution and lack of commitment of national governments to the nutritional well-being of the people. Two summaries take up the issue of political commitment to nutrition and address some specific questions regarding programs and policies.

**SOURCE:** C.S./CAB/ABS

A D D E N D U M

Bale, Malcolm D. and Lutz, E. 1979. Price Distortions in Agriculture and Their Effects; Our International Comparison. World Bank Staff Working Paper no. 359. Washington: The World Bank.

SCOPE: AGRICULTURE (MARKETING)

PURPOSE: To look at the agricultural pricing policies of developed and developing countries in order to see if they are effective in terms of original objectives. The effects of such price distortions are examined in the light of allocative and productive efficiency.

RESULTS: Agricultural pricing policies pursued by the developing countries produce effects opposite to those produced by the policies of developed countries. Both are costly in terms of global welfare. In highly developed countries pricing policies generally have positive rates of protection, so the levels of output are generally higher than without intervention: the reverse is true in less developed countries. As regards consumption, developing countries consume more and developed countries consume less than without price intervention; thus pricing policies may have a beneficial effect in providing more food for lesser developed countries, but this is achieved at the expense of the agricultural sector.

CONCLUSIONS: Agricultural pricing policies cause incorrect price signals resulting in allocation, production, and consumption losses. The most sizable effects are welfare transfers between consumers and producers - with the developed countries, producers gain, consumers lose; with the developing countries, this is reversed; in both, governments gain, suggesting revenue generation is an objective of price intervention. Trade patterns are altered and employment effects are also significant. The magnitude of the above losses is considerable, and these are only the static effects: dynamic effects should also be considered.

DATA: Sources - FAO Production Yearbook, International Wheat Council Statistics, U.S.D.A., International Sugar Organization World Bank. Much estimating, especially in determining elasticities and coefficients, taken from other papers.

COMMENTS: The specific countries examined are Japan, West Germany, France, Britain, Thailand, Egypt, Argentina, Pakistan, Yugoslavia.

Birdsall, N. 1980. Population and Poverty in the Developing World. World Bank Staff Working Paper no. 404. Washington: The World Bank.

SCOPE: POPULATION

PURPOSE: To review the current demographic situation in developing countries and to look at the association between poverty and rapid population growth, which the author feels are causally linked.

RESULTS: The author's review of the current situation establishes five facts: 1. post war population growth rates have been rapid due to high fertility and much reduced mortality; 2. in the last decade these rates have declined; 3. current fertility and mortality rates are negatively related to income; 4. this association is far from perfect; 5. the relationship between income level and these rates has shifted over time. Mortality is affected by factors including public health measures which do not depend on the individual's participation, whereas fertility is associated with individual behavior and thus with development. The effects

of this rapid population growth include exacerbated international income disparities, more spending on schooling, varying (per country) effects on nutrition. The effects of changes in income on decisions about family size are discussed, showing an initial increase, then steady decrease in the number of children with income increase. Female education, urbanization, etc. are discussed as relating to fertility and income.

CONCLUSIONS: Family planning services must be made available not only so that the costs to the poor of meeting fertility goals are lowered but so that the idea of fertility limitation is diffused and seen as important throughout the population. (Specific projections about the efficacy of programs and future poverty/population outlooks for different countries are assessed in tables in the final chapters.)

DATA: Graphs on birth and death rates, fertility and life expectancy by income, school-age and work-age population growth: Tables on distribution of children per income group, age structure by income level, etc. A lot of such material, taken mostly World Bank, World Development Report, etc. sources.

COMMENTS: Contains an classic discussion of children as viewed economically.

Cuca, Robert. 1979. Family Planning Programs: An Evaluation of Experience. World Bank Staff Working Paper no. 345. Washington: The World Bank.

SCOPE: POPULATION (FAMILY PLANNING)

PURPOSE: To review existing family planning programs in a broad range of countries, and assess the general experience.

RESULTS: The paper emphasizes the importance of a multi-approach to service provision. Most countries go through three organizational phases: 1. private family planning groups without demographic objectives; 2. adaptation of an official policy; 3. integration of health services and family planning. The first official attempts were usually unsuccessful until delivery systems were improved to include clinics, home visiting, and the inundation approach. Programs tried by governments include payments for use of contraceptives, legal provisions, (as limiting tax exemptions, increasing marriage age), efforts to improve socio-economic environment, peer pressure.

CONCLUSIONS: Socio-economic factors are the prime determinants of the demand for family planning services: program efforts are the basic determinants of supply. Both have played an important role in the reduction in fertility during the last 20 years.

DATA: World Bank statistics (see comments).

COMMENTS: The paper includes case studies of the People's Republic of China, Colombia, Ghana, India, Indonesia, Republic of Korea, and Pakistan. Also included are country summary sheets of thirty-five countries with a family planning policy summarizing the policy's development, organization, approaches, personnel, contraceptives, and inducements. Countries include Nepal, Kenya, Ghana, Botswana. This is a very broad approach.

Development Alternatives Inc. 1975. Strategies for Small Farmer Development: An Empirical Study of Rural Development Projects, Vols. I, II, Final Report, Washington: Development Alternatives Inc. (for USAID, Contract AID km/ta-C-73-41).

**PURPOSE:** To identify means by which aid can help well being and productivity of small farmer - this done by quantitative analysis of data from 36 projects around the world - 5 from East Africa, all Kenyan.

**RESULTS:** The results and data are exhaustive - provide here the principal findings: note, however, that methodology and determinants of success of project are discussed in detail. Success was most related to 1. local action (49% explained variance) - "that is willingness of small farmer to commit labor and cash to project and degree of his involvement in decision-making"; 2. more progressive farmers as measured by per capita income and market involvement; 3. locations at greater distances from all weather roads; 4. high literacy rates.

**CONCLUSIONS:** Success not related to 1. cost per participant or degree of subsidization; 2. growth rates (population); 3. quality of the physical environment. The implications are: 1. time is more important constraint than costs/funds; 2. knowledge constraint on planner and inadequate dialogue with farmer; 3. desired behavior changes must be defined from start; 4. measures of success too restrictive and affect field agents; 5. need ongoing information systems; 6. need flexibility.

**DATA:** Multivariate analysis of project data. Kenya projects (summarized in vol. 2) were: Vihiga Special Rural Development Program (AID-Kenya), Tetu Special Rural Development Program (University of Nairobi-Kenya), Lirhembe Multi-Service Cooperative (NOVIB - Dutch and Kenya), Kenya Tea Development Authority (British Com. Development Corp., IBRD/IDA), Masai Rural Training Centre (National Christian Council of Kenya).

**COMMENTS:** "The most valuable assistance a foreigner can give small farmers will rarely be large amounts of money for machinery or infrastructure development. Rather it is a plan, based on the realities of the small farmer's own situation, whereby he can move himself ahead without becoming dependent on outside foreign assistance."

Feder, G. 1980. "Economic Growth, Foreign Loans, and Debt Servicing Capacity of Developing Countries." Journal of Development Studies 16(3): 352-68.

**SCOPE:** ECONOMIC GROWTH

**PURPOSE:** This paper attempts to improve on earlier works which deal with debt in the context of development but which ignore the fact that debt service payments are made in foreign currency. This is done by linking the previous growth-cum-indebtedness model with an empirically based concept of debt servicing capacity.

**RESULTS:** Development plans are designed for medium terms (5 years), while the periods of indebtedness and debt service are of a longer span. The policy simulations run suggest this disparity should be further considered.

**CONCLUSIONS:** "A model of the type presented here is too simple to be used as a long-run consistency framework and a more sophisticated one is needed. More quantitative work is also needed to improve on existing knowledge of the relation between debt servicing capacity and economic variables, and thus to enable better planning."

**DATA:** From World Bank Atlas

**COMMENTS:** Several policy simulations are run. Model cannot accommodate impact of inflation, changes in capital output ratios, investment lags, etc.

Knudsen, O. and Scandizzo, P. 1979. Nutrition and Food Needs in Developing Countries World Bank Staff Working Paper no. 328. Washington: World Bank.

SCOPE: NUTRITION

PURPOSE: Paper aims at establishing a new methodology for the analysis of food supply and distribution problems based on new empirical evidence and a redefining of the usual assumptions of such analysis.

RESULTS: Paper "quantifies" malnutrition and summarized the prospects for dealing with it along established trends. Includes forecasts of future trends.

CONCLUSIONS: 1. The pattern of calorie consumption is similar in the countries surveyed. 2. "If food prices increase and/or income distribution deteriorates in accordance with past trends, increases in aggregate supplies of food would be insufficient to eliminate malnutrition in the next two decades." Market interventions will be necessary.

DATA: Household consumption surveys.

COMMENTS: Includes an econometric study, charts on the income distribution effects on calorie consumption and human calorie needs, etc.

Kutzner, Patricia L. ed. 1979. Who's Involved with Hunger: An Organizational Guide. Washington: World Hunger Educational Services.

SCOPE: FOOD (THE PROBLEM OF HUNGER)

PURPOSE: To list all agencies involved with world hunger problems.

COMMENTS: This is an extensive listing of groups dealing with world hunger problems, broken down into the following groups: Government Organizations, Private Agencies, Technological Organizations. With each group listing the following information is given: address of group, contact person, publications, and a brief description of its function. This is a very good place to start in seeking out information.

Mohapatra, P.S. 1977. Measuring the Performance of Family Planning Programs. World Bank Staff Working Paper no. 257. Washington: World Bank.

SCOPE: POPULATION

PURPOSE: To discuss methodology of measuring the success of family planning programs as related to their objectives.

RESULTS: The paper consists of three essays; the first looks at the objectives of family planning programs (the primary objective being fertility reduction), and asserts that the choice of objective affects the measure of success to be used. Therefore a hierarchy of objectives must first be established (ultimate, intermediate, and program execution impact objectives) in order to measure success. Input/output chains are used for evaluation, and the assumption that any input will lead to the actualization of an objective is seen as one that must be constantly tested. Criteria for a feasible plan, effective acceptance targets, and the appropriate measure of these targets are discussed. The second essay looks at the output component discussed in essay #1 to see how the acceptance of family planning methods, the use of these methods, and the resulting change in fertility can be measured. Standardization, indexing, and appropriate comparisons with the general population are discussed for measuring acceptance. For usage of different methods, measurement techniques include follow-up visits, clinic monitoring, and estimation through surveys. Changes in fertility are

measured by indirect methods. The third essay deals with service statistics, the records gathered from family planning programs and the problems associated with these reports.

DATA: Not used: essays are theoretical rather than empirical in focus.

COMMENTS: Very useful for administrators involved in family planning clinics.

World Bank. 1980. Energy in the Developing Countries. Washington: World Bank.

SCOPE: ENERGY

PURPOSE: To survey the energy situation in developing countries, taking into account current energy production and policies, and to assess the future of energy demand and development.

RESULTS: We are now in an era of high-cost energy; countries must come up with individual energy strategies to combat these problems. In this paper the developing countries are classed as to their energy production and potential: planning for future investment is looked at with consideration towards the associated needs. The prospects for external financing for energy programs are reviewed. The paper looks at separate energy sources and assesses their potential: oil production can be increased by measures which attract risk capital, and by enhanced recovery; natural gas production is dependent on oil production, but some countries show potential; coal development requires large human and capital resources, but can become a cost effective alternative to oil; renewable sources of energy seem promising, but expertise is lacking; electricity must be designed to meet varying needs.

CONCLUSIONS: Countries must take action now to reduce energy consumption: developing nations must save by conservation and increased production. It would be possible to save 15% without reducing overall energy growth. Efficient import substitution must be encouraged. The financing of investment for expanded energy programs could run to \$500 billion - the World Bank cannot meet this, and it is therefore proposed that an energy affiliate of the bank be established to provide extra funding.

DATA: Contains tables of energy resources by country (present and future estimates) - also material on demand and costs. Tables are also broken down by resource.

COMMENTS: Very complete, well explained.

AFRICA

Andriamanjara, Rajona. 1978. Relating Industrialization in Africa to People's Needs. International Labour Review 117: 757-760.

SCOPE: POPULATION

"Most African countries have inherited from their colonial past an industrial structure that continues to serve minority interests: this can be seen in the choice of products and in the way industry is financed and managed. To ensure its development along increasingly autonomous lines, the author urges that priority be given to satisfying the needs of the masses, to using locally available resources and to creating the key industries that would permit a logical progression up the manufacturing ladder."

COMMENTS: Interesting Suggestions:

1. Policies should be geared to the satisfaction of the needs of the majority.
2. Strategies should give priority to the efficient use of national and regional resources.
3. Industrialization should begin at the bottom and work its way up the manufacturing ladder step by step.

Battelle Memorial Institute. 1980. Projects to Analyze African Official Attitudes and Recommendations Concerning United States Population Assistance (USAID Contract, Principal Investigator: Leonard Robinson).

SCOPE: POPULATION

PURPOSE: To assess and analyze opinions of high level African officials with respect to population and development issues, to determine their level of understanding of the issues and to elicit their specific recommendations about population assistance through U.S. AID.

METHOD: Interviews with country officials and establishment of an African Advisory committee who will act as consultants to Battelle, these will be nationals who have previously been involved in population, development issues.

EXPECTED OUTCOME: There will be an overview report and also specific country reports from Tanzania, Lesotho, Upper Volta and Senegal. The interview information will be synthesized and will be a blue print for US AID Africa Bureau as to the opinions/attitudes and optional strategies for action.

COMMENTS: Initial funding October 1, 1980 for 10 months.

Eicher, Carl; Zalla, Thomas; Kocher, James; and Winch, Fred. 1970. Employment Generation in African Agriculture. Institute of International Agriculture, Research Report no. 9. East Lansing: Michigan State University. College of Agriculture and Natural Resources.

SCOPE: FOOD/POPULATION (Employment)

PURPOSE: Assess employment role of African agriculture, and what it means to Investor/Agencies.

RESULTS: 1) Unemployment increases because of population, increase, factor price disfunctions, urban bias of social service, unbalanced educational expansion, sociopolitical barriers to migration, ecological constraints; 2) migration to urban areas because wages are 2 to 3 times higher there; 3) projects side step unemployment issue; 4) Small holder agriculture

absorptive if incentives good or no need for land tenure reform; 5) Policies aiding migration to urban areas, subsidized tractor mechanization, anti-export policies, self-sufficient food policies, over emphasis in capital intensive, government schemes., few countries have a coherent policy for agricultural development, projects are not intergrated, Africa locked into western technology trap.

CONCLUSIONS: 1) Capital is not limiting factor to agricultural employment 2) need operational planning 3) connection between growth and per capita income & employment needs study 4) projects should include an employment section 5) avoid technology trap therefore should stress a. population studies, b. preinvestment studies c. research and development assistance d. local cost need consideration.

COMMENTS: Interesting in that it deviates from some common themes.

Eskillson, Enar. African Rivers Hold Promise of Major Energy Supply. Energy National 15 (7) :19-22.

SCOPE: ENERGY

The main river systems of Zaire, Tanzania, and countries to the south hold promise for development of a subcontinental grid if peaceful relations prevail among the nations of South Africa. The Orange River project will consist on nine major and secondary dams, several tunnels, 20 hydroelectric power stations, and a canal system for agricultrual irrigation. The Cunene river scheme aims at generating electricity in several hydro stations and irrigaiting huge agricultural areas. In addition to the five existing hydro power projects on the Zambezi river. Three new sites have been investigated for potential hydro development. A dam and a reservoir will be constructed at Mtera along the Great Ruaha river. The Inga complex (downstream of Kinshasa) has one of the highest hydroelectric potentials in the world. There are still many water systems in the Zaire river system as yet unharnessed, and, in the future, more large hydro power stations will be built.

SOURCE: C.S. ENERGY LINE

Food and Agriculture Organization of the United Nations. 1980 Regional Food Plan for Africa Rome: FAO.

SCOPE: FOOD

CONTENT: Africa's population increase is 2.6% twice that in urban areas. Food production is declining at about 1.1%. The prescriptions are the obvious: higher productivity; better technology appropriate to areas, n land utilization, changed policies, better infrastructure. Data appears to be all secondary. Most tables give Africa-wide data, some break Africa into 5 regions (Northern Africa, Sahel, Western Africa, Central Africa and Eastern and Southern Africa.) Some tables break things down by commodities into 12 groups. It discusses present and projected self sufficiency by regions. Needs and data of inputs (all in \$) are given. Energy is not specifically mentioned. It is implied only in machinery, fertilizers and transportation.

EVALUATION: It contains a large number of useful tables on the regional and summary Africa level. Its major shortcoming is the disregard of non agricultural imports that are needed for the discussed required investment in agriculture.

Food and Agriculture Organization of the United Nations. 1978. Report on the Agro-Ecological Zones Project; vol. 1 Methodology and Results for Africa. World Soil Resources Report no. 48. Rome: FAO.

SCOPE: FOOD

CONTENT: The report presents the methodology used in the analyses. Basically the methodology relates soils, climate and specific crops estimating the bio-mass produced under two levels of input consumptions. They are labour (traditional) or unchanged agriculture. It then presents broadbased climatic and soils inventories and resulting classification. The data is presented in reduced comparative output sheets organized by crops, climatic zones and soil types.

EVALUATION: An enormous effort to get a handle on a global problem. At the level of aggregation it appears to be the best material available. For FPE it is valuable background, but will not answer many of our questions.

Howe, J. W. and staff of Overseas Development Council. 1977. "Energy for the Villages of Africa". Washington: Overseas Development Council.

SCOPE: ENERGY

Johnson, Vernon C. and Jones, Harold. 1980. "Supporting Food Production in Africa." Mimeographed paper.

SCOPE: FOOD

PURPOSE: To summarize the ways in which food production may be increased, with emphasis on increasing productivity and farmer income.

RESULTS: Traditional methods of farming are based on low input use and thus cannot achieve high productivity; current government pricing policies tends to kill incentives, and small farms are very inefficient due to lack of technology, lack of communication, etc. Part of the problem can be solved by providing higher quality inputs to farmers; access to and delivery of these inputs must then be maintained. Farmers must then be trained to efficiently use these inputs. The overall aim must be to improve productivity, not to achieve a particular farm size.

CONCLUSIONS: Budgets of support groups should be geared towards increasing agricultural productivity in the future through additional funds to ten "better prospect" countries (including Cameroon, Ghana, Kenya, Malawi, Mali, Sudan, Tanzania, Zambia, Zibabwe, Zaire). Funding partners must be sought out and indigenous elements trained and maintained. It is essential that assistance reach the village level.

DATA: Good summary table on current situation and improvements needed.

Kline, C.K; Green, D. A. G; Donahue, R. L. and Stout, B. A. 1969. Agricultural Mechanization in Equatorial Africa. Institute of International Agriculture and Natural Resources, Research Report, no. 6. East Lansing: Michigan State University. (contract AID/afr 469)

SCOPE: FOOD (Agricultural Mechanization)

PURPOSE: To document & compile published and unpublished data on mechanized farming and related topics-through analysis of mechanization, including oxen (animal power), and hand tools, farming (small holder) characteristics are described and the positive and negative aspects of it to mechanization are discussed.

The technical aspects of land-mammal-economic culture are presented with limited data on time/energy of each. Emphasis placed on increased area and decreased labor involved with move to animals and engines, but also discuss some of the factors why they don't: insufficient specialization, no market for increased production, and so forth. Finally, discusses how to improve technology in present systems-after discussion all those factors that need to be changed (farm size, infrastructure and so forth) it is concluded that mechanization should focus on a few farmers in most optimal circumstances, especially farmers who have sufficient resources to take risks of high inputs and, mechanization is not end to it self or first order priority.

DATA: Some input data collected by project team

COMMENTS: Work a little old but good base for input comparative data.

Kocher, James E. 1977. Socio economic Development and Fertility and Change in Rural Africa. Food Research Institute Studies 16 (2):63-75.

SCOPE: ECONOMIC DEVELOPMENT

Following an outline of the theoretical framework used in analysing the relationships between socioeconomic development and fertility change, data is presented on the determinants of fertility in rural Africa. The main body of evidence used here comes from field work in rural areas of northeast Tanzania in 1973. A number of effects development has on fertility are discussed. It is concluded that the net effect may be a decline, or no change in a specific instance depends on the stage of development in which the population finds itself. In view of this, some comments on policy implications are offered.

SOURCE: C.S./CAB.ABS

Kamanda, L. 1979. Landwirtschaft und Entwicklung in Zentralafrika. Entwicklung und Zusammenarbeit 20 (4):8-9. Title in English: Agriculture and Development in Central Africa.

SCOPE: FOOD/AGRICULTURE (FOCUS ON RWANDA AND BURUNDI)

The article is a stocktaking on development in Central Africa at the end of the second development decade, mainly dealing with Burundi, Rwanda and Zaire. Although the large majority of the population are employed in agriculture the emphasis in development and investment has been an increasing flight from the land of young people. None of the three countries has the coordinated fiscal and transport policies which provide the essential basis for agricultural development. Little development aid or foreign investment has gone into agriculture except into breeding and cultivation aspects of export crops. Priority has to be given to research in agriculture and to developing appropriate transport networks in each country if these problems are to be overcome.

SOURCE: C.S./CAB.ABS

Konczacki, Z. A. 1978. The Economics of Pastoralism: a Case Study of Sub-Saharan Africa. London: Frank Cass & Co. Ltd.

**SCOPE: PASTORAL ECONOMY**

Underutilization and misuse of grazing land are problems inadequately considered by economists. This book examines the economies of pastoral societies and their problems. Sub-Saharan Africa has been selected to provide case studies, which include Somalia, Botswana and some countries of the Sahel. The drought that scourged many parts of Africa in the early 1970s attracted attention to the periodicity of such disasters. The losses were magnified by inadequate planning and the neglect of the pastoral sectors. There is an urgent need for the establishment of a stable equilibrium between the human and livestock populations and the land, both in an ecological and in a more strictly economic sense. A model of a pastoral economy presented here states the basic conditions for the achievement of the equilibrium and for opening the way to further far-reaching improvements in the socio-economic aspects of life. Special sections of the book deal with resettlement schemes for drought stricken nomads in Somalia, and with Botswana's recent policy statement aiming at a solution of the problems resulting from common property rights applied to pastoral lands. Proposals, formulated in the UK and USA, to restructure the drought-ravaged economies of the Sahel are also outlined and reviewed. Finally, the question is posed of whether the experience of those African countries where pastoralism is still a way of life, or the example of Australia and Argentina, where pastoral activities have been commercialized, do not suggest a new approach to meat production in the other parts of the world. The question is whether reliance on the highly capital-intensive feedlot system will stand up to the stresses of the world food and energy crises.

**SOURCE:** C.S./CAB.ABS.

Lancaster, C. S. 1976. Women, Horticulture, and Society in Sub-Saharan Africa. American Anthropologist 78:539-64.

**SCOPE:** FOOD (Agriculture-Women's Role)

**PURPOSE:** To assess the relationship of simple subsistence horticulture to social structure looking at nature of horticulture, role of women, appraisal of 19th century evolutionist views on subject.

**RESULTS:** With simple horticulture, inputs are slight, women are dominant. As horticulture becomes a matter of required rules of inheritance and more male attention is needed to provide added labor inputs and defense - male emerges - patrilineal solution more straight forward than matriliney. Matriarchy at least as likely as patriarchy in low density small scale subsistence.

**CONCLUSIONS:** Presence of matriarchy is question of cultural preference, social scale and fertility rates. Control of modes and means of subsistence have made family more patrilineal but record of sub-Saharan Africa suggests subsistence cannot clearly be counted as the adaptive pressure in family formation-role definition.

**COMMENTS:** Women's role is defined in part by reduced mobility (mothering) and the need for protection of scarcer resources by men who were mobile. Useful for understanding how women's role may be changed within cultural context.

Mathis, W.K.; Davis, C.G.; and Futa, M.T. 1977. Agricultural Diversification and Export Earnings, Selected African countries. Florida Agricultural Experiment Stations Economics Report no. 89.

SCOPE: FOOD/AGRICULTURE (Focus on Kenya and Tanzania)

This study focused on four African countries: Kenya, Nigeria, Tanzania and Zaire. The objectives were (a) to identify whether agricultural export earning fluctuations were determined primarily by quantity or price variability; (b) to investigate trends and patterns in the agricultural sector; (c) to determine the impact of export crop diversification on the level and variability of agricultural export earnings; (d) to inquire if there was a gap between domestic supply of and demand for goods and to determine if such a gap is due to over investment in the export crop sector.

Fluctuations in agricultural export earnings were found primarily associated with variations in the quantity exported, which were due in part to actions of government marketing boards. A secondary source of export quantity variation was variability in rainfall. All four countries introduced new crops during the study period, but fewer different crops accounted for shares of agricultural export earnings, so countries actually became more specialized. An inverse relationship was found between export crop diversification and the level of agricultural export earnings. However, it would appear that in the long run, there is likely to be a positive relationship. Demand for food was increasing more rapidly than food supply; the imbalance was due to overinvestment in the export sector. Low rates of growth of export earnings implicitly indicated that the export sector itself lacked resources.

SOURCE: C.S./CAB.ABS.

Meilink, Henk, A. 1978. "Some Economic Interpretations of Migration". In Migration and the Transformation of Modern African Society edited by W. Van Binsbergen and Henk A. Meilink. Amsterdam: Printing Trade Hasselt.

SCOPE: POPULATION (Migration)

PURPOSE: To provide a short description of the changes in the approach and the interpretation of labour transfers between sectors and regions (which in fact what labour migration is about) in economic development theory.

RESULTS: (1) The typical African migrant is young, the majority falling in the age bracket 15-25 years. (2) High proportion of men although the number of women is on the increase during the last years. (3) The level of education of migrants is higher than the average of the total home population, (taken into account the growing number of secondary school leavers among rural to urban migrants). (4) in Tanzania, the rate of urban migration increases with the educational level of the rural population in fact the probability of finding a job is greater for rural residents the more education they have since employment opportunities for the less educated have fallen relative to the educated. (5) urban migrants stem from poor, landless households (so far). In the future it may be assumed safely that sons and daughters of the better-off rural families will constitute a rising proportion of future migration streams.

CONCLUSIONS: "The problem of excessive rural to urban migration touches upon a whole range of socio-economic development issues. The discussion of possible explanations and solutions should therefore include a reconsideration of the character and determinants of the applied

development strategy.

COMMENTS: The discouraging record of growing urban unemployment and growing imbalances in rural-urban income and job opportunities, witnessed in the last twenty years, has forced economists to reconsider their rigid adjustment models of efficient allocation of the production factors between sectors leading to, in the end, equal sectoral marginal productivities.

National Academy of Sciences. 1974. African Agricultural Research Capabilities. Washington: N.A.S.

SCOPE: FOOD

PURPOSE: Review and arrange agricultural research and educational goals for Africa; determine appropriate roles for agencies; assess communication of those involved; assess manpower for research needs.

RESULTS: Outline broad problems and research agricultural systems, various crop types, animals, and pest/pathogens; discussion of problems agricultural policy research, communication among agencies, and so forth.

CONCLUSIONS: Broad statements on need for integrated research, to improve food production and nutrition, uneven development; need data on farming systems by improving field services, assessing power sources, integrating market and management keys; research crop possibilities by region; regulate pesticides; need more research government support.

COMMENTS: Sounding board to assess what has been done since 74 in conjunction with NAS recommendations.

Okeyo, A. P. 1979. Research Priorities: Women in Africa. Studies in Family Planning. 10:401-4

SCOPE: POPULATION/FOOD

PURPOSE: Report on meeting on research and data collection on women in Development to develop conceptual and methodological guide for a baseline study of women's position.

RESULTS: A set of hypothesis and specific areas of study concentrating on modernization of agriculture, nutrition, migration, population and health, etc.

Peter McLaughlin and Associates Ltd. 1974. The Problem of Collecting Data on Food Production and Farming in African Economies. Notes and Papers in Development, no. 10, Comox (British Columbia): Peter McLaughlin and Associates.

SCOPE: FOOD (DATA PROBLEMS)

The introductory chapter, by C. A. Gibbons, on basic statistical problems in evaluating the national food supply in African economies, indicates some of the fundamental conditions which make such statistical evaluation even more difficult in Africa than in other parts of the world. For adequate appraisal, the two main requirements are a recent food balance and several food surveys, both of which are extremely costly, and do not give enough data on consumption patterns within households. D.C. Catt and R.G. Hankin contribute a paper on practical problems of measuring food production and conducting nutrition studies, primarily discussing difficulties of obtaining

data at grass roots level, and based on work done for the Government of Malawi. The discussion is confined to methods of measuring food crop production and food consumption, viewed within the general context of development planning, but is relevant to studies of cash cropping and other aspects of rural activity. J.D. MacArthur examines food data in African economies, with examples from Kenya. The paper indicates the problems encountered in collecting such data, describes some of the forms of data that are either sought or actually produced in African countries, and assesses the adequacy of available information in meeting the needs of those government agencies that must try to formulate and execute food policies. It is likely that African governments will continue to have available only piecemeal data on their national food situations, and can expect no real improvement for several decades. P.B. Gravel gives an anthropologist's view, in a paper on culturally determined informant bias in food production investigation, based on field work in Rwanda.

SOURCE: C.S./CAB.ABS

Sethuraman, S.V. 1977. The Urban Informal Sector in Africa. International Labour Review 116 (3) 343-52.

SCOPE: POPULATION (EMPLOYMENT)

PURPOSE: To give an account and discuss the main findings of the ILO's research studies.

RESULTS: (1) The informal sector provides work for some 60-70% of all employed persons. (2) There is need for equality of opportunity for informal sector enterprises in the form of at least equal access to credit facilities, various inputs, training facilities and technology. (the government and the formal sector should be more responsive to the needs of the informal sector.)

CONCLUSIONS: Specific policies and programs are needed to encourage the mobility of labor, not only from the informal to the formal sector but also from low to high-productivity activities within the informal sector itself.

COMMENTS: Conclusion is dubious.

Smith, A.K. et. al. 1977. Peasants in Africa. African Studies Review, (special issue) 20 (3):1-130.

SCOPE: FOOD

C.E. Welch reviews the study of peasants as a focus in African studies, beginning with the question of whether or not there are peasants in Africa at all. M. Silberfein provides a geographical overview of the African cultivator, especially four interrelated factors; (1) the dominant mode of food production; (2) the environmental setting; (3) a scheme for organizing terrestrial space on a local scale, and (4) a systematic approach to migration. Her conclusions assess the prospects for rural development, which depend on increased productivity of the typical cultivator, either through a market economy, or through cooperative and communal enterprises. F. Hill examines experiments with public sector peasantry and how agricultural schemes have contributed to class formation in Africa, using state farms in Ghana and Ujamaa villages in Tanzania as examples. D.E. McHenry reviews Tanzania's experiment in peasant participation in communal farming in terms of what degree of communal farming has been

achieved, what determines this level, and local attitudes. Reasons for its failure are assessed. P. Knauss discusses the recent political experiences of the Algerian peasantry in the agrarian revolution. The government has succeeded in neutralizing a once highly political peasantry, but not in raising production levels or slowing down rural-urban migration. M. Ottaway draws some tentative conclusions from the Ethiopian land reform (1974-1977), particularly that peasant movements were most active where class differences were widest, and therefore varied greatly from region to region. T.A. Kofi draws populist lessons from Africa from a discussion of peasants and economic development, arguing that dualistic theories and strategies are insensitive to the agrarian sector. Welch concludes with a brief paper suggesting that all-out peasant wars are unlikely to occur in Africa.

SOURCE: C.S./CAB.ABS

United States Agency for International Development. 1980. Africa: Food Production Trends and Prospects. Washington: U.S. AID. (May 1980).

SCOPE: FOOD (PRODUCTION)

PURPOSE: Project food problems in Africa for the next decade and suggest strategies for development.

RESULTS: Has good but limited synopsis of factors affecting production-(1) natural resources potentially good land for agriculture, but high costs of development and continued population reserves will increase food demand making development economically feasible. (2) Land tenure suggests that non private land ownership hinders improvement by farmer. (3) Labor-surplus labor not problem but must focus on women's role. (4) Management-is weak. (5) Food policies-keeping food prices low hurt, overall objectives are not always consistent; supply/demand difficult to predict because of government interference. (6) Agricultural research/technological changes-have "ignored spontaneous innovation among farmers", minimal attempts to expand animal power, poor extension infrastructure, limit monies spent in Africa. (7) rural infrastructure-very poor (8) Energy-discusses those problems briefly.

STRATEGIES FOR 80's Two major objectives (increase output and increase income and employment) A. Output (must have intergrated approach), emphasis on (1) improve efficiency of use of agricultural resources. (2) increase arable land (3) intensification of land, water & labor use (4) reduction of loss by pest/disease (5) alternative agrarian and macro economic policies.

SOURCE: Based on 1980 USDA report

COMMENTS: This work comes closest to pinpointing most of agrarian/food observations made by Clark University FPE project.

United States. Department of Agriculture Economics Statistics and Co-operative Service. 1980. Indices of Agricultural Production in Africa 1970-79 and the Near East. (Statistical Bullentin no. 637).

SCOPE: FOOD (PRODUCTION)

PURPOSE: Indices of total and per capita agricultural and food production for 61-65 and annually for 70-79; Also data on population, agricultural production by crop and aggregates of agricultural and food production.

RESULTS: See tables: growth rate of population ranging from 1.8 - 3.3; 1978 agricultural production compared to 1961-65 data show Kenya, Tanzania

leading way in increase; Rwanda, Burundi are up; per capita down-Tanzania and Uganda; total food production is up in all countries; per capita food production is down severely in Ethiopia and Uganda.

United States Department of Agriculture. Economics Statistics and Co-operatives Service, International Economics Division, Africa and Middle East Branch. 1980. Food Problems and Prospects in Sub-Saharan Africa: the Decade of the 1980's. Washington: USDA.

SCOPE: FOOD (PRODUCTION)

PURPOSE: To assess food production trends.

RESULTS: Sub-Saharan Africa is only world region to decline in per capita food production in past 20 years: nutritional standards inadequate because of low productivity, and agricultural growth has mainly involved expansion of land, not output/land. Key problem are minimal commercial imports and labor bottlenecks, also environmental problems and urban demand for crops not suitable for local production, a point is reached at which increasing production of one commodity can be obtained only at cost of another. See food consumption chart East Africa (69)-maize no. 1 except Sudan; self sufficient in those countries except Sudan, Ethiopia, Somalia, Tanzania; government policies are inconsistent toward food production because need export; some indication that local price policies do affect production; comparison of results with other projects-all agree that food import demand will rise dramatically-provides 8 scenarios of future.

CONCLUSIONS: 1. Response to food crop production incentives must change (farmers have been too subsistence oriented and urban population demands non-local crops). 2. Low production implies high degree of vulnerability to hazards. 3. Transport problem 4. Even with incentives, land expansion for agriculture will not close the demand-supply gap completely 5. Increased production=foreign inputs (fertilizers) and ecological consequences 6. Need massive government investment in infra structure, training, better research 7. Need commercial farms. Policy statements: 1. coordination of government policies in food production, marketing, trade - vary by country. 2. Shift urban demand for local crops 3. transforming subsistence sector that living standards and respect social values 4. long term solution required education and research.

Wogugu, Manfred O. 1978. The Relationship Between Urbanization and Regional Labor Migration in Developing Countries. African Urban Studies no. 2. (Fall 1978).

SCOPE: POPULATION (MIGRATION)

PURPOSE: To review the findings of previous empirical studies on the relationship between urbanization and interregional labor migration in developing countries (mainly Africa).

RESULTS: 1. There is lack of empirical evidence to support the observation that regions with large urban populations tend to supply large numbers of migrants. 2. Highly urbanized regions are significantly attractive only to interregional migrants likely to end up in nonagricultural industries as well as those with middle and secondary school education, respectively. 3. When distance and income effects are controlled, the effect of the

destination-urbanization factor is to defer the in-migration of those with no education and primary school education, respectively. 4. Urbanization is not a significant factor in explaining the interregional migration of agricultural workers in Ghana.

CONCLUSIONS: The study indicates that previous studies have tended to overgeneralize, from limited data, the responses of male labor interregional migrants to the urbanization factor in the developing countries in general and Ghana in particular.

DATA: Disaggregated data is used from Ghana.

Workshop on Pastoralism and African Livestock Development. 1980. A.I.D. Program Report Evaluation Report, no. 4, submitted by the Institute for Development Anthropology to Bureau for Africa and Office of Evaluation, U.S. A.I.D. 1980. Contract Aid/otr-6-1741.

SCOPE: FOOD

PURPOSE: State of the arts on pastoralism, data and information-and recommendations for developments guidelines to AID on 1. where & how to become involved in livestock projects 2. Methodologies of range use projects, 3. identification of key problems.

RESULTS: 1. Data unreliable because of environmental fluctuations/instability and non standardized system 2. Mobility is all for long-term is survival and range management 3. climatic stress need not lead to long term degradation 4. first action should be to assist pastoralist at subsistence level, not commercial 5. monitoring necessary.

1. Masai Livestock Project Kenya: to form ranching association, LS production problems of project were many and involved poor, inconsistent planning, mismanaged technical/expert assistance, poor infrastructure and so forth. Positive results: a cadre of technical experts (locals) developed and learned that Ujamaa cannot be forced verbatim on pastoralists.

2. Finnish-Tanzanian Baraguyu Research Project: come to same conclusions about pastoralists and Ujamaa.

3. Kenya - Group Ranch Project, (i) and Range Program of North East Province

(ii)GRP - thought to push Masai into commercial ranching to have land ownership but Masai used to prohibit encroachment by agriculturalists - rarely paid loans back - ranches too small.

(iii)RPNEP - to funnel immature cattle of region into national market and to open up range land by finding water - permanent watering routes caused severe over grazing.

CONCLUSIONS: Livestock programs and projects must be changed to make them more compatible with social, economic, and environmental realities of arid/semi arid Africa. 1. Objectives inconsistent - such as desire for low cost urban beef and desire for high price exports - definition of improvement for pastoralists is inconsistent. 2. Assumptions on environment degradation, quality of knowledge, measure of yields, and so forth are wrong. Therefore, strategy 1. decrease risk 2. understand herder rationale 3. expand emphasis to camels and to smaller animals 4. animal health 5. change price policies 6. plan by ecological region 7. improve dairy yields.

EAST AFRICA

Amann, Hans. 1969. Energy Supply and Economic Development in East Africa. IFO - Institut für Wirtschaftsforschung München, Afrika Studien, no. 37. Munich: Weltforum Verlag.

SCOPE: ENERGY

PURPOSE: To study energy supply and economic development in Tanzania, Kenya and Uganda.

RESULTS: 1. The actual future development of the energy economy is significantly based on electricity; power supply plays an essential role within the East African efforts for industrialization and economic development. 2. The supply of mineral fuel products depends largely on the import regulations. 3. Prospects for finding noteworthy deposits of petroleum or natural gas on the old continental shield are almost non-existent. 4. Eastern Kenya geologically constitutes a possible oil containing pocket. 5. Coal is restricted to some deposits of the Karro type in the southern highlands in Tanzania (this coal has been found in very remote and mountainous country and an economical exploitation seems unlikely). 6. Some of the Atlantic bound rivers in Tanzania may eventually play a moderate, regionally limited role in power generation. 7. The eastward and northward going rivers form many small and medium sized, but sometimes formidable hydropower potentials of which only a negligible part has been developed. 8. Rivers of the Indian ocean could be developed in multipurpose schemes of a storage reservoir character. 9. Hydropower accounts for about 6% of total energy consumption in Tanzania, 6% in Kenya and 17% in Uganda (these percentages make up an indigenous part of the East African energy balances). 10. Other indigenous sources of primary energy such as coal (in Tanzania), charcoal (in Kenya) or biogas (in Uganda) are negligible in the overall balance. 11. The bulk of the formal energy consumption is made up of imported oil products from the Persian Gulf. 12. Among those non-conventional sources of energy, i.e. wind, solar and geothermal energy, it is only the latter which may eventually attain some significance (wind pumps and solar heating...will be restricted to supplementary functions). 13. Geothermal energy especially in Kenya, could be a very economical source of energy for the generation of electricity.

CONCLUSIONS: 1. Hydropower potentials in the three countries, but especially in Uganda, are sufficient to meet all demands for electric energy which could possibly develop in the last third of this century. Cost considerations may put some restrictions on this forecast. 2. Rural electrification does not have bright prospects as an economical exercise in Tanzania in the foreseeable future. It will be possible in Kenya on a limited scale. Rural electrification will be more or less restricted to "social amenity schemes" in both countries, at least during the 1970's and until agriculture is more developed. 3. Input-output tables of East African economies would be a precondition to determining the electricity supply and the place of the mineral fuel industries in an interindustry context.

DATA: Comprehensive data on production, distribution and consumption of energy are not available in East Africa. This report constitutes but a preliminary effort to overcome this lack of information.

COMMENTS: The work is dated- the availability of data and analytic

usefulness of the investigation at a sectoral and interindustry level permits further insights. Wood fuel problem not discussed-has useful maps on energy supply.

Ariquevon Boren, E. 1979. The Chinese Development of Biogas and Its Applicability to East Africa (7-11 May 1979) Nairobi: Kenya Academy of Sciences, Beijer Institute, UNEP. (International Institute for Environment and Development.

SCOPE: ENERGY

CONTENT: Very interesting study of an ultimate agriculture based energy source. Valuable and with bibliography.

Ahems, Manfred. 1967. Bauenbetriebe in Tropischen Hohenlagen Ostafrikas ifo. Institut fur Wirtschaftsforschung Munchen, Afrika Studien no.25. Munich: Weltforum Verlag. Title in English: Farms in the Tropical Highland of East Africa.

SCOPE: FOOD PRODUCTION

PURPOSE: Analyses of farming in a specific region of Tanzania and the interrelation of agricultural development with education, economies, health and nutrition.

RESULTS: Analyses of production in several areas. Includes some analyses of data. Economic and work input is compared to output.

CONCLUSIONS: The output of the region cannot support a growing population, There is a per land unit reduction in productivity. Restoration of productivity is needed through a realistic agricultural policy.

DATA: Other local and general data.

COMMENTS: Excellent work. Very detailed and well presented. Written in German.

Bever, James A., and Bever McLaren, Barbara. 1979. Energy and Related Development Assistance Activities in EA and BLS Areas (East and Southern Africa). Nairobi: Regional Economic Development Services office for East and Southern Africa (REDSO/EA).

SCOPE: ENERGY

PURPOSE: "To brief USAID's regional economic development service office (REDSO/EA) in Nairobi on energy activities and development cooperation needs in the east and southern African countries, with recommendations for REDSO/EA action to help meet those needs in the coming years. Special attention was to be given to the role of renewable and improved traditional energy technologies to meet rural needs".

CONCLUSIONS: 1. East African and Southern African countries can no longer depend increasingly upon imported oil to fuel either future survival needs or economic growth needs. 2. In ever-increasing number of areas of EA/BLS countries, people can no longer "see the forest for the trees"-the rapid, uncontrollable cutting of trees for fuel and agricultural purposes without sufficient regard to coppicing or reforestation is leading to severe deforestation. 3. Unlike the lifeboat ethic of "women and children first", cultural practice reinforced by the lack of improved animate and inanimate energy technology (e.g. improved draft animal availability and techniques,

improved hand and foot powered implements, and fossil fuel or renewable energy powered equipment) available to perform tasks necessary both for survival and for increased rural productivity have resulted in women and children serving as the fundamental "beasts of burden" in rural Africa. Thus women and children first. 4. Needs-led versus technology-push. (need-led = people outside the community can stimulate the community to internally determine their own priority needs), (Technology-push = people outside the community pre-determine which needs will be focused upon by a pre-determined technology.) 5. introduction of new technical solutions to meet problems. (one can observe that in many areas, diesel systems are usually not functioning in 50% to 75% of the cases, so introduce new technology.) 6. accelerate the learning curve and build collective energy self reliance. 7. Energy for survival is different from energy for development. If the production possibilities curve is given, then where should we allocate production efforts? 8. Appropriate bureaucracy is needed. 9. Improved energy economy vs energy austerity. 10. Go slowly. COMMENTS: It gives a good static and normative insight into the problem but without data.

Economic Bulletin for Africa. Agriculture in the East African Sub-region. 9 (2):111-118. Chapter 2: Agricultural Potential.

SCOPE: FOOD

PURPOSE: Provide macro level output data for agriculture and describe agricultural zones.

RESULTS: Desert/sub-desert suitable only for large scale; Savanna = large scale, millet sorghum; coastal-cassava, rice, plantation crops, Victoria-no large scale, subsistence export mix; plateau-large-scale agriculture; highland - large scale, subsistence/export. Livestock development hindered by conservative attitude, inferior large scale, diseases, poor supply of forage and water.

DATA: FAO data

COMMENTS: Raw data interesting-including fish catch-interpretation problems-approach antiquated.

Fosh, Patricia. 1978. Attitudes of East African White Collar Workers in Income Inequalities. International Labour Review 117:99-109.

SCOPE: POPULATION (EMPLOYMENT)

SUMMARY: "Very little work has been done on attitudes to pay differentials in developing countries despite their obvious importance for inflation and industrial unrest. The author investigates the views of employees of the East African Community on pay inequality between the different ranks of their own EAC organization, between the different EAC organizations, and other East African organization, and between manual workers on the one hand and office workers and small farmers on the other, as well as on the preferred future distribution of income in East Africa. In general she finds a strong desire for the reduction of inequality, though with fairly consistent differences of emphasis between respondents according to nationality of the country of employment."

Engelhard, K. 1974. Die Wirtschaftsraumliche Gliederung Ostafrikas. IFO-Institut fur Wirtschaftsforschung Munchen, Afrika Studien, no. 84. Munich: Weltforum Verlag. Title in English: Spatial Economic Structure of East Africa.

SCOPE: FOOD/POPULATION

The spatial economic structure of East Africa, which is determined by agriculture, shows considerable variations in intensity, caused by pronounced spatial and ethnic differences, and colonial economic structures. The most important determining factors are analyzed for Kenya, Tanzania and Uganda with the objective of classifying the whole area according to economic geographical criteria. Special attention is paid to the relative importance of the individual economic sectors within the economic structure and their effect on spatial economic differentiation. The demarcation of the economic units was mainly carried out with reference to: the agricultural subsistence production and/or cash crop production; the proportion/ratio of cultivated plants and of cultivated and grazed areas; the agricultural system applied; and population distribution and density. The tendencies discernible in the economies after 10 years of independence are: Africanization as a dominant element of the independent development; economic growth and transition of the colonial economic structure by increasing production, diversification of the production sector and reduction of dependence on trade; greater social integration and an attempt to level existing regional inequalities in living standards.

SOURCE: C. S/CAB.ABS

Guhati, Ravi. 1980. Eastern and Southern Africa: Past Trends and Future Prospects. World Bank Staff Working Paper no. 413. Washington: The World Bank.

SCOPE: POPULATION

PURPOSE: Paper provides a review of past economic developments and attempts to assess the future economic prospects for Eastern and Southern Africa.

RESULTS: In the future there will be a substantial deterioration in the terms of trade of low-income African countries. "Economic prospects for low-income African countries depends on how the international economic situation evolves". For lower-middle income Africa, prospects are better.

CONCLUSIONS: "Foreign partners" who wish to assist African governments may do so by 1. expanding conditional assistance, 2. providing a larger part of assistance in quick disbursing form 3. emphasizing the start of quick yield projects, 4. postponing debt service.

DATA: IMF, Government Finance Statistics Data Bank, World Bank.

COMMENTS: Useful tables on population growth, terms of trade, exports, imports.

Hartwig, G.W. 1979. Demographic Consideration in East Africa during the Nineteenth Century. International Journal of African History Studies 12:653-72.

SCOPE: POPULATION CHANGES (HISTORICAL)

**PURPOSE:** To review the evidence of population changes during the 1800's and challenge the prevalent notion that population remained constant or increased during this period.

**RESULTS:** The assumption has been that the population of East Africa increased or held its own during the 1800's; however, this is not based on evidence, as pre-1945 data has been considered unreliable. The author contends that the East African population experienced a very serious and sustained decline from the 1890's until 1920's due to famines, disease, colonial pacification efforts, and war. The author reviews the literature on the subject, in particular three recent works dealing with depopulation through famine, drought and floods. Oral traditions and historical evidence imply "gruesome" demographic setbacks during the 19th century, with the mid-1830's representing a critical period. The author surmises that at times the mortality rate due to disease exceeded 50%.

**CONCLUSIONS:** The evidence of wide spread droughts, famines, and epidemics must be considered in any discussion of demographic changes. Oral evidence must also be considered to assist in the difficulty in drawing conclusions from written material.

**DATA:** No charts or graphs; statistics cited come from historical accounts, demographic surveys and journal articles.

**COMMENTS:** Contains a particularly graphic, detailed account of the cholera, smallpox transmission process along long-distance trading routes.

International Council for Research in Agro-Forestry. 1979. First Report 1978/79. Nairobi: ICRAF.

**SCOPE:** ENERGY

Includes reports on three projects of interest in FPE context.

1. Kenya: Drought tolerant multipurpose plant systems joint project ICRAF and University of Nairobi - "to ascertain whether certain types of agroforestry might not arrest the degradation, improve wood production on a sustained basis and raise the living standard of people who occupy Kenya's marginal (ASAL) lands. Objectives: to develop farming systems involving multi purpose trees and food crops, assess input requirements. Field experiments will be conducted in Kenya.

2. Tanzania: Tree based farming systems. Project "seeks to devise and perfect a land use system that would increase the production of both food and wood and conserve the eco-system of Tanzania's farming land.

3. Somalia: Range land woody species to identify and examine Somalia's indigenous and exotic tree species with a view to determining their utilization for rangeland management.

Kantarelis, D. and Puffer, F. 1980. Eastern Africa Regional Studies: Employment. Program for International Development, Regional Paper no. 2. Worcester: Clark University.

**SCOPE:** POPULATION (EMPLOYMENT)

**PURPOSE:** "To set out in a comparable framework the basic information on employment/unemployment in the east African countries and to provide a commentary on the material."

**RESULTS:** 1. The bulk of east Africans live in rural areas, which explains why a large part of the national income is generated in agriculture.

2. Workers are mostly self-employed, do not possess much physical or human capital, and are separated by racial, ethnic, and religious differences. 3. On the average the labor force currently grows at an annual rate of 2.55% per annum and it has been consistently increasing. It seems reasonable to expect this increase to continue in the near future. 4. Much of the economy is characteristically supported by women. 5. Hidden unemployment (persons outside the labor force who would be willing to enter it if they believe market opportunities were favorable, mothers, young discourage workers and overeducated individuals.) Underemployment (in rural sector, because of increasing population and fixed land available, because of the continued use of traditional and unchanging production methods. In urban sector, because of migration). 6. Unemployment rates are lower in rural areas than in urban areas.

CONCLUSIONS: 1. Main objectives for more employment: a. Maximisation of wage and self-employment, with consequential income redistribution. b. Increase in output to the maximum level that is consistent with a. above. 2. Target - increase in the level of productive employment. 3. Dominant lines of policy. a. Rural development programs, including labour-intensive non agricultural activities, public works. b. Development of urban labour-intensive activities. c. Improved access to land, education, credit facilities, production techniques and public services. 4. Sectoral emphasis. a. Modern and urban informal sectors. b. Traditional (rural) sector, mainly organized activities.

COMMENTS: Written under an employment oriented conventional strategy. Much of the literature reviewed is about Kenya. The document is ILO intensive.

Kjekshus, Helge. 1977. "The Population Trends of East African History: A Critical Review. In African Historical Demography: Proceedings of a Seminar Held in the Center of African Studies, 29th and 30 April 1977 at University of Edingburgh. Edingburgh: University of Edingburgh: Centre of African Studies.

SCOPE: POPULATION

SOURCE: C.S./POPULATION BIBLIOGRAPHY

Kraut, H. and Cremev H. D eds. 1969. Investigation into Health and Nutrition in East Africa IFO-Institut Fur Wirtschaftsforschung Munchen. AfrikaStudren no 62. Munich: Weltforum Verlag.

SCOPE: NUTRITION AND HEALTH

PURPOSE: The studies were ultimately intended to eliminate food shortages and improve nutritional levels with the end result being improved health and working efficiency.

RESULTS AND CONCLUSIONS: This monograph is a series of eight individual case studies, each with its own results and conclusions. No general results or conclusions were made.

SOURCES: Many bibliographic citations to published studies and UN documents.

COMMENTS: This work provides a good source of village level information and data on food-nutrition and health status in several locations in Tanzania and Kenya.

Maar A.; Mortimer M.A.E.; and Van Der Lingen, I. 1966. Fish Culture in Central East Africa, Rome: Food and Agriculture Organization of the United Nations.

SCOPE: FOOD

PURPOSE: Manual of fish culture that presents the essentials of fish culture for family consumption or commercial use. Fish are sure as a means of providing the nutritional content now lacking.

RESULTS: The booklet outlines methods for fish culture in fresh water in tropical and subtropical zones. It deals with warm water fish for ingestion in mostly artificial waters. The areas covered are: 1. Pond construction. 2. Types of fish in ponds. 3. Fish culture in dams. 4. Predators, disease, mortalities. 5. Economics. And some general information about fish and preserving for food.

COMMENTS: Some useful information.

Mascarenhas, .A.C. 1977. Food Production: the Total Environment and Rural Development. African Environment Supplement. Occasional Paper Series no. 20.

SCOPE: FOOD

Since the majority of peasants in East Africa and most other African countries depend on food production as their major activity, unless conditions are improved there can be no rural development. Changes in food production, sufficient to generate a large surplus, requires a rigorous food policy, but few developing nations, including African countries have such policies. Compared to the attention given to export crops, few developed countries and agencies have made any great effort to assist in increased food production in rural areas in Africa. Increase in food can only take place if there is a definite policy on food production. To make up for years of indifference to food production, it is necessary to accelerate the development of infrastructure and means of production. In an environment in which the attitude to food production is positive, there is hope that the peasant will respond to the challenge just as they have to 'cash' crops. In several countries, including Tanzania, there is reason to believe that malnutrition is linked not only to the obvious lack of proper food variety, but also to the total amount of calories consumed. A proper policy of increasing per capita food production will not only increase incomes but will ensure that there will be more labour available for rural development commitments.

SOURCE: C.S./CAB ABS

McLoughlin, Peter. 1971. East African Development Over the Next Twenty Years; Some Forecasts About Qualitative Changes. Canadian Journal of African Science 5:227-40.

SCOPE: DEVELOPMENT

PURPOSE: To assess the qualitative nature of probable changes over the next several decades in East Africa and to underscore the most critical of these changes.

RESULTS: The population increase by the turn of the century will lead to groups of highly articulate "left-outs", which the agricultural sector will

have a declining capacity to absorb. Famines will increase in frequency, and population growth effects will force an intensification of agricultural production. Productive systems must be researched. The official forecast of 7 percent to 10 percent growth rate will not come true unless the following problems are solved: 1. The critical shortage of high level African manpower for future industrialization must be alleviated - output must be tripled (mechanics, engineers, accountants, etc.) 2. The cost structure of East African industry must change through profit taxation changes, centralized spare parts storage systems, training of indigenous workers. Currently variable costs and all capital related charges are high. 3. The legal environment must change (as, the laws governing international firms, which require LDC majority ownership.)

CONCLUSIONS: Transportation routes must be assessed and related to investment; railroad track must be standardized; information systems must be improved with the development of organized and computerized industry file systems; institutional reforms must include delegating authority into regional departments; interstate cooperation for industrial development is needed to improve trade relations and capital formation; priorities for industries must be set according to "economic impact" criteria.

DATA: No charts or graphs: statistical material cited is from usual sources; World Bank reports, journal articles, etc.

COMMENTS: This represents a broad but thorough, speculative approach to future problems; good for an overview.

Molnos, Angela. 1972-73. Cultural Source Materials for Population Planning in East Africa. (4 volumes) Nairobi: East African Publishing House.

SCOPE: POPULATION

PURPOSE: To show socio-cultural factors that affect fertility, population trends and population planning.

RESULTS: Reviews 31 studies carried out between 1952 and 1972 in Tanzania, Kenya and Uganda, and has a wealth of data on traditional beliefs and attitudes about family planning, child rearing, value of children, urban social problems, customary law and modern legislation regarding marriage, family, etc. Ethnic groups studied include for Tanzania the Maya, Sukuma, Nyaniwezi, Nyakyusa, Kagulu and Chagga.

CONCLUSIONS: Importance of understanding the socio-cultural milieu in order to devise acceptable techniques of communication of innovations particularly for promoting family planning.

DATA: Data was based on 31 social sciences studies done in East Africa between author questionnaire survey 1952-1972 and carried out during 1970-1972 among anthropologists then working in East Africa.

COMMENTS: Although some of this work is based on work done in the 1950's some of the issues highlighted by the author regarding socio-cultural factors and attitudes affecting family planning are still relevant.

Monsted, Mette and Walji Parveen. 1980. A Demographic Analysis of East Africa: A Sociological Interpretation. Uppsala: Scandinavian Institute of African Studies.

SCOPE: POPULATION

PURPOSE: To present a textbook in demography for African students,

analysing East African demographic data within a sociological framework. To change the focus or approach relating to the basic or conventional variables towards a more analytical sociological interpretation.

**RESULTS:** 1. Bias in the analysis due to the choice of variables. How do we relate important variables for planning such as mortality, fertility, population size, growth, distribution and structure to the problems of poor health, poor living conditions, employment problems, problems of families and drought and limitations in infrastructure? The demographic variables tend to give a constraining bias in the understanding and explanation of development phenomena. 2. The limitation of the narrow demographic approach are also shown in the data collection methods. The large scale quantitative research surveys, which appear to be the major tool in demographic research, may not reveal the underlying social and economic problems, and may therefore represent a serious weakness in methodology compared with most sociological analyses.

**CONCLUSIONS:** The relationships between population and land resources are so diverse that a uniform population theory or policy cannot be adequate as a framework for analysing them. The research priority should be to examine and analyse family size and structure in relation to different social and economic conditions in the different regions. The studies at the micro-level could concentrate on:

1. Different types of production systems, and the extent of technological use in small-scale agricultural production, there by trying to assess the role of children as labour contributors.
2. Income earning and expenditure patterns within the industrial families, to show whether children press on resources, and if they do to what extent.
3. Detailed anthropological studies to determine the social and cultural values about reproduction and their relationship to the overall economic context.

**COMMENTS:** The book could be useful tool for those working with population questions related to administration or planning in the East African context. See projections up to the end of the century and population policies. pp. 196-203. A highly recommended book.

Nyankori, J.C.O. 1977. "Forecasting with a Market Oriented Model: the Spatial and Temporal Price and Allocation Models of the East African Grain Economy." Ph.D. Dissertation, Illinois University.

**SCOPE: FOOD**

This study applies the spatial and temporal price and allocation (STPA) modelling concepts and techniques to the East African food grain economy. Basically methodological, the study generates some empirical results that characterizes the East African food grain outlook for 1976-80. As used in this study, the model encompasses four regions: Kenya, Tanzania, Uganda and the rest of the world (ROW); five commodities: maize, millet, rice, maize flour and wheat flour; and five time periods; 1976 through 1980. Initially two basic solutions are generated: 1. when the East African economy is closed to ROW and 2. when East Africa is opened to ROW. The latter is then extended and modified to evaluate the effect of certain policy options. These include: 1. a common pricing policy among Kenya, Tanzania, and

Uganda for agricultural products which in this case were restricted to the five commodities studied, 2. the marginal effect of a grain reserve policy on consumption, trade and prices, and 3. the effect of food grain import restrictions on consumption and prices.

SOURCE: C.S/CAB.ABS

Odero - Ogwel, L.A. 1974. Economic Planning for Peasant Agricultural Development Under Risk Constraints. Eastern Africa Journal of Rural Development 7:61-76.

SCOPE: FOOD (AGRICULTURE)

The presence of the risk presents serious problems and hampers rational decision-making in peasant agriculture. These problems are aggravated by the fact that the planners' objective decision-making differs markedly from the usually subjective decision-making behaviour of the farmers. This paper attempts to offer some contribution to the search for solutions to these problems in the context of peasant agricultural development planning and specifically explores the extent to which realisms existing in the peasant farming environment could be approximated if the risk factor was taken into account. Quadratic programming was applied to a sector of Kenya's peasant agriculture. Nyeri District, comprising some 43,000 peasant holdings and the results were mainly judged against those derived under perfect knowledge linear programming assumptions and where possible against the actual reported parameters and official planned targets. On the basis of income, production and employment (the last in the tea and coffee industries) it emerged that more realism would be introduced in planning when tolerable risk aversion was allowed. Comparing with linear programming, perfect knowledge and actual situations risk programming results not only showed increased agricultural productivity and output but also considerable security to peasant farmers in terms of "minimum" subsistence food and adequately diversified production. The food crop sector which with the exception of potato proved rather unresponsive even to the relatively low level of risk aversion remained basically at subsistence.

SOURCE: C.S/CAB.ABS

Odingo, Richard A. 1979. "The Development of Hydro-Electric Power Resources in East Africa: with Special Reference to Kenya". Academy of Sciences-Beijer Institute workshop on Rural Energy in East Africa, 5-11 May 1979 in Nairobi. Mimeographed.

SCOPE: ENERGY (Kenya used as a sample)

PURPOSE: This short paper (11 pages) prepared for the Institute Workshop on Rural Energy in East Africa held in Nairobi 5-11 May 1979, reviews the existing and potential role of hydroelectric power in East Africa, with special focus on Kenya.

RESULTS: The role of hydroelectric power is small (7%) in the content of the total energy production of Kenya, but it is increasing by 9% per annum (1972-1973) in terms of electrical energy for urban and commercial uses. Thus its potential importance is as an increasing supply source for these two uses as well as industrial consumption.

CONCLUSIONS: To meet this increasing potential for hydroelectricity author suggests to exploit river basins other than the Tana, and stimulate mini hydro stations as well as develop new sources such as geothermal in the Rift Valley. The author concludes that both Uganda and Tanzania have substantially more potential for hydro than does Kenya.

DATA: Largely from the Kenya Development Plan 1979-1983.

COMMENTS: The author concentrates entirely on hydroelectric power, making only passing mention of the need to exploit new sources such as geothermal. There is no description or data on the process of industrialization in Kenya and its relationship to increasing demand for electricity generated from hydroelectric dams.

O'Keefe, Philip. 1979. Fuelwood and Energy in Eastern Africa: An Assessment of the Environmental Impact of Energy Uses. Worcester: Clark University. Program for International Development. (A report prepared on Behalf of AID contract no. AID/afr-9-1356).

SCOPE: ENERGY

PURPOSE: To assist "planners and development officers in host government ministries and donor organizations by assessing the current energy situation in selected countries in eastern and southern Africa"... "To sketch out the implications of a range of alternative responses"... "To devise ways that environmentally sound projects can be planned, implemented, and evaluated."

RESULTS: 1. The rise in the price of petroleum has increased substantially the cost of development efforts while the balance of payments has been placed in a precarious state. 2. Coal, petroleum, and natural gas are not abundant in eastern Africa. Geo-thermal sources offer potential in Kenya. It requires, though, a heavy investment in infrastructure which places it out of reach of most of the people in east Africa. 3. Energy approaches with regard to solar, bio-conversion, water, wind, fuel energy needs. Besides they are too sophisticated and too expensive. 4. Wood has been the most easily accessible fuel for the region's poor in both rural and urban areas, (at least in the short run).

CONCLUSIONS: Projects to increase fuel-wood production seem to be the most immediate and probable means to ease the region's energy pressure. (These projects can only be successful if changes are made in the region's organizational and structural modes of production).

Peter McLoughlin and Associates Ltd. Projecting East Africa's Agricultural Exports to 1974 and 1978, some Methodologies and Results. Comox (British Columbia): Peter McLoughlin and Associates Ltd (date early 1970's).

SCOPE: FOOD (MARKETING)

PURPOSE: "Present some reasonably informed guesses at the volume and value of agricultural exports in 1974 and 1978 from five eastern Africa countries (Kenya, Uganda, Tanzania, Zambia and Malawi)".

RESULTS: Tables for 13 crops, values and tonnages.

DATA: Does not identify specific sources, just list agencies as sources.

COMMENTS: Not much value now since projection dates are past.

Porter, Philip Wayland. 1979. Food and Development in the Semi-Arid Zone of East Africa. Foreign and Comparative Studies, Africa Series no. 32.

Maxwell School of Citizenship and Public Affairs. Syracuse University.  
Syracuse: Syracuse University.

SCOPE: FOOD

PURPOSE: To stimulate thought on world food policy in terms of the necessity to account for particular geographical circumstances, the unique societal conditions associated with geography and policy itself. To focus on state policy regarding famine arising in areas of rain fed agriculture that suffer severe climatic variation.

RESULTS: 1. The crucial variable in farming the semi-arid zone is rainfall; 2. Rainfall is variable and cannot be predicted in the short run, although long term probabilities can be stated; 3. The choice and management of crops must take into account crucial timing aspects if the crop cycle is to match moisture availability; 4. The highlands stand with relation to semi-arid areas in an advantaged position in terms of greater rainfall, longer effective growing seasons, and greater potential photosynthesis; 5. The East African lineage agriculture system provides at most times an adequate and varied food supply, and in bad times a system for sharing out hardship and loss across the lineage. Those farmers hardest hit can usually rebuild their livelihood after bad times have ended; 6. Problems people in semi-arid areas of Kenya have are not merely in situ and local either in cause or consequence. Those who live in the semi-arid areas are not a people apart; they are a marginalized part of a larger system; 7. The physical resettlement itself is a tremendous achievement in Tanzania, and it forms a basis for important economic, social and political development; 8. It was estimated in 1968 that the food lost through local hand milling (which accounted for roughly half of all milling in Tanzania) could provide the calorie requirements of over 900,000 adults, something which could be achieved by using small milling machines. It takes a large amount of heavy work on the part of women to produce this nutritionally inferior result. The improvement of food storage and preparation would do much to increase the quality and quantity of the diet of rural people; 9. Tanzanians have a greater control over their lives and resources than before institutions and governmental practices place the people of semi-arid areas on a more nearly equal footing with those living in higher potential and urban areas.

CONCLUSIONS: Many of the food problems are urban rather than rural. Their causes may be traced to poor administration and planning, bureaucratic red tape, unpopular pricing policies, hoarding, black-marketeering, break-downs or disruptions in transport, and poor quality in manufacturing, handling, storing or marketing food. These matters, also, are worthy of serious research. Multidisciplinary studies of rural areas which incorporate a kind of ethnoagronomy and ethnoeconomics would be useful. A thorough understanding is needed of the political economy of livelihood in semi-arid areas, of the ways people there are marginalized politically and economically as well as environmentally with respect to high potential areas and within the larger system of world trade. Studies are needed of ways rural people can increase control of their land and labor power, and collect the benefits of their industry. If the contrasted policies of Kenya and Tanzania continue to operate over the next 10 to 20 years, we will probably be provided with definitive answers on state policy and life for people in semi-arid areas in East Africa. Past projects have disrupted agriculture and have misunderstood small farmer and environmental circumstances.

Programs must recognize specifics of that farmer in environmental context to find helpful policies. Concludes that: 1. mid-Latitude will always outproduce tropics in grain; 2. tropical dry zone farmers comparative disadvantage to wet zones; 3. dry zone has long growing season if have water; 4. can be self reliant on own farms.

COMMENTS: - In spite of the fact that the title includes the words "East Africa", the author examines only Uganda, Kenya and Tanzania. - With regard to Tanzania: how development can proceed without amplifying differences of class and economic status is problematical. - An excellent book it gives a very good understanding of the food problem in East Africa. Highly recommended.

Sallam, Fadel M. 1976. Energy Supply in East Africa, Kenya National Academy for the Advancement of Arts and Sciences, 1976.

SCOPE: ENERGY

Schneider, H.K. 1974. Economic Development and Economic Change: The Case of East African Cattle. Current Anthropolology 95: 259-65.

SCOPE: FOOD (LIVESTOCK)

PURPOSE: To understand why people who are relatively rich in livestock usually resist development, differentiating economic development from economic change.

RESULTS: 1. Transaction theory (social exchange); 2. Applying "de-Westernized cross-cultural economic theories", both static and dynamic; show that economic change (as pushed by planners) involves opportunity costs which pastoralists cannot bear. (They are higher than for landowners) in terms of status losses.

CONCLUSIONS: Planners (national and international) wish to institute economic change rather than development. Programs fail because of opportunity and costs involved. Economic development could succeed, this article suggests.

Simoons, Frederick. 1975. Rejection of Fish as Human Food in Africa: A Problem in History and Ecology. Ecology of Food and Nutrition 3: 89-105.

SCOPE: FOOD

PURPOSE: "To consider the rejection of fish as human food among various African people, its distribution and manifestations, its diffusion in historic and prehistoric times and its possible origins."

RESULTS: "...ultimately the avoidance may derive from the scorn pastoralists commonly exhibit for farmers and their life and ways."

CONCLUSIONS: 1...." the most promising area of ecological investigation to emerge from this paper is that of the two east African lakes, Rudolf and Baringo...the paper clearly demonstrates that man's food habits, in this case use and avoidance of fish, are related to other aspects of his culture in strong and constantly changing ways."

Turner, B.L.II. 1980. Eastern Africa Regional Studies: Agricultural Livelihoods in Eastern Africa: Classification and Distribution-A First Approximation. Program for International Development Regional Papers no. 1. Worcester: Clark University.

**SCOPE:** FOOD (Agriculture)

**PURPOSE:** To devise a taxonomy of Agricultural/Pastoral livelihood systems in Eastern Africa and map distributions of them.

**RESULTS:** Classification devised as relative measures of output intensity -- calories per unit area and time -- along a continuum of increasing intensity of land use. Categories used, in increasing output order, are: Nomadic Pastoralism, semi-Nomadic Pastoralism, ranching, extensive small herder cultural, intensive small herder culture, small herder market culture, large-scale market. These are mapped for Eastern Africa with problems of accuracy discussed. Distribution indicates the small areas of high intensity production throughout the region.

UNDRO. (no date). Multi-agency mission to Uganda, Djibouti, Somalia, and Sudan. (Reported in UNDRO News September 1980).

**SCOPE:** DROUGHT/FAMINE

**PURPOSE:** To examine the need for special economic disaster relief to the region. Food shortage - famine.

**RESULTS:** Reports presented to the U.N. General Assembly early November 1978.

United Nations: Economic Commission for Africa. Food and Agriculture Organization. 1972. Prospects for Production, Marketing and Trade in Livestock and Livestock Products in East Africa to 1985. Vol. 1. Summary of Main Findings, Recommendations and Conclusions. Vol. II Country Studies: Somalia, Kenya, Uganda, Tanzania, Zambia, Malawi, Botswana, Madagascar.

Addis Ababa: U.N., E.C.A., F.A.O.

**SCOPE:** FOOD (LIVESTOCK)

This study is based on the work of M.C. Taylor and two ECA/FAO economists. It covers 8 of the 14 countries of the East African sub-region (Somalia, Kenya, Uganda, Tanzania, Zambia, Malawi, Madagascar) and concentrates on beef and milk, the two commodities for which data are relatively available, since the production of and trade in these products are significant. The main findings focus on production and trade prospects, but lay more emphasis on the surplus/deficit balance of these products during the next two decades. Even where there is a surplus, this is in terms of trade rather than dietary and nutritional criteria, the demand capacity being significantly low in most of these countries. Thus, if the projected surplus is to be absorbed through increased trade within the sub-region, demand capacity for beef, which is mainly a function of raised income levels and hence of balance socio-economic development, has to be increased. Several other constraints to increased intra-regional trade are also highlighted, and measures recommended to remove or reduce them. The surplus countries may have to seek markets in other African sub-regions, as well as in other continents. While restrictions from some East African countries to the Arab Peninsula and the Gulf States have shown good prospects. Wide possibilities exist for multi-national co-operation in disease control, research and training. Important gaps and limitations in basic data and knowledge of the African livestock industry are also indicated, especially

in production statistics and comparative cost/price relationships. These and other limitations impede the much-desired evolution of a methodological model for appraising inter-country trade possibilities under free trade conditions. Detailed evaluations are given for each country in Volume I, and the country studies, with full statistical analyses, are contained in Volume II.

SOURCE: C.S./CAB. ABS

United Nations Fund for Population Activities. 1978. Consultative Workshop on an Eastern Africa Inter-county Population and Land Settlement Research Project held at Nariobi University, Institute of Development Studies, January 30 to February 3, 1978.

SCOPE: POPULATION/FOOD

PURPOSE: Explore possibilities of developing a joint research project on some aspect of population and land settlement.

RESULT: Agreed on a project and topic "Effects of Population Change on Agricultural Production" and developed a research outline for consideration by national research teams. Consultations are now taking place on the funding for the project and the formation of the national teams.

Widstrand, Carl, Gosta. 1970. Co-operatives and Rural Development in East Africa. (Scandinavian Institute of African Studies) New York: African Publishing Corporation.

SCOPE: FOOD

PURPOSE: Nine authors discuss the reasons behind the relative success and failures of the cooperative movement in East Africa, with a more specific focus on Kenya, Tanzania and Uganda and their movements. Further discuss the contributins that co-operatives make to rural development.

RESULTS: Co-operative societies do not have as strong a background in East Africa as is usually assumed. There are fundamental differences between traditional and modern co-operative societies that make one being the precursor of the latter impossible to accept. Government intervention or control has often resulted in apathy and a lower rate of participation; often, the co-op becomes a mere bureaucratic extension. Suitable social indicators do not exist to evaluate the performance of co-ops. Co-ops seem to have considerable difficulty with problems of democracy and with problems of power and conflict within their boundaries. Further, there is a problem of scale when co-ops are discussed.

CONCLUSIONS: It should not be assumed that East Africa's history of traditional cooperatives will facilitate the introduction of modern cooperation because the two forms (traditional and modern) are very distinct. Government control and intervention must be tempered. Evaluating the efficiency of co-ops is difficult but, since it must continue, economic criteria, as well as other, more effective, types of criteria must be utilized. The search for more effective evaluating criteria must commence. Co-ops must be discussed in terms of scale and their type of organization because these two factors effect their functioning. Effective participation decreases as membership levels increse. Most co-op problems stemming from power and conflict struggles are due to personal relations, not to issues. Goran Hyden maintains that education may alleviate some of these problems

because personal problems seem to have their root in money quarrels. More attention needs to be directed to the motivating force behind the formation of cooperatives. Planners can't expect co-ops to perform miracles; if co-ops are formed as a policy alternative, this question needs to be asked: what are the problems to be worried about? Governments need to be more realistic in their expectations of co-op performance.

COMMENTS: The work is a result of a seminar on cooperatives and rural development in East Africa. Includes specific discussions of cooperative in Tanzania and Uganda. This work, in all the views of the authors, is almost entirely theoretical. No author supports his position with statistical evidence. In some instances, this is a grave weakness.

BURUNDI

Burundi Ministry of Agriculture and Animal Husbandry. (no date). National Plan of Action for the Fight Against Desertification, Pilot Study.

SCOPE: FOOD (DESERTIFICATION)

PURPOSE: Plan of action against desertification (LCD) in response to UNEP 1977 Nairobi conference.

RESULTS: Here listed only information provided on agriculture and livestock. Agriculture one million hectares cultivated - much on slopes but strong efforts to overcome erosion - food crops are 90% of production - most grown for subsistence with banana beer the major commercial endeavor - sure areas have double harvest during rainy season - marshland (wetlands) are under improvement by drainage - cultivated wetlands - 53,242 hectares, uncultivated = 58,033 hectares - agents helping in traditional drainage methods - cash crops = coffee, tea, cotton (tea on five big plantations), coffee by small holders.

CONCLUSIONS: Plans to work on development within given framework of economy, plus super project at Mosso region - national agencies stress the distribution of selected seeds for food crop, distribution of manure, popularization of food crops and orchards; also agencies intervene in matters of swamp drainage, small irrigation schemes, and soil control. Agriculture development model = via village communities in gear to develop both food crop and cash crop; specific agricultural techniques - selected seeds, cultivation methods, organic and mineral manure, rotating land, phyto-sanitary treatments, mulching; agri-pastoral - stock breeding with stabling cultivation of fodder crops, production of manure; forestry - anti-erosion methods, trenches and fodder crop hedges, plantations of fruit/forest; stock breeding - not always extensive and characterized by small returns on milk/meat ls numbers are rising slowly; geographically the stock is concentrated on eastern plateau, the Mugaub and Bututsi, Imbu and Mossogues, and Kirimiro and Buyenzi zones. Projects geared to assisting stock breeding.

South Bultutsi Project - 1970, establish paddocks for rotation of animals in pastures = means of erosion/soil moisture controls. North Mugamba Project - same sort of project as above but younger.

DATA: Some national data.

Reuss, C. 1970. Le Decollage Economique du Burundi. Cahiers Economique et Sociaux 8:6(9-49).

Title in English: Burundi's Economic Take-off.

SCOPE: AGRICULTURE (FOOD PRODUCTION)

A general background description of Burundi is given with emphasis on the agricultural sector which provides 75 percent of the net domestic product. Future development should be partially based on further expansion and improvement in coffee, cotton and tea production, as well as increased food production for internal demand. Better co-operation between two main tribes appears to be a precondition for development.

SOURCE: C.S./CAB ABS

Speed, Dorothy. 1970. "Population Crisis in Central Africa: Rwanda and Burundi." In Health and Disease in Africa, the Community Approach: Proceeding of the East African Medical Research Council Scientific Conference Nairobi, Kenya, 1970. Edited by G. Clifford Gould. pp 2430246.

Nairobi: East African Literature Bureau.

SCOPE: POPULATION (BURUNDI AND RWANDA)

SOURCE: CS POPULATION BIBLIOGRAPHY

Stahn, E.; Gahungu, A.; and Krugmann-Randolf, I. 1978. Burundi-trotz vieler Reichtümer ein Armes Land. Entwicklung und Zusammenarbeit 8:9-15.

Title in English: Burundi - despite great riches a poor country.

SCOPE: FOOD/POPULATION

After a brief historical account of Burundi and of the struggle between the Hutu and the Tutsi, the first short paper gives an account of its present stage of development and problems. Some 90% of the population live by farming; coffee and tea are the main exports. About a third of the land is used for cattle and over-grazed by a non-economic traditional pastoral system, there is very little industry and Burundi is one of the poorest developing countries. The following two short papers discuss the main obstacles to development (population growth, scattered settlements making education and extension difficult, and widespread illiteracy), and plans to overcome them. These include improving the productivity of farming and livestock production, increasing basic education and higher education of leaders, the creation of transport and energy infrastructure, development of a health service, research and development of minerals. The final paper describes the activities financed by European development aid in Burundi.

SOURCE: C.S. CAB/ABS

DJIBOUTI

Berry, Leonard. 1980. Eastern Africa Country Profiles: Djibouti.  
Worcester: Clark University, Program for International Development.

SCOPE: ECONOMIC AND SOCIAL CONDITIONS

PURPOSE: "To present an introduction both to the country and the developmental issues that need to be addressed."

RESULTS: 1. The country is not well endowed with natural resources but in terms of geothermal energy and fishing, there are good potentials. 2. The cultural and population background can be shown by the following data: 90,000 rural (60,000 Nomads, 20,000 small towns/villages, 10,000 refugees); 170,000 city (135,000 Djiboutians, 10,000 refugees, 25,000 foreigners - 10,000 French, 15,000 Arabs). 3. The lack of growth of the port has created problems. Unemployment is high and opportunities for changing the situation few. 4. The country relies on aid and foreigners. 5. 60,000 to 80,000 people make their living in rural areas of mostly poor arid lands, vulnerable to drought. 6. The country is a "haven" for refugees. The numbers are large relative to Djibouti's small population.

CONCLUSIONS: "Domestic tranquility, national security, and economic modernization are the three keys to a serious analysis of Djibouti's problematic survival as an independent state."

Facca, G. 1976. "The French Appraise their Geothermal Possibilities."  
Geothermal Energy 4:33.

SCOPE: ENERGY

France is actively involved in Geothermal exploration and exploitation. The French scientists define commercial Geothermal fields as volumes of rocks having such temperature and permeability that their heat can be exploited for profit. This does not consider geothermal fluids, and implies only hot rock energy. The Paris Basin Geothermal province, Melun, and overseas Exploration in Guadeloupe (Caribbean) and Djibouti are described. Especially in the theoretical and Institutional areas. (1 diagram 1 graph, 3 maps).

SOURCE: C.S./ENERGY LINE

United States. Agency for International Development. County Mission  
Djibouti. 1980. Djibouti Country Development Strategy Statement FY 82.

SCOPE: ECONOMIC AND SOCIAL DEVELOPMENT

PURPOSE: To address the economic plight of Djibouti's poor. To give an overview of the country. To develop strategy for development.

Summary of USAID Program Strategy: "Based upon the foregoing, USAID will direct its assistance to the government's effort to improve the poor's quality of life by means of development assistance in three key areas: 1. Increased employment and income earning potential as realized through, a more precise understanding of natural and human resources allocation potential, provision of appropriate life skills and project initiatives for the outcome of the above. 2. Improved nutrition and health as realized through enhanced capability to address the poor's health and nutrition requirements at reduced cost. 3. Capability to provide adequate shelter realized initially through a shelter assessment in 81, with subsequent funding for urban planning in FY83 to be determined."

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COMMENTS: See: economic overview with regard to human resources; Part II, A; and page 55 (table 1. Djibouti: Gross Domestic Product, 72-76)

ETHIOPIA

Bellele, Solomon. 1979. An Economic Analysis of Small-holders Agriculture in the Central Highlands of Ethiopia: A System Simulation Approach. Ph.D. dissertation. Oregon State University.

SCOPE: FOOD

PURPOSE: 1. to describe economic functions and farming systems of peasant households; 2. identify productivities of farm resources and farm problems/constraints to improvement; 3. develop system simulation to analyze the integrated production/consumption functions of household. Hypotheses: 1. proportion of output retarded on farm for household consumption declines as land holding increase; 2. costs of development increases with geometric progression as the potential available arable land area decreases; 3. fraction of total investment committed to agriculture production is inversely proportional to ratio of supply and demand for basic foods of household.

RESULTS: Establishes model of agriculture decision process, production/consumption impact; provides data of cultivated area by teff and other crops -- major agroecological zones; model data from households of Suba area and Asgori area; farmer age average = 43, family size average = 6; labor added by cost of 1-2 laborers are cooperative labor exchange; average area to teff - 2.15 hectares; describes cropping procedure; fertilized teff yields = 472 kg/ha.; unfertilized = 445 kg/ha.; teff sold in market is related to price; provides labor data; capital data; consumption data; simulation results in quantified form presented.

CONCLUSIONS: For dry land small group farming - central highlands of Ethiopia given: oxen power, traditional seeds, hand weeding and harvesting, animal transport, farm produced food for household consumption then 1. behavior consistent with stability risk aversion goals; 2. hypothesis 3 (above) supported; 3. productivities of labor and capital were low; 4. need farm specialization to include production; 5. under rapid growth the price of instability would be sufficient to allow risk aversion to dominate.

DATA: Country data plus household data from Suba and Asgori areas in cooperation with IAR, (EPID, NCB, CADU - Ethiopian) provides discussion of data collection - sample size small.

COMMENTS: Interesting but shallowly treated in discussion - explanation of runs are poor - does not explicitly confirm or reject initial hypotheses micro data may be good.

Chang, Wen Pin. 1973. Report on Population Studies in Ethiopia. Draft.

SCOPE: POPULATION

PURPOSE: To present and analyze the results of a study of health practices and attitudes in Ethiopia.

RESULTS: Family planning has only limited impact; there is a low level of knowledge about it. Where education is more prevalent, an interest in family planning is more likely to be found. Contraception is still considered against God's will by many people surveyed. Health attitudes and

practices are dependent on the medical facilities existing in a region, with a wide variation reported between urban and rural respondents. Live births reported were highest among rural respondents: total births were about the same. There were a higher fertility and mortality rates among Muslims.  
DATA: Taken from questionnaires, National Sample Survey. Includes data on disease transmission, number of live births, available medical care, etc. Data is broken down into Urban, Rural, and Muslim categories.

Cliffe, L. 1974. "Capitalism or Feudalism? The Famine in Ethiopia" in Review of African Political Economy 1:34.

SCOPE: FAMINE

PURPOSE: To look at the underlying political and social factors which contributed to the deaths during the famine.

RESULTS: Famine in Ethiopia is not only a natural disaster, but a social and political one as well, with many deaths a consequence of the handling of the situation by the government. The feudal system is being eroded, and farmers are driven off the land to starve. Previously land was not considered a commodity and could not be sold; the right to work land was one derived from membership in a community. Now peasants must sell land to pay bills, creating a large landless and rootless population subject to official neglect and more vulnerable to famine. The impersonal relations of the new money economy have benefitted the few at the expense of the security of the poorest peasants.

CONCLUSIONS: No simple plans for help will do: there must be a change in the social relations of property and power. Poor tenants need protection from the market economy, possibly through land reform or the establishment of cooperatives.

Hussein, Abdul Mejid, ed. 1976. Drought and Famine in Ethiopia. African Environment Special Report no. 2. London: International African Institute.

SCOPE: FOOD/POPULATION

This book, a collection of nine articles on the Ethiopian famine (1973-75) is a thorough review of its political and historical context, and the response of the international community, Ethiopian government and the locally affected people.

Four articles: "The Scope of the Drought"; "The Political Economy of the Famine in Ethiopia"; "Relief and Rehabilitation for Famine Victims in Ethiopia"; and "A Historical Outline of Famine in Ethiopia"; all establish the national situation before and on the eve of the drought and famine. One author points out that despite droughts in the early 1970's excellent harvests were reported and the failure of the then national government to organize resources at their disposal resulted in disaster and famine.

The second part examines the response of both governments and the local people. In "Drought in S.E. Ethiopia" the author concludes that the drought situation in the Ogaden developed along very similar lines to that in the Sahel. "The basic problem of an imbalance between water and grazing resources on the one hand, and population on the other, is common to nomadic pastoralism in all such marginal rainfall areas."

DATA: The Appendix contains tables and figures on such information as; food production, zonal rainfall patterns, land use, and peasant associations.

Lundstron, Karl Johan. 1976. Northeastern Ethiopia: A Society in Famine. Research Report no. 34. Uppsala: Scandinavian Institute of African Studies.

SCOPE: FOOD SHORTAGES (FAMINE)

PURPOSE: To study the forces at work in the society by interpreting the activities of three institutions - the land-ownership, the authorities, and the church - and on this basis suggest some steps that could contribute towards finding a way out of the present stalemate.

Miller, Norman. 1974. Journey in a Forgotten Land. Hanover: American Universities Field Staff, Inc.

SCOPE: FOOD/POPULATION

PURPOSE: To survey the government reactions to and policies concerning drought, and give alternatives for the future.

RESULTS: The paper states that Kenya and Ethiopia had different government reactions to the drought situation, with Ethiopia being more "open" about its difficulties. Because of political tensions with its neighbors and possible difficulties in encouraging tourism, Kenya did not admit to having a drought, and consequently lost assistance from international agencies. The paper categorizes the human response to drought in both areas in terms of the response by pastoralists, semi-sedentary people, full-time farmers, and business or trades people. Of the above, the full-time farmer is most vulnerable: only those not dependant on the local economy, as government officials and traders, are not effected. The paper lists food dilemmas and alternatives, and charts the status quo and the disadvantages and advantages of alternative situations.

DATA: Tables on population dispersion.

Ponsi, Frank. 1979. Ethiopia's Kebeles: Jurisdictional Units of Local Government and Grass-Root Development. Paper prepared for Kenya seminar on Alternative Development Patterns and Lifestyles in Nairobi.

SCOPE: GOVERNMENT

PURPOSE: To report whatever information on patterns of government and socio-political development emerged in Ethiopia in the past five years, and to indicate the resulting implications for the strategy and style of development.

RESULTS: The paper surveys the forms of government in pre-revolutionary Ethiopia, in contemporary rural and urban Ethiopia, and looks at the correlates of new local government forms. Under Haile Sellassie there was a highly centralized form of government, with a chain of dependent governors at the province, district and sub-district level. People living in both rural and urban areas had no say in official appointments. Land belonged to the Emperor alone, who granted its use to his supporters. In contemporary rural areas there are joint governments at various regional, district and sub-district levels, administered by the Peasant's Association and the local administrators. Government is still highly centralized, but complimented by peoples representatives. Land is not a private commodity. In contemporary urban areas, land is divided into units of administrative areas known as Kebeles. The Urban Dweller's Association is empowered with the administration of each area: the form is a type of democratic centralism.

DATA: Appendix tables on the distribution of population, from government sources.

Rake, Alan. 1973. The Real Economic Challenge African Development.  
May 1973.

**SCOPE:** DEVELOPMENT

**PURPOSE:** To survey the current state of the Ethiopian economy and indicate possibilities for the future.

**SUMMARY:** The article begins its survey of the Ethiopian economy with a discussion of agriculture, which is at the center of the economy, providing the bulk of government revenue and employing the most people. The mining industry is considered to be largely undeveloped, with transportation hindering production. In general, industry is undeveloped, but the government has provided tax incentives and protective tariffs. Educational prospects are surveyed, and the programs of various relief agencies are listed. One conclusion: agriculture should be stimulated, and once an organized system of marketing is established, tenant farmers will respond with increased productivity.

Survey of Socio-Economic Characteristics of Rural Ethiopia, Bulletins 3-13, University of Haile Sellassie, Addis Ababa, Ethiopia. Detailed Reports of the following districts: "Bereh Wereda," 1975; Ambo Wereda, 1975; Shirka Wereda, 1975; Grar Jarso Wereda, 1975; Lume Wereda, 1975; Were Ilu Wereda, 1975; Adwa Wereda, 1976; Kersa Woreda, 1976; Dessie Zuria Wereda, 1976; Institute of Development Research in collaboration with the development through cooperation campaign, principal researchers.

**SCOPE:** POPULATION, RURAL ETHIOPIA

**CONTENT:** These series of reports on selected rural districts cover the following topics:

- A. Population Profile
- B. Occupational Characteristics
- C. Land and Resources
- D. Marketing and Environment
- E. Knowledge and Use of Services
- F. Suggestions for Solving Local Problems
- G. Community Organization
- H. Levels of Living
- I. Some Indications of Attitudes and Behavior

The sampling method is also described and the reports contain the survey questionnaire used.

KENYA

Acland, J.D. 1971. "East African Corps: An Introduction to the Production of Field and Plantation Crops in Kenya, Tanzania and Uganda" Nairobi: Longman.

SCOPE: AGRICULTURE

Adams, Patricia A. 1979. "Deforestation in Kenya: A Case of Over-exploitation of the Common Property Resource" University of Sussex.

SCOPE: DEFORESTATION

COMMENTS: A Master's Thesis - largely theoretical in orientation.

American Technical Assistance Corporation. 1977. "Kenya - Smallholders Production Services and Credit Project Baseline Survey - Agricultural Year 1975-1976" prepared for Government of Kenya and USAID. McLean. American Technical Assistance Corporation.

SCOPE: AGRICULTURE

CONTENT: A very large and detailed study covering income, production, land tenancy, labour, capital, credit, technical assistance, cooperatives, innovation, participation, satisfaction, economic progress and constraints, for small holders. First hand data on sampling basis.

Arnold, J.E.M., Debacker, M.F.E., and Pringles, S. 1962. "Report to E.A. High Commission on Present Wood Consumption and Future Requirements in Kenya".

SCOPE: ENERGY (WOOD)

COMMENTS: Essentially deals with lumber industry and does not consider fuelwood as substantial issue.

Bernard, F.E. 1969. "Recent Agricultural Change East of Mount Kenya" Ohio University Center for International Studies, papers in International Studies Africa Series 4. Athens: Ohio University.

SCOPE: FOOD PRODUCTION

PURPOSE: Describe agricultural change since 1950 in Meru district.

DATA: All data presented graphically: population distribution, land consolidation, settlement schemes, coffee acreage, tea acreage and staple crops acreage.

Belshau, D.G. (early 1960's ?) "Agricultural Production and Trade in East African Common Market; a Survey" mimeographed paper.

SCOPE: AGRICULTURE

PURPOSE: Look at agriculture production and trade in East Africa.

RESULTS: Competition among countries reduces bargaining position.

CONCLUSIONS: Need concentrated study of alternative policies open to a Central East African Government in the Fields of agriculture production and marketing.

DATA: 1962 net Terretorial Transport in Agriculture Products (Kenya,

Uganda, Tanzania) (Source: Annual Trade Report E.A.C.S.O. 1963) Value of these trades - same source. Note: doesn't account for "considerable illegal trade".

COMMENTS: E.S.C.O. - may be useful source for old data. East African Common Services Organization.

Bernard, Frank E. 1972. East of Mount Kenya: Meru Agriculture in Transition IFO - Institut für Wirtschaftsforschung München, Afrika Studien no. 75. Munich: Weltforum Verlag.

SCOPE: AGRICULTURE (ENVIRONMENTAL CHANGE)

PURPOSE: Describe change in agriculture in area from precolonial times to today. Includes discussion of environment, Meru culture, traditional agriculture, colonial change, recent change.

RESULTS: Environment: Basic west to east lowering of environmental quality - from high altitude to low altitude; however, many exceptions to this pattern; more than 1/2 of area submarginal for agriculture.

CONCLUSIONS: Radical change in agriculture: precolonial emphasis on subsistence, risk aversion by utilization of various ecological zones, use of traditional tools/crops: early colonial - intro. maize, hoe (steel), but not much change; modern-accelerated change in 50s/60s by market, well funded programs, land reform which destroys traditional systematic order: significant factors to change - 1. market and road system; facilitated market production and technical innovation; 2. maize substituted for traditional crops, maybe lowered nutrition; 3. land reform destroyed ecological zonation approach and forced farmers to accept risk (higher) by limiting to specialized crops in one habitat; 4. export cash cropping regional specialization has made farmer vulnerable. Consolidation and settlement schemes help cause - change in rotation, use of temporary crops, division of labor.

Bohdal, M. 1968. Nutrition Survey and Campaign Against Malnutrition in Kenya, 1964-68: Report to the Ministry of Health of Kenya on the WHO/FAO/UNICEF Assisted Project.

SCOPE: FOOD

Bhogal, P.S. 1978. "The Electrical Resistivity Method of Geophysical Prospecting and its Application to Geothermal Exploration in the Rift Valley of Kenya" Ph.D. Dissertation, University of Nairobi.

SCOPE: ENERGY (GEOTHERMAL)

Brown, L.H. 1968. Agricultural Change in Kenya: 1945-1960. Food Research Institute Studies 8(1):34-90.

SCOPE: FOOD (PRODUCTION)

PURPOSE: Describe agricultural change in this period.

CONCLUSION: Period of many missed opportunities, but also many outstanding successes and advances.

DATA: Cattle; imports of agricultural inputs; land holdings; yield/acre increases over time; production of livestock and various market and food crops; sources: government publications.

CONTENT: Has general account of development; changes in production organization; changes in output; changes in marketing; changing government policy.

COMMENTS: Very good for this period.

Bullock, R.A. 1969. Population and Nutrition in Central and Western Kenya [London] 1969, 235 p illus. maps. Ph.D. Dissertation, University of London.

SCOPE: POPULATION

PURPOSE: Determine the land's capability to support population.

RESULTS: Develops a Calorie Adequacy Index which shows theoretical population supportable on a given agricultural production. It closely reflects the per capita productivity of food and to a lesser extent, land productivity.

CONCLUSIONS: Further development of the concept might yield a more useful index measuring the relationship between population and the total resources available for its support.

DATA: Sources: 1. Kenya African Agricultural Sample Census 1960/61, part 1 and 11, Incorporating Data for the 1960 World Census of Agriculture - Economic and Statistics Division Office of the Ministry of State for Constitutional Affairs and Economic Planning, Government Printers, Nairobi. 1962. 2. Kenya European and Asian Agricultural Census 1961. E.A. Statistical Department (Kenya Unit) Government Printer, Nairobi 1967. Limitations: sample frame quite restricted, methods of survey varied between areas, unusual drought conditions. "Thus the census cannot be regarded as representing normal conditions." Tables on crop acreage, livestock yields.

Bullock, R.A. 1974. Subsistence to Cash: Economic Change in Rural Kiambu. Cahiers d'Etudes Africaines 56: 699-714.

SCOPE: FOOD (AGRICULTURE)

PURPOSE: Demonstrate that old, depressed southern part of district, through technical shift, has surpassed traditional dominant northern sector.

RESULTS: Shows that larger farms, more favorable environment of North led to higher production until Europeans entered with technical or mechanized agriculture, then labor surplus of combined with mechanized agriculture's demand from Nairobi to create increased wealth.

CONCLUSIONS: South Kiamba will turn to horticulture for Nairobi--economics of location while North will turn to cereals: international export.

DATA: Indices of increases in wealth were spurious--"shape of house" and so forth.

COMMENTS: Could use prediction as measure of argument based on current data.

Kenya Government. Cabinet Paper. Food Production. In process. An important Kenyan policy statement.

SCOPE: FOOD (STATISTICS)

This is a large and politically sensitive study prepared by the government on food consumption, production, demand, etc. It is presently confidential and the data in the charts is being debated (figures back to the 50's). Once the Ministries come to a resolution it will be presented to the

Cabinet. Of particular controversy are the figures on shortfall. Mr. Otiero, Senior Economist at the Ministry of Economic Planning explained some of the difficulties in obtaining reliable data:

1. CBS (Central Board of Statistics) reports only the produce which goes into the market. The vast majority of Kenyan food crops are produced and consumed on the smallholders farm. Market produce reflects the individual farmers surplus. This is especially true of basic food crops like beans, potatoes and somewhat of maize.
2. The government doesn't have reliable studies on the demand, again because of the smallholders. Some demand figures are available for wheat, rice, sugar and milk.
3. Estimates of food production are primarily marketed crops, i.e. surpluses to project a percentage shortfall countrywide also implies inadequate production at the smallholder level. The two have some relationships, but the smallholder shortage does not necessarily follow because there are so many independent factors.
4. Figures need adjustment for rainfall and drought conditions.

COMMENTS: Mr. Lijoodi, head of planning at the Ministry of Agriculture and his staff compiled the data on food production, consumption and demand trends. In many cases data goes back to the 1950's.

Campbell, David J. and Mbugna, E.S. 1978. "Survey of Land Use Problems in Kajiado District: A Review of Methodology" University of Nairobi Institute of Development Studies. Working Paper no. 334 mimeographed. Nairobi: University of Nairobi.

SCOPE: LAND USE

PURPOSE: Present the methodology used in a survey of farmers and pastoralists in Kajiado District in 1977. The survey was designed to examine the impact on land use and society of increasing migration of farmers into traditional pastoral areas.

RESULTS: Three problems emerged: 1. lack of water for crops and livestock; 2. trampling and eating of crops by livestock; and 3. trampling and eating of crops by wildlife and predation by them.

CONCLUSION: There should be government assistance to solve the above problems as self help attempts are not successful.

COMMENTS: This present some problems that result from expansion of agriculture.

Chlala, H.G. 1972. "The Present Situation and Future Prospects of Charcoal Production and Consumption in Kenya" Nairobi. Kenya Ministry of Commerce and Industry. Industrial Survey and Promotion Centre.

SCOPE: ENERGY (CHARCOAL)

COMMENTS: This was the first attempt to assess charcoal production. Figures are accurate per unit consumption though much out of date in totals.

Child, Frank C. 1972. Small Scale Rural Industry in Kenya University of California. African Studies Center. Occasional Paper no. 7 Los Angeles: University of California.

SCOPE: POPULATION (EMPLOYMENT)

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PURPOSE: To examine employment, technology and growth; small-scale rural industry; entrepreneurship, management and labor in a society in transition.

RESULTS: 1. Growth of Kenya's intermediate sector is an alternative to open unemployment. 2. Productivity and wages in small-scale rural enterprise compare favorably with the modern sector. 3. The availability of profitable investment outlets in rural enterprise mobilized saving and induced investment which would not otherwise have occurred.

CONCLUSIONS: "Within limits, a shift of social priorities from development of modern, progressive, relatively capital-intensive, urban enterprise to simpler, more labor-intensive, small scale rural enterprise would accelerate Kenya's overall rate of economic growth and employment."

COMMENTS: Policies to promote intermediate sector growth in Kenya might even slow the rate of urbanization. An excellent paper on the "small-scale rural industry in Kenya."

Cornell University, Institute for Development Studies, AID 1976. Draft Report of Nutrition Policy and Planning Seminar and Workshop for Africa held at Institute for Development Studies, University of Nairobi, June 2-19, 1976. Nairobi: University of Nairobi.

SCOPE: FOOD

PURPOSE: Seminar - 40 participants, 1/2 African, 1/2 U.S.

RESULTS: Groups did nutrition planning through simulation games.

CONCLUSIONS: Valuable learning exercise.

COMMENTS: Number of talks on food-economics-policy interrelationships; only general usefulness.

Coffee Board of Kenya. 1934. Monthly Bulletin (later name is Kenya Coffee) Nairobi.

SCOPE: CASH CROPS

Dorling, M.J., ed.1977. "Seminar Proceedings Contemporary Economics Research in Kenya - Future Needs" Nairobi: University of Nairobi.

SCOPE: AGRICULTURAL ECONOMICS

PURPOSE: Researches from various ministries and institutions met to present papers on current agricultural economics research activities and to discuss related problems and future needs.

RESULTS: Compilation of papers presented.

DATA: Statistics on cooperative societies.

Dovlo, F.E. 1976. "Foods and Food Habits in Kenya, Lesotho, Liberia and Ghana. Report of a Comparative Study Undertaken on Behalf of FAO's Freedom from Hunger Action for Development." Accra, Ghana: Food Research Institute.

SCOPE: FOOD (GENERAL)

PURPOSE: Study on foods and food habits for FAO's program to use to base its policies for nutrition education.

DATA: Six pages on Kenya based on observation, literature review and meetings with national hunger programs.

Cabinet. Of particular controversy are the figures on shortfall. Mr. Otiero, Senior Economist at the Ministry of Economic Planning explained some of the difficulties in obtaining reliable data:

1. CBS (Central Board of Statistics) reports only the produce which goes into the market. The vast majority of Kenyan food crops are produced and consumed on the smallholders farm. Market produce reflects the individual farmers surplus. This is especially true of basic food crops like beans, potatoes and somewhat of maize.
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Chlala, H.G. 1972. "The Present Situation and Future Prospects of Charcoal Production and Consumption in Kenya" Nairobi. Kenya Ministry of Commerce and Industry. Industrial Survey and Promotion Centre.

SCOPE: ENERGY (CHARCOAL)

COMMENTS: This was the first attempt to assess charcoal production. Figures are accurate per unit consumption though much out of date in totals.

Child, Frank C. 1972. Small Scale Rural Industry in Kenya University of California. African Studies Center. Occasional Paper no. 7 Los Angeles: University of California.

SCOPE: POPULATION (EMPLOYMENT)

**PURPOSE:** To examine employment, technology and growth; small-scale rural industry; entrepreneurship, management and labor in a society in transition.

**RESULTS:** 1. Growth of Kenya's intermediate sector is an alternative to open unemployment. 2. Productivity and wages in small-scale rural enterprise compare favorably with the modern sector. 3. The availability of profitable investment outlets in rural enterprise mobilized saving and induced investment which would not otherwise have occurred.

**CONCLUSIONS:** "Within limits, a shift of social priorities from development of modern, progressive, relatively capital-intensive, urban enterprise to simpler, more labor-intensive, small scale rural enterprise would accelerate Kenya's overall rate of economic growth and employment."

**COMMENTS:** Policies to promote intermediate sector growth in Kenya might even slow the rate of urbanization. An excellent paper on the "small-scale rural industry in Kenya."

Cornell University, Institute for Development Studies, AID 1976. Draft Report of Nutrition Policy and Planning Seminar and Workshop for Africa held at Institute for Development Studies, University of Nairobi, June 2-19, 1976. Nairobi: University of Nairobi.

**SCOPE:** FOOD

**PURPOSE:** Seminar - 40 participants, 1/2 African, 1/2 U.S.

**RESULTS:** Groups did nutrition planning through simulation games.

**CONCLUSIONS:** Valuable learning exercise.

**COMMENTS:** Number of talks on food-economics-policy interrelationships; only general usefulness.

Coffee Board of Kenya. 1934. Monthly Bulletin (later name is Kenya Coffee) Nairobi.

**SCOPE:** CASH CROPS

Dorling, M.J., ed. 1977. "Seminar Proceedings Contemporary Economics Research in Kenya - Future Needs" Nairobi: University of Nairobi.

**SCOPE:** AGRICULTURAL ECONOMICS

**PURPOSE:** Researchers from various ministries and institutions met to present papers on current agricultural economics research activities and to discuss related problems and future needs.

**RESULTS:** Compilation of papers presented.

**DATA:** Statistics on cooperative societies.

Dovlo, F.E. 1976. "Foods and Food Habits in Kenya, Lesotho, Liberia and Ghana. Report of a Comparative Study Undertaken on Behalf of FAO's Freedom from Hunger Action for Development." Accra, Ghana: Food Research Institute.

**SCOPE:** FOOD (GENERAL)

**PURPOSE:** Study on foods and food habits for FAO's program to use to base its policies for nutrition education.

**DATA:** Six pages on Kenya based on observation, literature review and meetings with national hunger programs.

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Bow, Thomas E., and Weiner, Linda. 1980. "Continuity and Change in Metropolitan and Rural Attitudes Towards Family Size and Family Planning in Kenya Between 1966-1967 and 1977-1978" University of Nairobi Population Studies and Research Institute. Mimeographed.

SCOPE: POPULATION

PURPOSE: One way to evaluate progress of Kenya's Family Planning Program.

RESULTS: Progress in the city, progress in rural areas "discouraging low".

CONCLUSIONS: "Only a family planning program designed to improve material and child health via contraception for spacing is likely to achieve any acceptance among the great majority of Kenyan women."

DATA: Earlier studies used surveys: 1. 1966-67 study interviews of 200 monogamously married women 15-44 years living on Shauri Moyo Housing Estate, Nairobi; 2. 1967, 744 married women or ever-married women of child bearing age in six rural clusters representing six major Kenyan ethnic groups; 3. 1977-78 from Kenya Fertility Survey.

Food and Agriculture Organization of the United Nations. 1973. "Planning for Better Family Living and Kenya National Council of Social Services" in Proceedings of Seminar on Survey of Programmes Concerned with Family Life in Kenya, 8th-9th June 1973 at Kikuyu, Adult Studies Center.

SCOPE: FOOD/POPULATION

PURPOSE: Present, discuss and act on the findings of the March-June 1972 survey of programmes concerned with family life.

RESULTS: Survey covered 42 programmes from six ministries, five semi-government agencies and 17 non government agencies. Six aspects included: (iii) Family Planning and Population Activities; (iv) Nutrition and Foods

CONCLUSIONS: Need for action in three spheres: 1. national coordination; 2. planning and evaluation; and 3. training.

CONTENT: Notes on meetings; lists agencies, charts interrelationships; and useful for list of agencies involved.

Frey, Hans Joachim. 1976. Intensivierung Kleinbäuerlicher Betriebe durch Angepasste Agrartechnik: Arbeitszeitstudien im Bahati Settlement Scheme, Kenia IFO-Forschungsberichte der Afrika - Studienstelle no.55. Munich: Weltforum Verlag.

Title in English: More Intensive Smallholder Farming through Appropriate Technology.

SCOPE: AGRICULTURAL TECHNOLOGY AND WORK TIME

PURPOSE: Study of work time in small farms with varying technology.

RESULTS: Detailed analyses of various farming activities in Bahati settlement scheme in Kenya. Work is broken down into small elements and the work time is observed under various conditions.

CONCLUSIONS: Improved hand implements can improve output. Small mechanical equipment are not adequate, larger tractors useful, but too expensive.

DATA: Questionnaires, field observations.

COMMENTS: Good detailed analyses of farming operation. Written in German.

The Futures Group. 1980. Kenya: The Effects of Population Factors on Development-working Draft Resources for the Awareness of Population Impacts on Development (RAPID). Washington: The Futures Group.

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SCOPE: POPULATION

PURPOSE: The paper by showing that rapid population growth, is occurring, despite government programs in family planning, supports the view that stronger efforts in family planning should be undertaken by the government.

RESULTS: The report examines population dynamics, such as increasing birth rates, decreasing mortality rates and age structures, all indicating rapid population growth. The negative effects of this rapid growth is examined in relation to decreases in food production such as maize, changes in the labor force, savings, GNP and GNP per capita. Other negative effects of population growth are pointed out concerning income distribution, health and nutrition.

DATA: The report uses data on fertility rates to establish three alternative population projections for the year 2000. Projection A, high fertility, and Projection B reduced fertility, are used throughout the report to show how the attainment of Kenya's development objectives would be affected by alternative fertility rates.

CONCLUSIONS: The report's analysis indicates that rapid growth of the population may seriously impede Kenya's social and economic development. Population planning should become an integral part of the development process in Kenya.

COMMENTS: The Futures Group has produced several of these RAPID documents to accompany a dynamic computer program that graphically shows the effects of population growth on development in different countries. They are regarded as a policy tool to persuade government officials of the need to pay attention to population issues.

Gacii, P. 1978. "Nuclear Energy" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY (NUCLEAR)

COMMENTS: Discursive piece on nuclear possibilities.

Gichuki, M. et al. 1978. "Mechanization and Energy in Agriculture" Paper presented at Nairasha Conference.

SCOPE: ENERGY

COMMENTS: Overestimates the use of energy in agriculture. Probably not more than two percent is devoted to agriculture.

Gichuki, M. 1978. "Rural Energy Needs and Alternative Sources" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY

COMMENTS: A run down of alternative technologies.

Githinji, P.M. 1978. "Kenya's Energy Needs, Possible Supplies and Impacts on the Environment" Mimeographed paper. Nairobi: GOK/UNEP/UNDP Project on Environment and Development.

SCOPE: ENERGY

COMMENTS: Best summary paper currently available - as overall survey with policy recommendations.

Gomez, M.I. and Kothary, M. 1979. "Studies on the Production of Red Kidney Bean ..." in Journal of Plant Foods.

SCOPE: AGRICULTURE

RESULTS: The cooking time [and thus energy input] in a ready to eat palatable form has been effectively reduced to less than half an hour.

Gomez, I.I. (anticipated date 1980) "Carotene Content of Some Green Leaf Vegetables in Kenya and Effects of Dehydration and Storage on Carotene Retention" in Journal of Plant Foods anticipated publication Vol. 4, 1980.

SCOPE: AGRICULTURE

COMMENTS: Their findings are relevant to energy conservation in the processing industry, but appeared too technical for this study.

Henin, R.A. (no date) District Population Profiles Nariobi: University of Nairobi Population Studies and Research Institute.

SCOPE: POPULATION

PURPOSE: Population projections 1978-89 by district.

RESULTS: 48 pages of district population charts; 17 pages of provincial population charts.

DATA: Appendix describes methodology. Data derived from two sets of population projections included in a paper entitled "Alternative Population Projections for Kenya 1969-1989 with Reference to Demographic Trends in Kenya". While the two sets assume declining mortality, the first set assumes constant fertility while the other assumes rising fertility (based on findings from the 1962 and 1969 population census and well as the 1973 Danbui Demographic Survey).

Henin, R.A., Mott F. and Mott S. 1979. Recent Demographic Trends in Kenya and Their Implications for Economic and Social Development. Nairobi: University of Nairobi, Population Studies and Research Institute.

SCOPE: POPULATION

CONTENTS: Outlines relationship between population and development planning; fertility and mortality trends from 1962-1972; population projections to 1989.

DATA: Sources 1962 Population Census; 1969 Population Census; 1973 Baseline Demographic Survey; 1977 Baseline Demographic Survey summarized and generalizations drawn.

Hilton, D. 1978. "Report on Windmill Development Project," Department of Mechanical Engineering, University of Nairobi.

SCOPE: ENERGY (WIND)

COMMENTS: Describes Windmill Project which has since collapsed.

House, H.J. and Killick, T. 1980. "Future Development Possibilities for Kenya and Their Energy Implications" in Energy and Environment in East Africa, Proceedings of an International Workshop.

SCOPE: ENERGY

CONCLUSIONS: Depending the Kenya's growth scenario that is adopted, increases in the consumption of electricity and petroleum products by the year 2000 are projected to be between 170% and 106% above 1977 levels.

DATA: 1. Kenya Economic Surveys; 2. World Energy Supplies, 1950-1974; 3. Kenya Statistical Abstracts; and 4. E.A. Statistical of Energy and Power.

COMMENTS: The paper presents different but possible growth paths of the Kenya's economy and shows energy requirements under each growth path.

Hunt, D. "Poverty and Agricultural Development Policy in a Semi-arid Area of Eastern Kenya" Xerox copy, no date, no publisher, 18 pp.

SCOPE: AGRICULTURAL DEVELOPMENT

PURPOSE: Review of the Kenyan Special Rural Development Program (SRDP) in Mberere District impact on agriculture output and income distribution among Mberere farmers; a consideration of alternative policies which might have been tested to achieve the two objectives of SRDP: increased output and improvement assignment of individual title of land.

RESULTS: The author argues that innovations introduced by the SRDP involving timing of planing; row planting; planting in pure stands and hybrid maize seed; have not been accepted. Land area in Mberere is still under traditional crops grown according to traditional farming practices.

CONCLUSIONS: The author suggests a new agricultural development strategy: innovations which can be either incorporated into present household production systems requiring relatively low labour inputs, for which all or part of the capital can be supplied by the public sector, and much of risk can be borne by the public sector; at least until the relatively poor can afford to carry all or part of the cost of the innovation or they have full-time employment outside farming.

Jarbal, H. 1978. "Planning for Electricity in Kenya in the Midst of Uncertainty" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY

Kabagambe, D.M. 1976. "Aspects of Resource Conservation, the Role of Charcoal Industry in Kenya" University of Nairobi, Institute of Development Studies, working paper. Nairobi: University of Nairobi.

SCOPE: ENERGY (CHARCOAL)

COMMENTS: A mid-70's attempt to review charcoal consumption.

Kenya Central Bureau of Statistics, Ministry of Finance and Economic Planning. years 1953-57. "Kenya Agricultural Census (Highlands and Asia settled Area.)" Nairobi: Kenya Government Printers.

SCOPE: AGRICULTURE (STATISTICS)

Kenya Central Bureau of Statistics, Ministry of Finance and Economic Planning. years 1958-61. "Kenya European and Asian Agricultural Census" Nairobi: Kenya Government Printers

SCOPE: AGRICULTURE (STATISTICS)

Kenya Central Bureau of Statistics, Ministry of Finance and Economic Planning, 1963. Kenya Agricultural Census, 1962 Scheduled Areas and Coastal Strip Nairobi: Kenya Government Printers

SCOPE: FOOD (AGRICULTURAL STATISTICS)

DATA: Acreages, size of holding, crop production and yields, livestock, agricultural inputs, sheep, pigs, poultry, gross farm revenue, wages, employment.

Kenya Central Bureau of Statistics, Ministry of Finance and Planning (no date). Agricultural Census of Large Farms. Annually 1970 to present. Nairobi: Kenya Government Printer.

SCOPE: FOOD

DATA: Holdings, acreages, area under various crops, livestock, sheep, pigs, poultry, milk, fertilizers, inputs, gross capital expenditures.

Kenya Central Bureau of Statistics, Ministry of Finance and Planning. 1972. Results of Aerial Livestock Surveys of Kaputee Division, Samburu District and North Eastern Province Nairobi: Kenya Government Printers.

SCOPE: FOOD PRODUCTION (STATISTICAL DATA)

PURPOSE: Provide data on livestock population for large program of economic development in the range areas.

DATA: Information on age structure and reproduction, size distribution and suggested life table for cattle, goats, sheep, donkeys and wild herbivores.

Kenya Central Bureau of Statistics, Ministry of Finance and Planning. 1977. Integrated Rural Survey 1974-75 Basic Report Nairobi: Kenya Government Printer.

SCOPE: STATISTICAL INFORMATION ON RURAL DEVELOPMENT

PURPOSE: To provide rapid and reliable statistical coverage of the socio-economic trends in the rural areas.

RESULTS: Chapters on Population; The Economics of Smallholder Farming; Areas and Crop Production; Livestock Numbers and Milk Production; Labour Inputs.

DATA: Survey covered 23 districts - the predominant smallholder areas in Kenya; two visits to each person; and computer assessment.

COMMENTS: First source of comprehensive information on smallholders.

Kenya Central Bureau of Statistics, Ministry of Economic Planning and Development. 1976. Crop Review and Forecast Issued semi-annually since 1976. Nairobi: Kenya Government Printer.

SCOPE: AGRICULTURE (GENERAL)

PURPOSE: Obtain early indications of crop areas planted, production and expected yields for selected key crops, viz. maize, beans and potatoes. Surveys of farmers expectations are undertaken in June-July and December-January.

DATA: Pre 1980 - 2,430 small farmers in 176 rural clusters; 1980 - changing to a new sample base on 1979 census; Tables on number of holders production, harvest, sales, retail prices, month of harvest for the three crops.

Kenya Central Bureau of Statistics. 1978. "Economics of Energy and Power, 1969-78" Nairobi: Kenya Government Printer.

SCOPE: ENERGY (STATISTICS)

COMMENTS: First available breakdown of statistics.

Kenya Central Bureau of Statistics, Ministry of Economic Planning and Community Affairs. 1978. A Review of Land Use Changes; Agricultural Census of Large Farms 1977 Nairobi: Kenya Government Printer.

SCOPE: FOOD (AGRICULTURAL STATISTICS)

PURPOSE: A brief analysis of land use changes on large farms since 1963 with special reference to land transfer program.

RESULTS: Tables of numbers of farms in each district in various crops and livestock. Period is generally 1974-77.

CONCLUSION: Expanded cultivation of temporary crops especially cereals and sugar cane; increase in amount of subsistence cultivation and grazing and decline in land for livestock use and forests.

DATA: This volume is 24th in the series; census taken 31 May 1977; area included all holdings in the former scheduled areas and in the coastal strip; minimum size included was 8 hectares (20 acres); settlement farms managed as compact units were included.

Kenya Central Bureau of Statistics, Ministry of Finance and Planning. 1978. "Urban Purchasing Patterns" Social Perspectives Vol. 3 No. 1. Nairobi: Kenya Government Printer.

SCOPE: FOOD

PURPOSE: Survey of the purchasing behavior of the urban consumer - one input to FAO's then ongoing study of the food marketing condition in Kenya.

RESULTS: Households in lowest income group required almost all of total income to purchase food. Main purchases cereals meat and milk were 7-1/2 of total expenditure on food.

DATA: Nairobi, Mombasa, Nakuru and Kisumu, April-June 1977; random sample of households only certain spectrum of urban consumers covered (income 2500/=per mo.)

COMMENTS: Full presentation of data is to be found in the Urban Food Purchasing Survey Report to be published jointly by the C.B.S. and FAO Marketing Development Project.

Kenya Central Bureau of Statistics. 1979. "Rural Energy Survey" Nairobi: Kenya Government Printers.

SCOPE: ENERGY

Kenya Central Bureau of Statistics, Ministry of Economic Planning and Development. Kenya Fertility Survey 1977-1978, Volume 1. Nairobi: Kenya Government Printer.

SCOPE: STATISTICAL INFORMATION ON FERTILITY

RESULTS: Identify significant highlights on fertility differentials, information on attitudes toward family planning.

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**DATA:** Survey was a component of the National Integrated Sample Survey Program. Used selected rural areas. Questionnaires in tribal language. Information on general demography, nuptiability, fertility and family size, preferences for sex and number of children, knowledge and use of contraceptives, and some non-contraceptive factors affecting fertility.

Kenya Central Bureau of Statistics, Ministry of Economic Planning and Community Affairs. 1979. Statistical Abstract 1979 Nairobi: Kenya Government Printer.

**SCOPE:** STATISTICAL INFORMATION ON FOOD/POPULATION/ENERGY

**PURPOSE:** Compilation of statistics.

**RESULTS:** Population figures are from 1969 census. Vital statistics from 1971-76 [births and deaths registered]. For agriculture has charts and tables on: cash revenue to producers, 1975-78; gross marketed production, 1973-78; principal crops production and price, 1971-79; dairy products, 1972-78; agricultural inputs, 1972-78; chemical, medicinal and feed inputs, 1972-78; large farms - acreage, livestock, irrigation, 1970-78. For fuel and power: electricity statistics and sales, 1967-77 (1978 edition); fuel sales, 1971-78; oil refinery, 1974-78. For labour and manpower: employment and earnings on small farms and settlement schemes, 1969-72 (1978 edition); Integrated Rural Survey, 1974-75.

**DATA:** Data collected by Central Bureau of Statistics from Ministries, Industries and boards as appropriate.

**COMMENTS:** First edition 1955, covering the period 1950-55. Issues annually.

Kenya Central Bureau of Statistics, Ministry of Finance and Planning. 1978. "Urban Purchasing Patterns" Social Perspectives Vol. 3 No. 1.

**SCOPE:** URBAN STUDY

**PURPOSE:** Survey of the purchasing behavior of the urban consumer - one input to FAO's then ongoing study of the food marketing condition in Kenya.

**RESULTS:** Households in lowest income groups required almost all of total income to purchase food. Main purchases cereals, meat and milk were 7-1/2 of total expenditure on food.

**DATA:** Nairobi, Mombasa, Nakuru and Kisumu, April-June 1977. Random sample of households only certain spectrum of urban consumers covered (income 2500/ks . per mo.).

**COMMENTS:** Full presentation of data is to be found in the Urban Food Purchasing Survey Report to be published jointly by the C.B.S. and FAO Marketing Development Project.

Kenya Central Bureau of Statistics, Ministry of Finance and Planning. 1977. "The Rural Kenyan Nutrition Survey, February-March, 1977" Social Perspectives Vol.2 No. 4.

**SCOPE:** FOOD (NUTRITION SURVEY)

**PURPOSE:** Expand the pool of information on "quality of life" in Kenya and optimize resource allocation for the provision of social and health services.

**RESULTS:** Incidence of severe P.E.M. (Protein Energy Malnutrition) is low, but mild and moderate P.E.M. are fairly widespread-Eastern Province

most problems.

DATA: Survey of 1400 children aged 1-4 by Central Bureau of Statistics within the framework of the Bureau's National Integrated Sample Survey Programme (other information on these households available). Charts assess physical development in terms of % of standard: weight for age; height for age; weight for height.

Kenya Central Bureau of Statistics, Ministry of Economic Planning and Development. 1980. Economic Survey 1980 Nairobi: Kenya Government Printers.

SCOPE: ECONOMIC SURVEY

PURPOSE: Report on the economy in 1979.

RESULTS: Poor economic year due to continuing relatively low prices for coffee and tea on world markets; by drought conditions in the later months of the year; by substantially increased crude petroleum prices and by the impact of the credit restrictions on imports.

DATA: Chapters on Trade, Agriculture, Energy and the Social Scene (Nutrition). Agriculture chapter gives market information on outputs, inputs, prices, gross market production (official marketing channels only), credit, production volume, livestock, irrigation and land adjudication.

Kenya Central Bureau of Statistics, Ministry of Economic Planning and Development. 1979. Report of the Child Nutrition Survey 1978-79 Nairobi: Kenya Government Printer.

SCOPE: FOOD (NUTRITION STATISTICS)

PURPOSE: Preliminary results of 1978-79 survey.

RESULTS: Findings confirm those of first large nutrition survey of this type in 1977.

DATA: Information on height, weight, age, food, illness by location.

Kenya Cooperative Creameries. 1953. "The Kenya Dairy Farmer Monthly" Nairobi: Kenya Government Printer.

SCOPE: FOOD

Kenya Department of Agriculture. 1921. Report of the Agricultural Census of the Colony and Protectorate of Kenya Nairobi: Kenya Government Press.

SCOPE: AGRICULTURE

Kenya Ministry of Agriculture. "Provincial Annual Reports" Nairobi: Kenya Government Printer.

SCOPE: AGRICULTURE

PURPOSE: Annual Report

DATA: Production of crops including industrial, horticulture, food and root crops; animal production, land and farm management, land development, extension and training, veterinary services department and provincial agricultural board as well as statistics on administration.

Kenya Ministry of Agriculture. 1968. Economic Review of Kenya Agriculture Quarterly. Nairobi.

SCOPE: AGRICULTURE

DATA: Production and marketing information.

Kenya Ministry of Agriculture. 1969. Storage and Handling of Wheat and Maize in Kenya. Report of working party. Nairobi.

SCOPE: AGRICULTURE (WHEAT AND MAIZE)

PURPOSE: To give guidelines on the future storage policy in Kenya for cereals.

RESULTS: Recommended silo at Mombossa, up-country rail loading sites, merger of government boards, conversion from bag to bulk handling, more quality control and policy of self-sufficiency.

DATA: Wheat acreages, production, storage facilities (1968-69).

Kenya Sisal Board. Bulletin no. 1-78; July 1952-November 1971. Nairobi. Cease publication with November 1971.

SCOPE: AGRICULTURE

Kenya Tea Development Authority. 1964. Annual report and accounts. Nairobi.

SCOPE: CASH CROP

Kimuyu, P.K. (1980?) "Some Structural Aspects of Mineral and Wood Energy Demand in Kenya" Ph.D. Dissertation Proposal, University of Nairobi.

SCOPE: ENERGY (DEMAND)

COMMENTS: The author of this Ph.D. proposal is currently engaged in a research on the "provision of wood fuel in semi-arid regions of Kenya." The study has the financial support of NCST. The UNDP and USAID are also involved in the study.

King, R.P. 1978. "Development of Biogas - Slurry Plants and Systems in Kenya" U.N. Economic Commission for Africa, Addis Ababa.

SCOPE: FOOD

COMMENTS: Analyses biogas development in Kenya - really only applicable to large scale farm units.

Klaus, H.G. (expected completion 1981). "Parastatals in Kenya - Analysis of Their Condition and Development of Methods for and Improved Performance." Ongoing Institute of Developmental Studies Research Project sponsored by the Fredrich Ebert Foundation.

SCOPE: ECONOMIC STRUCTURE

PURPOSE: Develop recommendations concerning improvement of the internal performance of Parastatals and their relationships to the economic environment.

DATA: Interviews, questionnaires.

EXPECTED OUTPUTS: 1. pilot study paper; 2. several case studies; and 3. manual of implementation strategies.

COMMENTS: Initial analysis of the structure and performance of Parastatals in Kenya may be completed by now.

Klemens, H., ed. et al. 1972. "Agricultural Production in Kisiu District/Kenya and Proposals for its Development" Technical University of Berlin, Institute for Overseas Agriculture, Post Graduate Training, Center for Agricultural Development.

SCOPE: AGRICULTURE

PURPOSE: Collect, assess and summarize agricultural data for use in the Kisii Integrated Development Plan.

DATA: Tables on maize and subsistence crops, coffee, pyrethrum, tea, passion fruit, pasture farming and livestock. Reliability: students working with existing data and supplementing it with on-farm interviews.

Koester, U. 1978. Kenya's Economic Policy with Respect to the World Coffee Market University of Nairobi, Institute of Development Studies, working paper no. 333. Nairobi: University of Nairobi.

SCOPE: AGRICULTURE (COFFEE)

PURPOSE: Analyze Kenya government's coffee marketing policies of recent years with the aim of presenting recommendations for improvement.

RESULTS AND CONCLUSIONS: Coffee prices are an important determinant of domestic income changes and the balance of payments. Recommends introducing international tradable certificates for quotas, contributing to an international buffer stock, and imposing a variable export tax to compensate for the difference between the world market price and the domestic price.

DATA: Value of Kenya coffee exports 1964-77, coffee prices. Sources: Statistical Abstract and Kenya Statistical Digest Equivalent figures for world production from World Bank.

Kokwaro, J.O. 1974. "Advantages and Disadvantages of Charcoal Burning in Kenya" Paper presented at UNEP-IDEP Workshop on Environment and Rural Development in East Africa, Nairobi.

SCOPE: ENERGY (CHARCOAL)

Kokwaro, J.O. 1980. "Indigenous and Introduced Common Firewood and Charcoal Plants of Kenya" in Energy and Environment in East Africa, Proceedings of an International Workshop. Nairobi, March, 1980.

SCOPE: ENERGY (FIREWOOD AND CHARCOAL)

CONCLUSION: Afforestation is recommended and the introduction of quick growing trees emphasized.

COMMENTS: The pros and cons of using firewood and charcoal in Kenya are discussed. Various methods of preparing charcoal are also contrasted. The paper makes specific suggestions of the type of trees that should be grown for firewood.

Kristoferson, L. 1980. "Global Energy Research: Implications for Sweden and Kenya" in Energy and Environment in East Africa, Proceedings of an

International Workshop, March, 1980.

SCOPE: ENERGY

CONCLUSION: There is a need for "Energy Research Centre" in Kenya.

COMMENTS: The paper stresses the importance of Research and Development in Energy both in Kenya and Sweden. Kenya and Sweden are shown to face similar energy problems.

Maitha, J.K. 1978. "Energy: Balance of Payments Implications" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY

Manundu, M. 1979. "The Impact of Rising Woodfuel Utilization Rates and Deforestation on a Semi-arid Environment in Kenya" Part of an ongoing Ph.D. Research Work, University of Michigan.

SCOPE: ENERGY (WOOD)

Manundu, M. "Forest Energy, Economic Development, and the Environment" Ongoing Ph.D. Dissertation, Michigan University.

SCOPE: ENERGY (WOOD)

DATA: Data were collected with aid of questionnaires in Machakos District, Development plans, Kenya Statistical Abstracts etc.

COMMENTS: This is a Ph.D. Dissertation Proposal. The author is currently teaching at the Department of Economics, University of Nairobi. He has already collected the data he needs and writing the dissertation.

Marquand, C.J. 1978. "Energy Resources Management" UNEP/GOK/UNDP Project.

SCOPE: ENERGY

Marquand, C.J. and Githinji, P.M. 1979. "Energy resources in Kenya and Their Environmental Impacts." Paper read at Kenya Academy of Sciences-Beijer Institute Workshop on Rural Energy in East Africa, 5-11 May, 1979 at Nairobi. Mimeographed.

SCOPE: ENERGY

PURPOSE: This article reviews the primary energy sources, existing and potentially available to Kenya, as well as their environmental effects.

RESULTS: The authors lists the principal energy supply source by fuel types, commenting on their availability and potential use in terms of Kenya. This list ranges from oil, coal and electricity to wood, charcoal, alcohol and geothermal.

CONCLUSIONS: "Fuelwood, is the most important energy resource in Kenya for the majority of the population and its provision, should be accorded first priority." Alternative sources such as solar and biogas are potentially available to Kenya, however they present a number of technical and financial problems.

DATA: The article contains good background data on Kenya's present energy situation consisting of eight tables covering, consumption, value of

of imported crude and exported refined oil and comparative plant costs of electricity generation.

COMMENTS: The majority of environmental effects mentioned by the authors are universal, listed in the standard literature on the subject and not unique to Kenya or its climate.

Massell, B. and Heyer, J. 1967. "Household Expenditure in Nairobi: a Statistical Analysis of Consumer Behavior" University of Nairobi, Institute for Development Studies. Occasional paper no. 2. Nairobi: University of Nairobi.

SCOPE: MARKETING (STATISTICAL ANALYSIS)

PURPOSE: Estimate expenditure elasticities and present demand projections.

RESULTS: Per capita expenditure on school fees falls as household size increases; opposite effect for health.

DATA: Regression coefficients for various expenditures projected rates of increase in consumer demand. Based on Kenya Government, Directorate of Planning, Ministry of Finance and Economic Planning, The Pattern of Income, Expenditure and Consumption of African Middle Income Workers in Nairobi, July 1963. Nairobi, July, 1964.

Mathenge, J.S. 1978. "Financing Energy Development" Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY (FINANCING)

Mbote, W.N. 1978. "Energy for Development: An Environmental Perspective" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY

McGranahan, G. Chubb, S; Nathans, R.; and Mbeche, O. 1979. "Patterns of Urban Household Energy Use in Developing Countries: The Case of Nairobi." Paper read at Kenya Academy of Sciences-Beijer Institute Workshop on Rural Energy in East Africa, 5-11 May, 1979 at Nairobi. Mimeographed.

SCOPE: ENERGY (USE PATTERNS)

PURPOSE: This report seeks to explain and analyze the interrelationship between urbanization, development and energy use. The approach followed is to analyze direct and indirect energy demand as it relates to various urban household activities at different income levels.

**RESULTS:** A profile of urban energy use for Nairobi produced according to its function in supporting five categories; residential, transportation, food, housing and services of household activities. The profile is based on direct sampling for some categories and extrapolated from energy intensity coefficients for others. Findings are presented in terms of distribution between five income levels. Total per household energy use is shown to increase rapidly with rise in income with transportation being the most income elastic or having the greatest percentage increase between low and high income lands. It is estimated based on the sample survey that the poorest 59% of the population account for 27% of total energy consumption, while the richest 18% account for 45%.

**DATA:** A survey questionnaire was used for the data on residential or internal "in house" consumption which is explained and presented in the report.

**COMMENTS:** This is a major report in terms of data base and scope while concentrating entirely on Kenya's urban population. The authors claim it is the second such household energy profile for a developing country. A similar profile was undertaken for Mexico City. The results of the two cities are compared in this report.

Miles, D.G.; Squire, H.A. and Destio, D. 1972. Beef Industry Development: Kenya: Studies in Forage Production. Technical paper no.2. Rome: FAO.  
**SCOPE:** BEEF PRODUCTION

Molnos, A. 1972-73. Cultural Source Materials for Population Planning in East Africa (4 vols.) Nairobi: East Africa Publishing House.  
**SCOPE:** POPULATION

Mott, Susan H. and Mott, Frank L. 1980. "Rapid Population Growth in Kenya." Paper presented at African Studies Association Annual Meeting, Philadelphia, October 15-18, 1980.

**SCOPE:** POPULATION (GROWTH)

**PURPOSE:** Review of current population trends in Kenya, and what these trends mean in relation to government policies of family planning as well as other development problems.

**RESULTS:** Using the latest available data, the authors indicate Kenya's high population growth (4% per annum) which is largely a reflection of rising fertility and lower mortality rates. The authors explain this high rate which combines with the local population's attitudes and behaviour patterns which are largely "pronatalist" in nature.

**CONCLUSIONS:** Due to the age structure of Kenya's population (over half of total population is under 15 years of age) population growth should continue even if a drop in fertility rate occurs. This has parallel implication for demographic impacts such as larger number of labor age population seeking diminishing job opportunities and pressures to provide health care.

**COMMENTS:** A good, clear examination of latest available data on population trends and what causes increases. However, authors conclusions on behavior of Kenyans in relation to family planning are largely based on the Kenya Fertility Survey 1977-1978. Kenya Central Bureau of Statistics, 1980. A limited sample survey, also a limited source from which to estimate future fertility rates or real preferences on the part of Kenya's population.

Mukai, J.T., ed. 1979. "Price and Marketing Controls in Kenya." Institute of Development Studies, occasional paper no. 32. Paper presented at Institute of Development Studies Workshop held in 1979.  
SCOPE: MARKETING (GENERAL)

Mung'ala, P.M. 1978. "Estimation of Present Consumption and Future Demand for Wood Fuel in Machakos District of Kenya," MSc Thesis, University of Dar es-Salaam.  
SCOPE: ENERGY (WOOD)

Muriuki, N.J. 1978. "Oil and the Kenya Economy" (Nairobi?): Kenya Shell Limited.  
SCOPE: ENERGY (OIL)

Mureithi, L.P.; Otieno, J.O. 1976. "Food, Population and Rural Development in Kenya: Progress Policies, Problems and Prospects." Paper delivered at Sixteenth International Conference of Agricultural Economists, held in Nairobi Kenya July 26-August 4, 1976.

SCOPE: FOOD POLICY

RESULTS: Kenya won't be self-sufficient in wheat, rice and sugar, Kenya may meet her own demand for maize sorghum millet, milk eggs and meat products.

CONCLUSION: Social and political marginal groups, not having access to political system haven't influence food research, production and distribution. Pricing mechanism, structure of agriculture and monopoly market benefit large-scale producers.

DATA: Population Estimates 1946-73; Statistical Abstracts; Value of Agric. Output 1955-73; Selected Indicators of Regional Disparities 1969-70; Crop acreages by ecological zone; Rural Employment in Agric. and Forestry 1954-73; Farm size; Income Distribution.

Muthee, A. 1978. "The Role of Biogas in the Rural Energy Package" Paper presented at Biogas Seminar, Njoro.  
SCOPE: ENERGY (BIOGAS)

Muturi, S.N. 1978. "Kenya Environment and Development Project: The Agriculture Setting." Nairobi: National Council for Science and Technology.

SCOPE: AGRICULTURAL POLICY

PURPOSE: Lay foundation for an agricultural resource management program which uses natural resources on a sustained yield basis.

RESULTS: Sections on 1. agricultural policy and problems in achieving the stated goals and objectives (e.g. land potential, population, land tenure system); 2. recent trends in Agricultural Production including marketing; 3. use of pesticides; 4. use of fertilizers; 5. irrigation development; 6. soil conservation and deforestation; and 7. critical policy issues.

CONCLUSION: See last section on critical policy issues.

DATA: Tables to go with each section mentioned above. Figures are national

scale. Sources are Statistical Abstracts 1974 and 1977 and various Trade Board Publications.

Mwangi, M. 1974. "Farm Level derived Demand Responses for Fertilizer in Kenya" University of Nairobi, Institute of Development Studies, working paper no. 273. Ph.D. Thesis, Michigan State University.

SCOPE: AGRICULTURE (FERTILIZER)

PURPOSE: Generate optimum farm plans for small scale farms in Central Kenya, and from these plans to derive demand responses for fertilizer. A research proposal.

DATA: Fertilizer Subsidies: Rates and Total Cost 1964-73; source: Ministry of Agriculture; Fertilizer consumption, utilization, area. Sources: Report of the Working Party on Agricultural Inputs (Havelock Report) Ministry of Finance and Economic Planning, Kenya 1971; Chege, Fred E. and Ascroft, J. "Marketing Farm Supplies in Rural Areas: A Study of Farm Input Availability in Tetu Division" IDS Discussion Paper, University of Nairobi, 1972.

Mwangi, M. 1980. "Food Production" Paper presented at Ministry of Economic Planning Conference on Food Nutrition held at Mombasa, October 1980.

SCOPE: FOOD PRODUCTION

COMMENT: It is one of the sets of conflicting data the Cabinet Food Policy paper is trying to resolve.

Myers, N. 1979. "Bio-energy for Kenya: Some Technical Possibilities" Paper read at Kenya Academy of Sciences-Beijer Institute Workshop on Rural Energy in East Africa, 5-11 May, 1979 at Nairobi. Mimeographed.

SCOPE: ENERGY (BIO-ENERGY)

PURPOSE: The paper emphasizes the potential for "bio-energy" in tropical zones, like Kenya, principally by growing plant biomass in sufficient quantities.

RESULTS: The paper reviews in a rapid and non-detail form five options that could fit Kenya's potential for generating bio-energy: 1. agricultural and forestry residues; 2. fast growing tree plantations; 3. fast growing annual crops eg. sugar cane and cassava; 4. hydrocarbon trees and 5. aquatic biomass systems. The author implies that all these options are attractive in the case of Kenya, perhaps with some shortcomings connected to fast growing tree farms or fast growing annual crops in terms of competing for agricultural land.

National Council for Science and Technology. 1978. "Coping with the Energy Crunch in Kenya" Paper presented at the first National Energy Symposium, Nairobi.

SCOPE: ENERGY

Ndombi, J.M. and Bhogal, P.S. (no date) Prospects of Geothermal Energy in Kenya. Mimeographed. Nairobi: University of Nairobi.

SCOPE: ENERGY (GEOTHERMAL)

PURPOSE: By reviewing the potential for the use of geothermal energy, the authors wish to simulate its development in Kenya through increased exploration.

RESULTS: Present day Kenya obtains most of its energy needs from the use of oil, hydro-electricity and coal. However, geothermal energy should contribute significantly in terms of total electricity consumption or 10% of this total by 1990.

CONCLUSIONS: Several areas located within the Kenya Rift Valley as a result of exploration studies are potential geothermal plant sites. Three sites (Olkaria, Eburru, and Lake Bogoria) are most promising. A geothermal power plant is now under construction at Olkaria. The main handicap of geothermal power utilization involves the management of corrosive and poisonous residual fluid wastes.

Nieuwdt, S. 1977. "Influence of Rainfall on Rural Population Distribution in Kenya" Journal of Tropical Geography 44: 45-56.

SCOPE: POPULATION

SOURCE: CS SOCIAL SCISEARCH

Njau, E.C. 1976. "Hydropower and Rural Electrification in East Africa" East African Academy. Mimeographed paper.

SCOPE: ENERGY (HYDROPOWER)

Noble, J.W. and Ojiambo, S.B. 1975. "Geothermal Exploration in Kenya" in Second U.N. Symposium on the Development and Use of Geothermal Resources, vol. 1, 1975.

SCOPE: ENERGY

Odada, J.E.O. 1975. Supply of Kenyan Pyrethrum. MA Thesis. Nairobi: University of Nairobi.

**SCOPE: MARKETING (PYRETHRUM)**

**PURPOSE:** Estimate Kenyan pyrethrum farmer's responsiveness to price changes.

**RESULTS:** Farmers are highly responsive to price changes and price elasticity of pyrethrum supply varies from one region to another.

**CONCLUSIONS:** Need carefully planned and consistent marketing policy needed to meet production (and foreign exchange) goals for pyrethrum.

**DATA:** Acreage data from "various issues of district and provincial annual reports of the Department of Agriculture"; Regional data on acreage from Crop Production Division of the Pyrethrum Marketing Board; Output data from Pyrethrum Marketing Board in Nakuru; Prices of competing crops obtained from CBS Statistical Abstracts. **References:** Maitha, J.K. Coffee Production in Kenya: An Econometric Study. East African Literature Bureau, Nairobi n.d.

Obasi, G.O.P. and Rao, N.N.P. 1976. "A Detailed Study of Solar Radiation and Potential Photosynthesis Distribution in Kenya," World Meteorological Organization, Proceedings of the UNESCO/WMO Symposium on Solar Energy, Geneva.

**SCOPE: ENERGY (SOLAR)**

Ochieng Owayo, C.Y. 1978. "Exploration for Energy Minerals in Kenya, Programme Policies and Implications" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

**SCOPE: ENERGY (MINERAL)**

Odingo, Rhoda Agonyo. 1977. Decision Making on Food Marketing in Kenya with Special Reference to Maize and Sugar. MBA Thesis, University of Nairobi.

**SCOPE: FOOD (MARKETING)**

**PURPOSE:** Examine the current government organization (parastatal boards to control marketing) and the success at: 1. guaranteeing urban food supply; 2. stabilization of prices between locally and seasonally; 3. technical allocation efficiency; 4. promotion of agricultural development.

**RESULTS:** Producer price increase in September 1976 substantially changed maize industry - great production increase.

**DATA:** Interviews with government officials; tables on production and consumption of maize and sugar 1974-85; sources: Kenya Sugar Industry, 1975; Maize and Produce Board.

**COMMENTS:** Appendix 1 contains Min. of Agricultural Land and Farm Management Division memo on "calculations showing the competitive position of major agricultural enterprises at current (Feb 1977) prices and costs on large and medium size as well as commercial small-scale farms." Bibl. Kenya National Trading Corp. Annual Reports 1970-75.

Odingo, R.S. 1980. "The Development of Hydro-electric Power Resources in

East Africa: with Special Reference to Kenya" in Energy and Environment in East Africa, Proceedings of an International Workshop, March 1980.

SCOPE: ENERGY (HYDROELECTRIC)

DATA: Data from statistical abstracts in Kenya.

See East Africa section for review.

Ogenda, R.B. 1967. "The Locations and Structure of Kenya's Agricultural Processing Industries" Thesis, University of London.

SCOPE: MARKETING (GENERAL)

PURPOSE: "Investigate location and structure of Kenya's agricultural processing industries."

RESULTS: "Industrial structure is examined by individual industries and by composite groups. Employment significance of various establishment size-groups and that of mechanized establishments are studied. Furthermore, assessments of Kenya's industrial diversification are made."

CONCLUSIONS: 1. discontinuous industrial belt from Uganda to S.E. coast; 2. higher concentrations in and near principal towns; 3. industries are generally market or material oriented; 4. identified location factors - transportation costs and personnel are most influential.

DATA: Research includes non-agricultural manufacturing industries, Period June 1964-January 1965. Method: questionnaires proved unsuccessful so simplified and used by enumerators (students and friends). Source of data: Ministry, E. African organization, large industries, used ISIC classification code. Numerous tables (93).

COMMENTS: Appears comprehensive; voluminous.

O'Keefe, P. 1980. "Environmental Research and its Applications for Energy in Traditional Societies" in Energy and Environment in East Africa, Proceedings of an International Workshop, Nairobi, March 1980.

SCOPE: ENERGY

CONCLUSIONS: In order to step up fuelwood production, village wood lots should be established in rural area.

COMMENTS: This article focuses on appropriate energy technologies for East Africa. This is a short article that offers plausible scenarios for dealing with energy problems in East Africa.

Okeyo, A.P. 1979. Women in the Household Economy: Managing Multiple Roles. Studies in Family Planning. 10: 337-43.

SCOPE: FOOD (WOMEN)

PURPOSE: To understand the way Kenyan market women share their responsibilities in subsistence production, income generation, child rearing, household maintenance.

RESULTS: Specific socioeconomic circumstances enable women to do market work for extra cash. They form support groups comprised of kin and marketing and agricultural work groups of ten leaving older children in the house to do their jobs. As Luo economy is monetized women still responsible for food. Trading allows a degree of independence from kin.

CONCLUSIONS: The necessity for money in Luoland is growing and forcing women into trading. There is a domestic structural dependence that is being built upon the opportunity (or lack of it) to earn income.

DATA: Questionnaire of 84 women in market trading in Luoland Kenya. Aimed at assisting the participation of women in marketing of agricultural and fish in rural markets (14 questions).

O'Laughlin, Agnes Addai. 1976. Nutrition Intervention Program in the Drought-Affected Areas of Kenya (Kijiado, Kitui and Machakos Districts)  
Nairobi: Catholic Relief Services.

SCOPE: FOOD (POLICY)

PURPOSE: Evaluation of the program.

RESULTS AND CONCLUSION: "More satisfactory results could be obtained if the most important input of the program (the food-ration) could be upgraded and brought to the level recommended by the original plan."

DATA: Appendices show percentage of children in the nutrition program who are below their acceptable (less than 80% weight-for-age standard) for October 1975-June 1976 by month. Data gathered from field offices of the program.

Olindo, Perez Maland. 1979. "Rural Energy Demand - Perspectives and Prospects" Paper read at Kenya Academy of Sciences-Beijer Institute Workshop on Rural Energy in East Africa, 5-11 May 1979 at Nairobi. Mimeographed.

SCOPE: ENERGY (RURAL DEMAND)

PURPOSE: The article outlines the political and economic implications of the energy problem in Kenya. This problem is seen primarily as a result of energy dependence on external sources which the author implies must be changed.

RESULTS: The author characterizes the difficult position of developing countries like Kenya which have no fossil fuels or large rivers for generating hydroelectricity. Such consumer developing countries are caught in a intermediary arrangement or "squeeze" between oil producing countries and western based multinational companies who supply and distribute fossil fuels and natural gas. This disadvantageous position is further exacerbated by the lack of government controls or guarantees for long term supplies at reasonable prices.

CONCLUSIONS: The article suggests the creation of a strong national energy authority with a clear mandate and budget to explore every aspect of the energy question as it pertains to Kenya. Additionally, the new authority should explore new supply sources such as small hydroelectric plants and geothermal energy.

COMMENTS: The authors raises what appears to be some relevant issues. However, there is little or no critical analysis or supporting data.

Onyango, F.N. and Beba, A. 1980. "An Investigation of Solar Energy Distribution in East Africa - The Case of Kenya" in Energy and Environment in East Africa, Proceedings of an International Workshop, March 1980.

SCOPE: ENERGY

CONCLUSIONS: Solar maps of Kenya and East African countries can be constructed using the model of solar radiation developed in this paper.

DATA: The solar data were collected from seven weather stations in Kenya. Imaginary data were used for simulation purposes.

COMMENTS: The theoretical model that is constructed in this paper is claimed to have a strong predictive power.

Ostberg, Wilhelm and Lilljequist, Ann. 1973. The Social Impact of Population Growth. A Study of Social Changes in Marakwet Division. University of Nairobi, Institute for Development Studies, working paper no. 99. Nairobi: University of Nairobi.

SCOPE: POPULATION

PURPOSE: A research proposal presented to invite criticism and suggestions.

CONTENT: Outline of Marakwet society as a background to a discussion of social change and development in the area. Social change is limited to changing population composition. Outlines study methodology.

COMMENT: Not relevant to this study.

Oswald, Karin E. 1980. Agrarwirtschaft und Soziale in Baringo District/Kenya Frankfurter Wirtschafts und sozial geographische Schriften. no.35. Frankfurt/Main: Johann Wolfgang Goethe-University.  
Title in English: Agriculture and Social Change in Baringo District Kenya.

SCOPE: FOOD PRODUCTION

PURPOSE: To develop first hand knowledge of social change in an agricultural area of a third world country and to develop information useful in affecting positively development and social change.

RESULTS: A detailed, well documented report with specific case studies. Chapters on: theory of development; population; agricultural development; on irrigation scheme; production; training and markets. Large bibliography.

CONCLUSIONS: There are wide differences between the various areas within the district. Colonialism has strongly affected the area and these changes are still operating. Development now is progressing and there are possibilities for small scale industry and tourism.

DATA: Extensive use of questionnaires, interviews and field observations as well as Kenya local and national government data.

COMMENTS: Excellent detailed study. Valuable local data. Written in German and not easy to read.

Owako, Frederick. 1971. "Machakos Land and Population Problems" in Studies in East African Geography and Development. Edited by S.H. Ominde pp. 177-192. Berkely: University of California at Berkely Press.

SCOPE: POPULATION

PURPOSE: Population pressure is a major problem facing the Machakos District. The author discusses the nature and extent of this pressure in terms of environmental limitations and historical factors. The article also studies population movements in the district as a form of adjustment to

the pressing population problem in relation to land resources.

RESULTS: The author suggests that the influence of physical environment factors contributed to limiting settlement in the district. The limitation of rainfall, shallow soils and rocky and steep hills stand out as influencing areas of sparse population. Other factors such as the presence of tsetse flies, lack of surface water and the rapidity with which the land deteriorated under constant use all affected land settlement.

CONCLUSIONS: The capability of the Machakos land area for supporting human settlement must take into account environmental factors such as aridity or tsetse fly invasion. Presently, one of district's problems is that, with a low level of technology in a difficult environment relatively large heccarages are required per head of population.

COMMENTS: The article was based on the author's unpublished Ph.D. thesis (University of London, 1969) The Machakos Problem: A Study of Some Aspects of the Agrarian Problems of Machakos District of Kenya.

Owuor Onyango, J.D. 1978. "Deforestation and Fuelwood Supply" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY

Pischke, J.D. von 1973. "A Survey of Major Agricultural Credit Programmes and Institutions Operating in Kenya" University of Nairobi, Institute of Development Studies. Nairobi: University of Nairobi.

SCOPE: AGRICULTURE (ECONOMIC PROGRAMS)

PURPOSE: Survey

RESULTS: Describes land transfer and settlement schemes, operations of the agricultural finance system, short term farm credit and several pilot projects.

DATA: Mostly loans and lending amounts.

Pig Industry Board of Kenya. 1956. Official Bulletin. Quarterly. Nairobi.

SCOPE: AGRICULTURE

Ritchie, K.G.H. 1976. "The Identification and Analysis of Nutritional Problems in Rural Areas: An Approach for Voluntary Agencies" University of Nairobi, Institute for Development Studies, working paper no. 265. Nairobi: University of Nairobi.

SCOPE: NUTRITION

PURPOSE: Outline a systematic approach to problem analysis for small, usually voluntary, development agencies.

COMMENT: Not suitable for this study, except that it recognizes the importance of NGO's in this issue.

Rukandema, M. 1977. "Resource Availability, Utilization, and Productivity on Small-scale farms in Kakamega District, Western Kenya." Ph.D. Thesis, Cornell University.

**SCOPE: AGRICULTURE**

**PURPOSE:** Small-scale production systems in Western Kenya were measured with the aim of identifying the critical constraints to expanded production, and subsequently suggested appropriate measures to raise farm productivity, incomes and living standards. Of particular concern were the implications for rapid population growth and the consequent decline in the size of holdings, for the choice of suitable technologies.

**RESULTS:** Land shortages in some parts of the district, others have adequate supply; technology is rudimentary; labor is underemployed; labor productivity and incomes are low.

**CONCLUSION:** Need to intensify production, need effective extension service and appropriate credit/input supply relationships.

**DATA:** Randomly selected farmers interviewed in two villages weekly for twelve months beginning in October 1975. Obtained data on family composition, tools, rainfall, labor input, income, maize consumption.

**COMMENTS:** See IDS Working Paper No. 253 which also describes resource base (Chapter II of this thesis).

Rurgu, G. M. 1978. "An Economic Analysis of the Kenya Milk Subsystem" Ph.D. Thesis, Michigan.

**SCOPE: FOOD (MILK DEMANDS)**

**PURPOSE:** Examine demand for milk and milk products as well as supply response of commercial milk output to determine optional pricing policy.

**RESULTS:** Annual growth rate of 5%. Demand of milk was inelastic with respect to price but elastic with respect to income. Export of dairy products were substantial at low domestic demand projections, but disappeared in 1984 at high demand productions.

**DATA:** Sources: Central Bureau of Statistics, Kenya Dairy Board, Kenya Co-operative Creameries, Co-operative Unions. Milk related figures generally 1968-1974.

Schipper, Lee, and Mbeche, Oyoko. 1979. "Energy Demand and Conservation in Kenya (working paper)." Paper read at Kenya Academy of Sciences-Beijer Institute Workshop on Rural Energy in East Africa, 5-11 May 1979 at Nairobi. Mimeographed.

**SCOPE: ENERGY**

**PURPOSE:** The article suggests the need for a thorough examination of commercial or modern sector energy consumption by end use type in Kenya. Such information should provide an understanding of how energy conservation is being practiced or can be practiced.

**RESULTS:** The authors present an energy accounting table of primary supplies and distribution among eight categories of end use: Residential, Building and Commercial, Large Industry, Auto, Truck and Bus, Rail, Air, Marine and other.

**CONCLUSIONS:** The results of the article in terms of an energy accounts flow, indicates how much energy it takes to support a variety of key industrial and service activities. This information provides an initial

base line for forecasting purposes. The authors imply that significant conservation measures are present in the industrial sector of Kenya.  
DATA: Data on energy consumption was collected from a sample number of end users for each consumption category. For example, data from 15 large industries was used as representative of the industrial sector.  
COMMENTS: The article represents the results of preliminary research on energy use in Kenya, with good supporting, direct data. As implied this research should be expanded to provide a more complete view of how and by whom energy is consumed in Kenya.

Schmidt, G. 1979. "Maize and Beans Marketing in Kenya: The Interaction and Effectiveness of the Informal and Formal Marketing Systems" Institute for Development Studies, occasional paper no. 31. Nairobi.  
SCOPE: FOOD (MARKETING)

Schonherr, S. and Ogendo, O. 1974. "Discussion of a Food and Nutrition Policy for Kenya" Paper prepared for the U.N. World Food Conference held at Rome, 5-16 November, 1974. Kenya Delegation Item 916. Also Institute for Development Studies, discussion paper no. 241.  
SCOPE: FOOD POLICY

Searle, R.C. 1970. "Evidence from Gravity Anomalies for Thinning of Lithosphere Beneath the Rift Valley in Kenya" The Royal Astronomical Society Geophysical Journal 21: 13-31.  
SCOPE: ENERGY

Segall, Marshall H. 1978. Nutrition and Family Planning Attitudes Among the Gusii and Meru of Kenya. (N.S.F. Grant #INT 76-10464).  
SCOPE: POPULATION/FOOD  
PURPOSE: Gather information on Family Planning Attitudes among rural peoples in Kenya, test hypothesis relation nutrition and fecundity.  
RESULTS: Improved maternal health correlated with few children. Note: didn't examine child health.

**CONCLUSIONS:** There are inter-district differences in both family planning attitudes and in various indices of fertility. Some relationships were established which support perceived suitability hypothesis, but still is an open question.

**DATA:** Survey questionnaire administered in tribal language to 388 parents, 78% female. Correlated live births/mothers age; live births/maternal health and nutrition; live births/family economic status; birth interval/maternal health and nutrition.

Senga, W.M.; House, W.J. and Mancndu, M. 1980. "Assessment of Energy Supply and Demand in Kenya."

SCOPE: ENERGY

Shah, Mahendra M. 1977. Food Demand Projections Incorporating Urbanization and Income Distribution: Kenya (1975-2000). Laxenburg Australia: Food and Agriculture Program.

SCOPE: FOOD

PURPOSE: Project food demand and explicitly consider the effects of urbanization and income distribution on future food demand.

RESULTS: Derivation of Food Consumption Baskets, Estimation of Demand Elasticities, Food Demand Projections.

DATA: Data used: CBS, 1968-69 Household budget surveys in Nairobi, Mombasa and Kisumu; CBS, 1970-71 Rural Household Survey, Nyanza Province; CBS, 1963 Survey of Middle Income Earners in Nairobi; CBS, 1974-75 Integrated Rural Survey, IRS 1; CBS, 1977 Urban Food Purchasing Survey Phase I. At least 50% of the book is reproduced charts from these surveys.

Sharma, K.L. 1969. "Agriculture and Structural Transformation in a Developing Economy - The Kenyan Experience" Paper prepared for Kenya Chapter for International Development seminar on Patterns of Development and Lifestyles in Eastern Africa, 10-13 July 1979. Nairobi. Mimeographed.

SCOPE: FOOD

PURPOSE: To examine the nature and extent of the changes in the structure of the national economy during the period 1964-78 (National Planning periods) by reference to conventional economic indicators.

RESULTS: The share of agriculture in national income declined 6% over the period at an increasing rate and contributed on 25% to the total GDP. Agricultural employment grew at a rate far below that of non-agricultural employment. These trends are common in developing countries.

CONCLUSIONS: Kenya's response to structural change is like that of other developing countries. The rate of structural transformation becomes intensive with the pace of development. Farm labor force reduction is necessary for establishing factor proportions that yield returns to labor in agriculture similar to those for labor in other sectors.

DATA: Republic of Kenya Statistical Abstract 73, 77. Economic Survey 1973.

Singh, P. 1978. "Statistics of Energy and Power" Paper presented at Kenya National Energy Symposium, held in Nairobi, November 1978.

SCOPE: ENERGY (STATISTICS)

Skinner, N.J. 1977. "Recent Geophysical Studies of the Kenya Rift Valley" Contemporary Physics 18: 455-70.

SCOPE: ENERGY

Smith, L.D. 1969. "Resource Allocation, Income Distribution and Agricultural Pricing Policies in Kenya" University of Nairobi, Institute for Development Studies, discussion paper no. 85. Nairobi: University of Nairobi.

SCOPE: MARKETING (GENERAL)

PURPOSE: Examine the effectiveness of their current agricultural pricing policies in effecting income redistribution.

RESULTS: Existing pricing rules create income redistribution effects. There is no consistent principle regarding income redistribution underlying these flows. Discusses which groups are subsidizing which with specific crops.

CONCLUSION: (p 607) "We may safely conclude from this that it is unlikely that income redistribution is a major policy objective in Kenya's agricultural policy." An optimum allocation of resources is a preferred objective to that of income redistribution.

DATA: Only on beef cattle. T.J. Aldington and F.A. Wilson, The Marketing of Beef in Kenya, 1968. IPS occasional paper no. 3.

Smock, Audrey C. 1979. Measuring Rural Women's Economic Roles and Contributions in Kenya. Studies in Family Planning. 10: 385-90.

SCOPE: WOMEN (ECONOMIC ROLE)

PURPOSE: Development of survey instrument Division of Labour Module. Looks at physical and labor inputs, farm production, yields, household income and activities in terms of individual inputs.

COMMENTS: The instrument is available now through Kenya Central Bureau of Statistics and is relevant to the problem area in its investigation of labour inputs to agriculture and household activities.

Staudt, K. 1975. "The Effects of Government, Agriculture Policy on Women Farmers", University of Nairobi, Institute of Development Studies. Nairobi: University of Nairobi. Working paper no. 225. Mimeographed.

SCOPE: FOOD

PURPOSE: Looks at the relationship between farm management type and the receipt of agricultural services with special attention to farms managed by women.

RESULTS: Most programs are aimed at men while women are the ones who are farming. Their role is not valued as such because the fruits of their labor are used as food alone.

CONCLUSIONS: Women usually have less access to technical, informational and financial inputs. However, they adopt new crop and husbandry practices in a manner similar to other farm management types.

Strobel, H., ed. et al. 1973. "An Economic Analysis of Smallholder Agriculture in the Kericho District (Kenya)" Technical Institute of Berlin, Post Graduate Training Center for Agricultural Development, Institute of

Socio-Economics of Agricultural Development.

SCOPE: MARKETING (GENERAL)

PURPOSE: Gather data and train students.

DATA: Method: questionnaires administered to farmers. Foreword notes difficulty for students of working through English. Data on land, capital, labour, income, cash crops.

Swartz, Caroline. 1977. Investigation in Several Economic and Demographic Decisions in Rural Kenya Households. University of Nairobi, Institute of Development Studies. Working Paper no. 301. Nairobi. University of Nairobi.

SCOPE: FOOD/POPULATION

PURPOSE: Investigate the nature and interrelationships of production, savings and labour-utilization decisions made on small holdings in Kenya.

RESULTS: Saving influenced by income (production) and demographic composition of household.

DATA: Data collected during the first round of the Central Bureau of Statistics Integrated Rural Survey.

SWECO. Geothermal Power in Kenya: A feasibility study of the Olkaria region of the Rift Valley.

SCOPE: Energy

Tea Board of Kenya, 1952. Annual Report and Accounts. (Nairobi?)

SCOPE: CASH CROPS

Tuschak, T.S. 1979. "Kenya's Energy Situation and Options for the Future".

SCOPE: ENERGY

Uhart, E. 1975. "Charcoal Development in Kenya". Addis Ababa: United Nations Economic Commission for Africa.

SCOPE: ENERGY (CHARCOAL)

UNDP/FAO. 1968. Survey of the Irrigation Potential of the Lower Tana River Basin, Kenya. Final report Vol. 1. Rome: UNDP/FAO.

SCOPE: FUEL

United States. Agency for International Development. 1979. Kenya-Dryland Cropping Systems Research Project. Project Paper 615-0180. Washington: United States Agency for International Development.

SCOPE: FOOD

PURPOSE: To recommend superior crop varieties and systems, optimal planting times and improved cultural practices for development of arid/semi-arid zones (500-800mm). Target district Machakos and Kitui - Akamba people.

RESULTS: Aid - East African food crops research - 1. improve maize production 2. develop cropping system for marginal rainfall systems 3. support East African plant quarantine station at Muguga 4. support sugar

cane research 5. develop cadre of East African scientists and technologists.

EAFCR has five sub-projects: 1. protein quality - Kitale 2. disease resistance maize - muguga 3. breeding research - Kitale 4. plant quarantine station - Muguga; 5. cropping system in marginal rainfall areas - Muguga and Katuzmi.

COMMENTS: Project paper describing AID projects.

Urho, T. 1970. "Review of Transport Activities Within the Cooperative Movement of Kenya Exclusive of Settlement" Nairobi: Department of Co-operative Development.

SCOPE: TRANSPORTATION

PURPOSE: Describe and recommend improvements in transport system.

CONCLUSION: Need to improve vehicle purchase procedure and improving existing means of transportation.

DATA: Vehicle distribution by district; charts of transport requirements in one co-operative society.

COMMENTS: Mentions problems related to various crops. Useful for history of transport.

Von Haugwitz, Hans-Wilhelm 1972. Some Experiences with Small Holder Settlement in Kenya, 1963/64 to 1966/72. IFO - Institut für Wirtschaftsforschung München, Afrika Studien, no. 72. Munich: Weltforum Verlag.

SCOPE: FOOD (LAND)

PURPOSE: To assess objective of settlement schemes in Africa in area and time period to see if fulfill objectives which were 1. redistribution of land 2. relieve pressure on reserves 3. help unemployment 4. reduce dualism of Kenya 5. financial assistance 6. maintain gross output. Settlement schemes in once large holder zones.

RESULTS: Two settlement types - high density and low density - differences in capital borrowed and financial burden of each farmer, investment in inputs, agricultural experience of settlers, staffing, size of farms. Also divide settlement as high (pyrethrum) altitude and low (maize) altitude. High altitude farms = better than low altitude and gained higher rates of increase; tea farms did well but are exception. Density was not related to success - at low altitude low density farms - better at high altitude.

CONCLUSIONS: 1. Timing and amount of first loan repayments was wrong. 2. budgets poorly planned from top - example: farms scheduled to reach maximum output after four years but loans due before 3. low farm output 4. some farmers refuse to pay loan or have other priorities 5. improve by: a. project should be planned more reasonable b. billing of loans need better connection to cash flow c. should not accept non-repayment d. increase time of repay without penalty.

DATA: Economic survey of large number of farms. Good economic data.

Waller, R.D. 1976. "Change and Variation in the Pastoral Economy. The Massai of Kenya" Mimeographed. Source unknown.

SCOPE: MASSAI (ECONOMIC CHANGES)

PURPOSE: Place the Massai economy in the context of Kenyan pastoralism and examine some aspects of development over the last century.

**RESULTS:** 1. Pastoral societies are varied and variably emphasis should be placed on the individual variations in social and economic behavior rather than on the model behavior of a whole group. 2. Pastoral societies cannot be considered in isolation. 3. The rate of change in some pastoral societies has been rapid and the ensuing dislocations severe.

**COMMENTS:** This is an historical analysis that is semi valuable in a development context.

Watson, N. 1977. "Nomads in Kenya - Too Many Animals and not Enough Land" in Growing Out of Poverty. Oxford: Oxford University Press. 107-113.

**SCOPE:** FOOD (NOMADS)

**PURPOSE:** To investigate the Nomadic peoples of Africa (Kenya) that have been accustomed to wander over vast areas seeking grazing for their animals.

**RESULTS:** 1. Many of the good rangeland areas of Kenya are changing into desert faster than anyone likes to admit. 2. Some people who have already lost their sheep and cattle through drought are keeping large numbers of goats instead. The goats are able to survive by eating bushes and the bark off trees long after the grass has gone. 3. Some people who have no livestock at all are turning to charcoal burning as a source of income.

**CONCLUSIONS:** "As the rate of population increase has accelerated this century, the pressure of people on available land has mounted. In some parts of the world this means smaller and smaller plots of land for cultivation. For the Nomadic peoples of Africa, who have never been cultivators but have lived with and from their herds of animals, the future is bleak. More people, more animals, and less land have upset the traditional balance."

**COMMENTS:** Pessimists argue that animals may be a luxury we cannot afford in the future, suggesting universal vegetarianism as the only answer.

Westley, Sidney B.; Johnston, Bruce F. and Martin, David. 1975. A Summary Report of a Workshop on a Food and Nutrition Strategy for Kenya. Organized by the Nutrition Study Group of the Institute of Adult Studies, 15-16 May, 1975. Nairobi: University of Nairobi, Institute for Development Studies.

**SCOPE:** FOOD (POLICY)

**PURPOSE:** Bring together government and university personnel interested and involved in nutrition to review existing policy and formulate appropriate conclusions and recommendations.

**RESULTS:** Three working groups produced recommendations: 1. organizational; 2. food and nutritional strategy; and 3. pilot project for pre-school children.

**COMMENTS:** This may be supplanted by governments current (confidential) food policy now being finalized.

Western, D. and Semakula, J. 1979. "The Present and Future Patterns of Consumption and Production of Wood Energy in Kenya" Paper presented at Workshop on Energy and Development, held at Nairobi, May 1979.

**SCOPE:** ENERGY (WOOD)

**CONTENT:** Relation of consumption and supply. Data all from other studies and government statistics, methodology shown.

Wilson, F.A. 1973. Some Economic Aspects of the Structure and Organization of Small Scale Marketing Systems - A discussion of the Research Finding of a Study into the Marketing of Fruit and Vegetables in Kenya. University of Nairobi, Institute for Development Studies, discussion paper no. 176. Nairobi: University of Nairobi.

SCOPE: FOOD CROPS

PURPOSE: "To demonstrate the significance of this area of enquiry [small scale marketing systems] through drawing on some relatively recent research into the marketing of fruits and vegetables in Kenya."

RESULTS: Describes problems with structure and organization, transportation, margin analysis, processing, role of government and cooperatives.

CONCLUSION: Urgent need for more applied research.

DATA: Much of research carried out from 1967-69 when writer was a research fellow at IDS. Fourteen areas analyzed (mentioned herein only as case studies) in 1969 and a report on each one submitted to the co-ordinating agency in the Kenya Ministry of Economic Planning and Development. No references to these reports.

Wisner, Ben. 1978. The Human Ecology of Drought in Eastern Kenya. Ph.D. Dissertation. Clark University.

SCOPE: FOOD DROUGHT/KENYA

PURPOSE: To assess vulnerability to drought of ecol. zones in Kenya and the peasant farms response to it. Data from Tharaka Div., Meru District.

RESULTS: Demonstrates that vulnerability to drought by small farmer is increase throughout Kenya, particularly in Northern and Eastern Kenya, because of inc. pressures and loss of traditional coping mechanisms. Finds 75 traditional coping mechanisms among farmers, but these are restricted largely by income. Also produces map of vulnerability in Kenya.

CONCLUSIONS: Vulnerability to drought increases in and around highlands - about 80% of Kenya's land area, about two million people - migration creating pressures in this area (of landless from well watered highlands); poor have less access to only 46 of 75 traditional responses to drought; dominance of capitalist econ. disturbs traditional econ. increases vulnerability.

DATA: Largely observation/questionnaire from Tharaka, Kenya, 1971.

Zins, 1974. "The East African Energy Balance, 1966-74" Economic and Statistical Review.

SCOPE: ENERGY

A D D E N D U M

Mott, Susan H. and Mott, Frank L. 1980. Rapid Population Growth in Kenya. Paper presented at 23rd meeting of African Studies Association, 17 October 1980. Mimeographed.

SCOPE: POPULATION

PURPOSE: To assess the current population situation in Kenya and project the future.

RESULTS: The extraordinarily high birth rate in Kenya (expected population of 32 million by 1998) is due to high fertility and the modest level of mortality due to improvements in health services and practices. The most important reason for high fertility in the area is the continuance of pronatal norms and values. Children are a source of security, especially to widowed women, and have prestige value. A "modest" degree of education in women tends to increase fertility; only women with at least some secondary education show a decrease in fertility (average number of children: no education, 7.1; "modest" education: 7.8; secondary education; 5.6). The percentage of educated women is very small, and there is limited interest in family planning.

CONCLUSIONS: The impact of the continuing high birth rate is on the age structure (1/2 of population below age 15.) This will continue, with implications for schooling, health care, employment.

DATA: Sources are 1948 census, Kenya Fertility Survey, related papers on the subject.

COMMENTS: No suggestions on how to decrease fertility. Authors conclude, however, that a slowdown is imperative.

Thom, Derrick, J. 1980. Ecology and Production in Baringo-Kerio Valley, Kenya. Paper prepared for African Studies Association. 17 October 1980. Mimeographed.

SCOPE: AGRICULTURE

PURPOSE: To look at the agricultural practices of the area and assess their ecological impacts.

RESULTS: The paper begins with historical, geographic, sociological, and demographic sketches of the area. The current farming system, with its traditional family divisions and agricultural techniques, is delineated. Tools, typical crops, rainfall patterns, herding practices are all reviewed.

CONCLUSIONS: Traditional farming methods have lead to severe environmental damage; increasing population and livestock will lead to future damage due to over-grazing, improper use of land. Further, in-migration due to the relative agricultural prosperity of the area is causing resentments with a resulting high potential for ethnic conflict in the future.

DATA: Based on rural surveys, 1978, with 776 farmers interviewed. Good maps and charts including material on percentage land use, number of animals, dispersion of population, etc.

COMMENTS: There is a good deal more general material on the people and customs of the area than is implied by the title; the paper is therefore very valuable for background material (land rights, cultural patterns, etc.).

RWANDA

Brown, Harrison Scott, Holdren, John P; Sweezy, Alan Richardson; and West, Barbara. 1973. Population Perspective 1973. San Francisco: Freeman Cooper and Company.

SCOPE: POPULATION

SCOURCE: CS/POPULATION BIBLIOGRAPHY

The situation in Rwanda is discussed.

Delepierre, G. 1975. Les Regions Agricoles du Rwanda. Bulletin Agricole du Rwanda 8(4): 216-25.

Title in English: The agricultural areas of Rwanda.

SCOPE: FOOD (AGRICULTURE)

Three main climatic zones are distinguished. In the tropical lowlands, groundnuts and cassava are the main food crops; there are possibilities for extension of livestock farming. Between altitudes 1,500 and 1,900m. beans and sweet potatoes are cultivated with arabica coffee as the main cash crop. In the mountain regions, crops such as Irish potato and peas are grown; cash crops are cinchons, tea and pyrethrum.

SOURCE: CS/CAB.ABS

DuBois, Victor D. 1973. Population Problems, Perception and Policy in Rwanda. American Universities Field Staff Reports: Central and Southern African Series 17(2).

SCOPE: POPULATION

SOURCE: CS/POPULATION BIBLIOGRAPHY

DuBois, Victor D. 1973. "Rwanda: Population Problems Perception and Policy" in Population Perspective 1973 edited by Harrison Brown et al. pp.240-53. San Francisco: Freeman, Cooper and Company.

SCOPE: POPULATION

SOURCE: CS/POPULATION BIBLIOGRAPHY

1976. L'evaluation de Production de Differentes Cultures Vivrieres du Rwanda. Bulletin Agricole du Rwanda 9(3): 171-77.

Title in English: The Evaluation of Staple Food Crop Production in Rwanda.

SCOPE: FOOD

Graphs and data relating production costs, producer prices, and returns are presented and analyzed for beans, sorghum, peas, potato, groundnuts, sweet potato cassava, and soybeans.

SOURCE: CS/CAB.ABS

Nwafor, J.C. 1978. Agricultural Land Use and Associated Problems in Rwanda. Journal of Tropical Geography 48: 58-65.

SCOPE: FOOD

PURPOSE: Discussion of agricultural land use and associated problems; outlines causes of agricultural problems and examines effort to resolve them.

RESULTS: Outside Kigali (60,000), dispersed population with density  $.50/\text{km}^2$  in 1970; average farm size 2.7ha in 1965 and 2.1ha in 1972; about half of farm for food and cash crops, half for pasture and homestead (about 400m; family are five people; vertical zonation of land holding; terracing common; concentric zonation of land use around farm stead; land use Von Thunen-like. Crops grown by altitude; bananas, maize, beans/peas dominate diet; seasonal food shortages; most population at subsistence level; livestock demand causes agricultural problems. To improve agriculture government has "farm settlement program" (les paysanats) via capital investment and efficient production planning - introduces modern, intensive agricultural technology and animal husbandry - result is increase in coffee and household income on settlements has doubled; suggestion to offset vertical zonation by altitude strip farms and opening up marsh lands.

CONCLUSIONS: Problem is sociological need for family planning - birth rate must drop to raise per capita income - must rely on agricultural development for income.

DATA: Field work in 1975; data is abstracted from various French sources. Data probably good but approach highly biased towards "inefficient peasants."

Nwafor, J.C. 1977. Constraints on Agricultural Planning and Development in Rwanda: an Overview. African Environment 2/3. 4/1: 87-96.

SCOPE: AGRICULTURE (FOOD/POPULATION)

In Rwanda the need for economic growth is urgent and agricultural planning and development must be the central part of any development program and strategy. The land is currently supporting four times its optimum population under traditional cultivation methods. The serious need for a broad program of agrarian reform is recognized and national authorities supported by international effort have been directing more attention to increasing food production faster than population. The highest priority has to be accorded to lowering the birth rate, otherwise even a successful agricultural program will do no more than stop the decline in per caput income. Planning must be geared to local needs, environmental factors and socio-economic conditions.

SOURCE: CS/CAB.ABS

Prefol, B. and Delepierre, G. 1975. Disponibilite et Utilisation des Terres au Rwanda (Situation Actuelle et Perspectives). Bulletin Agricole du Rwanda 8(2); 115-25.

Title in English: Availability and Use of Land in Rwanda (Present Situation and Prospects).

SCOPE: POPULATION/FOOD

In 1970, Rwanda had a population of 3,655,000 with an annual growth rate of 2.6%. As demographic pressure is heavy, a survey of available land was made. Only 50% of the 2,559,500 hectares is available for traditional agriculture and the maintenance of soil fertility will be of great importance.

In the near future food production will become insufficient unless migration and family planning become accepted.

SOURCE: CS/CAB.ABS

Silvestre, Victor. 1974. "Differentiations Socio-Economiques dan sune Societe a Vocation Egalitaire: Masaka dans de Payasant dileyana." Cahiers d' Etudes Africaines 14,1,53: 104-69.

SCOPE: AGRICULTURE/FOOD

In 1951, the government in Rwanda planned a redistribution of the peasant population and an intensification of agricultural production as a means of combating overcrowding in certain parts of the country and general undernourishment. The plan called for the establishment in under-utilized areas of agricultural communes (paysannat), the most idealistic goal of which would be an egalitarian society free from differences. The plan for these communes is described. Data were collected of four Masaka families, as well as data comparing the whole population by means of a proportional sample of 20 families. The major source of differentiation were the following: 1. quality of the earth since this varied considerably across the commune, and land became scarce, those who erred in their evaluation and selection of a parcel (regulations forbid changes) were and have been since at a great disadvantage--12% presently are in serious trouble; 2. extra land although technically forbidden, some families have extra land, either by acquiring two parcels (each about two hectares, varying with soil conditions), or by clearing very fertile land in the swamps. This land traditionally goes to whoever clears it, and has turned out to be more productive (though risky due to inundation and animals) than the parceled land; 3. children--girls especially (bring an eventual dowry and do not need land) are useful since they provide free extra labor-power, and can be put to work as herders very young; 4. raising animals itself is not universal, and brings in a substantial income supplement as well as providing much needed fertilizer; 5. a profession--some Masakans have a non-agricultural profession (eg construction at a nearby military base) which puts the family in the top income bracket; and 6. commercial activity--after a decade, the wealthiest of the early arrivals who acquired the best land, have branched out into commerce of various forms. Although there exist politico-administrative organization to which Masakans are elected and appointed, this and literacy do not lead to socio-economic stratification to the extent that income and occupational differences do. The society of consumption has extended even here, and status is marked by radios, motor-scooters, etc. Unfortunately, the plan for an egalitarian society has not panned out, and has led to overpopulation of new regions, and often to the overutilization of the new lands. The development of a truly egalitarian society cannot be achieved solely on agricultural communes, but must involve the whole country. (31 tables)

SOURCE: CS SOCIOLOGICAL ABSTRACTS

SOMALIA

Berry, Leonard and Tauras, Thomas. 1980. Eastern Africa Country Profiles: Somalia (draft). Worcester: Clark University, Program in International Development.

SCOPE: ECONOMIC DEVELOPMENT

PURPOSE: To introduce, as a first approximation, development issues in Somalia, prepared for US-AID personnel. Three dimensions: 1. a general overview of the country; 2. a summary analysis of selected current development issues; 3. distribution of poverty.

ISSUES: "Livestock currently provides 78% of exports and a livelihood for 81% of the population. However, as demonstrated during the 1974/75 drought, the sector is highly vulnerable. Despite the importance of livestock to Somalia, only a small percentage (5-8%) of development plan funds have been invested in that sector."

"Somalia's coastal fishery resources are among the most abundant in the world and unusually prolific for tropical waters. However, for a number of reasons - mostly technical and economic - the resource has been little developed. Can fishing become a major part of the national economy?"

"Serious problems of an already poor country have been greatly increased by an influx of refugees equal to about 25% of the national population. The problem of short and longer term support for the refugees is a major issue for the host government and donors alike."

"The general strategy for rural development, includes the following elements: 1. to improve social services; 2. to make modest investments in the livestock sector but assume that people will leave this sector each year; 3. to concentrate major attention on irrigation as a means of settling people who leave Nomadism, as a means of feeding the nation, and as a means to earn hard currency through exports."

CONCLUSIONS: "Poverty in all categories of society. Available data suggest a considerable range of income within each social/occupation group and within each region of the country. Preliminary conclusions, based on available data...which does not take into account the refugee influx. Nevertheless, the conclusions present a compelling case for further analysis of and support for the alleviation of the considerable poverty in Somalia."

COMMENTS: The draft contains many data tables. Some of the data has been collected by the Somali government, which according to the ILO Report may not be reliable.

George, Emmett. 1980. Flight from Fear and Famine: Refugees in Somalia. Agenda 3(6): 2-6.

SCOPE: FOOD/POPULATION

PURPOSE: 1. To discuss the reasons for the refugee problem. 2. To show its magnitude and its welfare effects. 3. To state what has been done and what is being done in terms of foreign help.

RESULTS: 1. Fighting in the Ogaden and drought force Somalia to seek refuge. 2. By the end of 1980, a third of Somalia's people could be refugees. Over the past three months, refugees have been flocking into this African country at a rate of 2,000 a day.

**CONCLUSIONS:** "Many believe Somalia has the worst refugee situation in the world." "The livelihood of the average Somali is linked to the number of animals his family owns." "Thousands of children die each year, victims of tremendous poverty and poor health care." "...The Somali looks to the future with despair."

**COMMENTS:** It gives you a good understanding of Somalia's food, population problems and how the refugee situation exacerbates both.

International Labour Office. 1977. Economic Transformation in a Socialist Framework: An Employment and Basic Needs Oriented Development Strategy for Somalia. Addis Ababa: ILO/JASPA (Jobs and Skills Programme for Africa).

**SCOPE:** FOOD/POPULATION

**PURPOSE:** To produce an employment and basic needs oriented development strategy for Somalia.

**RESULTS:** Population: 1. Crop potential, land use, and output, page 37; 2. Policies and plans, page 42; 3. Major agricultural programs, page 45; 4. Capacity to develop the identified potential, page 56; 5. Agricultural development strategy, page 66; 6. Nomadic pastoral sector, page 71 - The pastoral herds provide the basic subsistence of the pastoralists and they generate a surplus which is marketed and largely exported. 7. Bananas, page 91 - The sector which occupies a major role in the economy has entered a critical stage. (Sharp competition in the foreign markets.) 8. Fishers development, page 109 - fisheries resources poorly known. Why: lack of information, inadequate survey or research data or statistics on fish catches, no storage and transport facilities, no natural shelters, no experience, high investment costs per job created, etc. 9. Dairy industry, page 301, see statistics on rain milk from local sources (cow and camel), pasteurized milk and milk products (cow), imported milk and milk products (cow). 10. Livestock export marketing, page 291 - see table 3.1; 11. Food and nutrition, page 388 - see table 9.1.

**DATA:** Some data has been collected by the ILO mission, other is provided by the government. But...the collection of statistical information in Somalia is generally neglected.

**COMMENTS:** Very informative for the above scope of work, especially for food. Some of the mission's suggestions though are not very specific.

Lewis, I.M., ed. 1975. Abaar: The Somali Drought. Emergency Report no. 1. London: International African Institute.

**SCOPE:** FOOD (DROUGHT)

The Edition includes: 1. the drought in perspective; 2. some eye-witness accounts of drought and relief; 3. images of drought in Somali literature; 4. the situation in the neighbouring areas of Ethiopia; 5. an example of drought-induced settlement in northern Kenya; 6. a historical survey of the incidence of drought in northern Somalia; 7. new emergency measures in Somalia, January 1975; 8. the international response; 9. country profile: the Somali democratic republic.

Mirreh, Abdi, Gaileh. 1978. Die sozialökonomische Verhältnisse der nomadischen Bevölkerung im Norden der Demokratischen Republik Somalia. Berlin: Akademie-Verlag.

Title in English: The Socio-economic Conditions of the Nomadic Population in the North of the Democratic Republic of Somalia.

SCOPE: NOMADISM

The material, gained largely from field work, provides the basis for a presentation of current economic and social conditions, including the way of life of a group of nomads, which is representative for many other groups in Northern Somalia. Beginning from this description of the present, changes which have taken place and are still taking place are discussed and explained. For this purpose the production resources and processes of the nomads are described in detail.

Changes and developments in this field are primary factors in the development of social conditions. In view of the present socio-political situation of Somalia a description of the whole country, including the legislation and administrative measures of the government, and the development of socio-economic conditions of the nomadic population is equally important. The study shows the importance of changes in the natural environment in the recent past and present.

SOURCE: CS/CAB.ABS

Somalia. Ministry of Planning and Co-ordination. Central Statistical Department. 1972. Statistical Abstract.

SCOPE: FOOD

DATA: See table 67 Slaughter statistics - number of animals slaughtered in municipal slaughter houses by type of animal and regions 1970-72.

Somalia. Settlement Development Agency and National Range Agency. 1977. "Desertification and Control Measures in Somalia" Paper read at United Nations World Conference on Desertification, August 29-September 9, 1977 at Nairobi. Mimeographed.

SCOPE: FOOD

PURPOSE: To summarize the experience accumulated over the years in this country's war with the desert.

RESULTS: 1. "More than half of the territory of Somalia can be described as arid and semi-arid. The uncontrolled use of these drylands by increasing human and animal population has given impetus to an accelerating desertification process in the last half century. The adverse effects on the land, vegetation, man and his stock have been many and at times catastrophic." 2. The government has been pursuing a number of activities designed to combat the advance of deserts and rehabilitate some of the areas affected - where such action is feasible with reasonable cost. ACTIVITIES: a. grazing control; b. sand-dunes fixation; c. rehabilitation or relocation nomads; d. economic development aiming at increased production of livestock, crops, fish, industry water resources and infrastructure; e. social development in the areas of education (formal and vocational), health and community life.

CONCLUSIONS: "The causes of desertification are generally both natural and man made and very diverse in detail. These are well understood in Somalia...proper institution building is fundamental to the success of these counter measures."

United Nations Fund for Population Activities. 1979. Somalia: Reports on Needs Assessment for Population Assistance. Report no. 22. New York: UN Fund for Population Activities.

SCOPE: POPULATION

PURPOSE: "To identify the areas in which Somalia requires assistance to achieve self-reliance in formulating and implementing population policies and programs."

RESULTS: "In 1975, Somalia had a population of 3,170,000 (an estimate), with a density of six persons per square kilometer. Approximately 70% of the population live in rural areas, and about 60% are nomadic and semi-nomadic. The 1979 crude birth rate was 48 per 1,000, and the death rate 20 per 1,000 (an estimate). Life expectancy at birth was estimated at 41 years of age (1975) an estimated 25 to 35% of liveborn children die before the age of five, mainly due to respiratory and intestinal diseases. Malnutrition is widespread. Maternal mortality and morbidity are also very high due to malnutrition, anemia, toxemia, and tuberculosis as well as complicated pregnancies, abortions, and diseases."

SUGGESTIONS: Substantial assistance be provided for improving population data collection and strengthen the government's development planning activities. Collection and analysis of data on levels, trends, and patterns of internal and external migration. Establishment of a human resources department in the extension of maternal and child health care and related activities, especially in the rural areas. Education and communication activities aimed at improving the quality of life of the people, which could be used as vehicles to create the necessary awareness and understanding. Establishment of a women's unit.

CONCLUSIONS: "The mission notes the enthusiasm and the willingness of many key officials of the government to carry out a coordinated program of population assistance to Somalia...If the government accepts the proposals for population assistance a UNFPA pre-project formulation mission be sent to Somalia...to conduct consultations and make necessary arrangements leading to the formulation of projects..."

DATA: GOVERNMENTAL SOURCES AND UN.

#### A D D E N D U M

Johnson, Hope nad Johnson, Janice Marie. 1977. "Environmental Policies in Developing Countries: Somalia." Beitrag Zur Umweltgestaltung Report. A27 p914640.

SCOPE: POPULATION/ENVIRONMENT (BURUNDI)

Survey Report: Problems, policies, legislations, and the administration of: environmental policy; use of natural resources and environmental conservation; environmental planning; and environmental science education and technology in Somalia, are examined. Somalia's climate terrain, population distribution, GNP and government budget are detailed. Somalia's fauna problems include the great reduction or disappearance of wild fauna in forest and the entire disappearance of elephants, rhinoceros, and hartebeest. Somalia suffers from severe problems of soil erosion.

SOURCE: CS ENVIROLINE

SUDAN

Abayazid, O.M. 1975. Prospects of Fuel and Energy in the Sudan Khartoum: Council for Scientific and Technological Research and National Council for Research.

SCOPE: ENERGY

This report is a most valuable and comprehensive study of fuels and energy in the Sudan. It is mostly a technical assessment of energy consumption, present and future needs by different economic activities.

PURPOSE: 1. Predict future energy requirements on the basis of the past trends and new factors. 2. Survey available sources (local and overseas) and forecast the share of various sources in meeting the future requirements. 3. Investigate the methods of conversion, conveyance and utilization of energy with a view to improving efficiency and reliability; with due regard to overall economy. The study deals with both commercial and non-commercial energy resources and forecasts demands by sector from 1975-2000.

Abbadi, Karrar and Salam, Mohammed Mirghani A. 1976. Some Aspects of Production and Marketing of Fruits and Vegetables in the Khartoum Province. Occasional paper no. 7. Khartoum: Economic and Social Research Council, National Council for Research.

SCOPE: FOOD (MARKETING)

PURPOSE: This study stresses the recent increase in food prices and growing importance of the Khartoum province. The purpose of the study is to examine the possibilities for an expanded production of fruits and vegetables, and an improvement in the marketing procedures as well as the possibilities for export.

RESULTS: Production and marketing of fruits and vegetables confront physical, human and institutional problems. Lack of agricultural credit facilities, poor transport facilities, shortage of inputs (including pest control), inadequate extension services, and human problems (shortage and high cost of labor, lack of techniques, poor management).

CONCLUSIONS: Khartoum possesses enough cultivable land, area cultivated presently is fraction of cultivable; but production is low due to crops perishability, institutional-infrastructural and human problems. More studies on production cost needed. There's need for market research and communication improvement.

COMMENTS: Major factors which limit production are examined; recommendations are presented. It is mentioned that Khartoum province has great potential to supply vegetables and fruits not only to greater Khartoum but also for export to European markets. Somewhat over ambitious in view of Sudan's own needs.

Ahamed, M.A. 1967. Production, Marketing and Consumption of Wheat in Sudan. Division of Agricultural Economics Ministry of Agriculture and Forestry. Khartoum: Government Printer.

SCOPE: FOOD

Although this paper has been written in 1967, it still traces, development, production and consumption of wheat and it can be used for

trend analysis.

The study was promoted by a remarkable shortage of wheat (1966) in areas which has already been accustomed to consume wheat in Khartoum and Blue Nile Provinces. The objectives of the study are: 1. To describe the production and marketing of wheat in the Sudan. 2. To investigate the cost and returns to producers and millers. 3. To study the trends in per capita consumption make projections for Sudan wheat requirements, during the period 1967-1976 and suggest how local resources can be utilized to bridge the gap between the expected supply and demand.

Al-Sammani, M.D. 1971. A Study of Central Villages and Their Served Envelope as Planning Units for Rural Development in the Sudan. Ekistics 32: 124-33.

SCOPE: POPULATION

PURPOSE: To demonstrate the feasibility of using the potential central characteristics of Central Villages and served Envelope as a lower order geographic unit that could be integrated in the already existing planning structure composed by Province and Rural Council Administrative Councils.

RESULTS: The results of an inventory three variables: 1. population, agricultural production and commercial activity; 2. services for agricultural and commercial activities, 3. services for community welfare; carried out in Dar Hamid. "Succedes in proving the existence of Central Villages and served Envelope as functional economic and social space, demonstrated from actual field survey."

CONCLUSIONS: "If the need for an intermediate planning unit between the Rural Council and Villages is realized, then the adoption of Central Villages and served Envelope would be valid."

DATA: Collected through a survey that was taken in five Rural Council Units.

COMMENTS: It concerns basically the factors that could be looked at to determine whether a village has or not the potentiality for becoming a Central Village.

The Arab Fund for Economic and Social Development, Programme for Agricultural Development in the Democratic Republic of the Sudan (1976-1985).

SCOPE: FOOD

The expectations of the Arab world regarding the future of food supply from the Sudan are outlined in the Arab Fund for Economic and Social Development's Ten Year Plan (1976-1985) regarding agricultural development in the Sudan which states in part the following "It is expected that in 1985 the Arab world will face a deficiency in a number of major agricultural commodities which could be exported from the Sudan. In spite of the fact that some of the surplus produced by the Sudan would find its way to markets other than the Arab markets according to the prevailing commercial conditions, it would still assist in consolidating the Sudanese economy and moreover it would represent a strategic reserve which would be at the disposal of the the Arab world to be used in supplementing food shortage in time of difficulties....it is expected that during the period 1985 to 2000 the Sudan would be able to meet the greater part of the Arab countries need

for imported agricultural commodities.

COMMENTS: This report is not available.

Bachman, Kenneth L. and Paulino, Leonardo A. 1979. Rapid Food Production Growth in Selected Developing Countries Washington: International Food Policy Research Institute. Research Report no. 11.

SCOPE: FOOD PRODUCTION

PURPOSE: To look at sources of growth and changes in the pattern of food production in 16 countries (including Sudan).

RESULTS: Growth in population significantly increased food demand by 1% per capita per year. Per capita dietary energy consumption improved 1% per year per capita. Net import of staples increased. Most of output growth due to area expansion while declines in output/hectare occurred.

CONCLUSIONS: Indicates need for money to research other crop varieties. Role of area expansion found as major factor but must be suitable for physical and economic conditions.

DATA: FAO

Birks, J.S.I. and Sinclair, C.A. 1978. International Migration Project: The Democratic Republic of the Sudan. University of Durham, Department of Economics. Durham: University of Durham.

SCOPE: POPULATION (MIGRATION)

The international migration project has been commissioned by the International Labor Office to study the present day patterns and trends of migration in the Middle East. It will assess the labor movement within the period 1970-78. The Sudan study in its first part provides a comprehensive summary of the Sudan's population and educational status and the demand for labor and its markets in relation to recent development projects. Then it deals with the modern migration into the Sudan, Sudanese abroad and the impact of such migration on the labor market in the Sudan, and its economy. It proceeds to study the future labor migration and government policies. All these are supported by detailed tables mostly derived from 1973 population data and other government reports. The report is useful especially the first part of it concerning analysis of population.

Briggs, John A. 1978. Farmers Responses to Planned Agricultural Development in the Sudan. Transactions I. B. 6 New Series 3: 464-75.

SCOPE: FOOD

PURPOSE: Examination of planned agricultural scheme- irrigated - and actual farmer response; project in southern Gummuiya area of central Sudan; study done May-September 1974; use of 10% random survey sample and other observational techniques.

RESULTS: Project proposed as irrigation for cash-crop mixed farming for urban market; secondary production of food or fodder crops for sale and subsistence; old riverine cultivation still used by farmer for major market crops. Discusses these results in terms of economic and socio-personal factors.

CONCLUSION: Risk factors too high for subsistence oriented farmers to grow planned crops; so shift to safer crops. Problem largely a result of planning without understanding of local farmers.

DATA: Personal interview survey - 10% random; informal interviews; observation of farming meetings; interviews with officials.

COMMENTS: Results fit modern theory.

El Beshir, Z.A., and Ahmad, Siddig M. 1978. Sudanese Labor Mobility: A Statistical Investigation. Khartoum University. Faculty of Economic and Social Studies. Development Studies and Research Center. Monographed Series no. 9. Khartoum: University of Khartoum Press.

SCOPE: POPULATION

PURPOSE: To present a statistical analysis of the results derived from a survey on Sudanese Labor Mobility.

RESULTS: An extensive set of data, exposing workers' industrial, geographical and urban - rural mobility on a long/short term basis. Data collected represents worker engaged in transportation/communication, trade, factories, agriculture, government and unclassified labor, and unemployed. The survey was carried out in five provinces and outside Sudan.

CONCLUSIONS: Authors concentrate in a statistical analysis of mobility among workers, depending on sector, age and sex. The authors do not present any analysis concerning workers' "reasons" for mobility.

DATA: Interviews with workers, in a 1% sample during the period of 1971-75.

COMMENTS: Good as source for data, on workers mobility among industries.

Faaland, Just. 1976. Growth Employment and Equity: Lessons of the Employment Strategy Mission to the Sudan. International Labour Review 114: 1-10.

SCOPE: POPULATION (EMPLOYMENT) AND FOOD

SUMMARY: "The purpose of the ILO mission which visited the Sudan under the author's leadership was to devise a strategy for maximising employment subject to the country's technical constraints and factor endowments. The mission found that the Sudan was more favourably placed than many developing countries in that it possessed large areas of fertile but underutilized land, so that the recommended strategy concentrates on the development of agriculture - particularly traditional agriculture. The employment effects of such an approach could be considerable, but its implementation would require far-reaching changes in educational, economic, investment and fiscal policy. The real issue for the Sudan, as for many other developing countries, is to combine growth with the equitable distribution of its fruits."

Faki, H.H.M. 1973. Wheat Production and Consumption in the Sudan - Khartoum: Faculty of Agriculture, University of Khartoum, Faculty of Agriculture.

SCOPE: FOOD

The study mainly deals with the production and consumption of wheat under irrigation conditions in northern and central Sudan. Tables and graphs indicate trends of consumption within various regions.

Ferguson, H. 1954. Food Crops of the Sudan, and their Relation to Environment. Khartoum: Sudan Ministry of Agriculture.

SCOPE: FOOD

A study which is mainly focussed on food crop production under various environmental conditions in the Sudan. Could be used as a historical reference.

Gader, Ali, Ali Abder. 1977. Some Aspects of Productivity in Sudanese Traditional Agriculture: the Case of the Northern Province. Khartoum: Economic and Social Research Council, Bulletin no. 59.

SCOPE: FOOD/POPULATION

PURPOSE: To report some of the results derived from a research project on productivity of Sudanese traditional agriculture. Productivity of labor and land are investigated. (In northern province)

RESULTS: 1. Land productivity decreases as landholding increases in size. 2. Labor input decreases as land holding increases in size. 3. Marginal productivity of labor in traditional agriculture than any alternative earning in non-agricultural activities. 4. Household incomes in this province are high and compare favorably with rest of counts.

CONCLUSIONS: The survey demonstrates that labor productivity in Northern Province is "significantly higher than zero."

The fact that marginal productivity of labor is greater than operative earnings of labor, explains why the poorer area tends to send smaller numbers of migrants, in comparison with more affluent wage sector. It pays more to the farmer to stay at home.

DATA: Was collected about the hired and family labor agriculture in Northern Province.

COMMENTS: Contains some useful data derived from a survey, on distribution of labor force by age, sex, incomes, landholdings, productivity (land and labor) in the Northern province of Sudan.

Gibriel, M.F. 1979. Factors contributing to Dura Price Movement in the Sudan Economic and Social Research Council, National Council for Research Bulletin no. 78.

SCOPE: FOOD

The paper deals with an important aspect of dura production and consumption in the Sudan i.e. price movements and the factors that shaped these movements. Dura which is produced both under rainfed and irrigation is the main staple food in the country. The total quantities consumed in the country were estimated to range between 1.5 and 1.8 million tons. It is probably correct to state that nearly every individual in the Sudan uses some amount of dura for consumption. So compared to other cereals dura is the staple grain which is consumed by the majority of population. "It is the nutritional backbone of the country."

Dura prices fluctuates rather sharply from year to year, season to season and day to day. The prices also experience an increasing trend over time. This has its consequences on producers, consumers and markets, and consequently on the whole economy. The study includes various tables showing production, whole sale prices by areas of production, and other aspects which are covered comprehensively. It includes a short bibliography, but a useful one.

Ibrahim, Fouad. N. 1978. The Problem of Desertification in the Republic of the Sudan with Special Reference to Northern Darfur Province. University of Khartoum. Faculty of Economics and Social Studies. Development Studies and Research Center. Monograph Series no. 9. Khartoum: University of Khartoum.

SCOPE: FOOD/POPULATION/ENERGY

PURPOSE: An analysis of the factors that increase desertification problems in the Northern Darfur Province.

RESULTS: Drought of past 11 years has contributed to desertification. Among other factors involved: Population increase, exhaustion of limited soil and water resources, overgrazing, deforestation, rainfed cultivation, increase of water yards. Effects: over cultivation, erosion conflicts between sedentary cultivators and nomads competing for water yards, fuel-wood scarcity, cultivation beyond agronomic dry boundry.

CONCLUSIONS: For the past 30 years the government has recognized the problem. Some measures are being taken and others are suggested by the author. Mention is made of the proposed "Sudan Desert Encroachment and Rehabilitation Programme" and College of Veterinary, Natural Resources and Arid Zones. There are seven other measures proposed by Dr. Ibrahim, These are: 1. Improving Central Places on Margin of Sahara to control and enhance animal husbandry in Northern Sahelian Zone. 2. Combine millet/acacia senegal cultivation. 3. Keep fire-wood plantations close to settlements. 4. Rotation of pastures by rotation the use of water pumping stations. 5. Improving infrastructure. 6. Establishing labor intensive factories on the basis of agriculture and animal wealth. 7. Organizing and enlightenment campaign on the causes and consequences of desertification.

COMMENTS: A good analysis, population-agriculture and energy are involved as common factors contributing to or being affected by desertification.

International Labour Office 1976. Growth Employment and Equity; a Comprehensive Strategy for the Sudan. Geneva: I.L.O.

SCOPE: POPULATION (EMPLOYMENT) FOOD

Although indentified by the United Nations as one of the world's 25 least-developed countries, the Sudan possesses vast areas of under utilized, fertile land with adequate rainfall during parts of the year and has a number of other unusual development advantages. This volume, which is the report of the seventh comprehensive employment strategy mission undertaken to a developing country within the framework of the ILO World Employment Programme<sup>1</sup>, formulates a strategy designed to exploit the Sudan's advantage in the most productive way; in the first place by a major governmental effort in support of traditional agriculture, and in the second by expansion of modern agriculture. Both types of agriculture would be assisted by complementary measures elsewhere in the economy, including a radical transformation of the transport system.

Though addressed to the Sudan, the report is a basic study on which other governments and international agencies may wish to draw in planning their development efforts.

The mission took place in 1975 with financing from the United Nations Development Programme. The team, which included experts from several United Nations specialised agencies and the World Bank, was headed by Mr. Just Faaland, who reported on the mission's main findings and recommendations in the July-August issue of the International Labour Review.

Twenty-one technical papers prepared by the mission in the course of its work are reproduced at the end of the volume."

Johnston, Robert M. 1979. Development or Dependency: The Transfer of Agricultural Technology to Developing Nations. University of Khartoum Faculty of Economic and Social Studies. Development Studies and Research Center. Occasional Paper no. 4. Khartoum: University of Khartoum.

SCOPE: FOOD

PURPOSE: To demonstrate that the development strategies to hook LDC's on Technology (western) are counter to LDC development and geared to profits of agribusiness.

RESULTS: Discusses food problems in general and surplus production among traditional economies; provides three major styles of rural development--1) technocratic (capitalist) to increasing input 2) reformist (nationalistic) increase output and redistribute income 3) radical (socialist) social change, redistribution of political power and wealth.

CONCLUSIONS:

1. Technological dependence is a major obstacle to development.
2. Green revolution enforces technological dependence and large scale agriculture.
3. Intermediate technology needed such as Japan - but not furnished because western producer doesn't make small scale machines.

MUST:

1. Understand economics of farm mechanization - impact on other objectives/problems.
2. Role of corporations needs assessment - especially their decisions to build large.
3. Role of donor agencies need assessment - only lend for large scale projects.
4. Role of host is important.

Khogali, Mustafa Mohamed. 1979. "Nomads and Their Sedentarization in the Sudan." in Proceedings of the Khartoum workshop on Arid Land Management, University of Khartoum/United Nations University, 22-26 October 1978, edited by J.A. Mabbult. Tokyo: United Nations University.

SCOPE: FOOD (LIVESTOCK)

PURPOSE: Analyze attempts to settle nomads and discussion of nomad livelihood.

RESULTS: Data on nomads in Sudan - 1.6 mill in 850,000 km<sup>2</sup> and 40 mill. animals; estimates of "overstocking" provided; government projects of ranches - 4 pilot ranches of 100 each with 200 families - Gerikel-Sarka for Kababish (50 families) was largest and only one to be operative - has innumerable problems: planned from above, carrying capacity is exceeded by livestock.

Lillywhite, Malcolm and Lillywhite, Lynda. 1980. "Sudan Village Renewable Energy Projects; Wadi Halfa Selected Projects and Recommendations and Proposed Sudan Village Renewable Energy Project." Domestic Technology Institute a Pre Pid Paper for U.S. AID.

SCOPE: ENERGY

PURPOSE: Provide a document that will assess USAID mission of Sudan in the preparation of a National Renewable Energy Project identification. To identify technological alternatives which could be adapted to village specific energy needs.

RESULTS: The Renewable Energy Technology team offers some recommendations aiming to establish two projects: Wadi Halfa- Renewable energy project and the Sudan village energy project. Both projects are supposed to offer alternatives that would reduce the dependence on imported fuel.

CONCLUSIONS:

1. Wadi Halfa renewable energy project: Implementation of program could reduce dependency on diesel fuel, train women and men in various technologies, and have the probability of becoming a "successful USAID project."
2. Sudan village renewable energy project: will establish renewable energy technology implemented in a basis of village needs, training centers, a national energy staff placed in each regional center.

DATA: Field work - surveys, among villagers.

COMMENTS: The document offers a detailed description of different alternative technologies, ranging from pedal powered grinders to solar energy coolers or water heaters. Appendix section includes some illustrative diagrams.

Does not seem like a viable project. Involves large quantity of money investment. The more realistic suggestion of technology are those which are originated from traditional technology.

Mukhtar, M.E. 1978. "Woodfuel as a Source of Energy in Sudan" Paper presented at the First Energy Conference, Ministry of Energy and Mining Khartoum, April 1978.

SCOPE: ENERGY

This paper deals with fuelwood resources in the Sudan, their distribution and availability. It divides the country into poor resource areas and rich resource areas (in forest). An estimation of per capita consumption is given. Firewood and charcoal production is dealt with estimates of their costs and future demands were forecasted.

Nimeri, Sayed. 1978. An Evaluation of the Six Year Development Plan for the Sudan (1977/78 - 1982/83) University of Khartoum. Faculty of Economics and Social Studies. Development Studies and Research Center. Monograph Series no. 7. Khartoum: University of Khartoum.

SCOPE: ECONOMIC DEVELOPMENT

PURPOSE: "An attempt to introduce the Six Year Plan of the Sudan, describe its major features as well as analyse its objectives, methodology, and

suggested policies."

**RESULTS:** The plan looks forward to modernizing the traditional agricultural sector, raising per capita income, increasing agricultural exports, raising population's living standards. In general, to achieve "an optimum utilization of the country's physical, financial and human resources." The Plan also presents the present economic picture and expectations (backed up with tables).

**CONCLUSIONS:** "The Plan is generally characterized with no small measure of realism with respect to its objectives, strategies and policies designed to achieve the objectives." However, positive aspects should be praised since it "represents a turning point in the history of economic planning in this country, judging from the serious studies undertaken by task forces of Sudanese specialists which preceded the plan preparation." The six year plan achieved a remarkable progress in the technique of planning in the Sudan.

**DATA:** Data developed for the "Five Year Development Plan of Sudan" (1970-75) and "Six Year Plan of Economic and Social Development" (1977-78 -- 1982-83).

**COMMENTS:** Plenty of tables from 1976-77, and projections for the future.

Oberai, A.S. 1977. Migration, Unemployment and the Urban Labour Market - A Case Study of the Sudan. International Labour Review 115: 211-223.

**SCOPE:** POPULATION (EMPLOYMENT)/FOOD

**PURPOSE:** To study unemployment, the urban labour market and migration in Sudan, based on the ILO/UNDP comprehensive employment strategy mission.

**RESULTS:** The evidence suggests that migration to greater Khartoum is being absorbed into urban employment rather than relegated to irregular, low-status activities on the fringe of the urban economy. However, large numbers of workers seeking clerical, production and service jobs are likely to create imbalances in the labour market sooner or later. Moreover, once the average earnings in many of these occupations are well below the overall average, the continued stream of migrants going into them will increase income inequality in greater Khartoum unless the imbalances are checked by a well integrated overall investment and development policy."

**CONCLUSIONS:** "Agriculture should be promoted and rural development schemes should be widened to include rural industry and public works and services. Jobs should be taken to the job seekers and urban wages should not be allowed to increase disproportionately. The growth of rural industries and the occupational diversity that usually results could create more employment in the villages and thereby help to reduce the propensity to migrate stemming from such factors as land scarcity, low productivity and the concentration of land ownership in a few hands."

**AUTHOR'S COMMENTS:** 1. "Unfortunately, the survey is heavily concentrated at the urban end of the migration process and there is very little information about the migrant's situation prior to the move." 2. "The economic consequences of migration must be investigated."

Peter McLaughlin and Associates Ltd. 1967. Research for Agricultural Development in Northern Sudan to 1967: A Classified Inventory Analysis. Notes and Papers in Development no. 1. New Brunswick: Peter McLaughlin and Associates Ltd.

**SCOPE: AGRICULTURE**

**PURPOSE:** To highlight the more important literature for rural development. Evaluate, research available for development purposes, so "future research can be suggested, especially for economists and agricultural economists, and those related in the social science disciplines."

**RESULTS:** "Four general classifications contain the majority of the items inventoried: These are land and water use, farm management and organization, statistics and research methodology, and economic and agricultural development." Largest item is land and water use, with irrigation being the common subject. But "only a small percentage discusses, analyses or provides practical answers for problems of water supplies in rainland agricultural regions, (west and east centre)."

**CONCLUSIONS:** The areas found to be weakest in research, and need to be stressed are: 1. Redirection of Moslems' values and attitudes toward agriculture, 2. The need to streamline decision-making of ministries and departments dealing with agriculture, 3. Rural production systems, 4. Cost and benefit of crop diversification, and 5. Northern Sudan's livestock industry.

**COMMENTS:** First chapters provide a general background on Sudan with emphasis on the problems of Sudan's northern agriculture. Material available on Sudan is classified, by books, journal articles, these and dissertations, miscellaneous reports, governments publications. A good bibliographic source on material available. But not current. (1959-60).

Shulli, A.R. 1978. "Energy and Development Petroleum General Administration" Paper presented at Ministry of Energy and Mining, The First Energy Conference, Khartoum, April 1978.

**SCOPE: ENERGY**

This paper deals with three important aspects of energy and development. These are the function and relation between energy demand and economic growth, here a mathematical relation is derived from the energy consumption and the gross national product over years. The second is an analysis of input - output and a macro-economic forecast out of the analysis. Out of the economic forecast and the relation between demand and development, he was able to calculate the future total demand of energy measured in coal. The study is supported by tables, figures and graphs. The study looks at firewood and (non-commercial) electric power, as well as the main energy source which is oil. The following conclusions were derived from the study:

1. Structural changes in the national economy will lead to high growth rates of energy which have to be covered through local resources, whenever possible.
2. The Sudan must intensify its search for oil and other energy resources and have a clear economic picture of its energy structure and its alternatives.
3. The Sudan must utilize the new methods of energy utilization and conservation.
4. Economy in energy usage must be encouraged from the stage of construction of new economic activities to the stage of daily operation of energy conservation.
5. Energy has to be programed for the needs of new activities from the initial stage.

Sorbo, Gunnar M. 1977. How to Survive Development: The Story of New Halfa University of Khartoum. Faculty of Economic and Social Studies. Development Studies and Research Center. Monograph Series no. 6. Khartoum: University of Khartoum Press.

SCOPE: POPULATION

PURPOSE: To present an analysis of the different problems faced by the tenants and the administration of New Halfa Scheme, and stress the differences and similarities between it and the Gezira Scheme.

RESULTS: After three field works, the author finds a series of problems, ranging from administrative to tenant nature, which create a poor economic situation for the tenants, being them at an income level lower than that of the Gezira's Tenants. Factors are discussed to explain their relation with, 1. labor input on tenants households; 2. interdependence between irrigation agriculture and animal husbandry; 3. inequalities (economic and social) between tenant communities.

CONCLUSIONS: "It is apparent that the record in New Halfa is disappointing." Due to many factors, yields are too low and continue to decline. Technical factors as well as market factors contribute to deterioration of agricultural production. There is still "room for improvement in New Halfa." But measures should be taken in the production field, and planning sector.

DATA: Data from agricultural Production Corporation, New Halfa.

COMMENTS: Very good, and well written analysis. Gives you a very clear, detailed picture.

Sudan, Ministry of Agriculture, Food and Natural Resources, 1974 "Food and the Sudan." Paper presented at U.N. "The World Food Problem" World Food Conference, Rome 1974.

SCOPE: FOOD

A summary of the Sudan position as one of the potential areas to produce food in the future. Not available in Khartoum.

Sudan, Ministry of Agriculture Regional Ministry. 1975. "Production of main food crops in the Southern Region, with special reference to sorghum" Paper read at the First Agricultural Conference April 1975, Khartoum.

SCOPE: FOOD

The paper is the first approximation of food production and consumption in the South.

The paper divides the south into three ecological zones and then proceeds to deal with the major problem of food deficiency in the South. It deals briefly with the problems of unorganized marketing systems and then with the problem of transport, a major factor towards higher prices of food crops in the South. The study then proceeds to deal with production (sorghum) and it is supported by a number of approximate estimation on tables.

Sudan, Ministry of Planning. 1977. Six Year Plan of Economic and Social Development 1977/78 - 1982/83. Khartoum: Sudan Government Printer.

SCOPE: ECONOMIC DEVELOPMENT

This document is still the main source of information. Now the country planning is mainly focused on the rehabilitation of old and existing schemes as well as completion of projects that had been started prior to 1979.

Taha, S.A.A. 1977. Society, Food and Nutrition in the Gezira. Khartoum: Khartoum University Press

SCOPE: FOOD

The book is based on an MD theses to Khartoum University. It seeks to define the pattern of severe protein - calorie malnutrition in the Gezira, its magnitude and its ecological factors. It is an important village scale study in an important area of the Gezira. The picture that emerges may not represent the country as a whole, for the Sudan is a large country where regional differences are expected. But one rather supposes that the size of the problem in other regions is similar, if not greater than in the Gezira. The book includes general introductory notes on physical, economic and social aspects of the country. Then followed by detailed case studies, community studies and the analysis of the Gezira socio-economic surveys. Besides a summary and recommendations there is an extensive bibliography.

Tenneco Inc. 1977. Proposal, A Comprehensive Plan for a Food System in Wadi El Khowi (Northern Sudan).

SCOPE: FOOD

The objectives of the proposed food system program are in accord with the Sudanese Six Year Plan of Economic and Social Development 1977/78 - 1982/83, the Arab Fund for Economic and Social Development's Ten Year Plan (1976 - 1985) regarding agricultural development in the Sudan, and the Sudanese "Promotion of Agricultural Investment Bill, 1976"

The objective of the food system program are:

1. To assist the Sudan in becoming self-sufficient in food production.
2. To assist the Sudan in becoming a major food-exporting nation to meet the needs primarily of Arab countries.
3. To improve the standard of living and quality of life in less developed areas.

Preliminary studies of the Food System Program have concentrated on the Donglei region, one of the less developed areas of the Sudan. Due to good soil conditions and proximity to the Nile River, this area has excellent agricultural potential. On the basis of preliminary analysis, about 250,000 hectares would be developed near Donglei along the east bank of the River Nile in the Wadi El Klowi Basin in the Northern Province.

Thimm, Heinz- Ulrich. 1979. "Socio-economic Assessment of Agricultural Development Projects in the Sudan." in Proceedings of the Khartoum Workshop on Arid Lands Management, University of Khartoum/United Nations University, 22-26 October 1978; edited by J.A. Mabbutt. Tokyo: United Nations University.

SCOPE: FOOD (AGRICULTURAL DEVELOPMENT)

PURPOSE: Problems of eight agricultural development projects in Sudan discussed, with focus on socio-economic factors.

RESULTS: Mechanized, rain-fed systems - irregular yields, difficulties in import supply and output marketing, large risk failure for farmer, environmental damage occurring. Irrigation projects - good results of export

crops and employment; insufficient local participation, management problems. Grazing schemes - basically failed because they disregarded nomadic principles and because of tax-landownership disputes.

Social acceptance - wide range of acceptance; but irrigation is a problem especially for nomads because it requires regular labor time.

Economical acceptance - farmer accepts; public reaction is not good because of large government subsidies; internal problems - physical yields and costs.

CONCLUSIONS:

1. Land rights must be settled before project has a chance.
2. Provides table of project, type, and problems - indicate permanence of cultivation and original shortcomings most common problems of most serious level.
3. Key - plan from bottom up; staff needs more local knowledge; flexibility needed, need better and more accurate project assessments.

United Nations. 1964. Population Growth and Manpower in the Sudan. New York: United Nations.

SCOPE: POPULATION

PURPOSE: To provide an assessment of the population's main characteristics, especially the manpower, using as a basic source the first Census, 1955-56. The report aims to provide the basis for planning and policy making of development programs.

RESULTS: The report emphasizes on population's main characteristics such as educational level, vital statistics, occupational level etc., and the demographic distribution per regions. Rates of urban/rural population were examined, among findings: high population growth rate, large unskilled population, unequal population distribution among regions.

CONCLUSIONS: Small population represents constraint to investment in large scarcely populated regions. It was suggested that larger population could help to development, even through high population growth rate presents a burden in terms of social services. Unbalanced rate of skilled to unskilled workers between rural and urban areas. Highly educated pop. concentrated in Khartoum. Suggests infrastructure improvement, reorganization of educational sector, rural cooperative enterprises, expand market for traditional artcrafts.

DATA: Sudan Census of 1955-56.

COMMENTS: This report was issued basically to provide an assessment which illustrates how by using the census as a primary source, an analysis of the population and manpower characteristics can be made, with the purpose of elaborating development programs that would take into account, the status of the human resources of Sudan, in contrast to the vast amount of land resources of this country. This type of assessment would provide a more adequate basis for the development of economic projects.

Yousif, B.Y., Bagehi, K. and Khattab, A.G. (eds). 1973. "Food and Nutrition in the Sudan" in Proceedings of the First National Food and Nutrition Seminar, March 1972. Khartoum: National Council for Research.

SCOPE: FOOD

The Food and Nutrition Seminar held at Khartoum in March 1972 is the first example of a multi-disciplinary government approach towards the grave problem of malnutrition facing the country. The first section of the book dealt with the important issue of food and agriculture although the statistics compiled and used in these sections are only up to 1970, still these contain important papers on food crops production in the Sudan.

- Present strategies for increasing food production
- Program for increasing food by conservation through technology
- Chemical composition of the Sudanese food
- Food composition pattern with regional characteristics.

The second section is based on:

- Education and training on nutrition in schools
- Health aspects of nutrition in the Sudan.

The last section includes the recommendations of the National Food and Nutrition Seminar.

#### A D D E N D U M

Gunter, H. 1978. Social Geographic Problems in the Khashm El Girba Project, Sudan (Land Reform, Land Settlement and Co-operatives 1978 - no. 2 525-35) Rome: Food and Agriculture Organization of the United Nations.

SCOPE: POPULATION

PURPOSE: An analysis of different problems arising as result of resettlement of three groups into the Khashm El Girba Project; the local nomads, resettlers from Wadi Halfa, and "western" migrant workers.

RESULTS: An illustration of the conflicts that emerge with each group, especially Nomads and Halfawis, in their adjustment to new type of economic activities as tenants in the project some of tenants previous activities seemed not to fit with the project's management and regulations. Problems with lack of enthusiasm reflected in low productivity, tenants facing a reality below expectations, planning deficiencies, difficulties with heterogenous groups dealing within same context, are some of the problems found.

CONCLUSIONS: This scheme, shows a differentiated social-geographic space where we find groups of different background interacting. Some groups are forced to work in an unknown environment which delays transition to resettlement. "Westerners," though culturally different, are necessary for the scheme's economy.

COMMENTS:) Offers an understanding on the problems confronted by the Sudanese planners in their effort of integrating three culturally different groups under the same project.

Hadari, A.M. 1971. Occupational Inmobility of Tenants of the Gezira Scheme, the Sudan. East African Journal of Rural Development 4(2) 67-75.

SCOPE: POPULATION

PURPOSE: "Summarize the results of a survey carried out in the Gezira Scheme, by the Department of Rural Economy at the University of Khartoum. The survey took three years, beginning from 1965. The survey examined "different aspects such as agricultural practices, cost of production consumption, and socio and economic factors surrounding the farmers and their families."

RESULTS: Results of the survey are provided and analyzed with a set of tables covering the following subjects: 1. distribution of tenants according to length of occupation of tenancies; 2. number of tenants in Gezira and Managel; 3. primary and secondary occupation of tenants in Gezira; 4. distribution of tenants by age; 5. educational level of tenants.

CONCLUSIONS: Large proportion of active population engaged in agriculture; majority not involved in other occupation besides farming; low income and shortages of jobs in rural sector, motivating migration of younger people to urban centers; lack of education, age, and capital scarcity limiting mobility, majority older population illiterate. In contrast to this, farmer occupation preferred by majority for "non-material advantages."

DATA: Based on three year survey of farmers in Gezira scheme.

Hassan, E.L. and SAAD, A.M. eds. 1974. Proceedings of the First National Population Conference, 11-14 July 1974 Khartoum. Sudan National Population Committee and National Council for Research. Khartoum: El Tamaddon Printing Press.

SCOPE: POPULATION

This book includes some articles in Arabic and others in English. Again most of the estimates are based on projections of population. It is already been decided to carry a new population census in 1981/82 in the Sudan to correct and supplement the 1973 census.

Ibrahim, Fouad. N. 1978. The Problem of Desertification in the Republic of the Sudan with Special Reference to Northern Darfur Province. University of Khartoum. Faculty of Economics and Social Studies. Development Studies and Research Center. Monograph Series no. 9. Khartoum: University of Khartoum Press.

SCOPE: FOOD/POPULATION/ENERGY

PURPOSE: An analysis of the factors that increase desertification problems in the Northern Darfur Province.

RESULTS: Drought of past 11 years has contributed to desertification. Among other factors involved: population increase, exhaustion of limited soil and water resources, overgrazing, deforestation, rainfed cultivation, increase of water yards. Effects: over cultivation, erosion conflicts between sedentary cultivators and nomads competing for water yards, fuel-wood scarcity, cultivation beyond agronomic dry boundary.

CONCLUSIONS: For the past 30 years the government has recognized the problem. Some measures are being taken and others are suggested by the author. Mention is made of the proposed "Sudan Desert Encroachment and Rehabilitation Programme" and College of Veterinary, Natural Resources

and Arid Zones. There are seven other measures proposed by Dr. Ibrahim. These are:

1. Improving central places on margin of Sahara to control and enhance animal husbandry in Northern Sahelian Zone.
2. Combine millet/acacia senegal cultivation.
3. Keep fire-wood plantations close to settlements.
4. Rotation of pastures by rotation the use of water pumping stations.
5. Improving infrastructure.
6. Establishing labor intensive factories on the basis of agriculture and animal wealth.
7. Organizing and enlightenment campaign on the causes and consequences of desertification.

COMMENTS: A good analysis, population-agriculture and energy are involved as common factors contributing to or being affected by desertification.

Oesterdiekhoff, Peter and Wohlmuth, Karl. 1980. The Breadbasket is Empty. The Options of Sudanese Development Policy. A Research Report Forschungsberichte. Bremen: University of Bremen.

SCOPE: FOOD POLICY

PURPOSE: An analysis of policy choices for Sudan.

RESULTS: A review of various agricultural and trade policies.

CONCLUSIONS: Need for changes such as delinking in foreign trade and regional cooperation.

COMMENTS: Fair, mostly theoretical discussions.

TANZANIA

Abrahams, R. 1977. Time and Village Structure in Northern Unyamwezi: an Examination of Social and Ecological Factors Affecting the Development and Decline of Local Communities. Africa (UK) 47(4): 372-85.

SCOPE: POPULATION

A village studied previously in 1957-1960 was revisited in 1974, shortly after a large proportion of the population had been transferred into newly-built large nucleated villages. After some preliminary discussion, the article examines changes in the composition of Butumara village between 1959 and 1974, resulting both from in- and out-migration and from aging. The background of some cases of migration is given, and the age-distribution of household heads in this and neighbouring villages contrasted with those in more recently settled areas to the south. A more general model is then presented of the processes of village development, saturation and decline in the area, and their relations to a range of physical and human factors. Ways in which the normative structures of the village and the wider political system have provided an institutional framework consistent with, and even encouraging to, these changes, is discussed. Finally, the new post-1974 villages are examined, and some of the ways they constitute a quite radical departure from pre-1974 settlement patterns are considered.

SOURCE: CS/CAB.ABS

Agricultural Cooperative Development International. 1979. Farmer and Village Surveys as Instruments for Evaluation of the Impact of Tanzania Rural Development Banks Agricultural Input Credit Program. Washington: Agricultural Cooperative Development International.

SCOPE: FOOD

CONTENT: Results of an extremely detailed survey in Arusha and Mbeya/Ruvuma areas. Includes such details as who owns and ox or a hoe, livestock etc. All first hand data.

All Data Currently Available on Tanzania. Washington: U.S.AID. PPC/PDRP/ESDS

SCOPE: STATISTICAL INFORMATION

CONTENT: Computer printouts on social data, trade data, agricultural sector data - much, as of 1979.

Arnold, Michael H. 1974. The Contribution of Science. Chemistry and Industry. (January 5) No. 1: 21 (3).

SCOPE: FOOD

Survey Report: In Tanzania, cotton production in the 1965-66 season reached 435,600 bales, representing nearly a 10-fold increase over average production during the 1930's and 1940's. This exemplifies the progress that has been made by applying science to agriculture. Questions remain. For example, on defining the aims of research projects that relate to farming systems best suited to the farmer's resources; the area's ecology, and the

country's economic needs. Institutional systems best suited to scientific research on agricultural problems are discussed.  
SOURCE: C.S./ENVIROLINE

Barnum, H.N. and Sabot, R.H. 1977. Education Employment Probabilities and Rural-Urban Migration in Tanzania. Oxford Bulletin of Economics and Statistics 39: 106-26.

SCOPE: POPULATION (EMPLOYMENT)

PURPOSE: Using models on the human capital paradigm to relate the above factors to understand their roles.

RESULTS: Clear positive association between education level and migration rates; educational level and urban wage rate and unemployment probabilities; and migration rate, urban wages and employment probability. Expected income has significant influence on rural migration to town.

CONCLUSIONS: Economic returns to migrations are an increasing function of education. Policy implications: to use government wages, tax and tariff and investment policies to discourage urban migration (cut jobs and income in cities).

COMMENTS: More a statistical exercise than a study of these factors, but contains useful data.

Barnum, H.N. and Sabot, R.H. 1976. Migration, Education, and Urban Surplus Labour: The Case of Tanzania. Development Centre Studies, Employment Series No. 13. Paris: Development Centre of the Organization for Economic Co-operation and Development.

SCOPE: POPULATION (MIGRATION)

PURPOSE: To analyze the determinants of migrant behaviour in Tanzania with the primary objective of assessing the theory that causally links rural-urban migration and urban labor market imbalance.

RESULTS:

1. Rural-urban income differentials and hence the net returns to migration increase with education;
2. While employment probabilities have been declining for all but the highest educational group, employment opportunities for the less educated have fallen relative to the educated;
3. The selectivity of the education system and the influence of education on preferences may result in the educated having a relatively higher likelihood of migration independent of the differentials in economic opportunities between rural and urban areas.

CONCLUSIONS: "The evidence that urban labor market imbalance in Tanzania is due to excessive rates of rural-urban migration which, in turn, are a consequence of high and downwardly inflexible urban wages, is quite strong. Not surprisingly, the implications for remedial policy of the intersectoral misallocation model of urban surplus labor focus on the supply side of the urban labor market. Reduced to simplest terms, the advice that an economist, convinced that a downturn in economic activity is Keynesian in nature, would give to a government anxious to achieve full employment is "intervene in the market so as to increase effective demand for goods and services"...The advice our economist would give to the Tanzanian government is, intervene in the market so as to narrow the differential in incomes between rural and urban areas. To adopt such a policy would improve income

distribution and allocative efficiency and hence would increase national output and reduce the social problems associated with urban surplus labor.

COMMENTS: This is undoubtedly one of the best works on migration in Tanzania. Chapter III is devoted to the empirical analysis of the relationships among education, migration and urban surplus labor. The estimated migration function allows an evaluation of the significance and the strength of the hypothesized relationships and thus gives an indication of the quantitative impact of changes in policy.

Blue, Richard, N. and Weaver, James, H. 1977. A Critical Assessment of the Tanzanian Model of Development. U.S. AID Development Studies Program. Occasional paper no. 1. Washington: United States Agency for International Development.

SCOPE: DEVELOPMENT (FOOD/POPULATION)

PURPOSE: To criticize the performance of the Tanzanian agrarian-based model.

CONCLUSIONS:

1. Villagization has been responsible for reduced food production and has made self-sufficiency in food impossible.
2. Rural Tanzanians are very individualistic and limit their social groupings to small kinship clusters. Government planning for new villages has been woefully inadequate.
3. Government cannot supply basic services to the villages as promised, and to rectify this, it is already trying to make villages more self-reliant.
4. Government has not seriously explored alternative ways of delivering services to disperse populations.
5. Tanzania has been devoting too few resources to productive investment.

COMMENTS:

- Parts VII and VIII present a rightist and a leftish critique.
- The last paragraph of the part "overall analysis and assessment," reads: "no one can foretell the future course Tanzania will take. There have been obvious mistakes and shortcomings. But Tanzania still presents one of the most hopeful models of development to be found in the Third World today."

Boeson, J. 1976. Tanzania: From Ujamaa to Villagization. Institute for Development Research Papers A.76.7. Copenhagen: Centre for Development Research.

SCOPE: POPULATION (GOVERNMENT POLICY)

PURPOSE: To review the development of rural socialism in Tanzania from the first Ujamaa villages, through relocation policies, through encouragement of existing villages, to the villagization program.

RESULTS: Paper suggests that at first a lack of strategy hampered the program, along with the lack of a measure for its success. Later relocation programs emphasized quantitative rather than qualitative change. Villagization took more account of the realities of what actually could be done.

CONCLUSIONS: "The major trend in political development in Tanzania since independence has been a steady increase in the control of the economy and society exerted by the state machinery." Popular participation in planning, a goal of socialism, has not been realized.

COMMENTS: Good historical summary that points up the importance of attitudes in the success of policy programs, as well as stressing the need for defined goals on the part of the government. Coercive measures seem to be ineffective in bringing about lasting change.

Boesen, Jannik. 1980. Peasants and Tobacco Exports: Aspects of the Political Economy of Petty Commodity Production in Tabora Region. CDR Papers A.80.1. Copenhagen: Centre for Development Research.

SCOPE: FOOD (AGRICULTURE)

PURPOSE: To try to explore some of the implications for the study of the tobacco industry in Tanzania.

RESULTS:

1. In the course of 20-25 years this predominantly subsistence economy was replaced by an extremely strong integration into the modern market economy, with tobacco grown for the world market as the main crop.
2. The average tobacco area three years after the 1974/75 reforms was only slightly above half its original size.
3. Compared to other regions in East Africa it seems that in both cases there is a rather large dispersion of labor over the months of the year and a very intensive exploitation of the total labor force available.

CONCLUSIONS: This work may contribute to an understanding of the particular relations of production which are generated when the peasant sector is integrated into the market economy, and thus also of the mechanisms which, for instance by the market, combine this sector with the rest of the society.

Boesen, Jannik and Mohele, A.T. 1979. The Success Story of Peasant Tobacco Production in Tanzania: The Political Economy of a Commodity Producing Peasantry. Publication no. 2, publications from the Centre for Development Research, Copenhagen. Uppsala: Scandinavian Institute for African Studies.

SCOPE: AGRICULTURAL PRODUCTION (TOBACCO)

PURPOSE: To study how Tanzania in the last 25-30 years has become a tobacco producer and a tobacco exporter.

RESULTS:

1. Tobacco production has since World War II grown to a major industry in the country and is one of its main foreign exchange earners;
2. Tobacco is grown as a commercial crop in large parts of central Tanzania. The areas co-incide roughly with the vast tracts of "miombo" forest stretching from Tabora region over Mbeya and Iringa to Ruwuma region in the south;
3. The production is based on heavy exploitation of the natural forest resources, which may in the long run have the most serious ecological consequences for the whole area.

CONCLUSIONS: "...in more general terms, Tanzanian tobacco production is dependent on the overall development of the world market as governed to a large extent by the transnational oligopoly's determination to maintain control, turnovers, and very high profits."

Boesen, J. and Raikes, P. 1976. Political Economy and Planning in Tanzania. Institute for Development Research Paper A.76.6. Copenhagen: Centre for Development Research.

SCOPE: POLITICAL ECONOMY

PURPOSE: "This article looks at the development of planning in Tanzania in the context of the development of the overall political economy."

RESULTS: Present problems are seen in terms of a conflict between the goal of a Politically mobilized population and the existence of a bureaucracy dependent on growing economic surplus which is threatened by this goal. Major changes in formal ownership and control seem to have had little impact on the underlying pattern of production.

CONCLUSIONS: The present economic crisis involving stagnating production, inflation, growing dependence on foreign financing, seems "to be build into the whole political and economic structure of present day Tanzanian society."

COMMENTS: A good review of the development of policy and its inherent contradictions. Analyzes class struggle aspects of the above problems.

Brooke, Clarke. 1967. Types of Food Shortages in Tanzania. Geographical Review 57: 333-357.

SCOPE: FOOD/POPULATION

PURPOSE: "To analyze and classify the diversity of the problems of food supply in mainland Tanzania, in location, cause, and effect. (...in accordance with population settlements)"

RESULTS: "Where cash reserves are small and communications poor, as in much of the country, a single bad harvest frequently results in reduced food consumption. For the amounts of stored food stuffs are rarely adequate to maintain rural populations much longer than from one year's harvest to the next. In many parts of the country two consecutive seasons of crop failure bring near famine conditions to the stricken area, and a sequence of three years of poor harvests is usually catastrophic in its impact. About 90% of the country has no permanent streams. A little more than half receives at least thirty inches of rainfall annually in four years out of five, but only one-tenth receives more than forty inches with 80% probability. Gillman's study published in 1936 indicated that about two-thirds of the population were settled on one-tenth of the land area. Two-thirds of the country was virtually uninhabited."

CONCLUSIONS: "Clearly, acute shortages of food are complex in cause and effect, involving not only physical and abstract economic elements but group attitudes and values as well. Famine is a powerful motivating force, and governments faced today with crisis of food supply are moved to actions that may drastically change the face of the land. Official projects to alter land-use systems, to introduce new food plants and commercial crops, and to relocate peoples and their livestock in new types of settlements are often contrary to local tradition and without popular acceptance. But such changes are almost inevitable in Tanzania, as in other countries where scarcity is frequent and widespread."

COMMENTS: "Table 1 - characteristics of food shortages in mainland Tanzania" gives the detailed results for five types of food shortages.

Brown, Norman L. and Howe, James W. 1978. Solar Energy for Village Development. Science 199 (4329): 651-8.

SCOPE: ENERGY

Survey Report: Resulting from a workshop in Tanzania. Calculations of the costs of performing certain village tasks with diesel motors, with electricity from the nation grid, and with five small-scale technologies were examined. Photovoltaic power generators, small-scale hydropower, biogas generation, windmill generators, and solar refrigeration were selected on the basis of immediate or short-term availability. Each of the five technologies either is competitive with diesel power or will be in a few years (11 tables).

SOURCE: C.S./ENERGYLINE

Bryceson, D.F. 1980. Changes in Peasant Food Production and Food Supply in Relation to the Historical Development of Commodity Production in Pre-colonial and Colonial Tanganyika. Journal of Peasant Studies 7:281-311.

SCOPE: FOOD PRODUCTION

SOURCE: C.S. AGRICOLA

Chitepo, N.A. 1979. Application of the Box-Jenkins Methods to the Fore-Casting of Electricity Sales. Masters thesis. University of Dar es Salaam.

SCOPE: ENERGY

PURPOSE: The objective of this study was to forecast future sales of electricity in Tanzania based upon monthly sales of electricity using the G.E.P. Box and J.M. Jenkins methods of estimation.

RESULTS: The thesis is mainly a test of statistical methodology, but it does provide useful data on the use of electricity on a national basis as well as by power - generation sub-systems for the years May 1972 to December 1978 and forecasts for 1979.

The national total demand rose from 336 million in 1972 to 545 million in 1978. The greatest sectoral increase appears to be in domestic use, which rose from 5.4 million kilowatt-hours in May 1972 to 9.6 million kilowatt-hours in December 1978.

Monthly sales of electricity (in kilowatt-hours) are sub-divided into the following categories: 1. domestic use; 2. commercial use; 3. light-industrial use; 4. industrial use; 5. public lighting use.

Chung, Do-Sup 1975. Review of on-Farm Grain Storage in Tanzania. Kansas: Food and Feed Grain Institute.

SCOPE: FOOD

PURPOSE: To review current on-farm grain facilities; offer recommendations for improvements including training personnel at institutional and local level.

RESULTS: Reviews grain production, farm structures, imports and exports of cereal grains, on-farm grain storage situation, causes and extents of on-farm grain losses, past and present studies and programs in on-farm storage, governmental and institutional capability to improve on-farm grain storage and suggests recommendations for improvements.

CONCLUSIONS: Post-harvest grain losses are high; therefore the question of

improved farm storage should be considered as a high priority area for action.

Claeson, C.F. and Egero, B. 1972. Migration and the Urban Population. Bureau of Resource Assessment and Land Use Planning. Research Notes, No. 11-2. Dar es Salaam: University of Dar es Salaam.

SCOPE: POPULATION (MIGRATION)

PURPOSE: To throw light on the origins and demographic characteristics of the population of the sixteen towns regarded as urban (based on the 1967 census). To contribute to the study of the demographic selectivity in migration. To summarize observations of demographic features of the urban population. To draw attention to the consequences of migration.

RESULTS: In the urban areas there is a dominance of young adults, especially males, and a disproportionate number of males in relation to females. In contrast, the rural population includes relatively more females than males, many young children and also the very old.

CONCLUSIONS: The border-crossing does not strongly affect the selective mechanism in migration, and, consequently, the motives behind the moves are much the same. The long-distance migrants of other regions and neighboring countries resemble more than do the short-distance migrants the stable residential population in the urban areas in such important characteristics as vital rates, education, and age at marriage.

COMMENTS:

- The impact of migration on education, marital status and population growth are also discussed.
- The conclusions point at possible features for the further development of migration models.

Claeson, C.F. and Egero, B. 1972. Migration in Tanzania. Bureau of Resource Assessment and Land Use Planning. Research Notes no.11-3. Dar es Salaam: University of Dar es Salaam.

SCOPE: POPULATION (MIGRATION)

PURPOSE: To deal with movements of people in Tanzania. To make useful the 1967 census by reorganizing, simplifying, and generalizing the "wealth of information" of this census. To establish the main trends of migration.

RESULTS: This study reveals that population migration in Tanzania is complex. Within Tanzania over one million people have redistributed themselves across the regional boundaries. The numbers would have been considerably higher if it had been possible to distinguish movements between districts and between villages. Because of the history of the country, the presence of people from "overseas" will not be as surprising, nearly a quarter of a million people, from neighbouring and more distant African countries, have peacefully moved into Tanzania.

CONCLUSIONS: The analysis is largely of spatial or geographical character. The nature of the source material has allowed the identification of migration streams within the country originating in regions and destined to districts and urban centers.

DATA: No original data, but: they have reorganized the data of the 1967 census, by generating many new tables.

COMMENTS: The study gives the reader knowledge of the movements of people, which is fundamental to the understanding of social change, economic development and political organization.

Claeson, C.F. and Egero, B. 1971. Movement to Towns in Tanzania, Tables and Comments. Bureau of Resource Assessment and Land Use Planning. Research Notes no. 11. Dar es Salaam: University of Dar es Salaam.

SCOPE: POPULATION (MIGRATION)

PURPOSE: To provide a basic documentation of past migration to be able to make a projection of future population totals. To understand the movements of people from one part of the country to another since it is an important aspect of planning in Tanzania. To draw the attention to various aspects in the interpretation, in terms of migration of birthplace material.

RESULTS:

1. Production of tables that deal with the movement to towns in Tanzania that is indicated by place of birth and residence in the statistics for the urban population in the 1967 census reports.

2. The average relation between the number of non-migrants and the number of migrants is roughly 1:2, which shows the role of migration for the growth of towns in Tanzania during the last two-three decades.

CONCLUSIONS: In spite of the shortcomings, the birthplace statistics are an important source of information regarding population movements.

DATA: No original data, but reorganization of the data that was generated by the 1967 population census to produce new tables which deal with the movement to towns.

Coulson, A. 1978. Agricultural Policies in Mainland Tanzania. Review of African Political Economy 10: 74-100.

SCOPE: FOOD (AGRICULTURE)

The years 1946-76 cover the last 15 years of colonial rule in Tanganyika, and the first 15 years of independence. In that period governments attempted a wide range of policies relating to agriculture (summarized in tabular form). This paper attempts to bring out the historical sequence to show how the perceived weakness in one set of policies led to the choice of the next. A general conclusion is that those who controlled the state consistently misunderstood fundamental aspects of peasant agriculture, and overestimated what the use of state power could achieve in rural development. More specifically, the paper charts a conflict of interest between peasants and bureaucrats beginning in colonial times and continuing today. From a bureaucratic point of view the peasants are an important section of the economy which they cannot fully control but which they must attempt to manipulate to extract a surplus of food to feed the cities and to export crops to extract foreign exchange. The peasants view the bureaucrats with mixed feelings.

SOURCE: C.S./CAB.ABS

Datoo, B.A. 1976. Relationships between Population Density and Agricultural Systems in Uluguru Mountains, Tanzania. Journal of Tropical Geography 42: 1-12.

SCOPE: FOOD/POPULATION

PURPOSE: To assess Boserup's thesis of relationships between population pressure and agricultural intensity; Uluguru Mts. (Bisakira Juru, Matombo, Nikuyumi, Tawa, Mgeta).

RESULTS: Farms can be distinguished basically by "techniques to restore fertility of soil" and other variables.

CONCLUSIONS: Found inadequate the surrogate pressures to diminish relationship between agriculture and population density.

DATA: Census (1967) data; ten household units; and household sample; Thomas 1970 - BRALUP Research Notes no. 8.

COMMENTS: Reservations because of inadequate explanation of data base and disagreements over interpretations.

1977. Crop Production in Tanzania, Production Costs and Returns to Farmers, Vols. 1 and 2. Marketing Development Bureau FAO/UNDP Project SF TAN 27. Dar es Salaam: Ministry of Agriculture.

SCOPE: FOOD

CONTENTS: Large amount of data, admittedly incomplete, on inputs and outputs of small holders. Data collection method not specified, data in quantity and monetary units, while concentrating on coffee, cotton, tobacco, cashew nuts, sissal, tea and pyrethrum. There are some summary tables comparing them to food crops.

Datoo, B.A. 1973. Population Density and Agricultural Systems in the Uluguru Mountains, Morogoro District. Bureau of Research Assessment and Land Use Planning. Research Paper no. 26. Dar es Salaam: University of Dar es Salaam.

SCOPE: FOOD/POPULATION

PURPOSE: Test population thesis for Uluguru zone.

RESULTS: Used discriminate and other analysis and found only soil fertility technology differentiated farm types; number of livestock, crop mix, and cultivation practices distinguish high density from low density zones of population.

CONCLUSIONS: Deviant cases = some farm in high stratum have not evolved to the extent that population density indicates they should, hence reject relationship of thesis.

COMMENTS: Probable serious interpretive problems.

DeVries, J. and Mvena, Z.S.K. Sorghum Production by Smallholders in Morogoro District, Tanzania. Rural Economy Research Paper no. 9. Morogoro: University of Dar es Salaam, Morogoro. Department of Rural Economics.

SCOPE: FOOD

CONTENT: Description of sorghum farming based on first hand data - economic and physical data. Relation between farmers' wealth and production and production mix.

EVALUATION: Very good paper.

Economic Commission for Africa and International Labour Organization. 1980. National Seminar on Population and Development. Draft report of a seminar held in Arusha, Tanzania, 17-24 Feb. 1980.

SCOPE: POPULATION

**PURPOSE:** The Seminar and workshop was used to as a forum to increase awareness of the need to take demographic factors into consideration in the preparation and development of national socio-economic development plans.

**RESULTS:** The Minister of State for Planning and Economic Affairs, Representatives from ECA, ILO, UNFPA and UNDP presented statements. There were also papers by participants on the following themes - the Demographic situation in Tanzania, Population and Development Planning in Tanzania, UNFPA field experience in Population and Development, Population Policy, Education and Health Planning, Women and Planning, and Population - related Research, Country Statements from Kenya, Uganda and Zambia were also presented.

Discussions of the various themes took place in three groups. The three groups were as follows: 1. Needs, priorities and use of population data collection and analysis for planning. 2. Needs priorities and use of population research and training for development and 3. organizational structures for integrating population into development planning.

**COMMENTS:** It is anticipated that several programs would be initiated after the conference. As a first step a major bibliography of all works related to population and development has been commissioned and work has started on a book on population and development.

1977. Evaluation Team Report on Agricultural Credit Tanzania Project (no. 621-11-140-117). Dar es Salaam; U.S.AID/Tanzania.

**SCOPE:** FOOD (AGRICULTURE)

**PURPOSE:** To evaluate Tanzanian self sufficiency (in food crops and livestock agriculture) project proposed by U.S.AID. The project is to provide credit and technical assistance. Looked at Tanzania Rural Development Bank and Small Farm Food Program.

**CONCLUSIONS:** The bank is basically sound and in a favorable atmosphere for making loans and is capable of administering the Small Farm Loans. The Small Farm Food Program is off to a slow start but should be expanded.

**RECOMMENDATIONS:** 1. Open district field offices quickly; 2. revise policies and interests rates, public relations programs etc. by consulting with Ministry of Finance; 3. research history of loaning program; 4. schedule rate of expansion by region and district; 5. project village credit needs.

**COMMENTS:** Specific review of Small Farm Food Project not general at all.

Family Planning Association of Tanzania (FPAT) (no date) The Family Planning Association of Tanzania. Dar es Salaam: FPAT.

**SCOPE:** POPULATION

**PURPOSE:** Description of the activities of the association. Describes the aims and objectives and the current programmes of FPAT.

**COMMENTS:** The most significant section for policy trends is the statement that: "The National Executive Committee of the ruling Party TANU declared in 1973 its support of the Family Planning Association of Tanzania and its activities and directed that the Ministry of Health should help Family Planning Association and also, where possible, the Ministry should offer family planning services. The MCH/Family Planning Programme is the result of this directive."

Fleuret, P. and Fleuret, A. 1980. "Nutritional Implications of Staple Food Crop Successions in Usambara, Tanzania." Mimeographed.

SCOPE: FOOD PRODUCTION (NUTRITION)

PURPOSE: To review the sequence of staple food crop substitution, from the pre-eminence of bananas to their replacement by Irish potatoes, to the eventual increase in the importance of maize and cassava in northeastern Tanzania. Reasons for these substitutions and consequences are discussed.

RESULTS: The article begins with a review of the climate, population density, and agricultural characteristics of the Lushoto District in order to demonstrate the three factors which the authors believe to be the determinants of the sequence of staple food crop successions: population growth, reduction in available land (overall environmental depletion), and strength of export markets. In pre-European times the banana was the most important food-stuff, but after the introduction of the Irish potato by Europeans population pressure, agricultural suitability, and its nutritional similarity to bananas resulted in its widespread acceptance; this in turn allowed farmers to expand production to hitherto unsuitable farmland. Maize was encouraged because of its suitability as a cash crop, meeting the demands of the export market. At a later date a population surge resulting in a land shortage and pressure to adopt high yield crops lead to the increasing importance of cassava production.

DATA:

- Table I -- size of landholdings, from Bureau of Statistics
- Table II -- crop production in the district, TIRDEP
- Table III -- pre-contact cultigens, from missionary report
- Table IV -- staple food consumption - from dietary survey.

1980. "Food and Nutrition Policy for Tanzania." Working paper, first National Food and Nutrition Conference, 3-5 September 1980. Moshi. Dar es Salaam: Tanzania Food and Nutrition Centre (TFNC).

SCOPE: FOOD

PURPOSE: To set up a national food and nutrition policy in order to eliminate the high rate of malnutrition in the country. The document was prepared as a working document for discussion, modification and adoption at the Conference.

RESULTS: The document is a collection of facts and issues about food and nutrition. It shows that malnutrition is a result of interrelated issues such as food supply, distribution, food industry, storage, water, appropriate nutrition education, etc.

CONCLUSIONS: Concludes the need for integration of planning and implementation of these issues in the form of a national food and nutrition policy.

COMMENTS: The data collected from various organizations is often contradictory and therefore better data collection and dissemination methods are necessary if such data is to be used in planning.

1977. Food Processing Industries in the United Republic of Tanzania. Investment Africa 5: 23-6.

SCOPE: FOOD

The findings of a two-week ECA/FAO Food and Agro-Industries Advisory Group mission to Tanzania are reported. The mission considered food and

agro-industries as an integrated industry and also gave attention to raw materials supply. Tanzanian food industries cover almost all sectors within the food processing industry, but several food processing activities suffer from major constraints, and consequently their contribution to the country's demand for processed food and agro-industrial products is substantially smaller than their potential. Food processing is the major manufacturing activity, and accounts for 42 percent of total value added in the manufacturing sector. Total output of all food processing industries (including beverages) amounted to 840.5 million Tanzanian shillings (\$US 117.7 million) in 1972. Important food industries are the grain mill industry, covering 24.3% of total output of all food industries, followed by the meat industry (13.9%), the vegetable oil industry (12.8%), breweries (11.6%) and sugar processing and refining (10.3%). The animal feed industry and other food processing industries cover 18.6%. The highest value added is recorded for breweries (35.7 million shillings or 35%), the sugar industry (38.5 million shillings or 42.5%) and grain milling industry (41.6 million shillings or 19.4%). Between 1968 and 1974 production increases were limited to beverages, preserved fish and cottonseed oil, processed meat products, dairy products and wheat flour did not show any increase in production. The value of imports of sugar and oils and fats amounted to \$US 21.7 million in 1974 or almost 40% of the country's total imports of processed food products. Attention is also called to the great need for improving and expanding the dairy industry since Tanzania imported more than \$US 9.5 million worth of dairy production in 1974. The expansion of exports of processed food products is also considered. Best opportunities appear to exist for cashew-nuts and kernels. An important market exists in other African countries for processed meat. There is a small regional market for processed coffee. The vegetable oil, meat, fruit and vegetable processing industries were selected as those which appear to be most suitable for future ECA/FAO assistance.

SOURCE: CS/CAB.ABS

Fosbooke, Henry. 1980. Contract AID T 62180.012. Papers prepared for USAID.

SCOPE: FOOD/POPULATION/ENERGY

CONTAINS: Four papers on: 1. population pressure and its impact on the environment; 2. production in the high potential areas; 3. Measures to arrest environment deterioration in Semi-Arid areas; 4. population movements and their impact on high and low altitude areas. Data sparse and from various sources; clippings from papers and newspapers; opinions, platitudes and generalities.

EVALUATION: Interesting to contemplate as the views of an old East African hand.

Grenzebach, K. 1977. Agrarraumlicher Strukturwandel Infolge von Bevölkerungsverdichtung in Dichtbesiedelten Grenzregionen der Humiden Tropen Afrikas. In Agrarwissenschaftliche Forschung in den humiden Tropen. Giessener Beiträge zur Entwicklungsforschung Reihe 1. 3:13-14. Geographisches Institut. Universität Giessen. German Federal Republic  
Title in English: Structural Change in the Location of Agriculture as a Result of Increased Density of Population in Densely Populated Fringe Regions of the Humid African Tropics. Examples from S. Senegal and

N. Tanzania.

SCOPE: FOOD/POPULATION

The natural conditions and the social and economic level of development and factors of spatial assessment are analyzed. The characteristics of the humid and arid tropics are described and the two areas of study compared are agricultural land in S. Senegal is mapped and the demography analyzed. Related social questions are dealt with and agricultural development projects described. Population development and the influence of the political system in N. Tanzania are analysed and land use system and the corresponding areas of application are elaborated. Questions of development measures are also raised briefly.

SOURCE: C.S./CAB.ABS

Henn, Albert E. 1980. Tanzania: Health Sector Strategy Dar es Salaam: U.S.AID/Tanzania

SCOPE: NUTRITION AND HEALTH

PURPOSE: 1. Provide a comprehensive description of health situation in Tanzania; 2. analysis of principal sector constraints (how they can be relieved through foreign assistance); 3. strategy for effective application of AID resources.

RESULTS: Relies on paramedical program aimed at controlling communicable diseases, getting villagers to confront health problems. Increasingly preventative rather than curative. Among constraints; logistics and maintenance problems, poor communication and transportation, inadequate data for planning and evaluation, poor management at all levels, declining quality of health workers due to prolonged isolation and few supplies and resources. Tanzania is concerned with immediate problems before long-term development problems and incorporate discreet health, population and nutrition projects into the long-term strategy.

COMMENTS: The long-term strategy attempts to: 1. increase the self reliance's productivity of people by making them able to deal with own health problems; 2. supplying preventative services and cures; 3. getting at population problem; 4. notify main constraint (management's administration must be improved).

Hill, William Thomas. 1980. "Food, Energy, and Population: Are They World Problems? An Analysis of Policy Response in Brazil, Tanzania, the United States and Yugoslavia." Ph.D. dissertation. University of Massachusetts.

SCOPE: FOOD/POPULATION/ENERGY

PURPOSE: "The major purpose of this study is to assess the accuracy, relevance, and acceptance of the global "crisis" perspective on these issues at the nation - state level - where comparatively little attention has been focused - and to judge whether referring to these issues as "world" problems helps or hinders our ability to adequately understand their source and nature."

RESULTS: "National self-interest remains the primary factor determining each state's response to food-population-energy."

CONCLUSIONS: "The 'global' perspective, which bases its appeal largely upon ecological evidence, displays fundamental defects when applied within the context of the political realities of the contemporary international system."

COMMENTS: This work represents a perfect example of the project's objective--that is, the interdependence of food-population-energy.

Hoeven, R. van der. 1979. Meeting Basic Needs in a Socialist Framework: the Example of Tanzania. World Employment Programme Research, working paper no. WEP 2-32/WP 20. Geneva: International Labour Office.

SCOPE: BASIC NEEDS

The policies and efforts Tanzania has made in the past decade towards satisfying basic human needs are described. Although the concept of basic needs is recently in the forefront of discussion, the study shows that it is not a new concept, and has been one of the leading issues in Tanzania's development planning for some time. A short description of the socio-economic trends during the last 15 years is presented, together with a discussion of basic needs policies and performances, focusing on regional differences. Six aspects of basic needs: food, health, water supply, housing, education and transport are outlined in individual chapters. The Ujamaa movement is examined, and also the decentralization of government services.

SOURCE: CS/CAB.ABS

Hofmeier, Rolf. 1973. Transport and Economic Development in Tanzania with Particular Reference to Road Transport. Economic Research Bureau, University College, Dar es Salaam; IFO-Institut für Wirtschaftsforschung München, Afrika-Studien no. 78. München: Weltforum Verlag.

SCOPE: ECONOMIC DEVELOPMENT (TRANSPORT SYSTEM)

PURPOSE: "To analyze the contribution of the transport sector for economic development and to show its impact upon the socio-economic regional differentiation of the country."

RESULTS: "The transport sector has been a very important influencing factor in the economic development of Tanzania and in the regional differentiation of the monetary economy of the country. (The most important impact has been to make possible the cultivation of cash crops for export and later to certain degree also for the internal market, to achieve a break through away from the subsistence economy which was until then exclusively prevailing and the gradual emergence of a market and of demand for manufactured and industrial products.)"

CONCLUSIONS: "Without any doubt there exist several weaknesses, which have to be removed. The greatest deficiency still seems to exist in the field of local transport conditions. Much remains to be done for a gradual improvement of the transport system in the course of the general economic development of the further development of Tanzania, it appears unjustified to give a particularly high priority to the transport sector."

DATA: The present study is predominantly based on the results and experiences that the author gained during an 18 month stay in Tanzania between July 1967 and December 1968. The collection of most of the original data used for the study was, therefore, limited up to the end of 1968. Only in some cases was it possible to use more recent figures and to bring developments up to date until the end of 1971. Throughout the study reference is only made to the mainland part of Tanzania.

COMMENTS: The study is outdated. Today's high cost of building a road, and of high oil prices, must be taken under serious consideration.

Howe, James W., and Bever, James A. 1978. Background Paper for Solar Energy for Villages Pilot Project (SEVPP). Appendixes. Mimeographed. Prepared in U.S.AID Project format for the Tanzania National Scientific Research Council and the United States Agency for International Development.

SCOPE: ENERGY

PURPOSE: To investigate energy needs for cooking and water pumping of rural communities in the semi-arid areas of central Tanzania and develop and test technologies to meet these needs. (Training of artisans, technicians etc., is included in the activities of the project).

CONCLUSIONS: Adapt renewable energy technologies in order to improve material conditions of life in rural Tanzania.

COMMENTS: A pilot project.

International Labour Office. 1978. Towards Self-Reliance: Development, Employment, and Equity Issues in Tanzania. Addis Ababa: ILO/JASPA (Jobs and Skills Programme for Africa).

SCOPE: FOOD/POPULATION (EMPLOYMENT)

PURPOSE: To study the employment unemployment problems in the country and to suggest measures for solving them.

RESULTS AS RECOMMENDATIONS:

1. Raise village skills at all levels.
2. Pay greater attention to the economics of organization and management of Ujamaa farms.
3. Ad hoc research and evaluation studies as instrument for appraising performance.
4. The highest priority be given to strengthening the capacity for village level research, evaluation and planning. (Attention to appropriate technology)

CONCLUSIONS: The choice of technology in agriculture will play the main role since consideration needs will be given to 1. biological and chemical innovations, 2. improved farm equipment and the increased utilization of internal combustion engines and electric motors etc.

Jacobs, Alan J. 1978. Development in Tanzania Masailand: the Perspective Over Twenty Years, 1957-77. Final Report to United States Agency for International Development Mission in Tanzania, Contract no. AID afr-C-1279.

SCOPE: FOOD

PURPOSE:

1. Assess major changes in Masailand over past twenty years.
2. Given changes, policies, other forces, what does future hold for culture.
3. Develop inputs to assist Masai to enter mainstream Tanzanian life.

RESULTS:

1. Detect no major range degradation - such claims are exaggerated because politics want it so.

2. Agriculture encroachment into area may be decreasing.
3. Greatest loss to military camp on Ardai plains, slope, cultivation in Kibaya area, and cultivation of four Ujamaa villages of Sunya.
4. Decline in services and infrastructure.
5. Subtle sociological changes in that schooling of children has forced warriors to herd duties and so forth.
6. Masai market less - much on black market.

CONCLUSIONS:

1. Mixed farming and population consequences are probable danger to Masai land.
2. Less threatened by surface water sources scarcity; including pest/diseases; question of Vijiji resettlement.
3. Individual and collective processes should be integrated.
4. All Masai territory should be enclosed as soon as possible.
5. Recommend: a. improved information/retrival and dissemination; b. soil erosion - water harvesting project - use Masai expertise; d. village industries - meat powder, blood meal and bone meal products/Ghie and skim milk products/hides and skins/ox-drawn plough progress.

Jatzold, Ralph I. and Baum, E. 1968. The Kilombero Valley. IFO-Institut fur Wirtschaftsforschung Munchen, Afrika-Studien no. 28. Munich: Weltforum Verlag.

SCOPE: FOOD

PURPOSE: To undertake a review of old schemes in valley and assess the potential of the valley today.

RESULTS: Past schemes were based on over rating of valley's potential and few schemes met with success in terms of increased production. Data on physical conditions of valley still poor. Smaller projects - missions. New crops, improvement of native cultivation have been most successful. Extrapolation of limited data has been a problem.

CONCLUSIONS: Rice may produce best results because valley conditions are good and population is familiar with it; sugar cane is on well agrated soils; recent emphasis on cotton by regional administration is dangerous. Slow introduction of tree crops is needed.

COMMENTS: Main section by Jatzold: description of physical habitats of K. plains and hills, population and economic formations based on crop assemblages. One village was selected for survey and description. Jatzold gives detailed physical description only. Baum give brief review of development plans and possibilities in the Kilombero Valley - agricultural projects and need efforts.

Kainzbauer, W. 1968. Der Handel in Tanzania IFO-Institut fur Wirtschaftsforschung Munchen. Afrika-Studien no. 18. Munich: Springer Verlag.

Title in English: Commerce in Tanzania

SCOPE: COMMERCE

PURPOSE: Description and statistics on Tanzania's commerce: includes discussion of economic geography, policy, raw materials, industrial and very

large agricultural section.

**RESULTS:** Descriptions, data and analyses of various markets. Unique tabulation of food sources for the major cities of Tanzania.

**CONCLUSIONS:** The exclusion of private commerce appears to further the growth of monopolies to the damage of the economic market, the farmers and the consumers.

**COMMENTS:** Interesting from the viewpoint of economics. Study has information on the feeding of the cities.

Kamuzora, C.L. 1978. The Dynamics of Labor in African Smallholder Agriculture; the Sources of Labor for a New Cash Crop, Tea in Bukoba District, Tanzania. Ph.D. dissertation. University of Pennsylvania.

**SCOPE:** FOOD (AGRICULTURE)

A theoretical framework is provided on the possible sources of labor allocated to tea as a new cash crop. These sources are increase in household size from population growth, use of hired and communal labor, substitution of activities by increase of labor inputs per person in the household (thus decreasing time spent on non-economic activities), and substitution of the new activity for existing activities. Analysis of these sources was done by a micro-level farm time-budget survey of 105 tea and non-tea growers. Two labor sources were apparent: 1. seasonality of pre-tea main economic activities (banana and coffee production) provided slacks in labor demand into which the tea labor fitted; and 2. there was general unemployment caused by population growth on fixed land resources. Of secondary importance was substitution with non-farm, social and domestic activities.

**SOURCE:** C.S./CAB.ABS

Kocher, James E. 1980. Rural Development, Health, Mortality and Fertility in Rural NE Tanzania Washington: U.S.AID.

**SCOPE:** POPULATION (RURAL HEALTH)

**PURPOSE:** Discuss the results of an analysis of the relationships between the socio-economic conditions, demographic characteristics and changes in rural NE Tanzania. (They include education, economic status, occupation, age at marriage, forms of marriage, breast feeding and health related behaviors.)

**RESULTS:** In these areas infant and child mortality rates are very low (90% survive to five years old). Age at marriage and age at first birth have risen in past years but latent increased numbers of births negate the impact that would have on reducing birth rates. Fertility is constrained by breast feeding and the less widespread practice of prolonged abstinence, and by infant mortality. Five is the average number of children desired but is closely related to education and economic status although not directly. Single most important variable of infant/young child mortality/fertility rates are parental education and access to pregnancy related medical care. This relationship does not exist between child survivorship and education. But is probably indirectly related to health and infant mortality. There is no direct relationship between education and perception of increased child survivorship-probably (intergenerational-long term) child survivorship directly related to hospital deliveries. On the whole survivorship and related desire for children (and births) are changing. For three reasons

unrelated to education. 1. more stable food supplies; 2. reduction in disease; 3. health-enhancing behaviors.

Kocher, James E. 1979. Rural Development and Fertility Change in Tropical Africa: Evidence from Tanzania. East Lansing, Michigan/Dar es Salaam: Michigan State University and BRALUP (Bureau of Resource Assessment and Land Use Planning, University of Dar es Salaam).

SCOPE: POPULATION

PURPOSE: To assess the effect of rural development on fertility. Study takes into account 1500 households for four rural areas - two each in Lushoto and Moshi Districts.

RESULTS: The study shows that there has been a great deal of socio-economic change in the four areas but with much variation in the rates of participation by the people, resulting in substantial differentials among and within the study areas.

CONCLUSIONS: Initially changes result in increase in fertility, but the socio-economic changes also reduce desired number of children, particularly if the changes affect the cost of maintaining children. The author contends that even when there is a desire to reduce number of children there will be a temporary increase due to reluctance to use modern methods of birth control, or even perhaps the lack of availability or knowledge of such methods.

Kocher, James E. 1976. Rural Development and Demographic Change in Northeastern Tanzania. In New Perspectives on the Demographic Transition, pp. 53-93. Washington: Smithsonian Institution. Interdisciplinary Communicatins Program.

SCOPE: POPULATION

SOURCE: C.S./POPULATION BIBLIOGRAPHY

Kocher, J.E. 1976. Tanzania: Population Projections and Primary Education, Rural Health and Water Supply Goals. Harvard Institute for International Development, Development Discussion Paper No. 17. Cambridge, Massachusetts: Harvard Institute for International Development.

SCOPE: POPULATION

Three population projections are presented for Tanzania for the period 1967 to 2050. All three assume a gradual mortality decline. Projection 1 assumes a linear decline in the total fertility rate of 0.3 points in each five-year period commencing with 6.6 in 1965-70 and levelling off at 2.2 in 2040-45 (when the net reproduction rate is assumed to equal one). Projection 2 assumes that the total fertility rate remains constant at 6.6 throughout the projection period. Projection 3 assumes that the total fertility rate initially rises to 7.0 by the period 1975-80, and then declines by 0.3 points each five-year period starting in 1990-95, reaching 3.4 by 2045.50. Rural and urban projections are then presented to the year 2000 in conjunction with both projections 1 and 3. Based on these various projections of total and rural population sizes, the conditions necessary for achieving Tanzania's targets for universal primary education, rural health services, and potable water supplies in rural areas are analyzed. It is concluded that actual achievements are likely to fall far short of the

the rates of progress toward the objectives.

SOURCE: C.S./CAB.ABS

Kocher, James E., ed. 1975. Social and Economic Development and Population Change in Tanzania. Bureau of Resource Assessment and Land Use Planning. Research paper no. 35. Dar es Salaam: University of Dar es Salaam.

SCOPE: FOOD/POPULATION

PURPOSE: To examine: The demographic variables: population data and projections; education and population change; agriculture, food production and population change; rural family life and population changes, employment and population growth; health infrastructure.

COMMENTS: For the results and conclusions of this paper the reader is urged to read the document itself.

Kreysler, J. 1975. Food and Nutrition Planning for Tanzania: a Possible Strategy. Vierteljahresberichte. (Probleme der Entwicklungslander) 59: 63-70.

SCOPE: FOOD

In Tanzania, malnutrition is generally due to deficiencies in staple food intake rather than to deficiencies in protein intake. Nutrition planning needs to take into account, among other things, non-nutritional problems leading to malnutrition, such as lack of price incentives for farmers to produce more, inefficiency of distribution systems and competition between high-priced cash crops and subsistence crops (e.g. tobacco/maize). A schematic flow chart of the food and nutrition planning process is given.

SOURCE: C.S./CAB.ABS

Kreysler, J. and Mndeme, M. 1975. The Nutritional Status of Pre School Village Children in Lushoto District. Ecology of Food and Nutrition 4: 15-26.

SCOPE: FOOD

PURPOSE: "A health and nutrition survey was conducted on 506 children (ten percent sample) under five years of age of both sexes in Mlola Division, Lushoto District, Tanzania. The objective was to gather baseline information to serve as a guideline for the establishment of comprehensive mobile preventive services in this area, in combination with selected agricultural extension schemes. Background information into the socio-economic status was also collected, together with a qualitative dietary survey of school children in one primary school."

RESULTS: "Eighty-four percent of the parents of the children were engaged in agriculture and only 13 percent were salaried. The child mortality rate was 17.4 percent with a sibling mortality rate of 30.1 percent. Severe protein energy deficiency was found in nine percent of the children. Signs of other deficiencies were rare. Anemia presented no problem, probably due to the low prevalence of malaria. Growth achievement was related to the prevalence of clinical malnutrition.

The diet was surprisingly varied with a relatively low component of fresh green vegetables. Lack of protein was found in only seven dishes of 68 samples.

The overall nutrition situation in Mlola compared well with other surveys conducted with the same method in other parts of Tanzania."

CONCLUSIONS: No statistical differences with respect to tribal origins, maternal marital status or education, farming as a paternal occupation, child mortality experience in the affected family, or breast feeding. In general improved nutrition, environmental sanitation and preventive health are key factors determining the rural development potential.

Lofchie, Michael F. 1979. An Assessment of Ujamaa. African Business. July 1979.

SCOPE: AGRICULTURE

An assessment of Tanzania's ujamaa policy of rural collectivization. Article assesses that villagization program is responsible for collapse in agricultural production. Few Ujamaa villages became full fledged cooperatives because mixed with private farming - their policy is "Ujamaa without socialism." This policy effective for past five years is evaluated in terms of agricultural production. Between 1973-75 maize output fell so dramatically that had to import. This prompted gradual economic liberalization (1974) which was officially approved by Nyerere in 1977. Evaluation should also take into account the adverse weather conditions.

Lord, R.F. 1963. Economic Aspects of Mechanized Farming at Nachingwea in the Southern Province of Tanganyika. London: Her Majesty's Stationery Office.

SCOPE: FOOD

PURPOSE: Economic analysis of pioneer agriculture in Southern Tanganyika - part of failed groundnut scheme.

RESULTS: Assessment based on three schemes: 1. 25 paid labor farms - 1,000 acres each (mechanized); 2. 20 paid labor farms - 1,000 acres, and three tenant farms of 1,400 acres; 3. five tenant farms of 1,400 acres each. None were successful economic schemes: 1. was least uneconomical, but employed few workers; 2. partially mechanized but this did not compensate for loss of total mechanization; 3. worst.

CONCLUSIONS: Suggested various tech. programs involving better machines and plant breeding.

Luning, H.A. and Sterkenburg, J.J. 1973. A Social Cost - Benefit Analysis of Road Building for Agricultural Development: A Case Study from Tanzania. Journal of Agricultural Economics 24(2): 311-19.

SCOPE: FOOD

PURPOSE: To give an economic reappraisal of a Tanzanian road project and to show that the economic return of such a project can be very high.

RESULTS:

1. A simple development measure - the construction of 25 miles of feeder road - has resulted in a spectacular production increase. a. The benefit/cost ratio = 3.7, a very rewarding project. b. The internal rate of return is nearly 40% 25 mile of road cost 700,000 shillings.
2. The main focus is on the abrupt increase of the production between 1957 and 1958. This abrupt increase is thought to be explained as the

result of the farmers' expectation about the changing transport situation.

CONCLUSIONS: Account should be taken of the rather favorable conditions prevailing: 1. the road was built with relatively cheap labor; 2. the socio-economic climate for production increases was favourable; 3. a number of pre-conditions fulfilled in the neighboring coffee growing areas facilitated a quick expansion in the Bundali Mountains; 4. the very high rate of return to capital is undoubtedly due to the utilization of unused land and labor resource.

COMMENTS: The above event took place before the oil crisis. Today, costs for building roads are very high because their construction depends on oil, (asphalt).

Macpherson, George and Jackson, Dudley. 1975. Village Technology for Rural Development: Agricultural Innovation in Tanzania. International Labour Review 111: 97-118.

SCOPE: FOOD/POPULATION/ENERGY

SUMMARY: "Despite all the attention that has been given to such aspects of agricultural development in the Third World as improved seeds, irrigation, fertilizers and land reform, the farmer's tools have been relatively neglected. Here the authors describe and analyse an ILO/UNDP project in Tanzania aimed at improving the implements most appropriate to the needs and the environmental and economic constraints of small-scale subsistence farmers. The project's base has been called "village technology" to distinguish it from "mechanised" and "intermediate" technologies, both of which can be too expensive for most farmers. Relative costs are compared and detailed data on suitable implements are given, the economic soundness of village technology being demonstrated by a case study of the cost of supplying water to a village in northern Tanzania. The article concludes with a theoretical consideration of the need for a "hierarchy" of technologies on which to base projects for rural development."

Makanke, A.A. 1979. Energy Consideration in Tanzania. Uhandisi 4(2): 5-11.

SCOPE: ENERGY

PURPOSE: To highlight the natural reserves of primary fuels and the need to extract and use them efficiently.

RESULTS:

1. Wood and Charcoal - Out of the total consumption of wood over 96 percent is used for charcoal and firewood (2.6 percent as charcoal and 93.7 percent as firewood). Several hundreds of acres of sustained-yield forest land are needed to supply firewood and charcoal for home use alone even under careful and scientific management so that a complete reliance on firewood and charcoal as the main source of energy cannot be a long-term answer. Indiscriminate use has already caused erosion and other related damages.
2. Electricity - The present production of 252 MW of electricity plus the 600 MW to be obtained from Stiegler's Gorge Hydroelectric Power should play an important role in providing energy for domestic use and industries. Total production is as follows:

Hydroelectricity	149 MW
Diesel-generated	87 MW
Gas Turbine	15 MW
	<u>251</u>

Domestic use for villages will depend on the extent of rural industrialization as well as on the provision of cheap locally produced electric cookers.

3. Songo-Songo Gas: This is most feasible for industrial use unless cheap gas cookers can be produced locally.
4. Coal: This is Tanzania's most abundant resource and will play an important role in reducing dependence on imported energy. Coal could be used as a direct source of energy as well as for producing electricity.
5. Solar Energy: This source has great potential but the present costs of production are not conducive to its use.

CONCLUSIONS: The author cautions against indiscriminate charcoal burning and destruction of forests. He suggests village kilns for charcoal making and controlled felling supported by reforestation in order to keep the forests as a renewable source.

Where possible, electricity should be used for domestic purpose. The use of coal for industrial purposes should consider transportation facilities and pollution control devices. The author also concludes that the country should start initiating cheap and efficient means of converting coal to liquid fuel.

Maro, M.A.M. 1978. An Economic Survey of Goat and Sheep Production in Tanzania. Beitrag zur Tropischen und Subtropischen Landwirtschaft und Veterinärmedizin 16(4): 371-88.

SCOPE: FOOD

The investigation was designed to determine economic aspects of goat and sheep production in selected areas of Tanzania. Data were mainly obtained by interviewing 248 farming families in the Dodoma, Hanang, Mbulu, Moshi, and Pare districts. Goat production is carried out mainly extensively as small herds per family. The animals are grazed (with other animals like cattle) on large and unused communal grazings. The meat of goats and sheep is produced largely for the farmers' individual consumption; milk is virtually not utilized at all.

The low market production results from the low rates of increase and the extreme food shortage during the dry season. Capital is invested for purchasing breeding stock and partly for stock housing. It is suggested that the party and the government should devote more attention to sheep and goat production and its importance for supplying the population with the food is stressed.

SOURCE: C.S./CAB.ABS

Maro, P.S. 1975. Population Growth and Agricultural Change in Kilimanjaro, 1920-1970. Bureau of Resource Assessment and Land Use Planning. Research paper no. 40. Dar es Salaam.

SCOPE: POPULATION/AGRICULTURE

PURPOSE: To examine the relationship between population increase and intensification of agricultural land use.

RESULTS: Population in Kilimanjaro District increased from 128,000 in 1921 to 467,476 in 1967, an increase of 300 percent. This resulted in increasing scarcity of land, and average density rose from 26 per square kilometer to 94 and even 200 per square kilometer in 1967. Population pressure caused intensification of agriculture as people's aspirations for more and better material well-being multiplied.

CONCLUSIONS: Concludes that this may not always be possible because intensification of agriculture can lead to soil exhaustion. Strategies for development should differ according to population concentrations. Planning should consider resettlement as well as the development of crafts and industries.

Mascarenhas, A.C. 1977. Food Production: The Total Environment and Rural Development. African Environment. Occasional Paper no. 77-20. Dakar.

SCOPE: FOOD

PURPOSE: Relationship between food production and physical and social environment. Discussion of environmental potential and historical trends in food production, mainly in Tanzania.

RESULTS: The diversity of Tanzania's environment is so great that it is one of the strongest safeguards against total national famine.

CONCLUSIONS: The majority of peasants in rural areas cultivate food crops. Therefore, to a great extent their livelihood depends on food. Changes can be brought about if there is a food policy: - There is also need to accelerate the infrastructure and continue research on food crops and the means of production. Increasing per capita food production would increase incomes, increase labor in the market and contribute towards rural development.

COMMENTS: Makes a strong case for understanding climate, land use, and agro-economic surveys.

Mascarenhas, A.C. 1980. Investments in Demographic Research and Population Studies and their Utility - Trends and Prospects in Tanzania. Paper presented as a review of status of demographic and population studies for the ECA/ILO, National Seminar on Population and Development, Arusha, Tanzania, February 1980. Arusha/Dar es Salaam: ILO/UNFPA.

SCOPE: POPULATION

PURPOSE: To increase awareness of, and highlight the relationship between, population research and its utility in the national development strategy.

CONCLUSIONS: The absorbing capacity for population and demography data has increased but further research is needed. Suggested areas of research include: multifaceted and multidisciplinary research, applied research, micro-level research, population movements, etc. More efforts will have to go into interpretive and communication aspects. Poses the viewpoint that since improved living conditions hinge on fertility and mortality decline, there is a very strong case for population and demographic studies to be intergrated in the wider context of socio-economic development. Examples of how this can be done are given throughout the paper.

COMMENTS: Views expressed in the paper will probably be accepted by the Ministry of Economic Affairs and Planning.

Mascarenhas, A.C. 1977. Resettlement and Desertification: the Wagogo of Dodoma District, Tanzania. Economic Geography 53(4): 376-80.  
SCOPE: POPULATION

Dodoma--a region in central Tanzania, a smaller component administrative unit, and also the principal town in the area symbolizes to many, even in Tanzania, a semi-arid area. It receives an average rainfall of 200-600 mm per annum.

Merely on this average figure pure agriculture is precluded. The part inhabited by the Wagogo, known as Gogoland, covers most of Dodoma District. It lies on an upland plateau of 3,000 feet and more, and comprises less than 2% of Tanzania's area and a slightly higher percentage of its population. The Wagogo are considered to be "sedentary but mobile cultivators" how subsist on cereals, but whose value system involves paradoxically cattle-keeping. Periodically, the people have suffered much from their environment, but Dodoma is the only home they know and the majority have remained in the region and tried to master the environment. However, as the Wagogo become forced to think of themselves as Tanzanians and are exposed to new values and to the world beyond their district, they no longer have the security of decision-making based on traditional norms. The paper provides an account of the livelihood of the Wagogo peasants, their diet and the effects of the drought. Following the drought of 1969, the government announced that a major resettlement operation would take place and people would have to live in planned villages. The process of resettlement in Ujamaa villages is described. It is concluded that while much of the social change of the world gives only lip service to the fate of those affected, in the Tanzanian case change in Ujamaa is truly directed toward improving the lot of its rural inhabitants. Nevertheless change has its price and great care and sensitivity is needed if the sustained productivity of the Wagogo is not to be diminished and the land desertized.

SOURCE: CS/CAB.ABS

Mascarenhas, Adolfo, ed. 1973. Studies in Famines and Food Shortages, of Tanzania. Special Issue no. 8 of the Journal of the Geographical Association of Tanzania. Dar es Salaam.

SCOPE: FOOD

PURPOSE: To illustrate the growing interest in food shortages among university staff and students in Tanzania as well as other national organizations. To show causes of food shortages through a series of case studies.

RESULTS: Following a brief overview of studies on famines and food shortages, case studies are presented for famine problems in Dodoma, Malangali and Gario Districts. The concluding study shows that responses to drought in developing countries tend to follow generalized international viewpoints instead of considering drought in the context of total development of the country. These nations also tend to ignore local conditions and traditional knowledge of responses to minimizing risk.

CONTENT: An introduction by Mascarenhas, very general but with bibliography; a paper on rain rituals; a paper "famine problems in Dodoma District." - History rainfall and some crop data; "Seasonal food shortages and agricultural development at Walougali" - Again data on rain and some form data, discussion of farming methods and production; "The Ukaguru

environment: traditional and recent responses to food shortages" - History of famine since 1860, local and government response, food substitutes; "global interdependence to drought response and the struggle for liberation" - A "marxist" view without any data; summary bibliography; reviews of foreign papers.

Mascarenhas, A.C. and Mascarenhas, O.C. 1978. A Background and a Postscript to the Food Shortages in Tanzania in the 1970's. Contribution to an IFIAS project - Drought and Man. Geneva: IFIAS.

SCOPE: FOOD

PURPOSE: An understanding of the interrelationship between famine, drought, and other societal factors in the Third World.

RESULTS: Although the causal relationship between drought and famine cannot be entirely ignored, nevertheless the authors give a whole range of factors in the development of agriculture in Tanzania which have contributed far more to the persistence of food shortages.

CONCLUSIONS: The authors are optimistic that with immediate, urgent and long-term planning with assistance from developed countries, Tanzania can achieve increases in food output. Among the preconditions the authors cite are institutional support, improved communications and appropriate storage facilities.

Mascarenhas, A.C. and Mbilinyi, S.M. 1971. The Orange Trade of Dar es Salaam: A Case Study of Risk Taking Among Peasant Food Producers. East African Journal of Rural Development 4(1): 1-21.

SCOPE: FOOD

PURPOSE: To examine the responses of peasants to the demand for oranges, which is a subsidiary crop demanded by urban consumers.

RESULTS: Orange production is primarily subsistence in nature, leaving the urban consumers largely dependent on surplus production from homesteads in Kisarawe District. (A major weakness). The main strength of the existing system is the manner in which the peasants, at different levels, have perceived risks and have responded to them. Also the orange trade that has evolved is remarkably versatile, low in cost and adaptive enough to meet changing circumstances.

CONCLUSIONS:

1. A large variety of crops are grown, among which oranges are grown. As a subsistence crop.
2. Farmers have invested little in effort, time or money in orange production.
3. Farmers have shifted the risk of marketing oranges to renters in many cases by renting the tree at a rate of three to five shillings each.
4. The auction market in Dar es Salaam has not achieved its full role and is looked upon with suspicion by farmers. Greater effort should be made to make this a place where all oranges are sold and where prices are formed between buyers and sellers in a competitive sphere.

Matzke, Gordon. 1977. Wildlife in Tanzanian Settlement Policy: The Case of the Selous. Foreign and Comparative Studies/Africa Series XVIII. Syracuse, N.Y.: Maxwell School of Citizenship and Public Affairs, Syracuse University.

SCOPE: POPULATION/FOOD

PURPOSE: To examine field evidence which would illuminate the role of settlement locations in the total wildlife support system in the particular locality selected for study...to examine whether or not there is strong support for the hypothesis that human settlement restricts access to areas that are especially important to the maintenance of populations of many species.

RESULTS:

1. Chapter one sketches the geographical and historical setting of the Selous Game Reserve. The ultimate result was the total elimination of humans and their rights of occupancy with a 21,000 square mile (55,000 km game reserve replacing them.
2. There is considerable variation in the distribution of wildlife between the wet season and the dry season; furthermore, certain spaces are far more important than others when judged by the density of the wildlife inhabiting them. Those species which show an affinity for the grasslands during the rainy season have very restricted distributions at that time. The woodland creatures are more dispersed.
3. There seems to be important spatial overlap between human and animal resource preferences. Several disturbance mechanisms which might operate to exclude animals from settled areas are discussed and discarded as inadequate explanations of the observed phenomenon.

CONCLUSIONS: Serious consideration of the wildlife/settlement interface is an appropriate endeavor for individuals concerned with minimizing the problems of agricultural vermin, and/or maximizing the benefits of the Tanzanian wildlife resource.

COMMENTS: Useful maps and diagrams. This work gives the reader a good understanding of the interconnections among food, wildlife, and population. It seems that the fewer wild animals in a given space, the more food is produced.

Mbilinyi, S.M. 1973. Rural Development and Rural Employment Generation: Lessons from Experimentation in Tanzania. Rural Africana 19: 67-85.

SCOPE: POPULATION/FOOD

Four main aspects of rural development in Tanzania are considered: the traditional setting, the interaction between the traditional and the modern sector, experimentation, and the transition from capitalism to socialism. First, the socio-economic environment of the traditional rural dweller in a semi-closed economy is examined and analyzed, looking at structure, to see whether there was a problem of unemployment in the traditional setting. Part II deals mainly with 1. changes in the system and patterns of agriculture brought about by introduction of new crops and a monetized economy, and 2. changes in attitudes of the rural population. Causes of unemployment are examined. Part III concentrates on what Tanzania has been doing and is trying to do in rural development, especially its socialist restructuring of the rural sector. Finally, problems of transition from capitalism to socialism are discussed.

SOURCE: C.S./CAB.ABS

Mhina, P.S. 1976. "A Brief Description of the Manufacture and Utilization of Gobar Gas in Tanzania." Paper presented to the Seminar on Appropriate

Technology in Small-Scale Industries, Dar es Salaam, 1976.

SCOPE: ENERGY

PURPOSE: To survey the use of biogas in Tanzania.

RESULTS: Discusses the need for this type of energy, the technical specifications and performance and Tanzania's experience with and policy towards, the use of gobar gas. So far 16 gobar gas plants have been established in villages in Mwanza, Shinyanga, Dodoma, Arusha and other cattle rearing regions. Most of the plants are doing well. SIDO/MAJI are also experimenting with using gobar gas for running water pumps and generators.

Moore, J.E. 1971. Rural Population Carrying Capacities for the Districts of Tanzania. Bureau of Resource Assessment and Land Use Planning. Research Paper No. 18. Dar es Salaam: University of Dar es Salaam.

SCOPE: POPULATION/FOOD

PURPOSE: To investigate the capacity of Tanzania to support its population by using a method based on a number of basic assumptions to simplify the procedure for computing population carrying capacities.

RESULTS: The results are tentative only, being based on generalized assumptions and inadequate data. In particular, figures relating to crop yields and prices must be regarded with caution. It cannot, therefore, be claimed that the results give a definitive statement of the capacity of Tanzania to support her population. See food requirements estimates.

A brief account:

1. Overall Tanzania has surplus land but there are areas in which overpopulation occurs.
2. Without changes in production levels some of the balanced areas may experience population pressure in the near future.
3. In the underpopulated areas one of the major constraints on development is often the lack of population itself.
4. In table 1, districts have been classified by population - land ratio, population density and rates of growth between 48 and 67, so as to summarize the characteristics noted above.

DATA: Based on assumptions (page 5) the nature of which is such that there is a very wide margin of error. (Although every district of Tanzania is in itself highly diverse, there is lack of detailed data on which to base a closer consideration of individual districts.) Therefore, results are highly insignificant.

COMMENTS:

The methodology employed may have some use in the process of development planning. It should be pointed out that in the assumptions on which the calculations are based, no account was taken of the ability of a household labor force to cultivate the area computed as necessary for its basic food and monetary requirements. Mechanization or the more effective organization and division of labor will need to be given closer consideration in the actual formulation of physical plans.

Muchiri, Gichuki. 1978. Rural Energy Needs and Alternative Sources. Nairobi: University of Nairobi.

SCOPE: ENERGY

**CONTAINS:** Review of problem second hand (mostly government) data but used to discuss and highlight problem.

Ngallaba, Sylvester A.M. 1972. "Fertility Differentials in Tanzania with Special Reference to Four Regions" Masters Thesis. University of Dar es Salaam, Tanzania.

**SCOPE:** POPULATION

**PURPOSE:** To find causes for fertility differentials in four regions of Tanzania: Coast, Singida, Arusha, Kilimanjaro.

**RESULTS:** Fertility in Kilimanjaro was higher by up to 45% than in Coast or Singida regions for all women and 65% for all women ever married. The author assigns this difference to marriage patterns, the male/female ratio of the populations in these regions, and health conditions and health facilities prevailing in these regions. Author uses 1967 Population Census and field work.

**COMMENTS:** The findings compare favorable with later surveys such as those by J. Kocher and the NDS Survey, both of which show high fertility rates for the high altitude areas such as Kilimanjaro Region.

Nkoma, J.S. and Asman, S.J. 1980. Reflections on Energy with Some Reference to Tanzania, in Energy and Environment in East Africa, Proceedings of an International Workshop, Nairobi, March 1980.

**SCOPE:** ENERGY

**CONCLUSIONS:** Firewood fuels vs fossil fuels: at the present, firewood fuels are utilized predominantly in the rural areas whereas fossil fuels are the main source of energy in the urban areas.

**COMMENTS:** A useful reference in designing Kenya's Energy policy.

Nkoma, J.S. and Asman, S.J. 1979. "Reflections on Energy with some Reference to Tanzania." Paper read at International Workshop on Energy and Environment, held in East Africa 7-11 May 1979 at Nairobi, sponsored by Royal Swedish Academy of Science.

**SCOPE:** ENERGY

**PURPOSE:** To study some fundamentals of the energy concept: sources of energy available, various tasks requiring energy, survey of energy sources in Tanzania, energy research and development.

**RESULTS:** In central Tanzania the crisis is greater. Energy resources at present: coal; 20,000 tons in 1980 - gas; T. Sh.s 76 million in the period 1975-1980 - oil; is imported - firewood; demand 3,000 mm per year per village - charcoal; used by most of urban population - wind; a few windmills in Tanzania - solar; a lot of interest but no funds - biogas; several plants - geothermal; sources yes, utilization no.

**CONCLUSIONS:** Need to concentrate R&D efforts on finding energy technologies ultimately applicable in the rural areas. Need to educate masses on intelligent consumption of energy. Most of the people in the rural areas are touched by the firewood crisis rather than fossil fuel crisis. There is therefore need to concentrate research and documentation on technology ultimately applicable in the rural areas. Also need to co-ordinate research, hence the formation of the Energy Committee. The Committee has initiated a program to look into ways of alleviating "energy crisis" in Central Tanzania.

Omari, C.K. 1976. Strategy for Rural Development: Tanzania Experience. (Chapter 4: Family Growth and Rural Development; Chapter 5: Operation: Ujamaa Villages Formation.) Nairobi: East Africa Literature Bureau.

SCOPE: FOOD-POPULATION

PURPOSE: "First, to find out the political activities at the grassroots level in Tanzanian society. Second, the report aims at showing how the people themselves look at their local leadership."

RESULTS: "Population growth of 1% will need 3% of investment to maintain the same standard of living. In Tanzania it would take 7%-8% investment to keep the same standard of living with the given scarce resources the country has, that would be a hell of a job."

CONCLUSIONS: "Family size and birth rate have an impact in societal development, it is not only a good thing to improve the well-being of people by postponing death and reducing death rate, but is also good and an important thing to introduce fertility control. This becomes a balance device to ensure that the national wealth growth is shared by all the people equally."

Pfund, L. and Cole, T. 1977. Marketing in Tanzania (Overseas Business Report). Washington: United States Department of Commerce.

SCOPE: FOOD (ECONOMY)

The report covers the economic and market situation of Tanzania as a whole, including the agricultural sector which has traditionally been the mainstay of the Tanzanian economy, representing 37.6% of GDP in 1974, although only half of this amount enters the monetary economy due to the importance of subsistence agriculture. Major crops include cotton, tea, coffee, sisal, tobacco, cashew nuts and pyrethrum. Large-scale farming operations are also being encouraged for maize and wheat in the southern highlands. Policy changes in 1974 were directed at increasing agricultural output through changes in pricing policy and improved supplies of agricultural material and marketing services. The basic aim is to achieve self-sufficiency and import substitution in food grains. Research on promoting small-scale irrigation schemes in Ujamaa villages is also in progress.

Pipping, Knut. 1976. Land Holding in the Usangu Plain: A Survey of Two Villages in the Southern Highlands of Tanzania. Research Report no. 33 Uppsala: Scandinavian Institute of African Studies.

SCOPE: FOOD

PURPOSE: To map land holding in Usangu plains (not presented) to ascertain if increase in cash cropping has led to entrepreneurial class; to ascertain what factors could be isolated that seem to aid progress by comparing two communities.

RESULTS: Numerous data on land tenure and population characteristics: on land tenure found that seniority results in greater land holdings: interprets that farmers do not know harvest quantities but knowledge improves with interest in cash crops; however, indirect data indicate that larger land holdings are associated with superior houses, cattle, and so forth. Only 67% of farmers responded that they want more land.

CONCLUSIONS: 2/3 of study group were small holders; buying land is rare; 2/3 farmers were engaged in some cash crop; wealth & loyal political power were associated; local power professed to be more in favor of Ujamaa  
DATA: Survey data gathered by interview, discusses problems collected 1971. Village data concerning Ruiwa & Unambule.  
COMMENTS: Interestingly, conclusions has little to do with study wary of conculsions and data but problem is addressed in text.

Raikes, Phillip. 1978. The Development of a Commodity-producing Peasantry in Tanzania. CDR Project Papers A-78.4. Copenhagen: Centre for Development Research.

SCOPE: FOOD

The vast majority of Tanzania's population is composed of peasants, producing various combinations of commodities and subsistence crops. A study is made of the transformation of communities based largely on subsistence farming into commodity-producing peasants, integrated to an increasing extent through the market and other mechanisms specific to capitalism. This provides the basis for an analysis of current peasant production which goes beyond current neoclassical or "Chayanovian" conceptualizations, but which is made in the specific Tanzanian context. The situation of the peasantry before and after independence is described with particular reference to the impact of commerical farming on social relations, and the emergence of a rich peasantry in the more advanced export-cropping areas.

SOURCE: C.S./CAB.ABS

Raikes, Philip. 1978. Cotton Production in West Lake Region, Tanzania. Centre for Development Research Papers A.76.8. Copenhagen: Centre for Development Research.

SCOPE: AGRICULTURE

PURPOSE: To describe the social, geographic and climatic factors that lead to the development of the cotton industry in this area, and to describe fully its present state.

RESULTS: The main area of cotton production is and will remain the eastern zone of Biharamulo:

CONCLUSIONS: "Growth in the main producing area seems likely to continue but at a rather slower rate than in past" due to such political factors as limits on in-migration of farmers.

COMMENTS: This paper affords a complete seed-to-sale description of the cotton industry, including informat. on planting seasons, harvesting techniques, comparative labor, time analyses, efficacy and costs of pesticides and fertilizers, final processing procedures, and pricing policies. Deals with social and political considerations as well.

Raikes, Philip. 1978. State and Agriculture in Tanzania. CDR Project Paper A. 78.1. Copenhagen: Centre for Development Research.

SCOPE: FOOD

PURPOSE: To provide a reasonably clear and coherent analysis of the development of agriculture in Tanzania since 1967 and to attempt some assessment of the Arusha declaration in terms of successes and failures.

RESULTS:

1. Policy failed to consider that peasantry and other forms of petty-commodity production do not exist in a social and economic vacuum but are invariably found subordinated to and linked by other dominant classes and state apparatuses.
2. The growing disparity between official and black market prices for a wide variety of goods have provided opportunities for speculative profits.
3. If not profit, then at least some consistent indicator of social benefit is being used to assess projects.

CONCLUSIONS: The analysis must be based on the specific relation between the state and state class and the peasantry and international capital respectively. ... "I am concerned to show how the development of class and state relations generate a practice and ideology which interact to produce the phenomena observed."

Raikes, Philip. 1976. Coffee Production in West Lake Region, Tanzania. Institute for Development Research Papers A.76.9. Copenhagen: Centre for Development Research.

SCOPE: FOOD (AGRICULTURE)

PURPOSE: To describe the historical development of coffee as an important crop, taking into account social and climatic factors, and to describe the current state of cultivation, production, marketing, and the future prospects of the coffee industry.

RESULTS: For short and medium term, coffee is likely to remain the most important cash crop in the West Lake Region, but prospects for expansion are difficult to predict, perhaps tending towards slow growth in production.

CONCLUSIONS: Re policy considerations: the impact of villagization is difficult to assess, perhaps depending on the farmers' perception of village blocks. Thus when considering the possibility of increased production through such a policy, "there is little sign of any clear policy to this end."

COMMENTS: Discusses thoroughly social and political factors as well as economic ones.

Raikes, Philip. 1976. Sugar Production in West Lake Region - Tanzania. Institute for Development Research Paper A.76.10. Copenhagen: Centre for Development Research.

SCOPE: AGRICULTURE (SUGAR)

PURPOSE: To provide an exposition of the development and current state of sugar production in the West Lake Region, specifically on the Kagera Sugar Estate, including an analysis of proposed improvement.

RESULTS: Details production techniques: current problems in the industry generally relate to the undesirable nature of the labor involved in harvesting sugar. This, plus the practice of cane burning, may account for a small recent drop in production.

CONCLUSIONS: Any policy to increase production should look at the labor problem. Plans which have been made to expand production should be reviewed in the light of a fall in world sugar prices.

COMMENTS: Paper is based on the author's one-year experience as a regional planner in the West Lake Region, and on information collected at that time.

Rald, J. 1969. Land Use in a Buhaya Village. Bureau of Resource Assessment and Land Use Planning. Research Paper No. 5. Dar es Salaam: University of Dar es Salaam.

SCOPE: FOOD/POPULATION

PURPOSE: To summarize the data obtained from a farm-economic survey that was conducted among 52 farmers in Muzinga and Kabanga (Nshamba subdivision, Rukoba district) in 1967-68. Explained and illustrated with maps.

RECOMMENDATIONS:

1. The extension service should look more into the improvement of the traditional cultivation system (over 80% of the coffee-banana shambas-bibanja - is still cultivated in the traditional way).
2. The possibility of a change in the cultivation of emisiri--annual crops grown outside the Bibanja--should be considered (why: with the expansion of the Bibanja area the emisiri cultivation has been pushed so far away from the homestead that many potential working hours are lost in traveling from home to field.)
3. Alternative ways of meeting the increasing demand for manure should be investigated.
4. Steps should be taken to motivate the farmers to produce high quality coffee.
5. There should be more studies to determine how males can be encouraged to add to the labour input to improve farm production.

DATA: Detailed land use investigations were carried out in the survey village. A list of all households was prepared, based on the 1967 census data and revised after checking the boundaries of the village and the list itself. From the list thus prepared a 20% random sample was taken, consisting of 52 households (219 people). Land use maps, at a scale of 1:2,000 were drawn for all the land owned/used by each of the sample households. After the land use mapping, the sample households were interviewed to obtain data on family composition.

COMMENTS:

- With regard to data: In the case of co-operative societies, the long-established, larger than average farms tend to be over-represented. To make matters worse, many farmers sell their produce to two different societies, which inevitably produces a strong bias.
- In spite of the interim character of the information obtained, the above recommendations are useful.

Reichel, R. 1979 Windmill Installations in Tanzania. Uhandisi 4(2): 13-17.

SCOPE: ENERGY

PURPOSE: To show the extent and effectiveness of windmills in Tanzania. In Tanzania windmills are used for pumping water and their success has generally been mixed. Some have worked successfully for over 15 years; others have not even begun operation. However, the survey shows that the concept is taken quite seriously with research and experiments being undertaken by the Ministry of Water in conjunction with the University of Dar es Salaam; by the Centre for Appropriate Technology in Arusha and independent organizations.

Robson, J.R.K. 1974. The Ecology of Malnutrition in a Rural Community in Tanzania. Ecology of Food and Nutrition 3:61-72.

SCOPE: FOOD

The survey was of 378 of the Ngoni people in a small area around Maposeni in the Songea district of south-west Tanzania.

The questionnaire was completed for each adult and diet was studied by 24-h recall. It was known that there is severe malnutrition among infants and children in and around Maposeni. The most common foods were beans, maize, and cassava, eaten by 70% or more of the population; then children got what was left after the father had eaten from the communal dish. There were periods of deprivation between crops or when crops failed. Meat was scarce. Lactation was adequate for six months but infants tended to be wholly breast-fed until later in the first year. They were weaned on bulky cereals, generally crammed in by the mother's unwashed hand. Cramming may be beneficial, because high intake is needed to provide enough protein or energy, but the poor hygiene causes intestinal infection. Eggs and fish were taboo to infants, and groundnuts were thought to cause diarrhea in infants. Cultivation was difficult. Economic effects of migrant labor by the men were not clear. Income from cash crops did not compensate for deficiencies in food production.

SOURCE: C.S./CAB.ABS

Ruiz-de-Gamboa, Alberto. Personal Notes on Agricultural Production. (U.S.A.D. Mission in Tanzania)

SCOPE: AGRICULTURAL PRODUCTION

SOURCE: Various available statistical output from government of Tanzania, etc.

He states data before 1978 poor from 1978 on good. Also if different figures in different sources he has taken the smallest one. He also feels rice output is over estimated.

Sabot, R.H. 1979. Economic Development and Urgan Migration, Tanzania, 1900-1971. London: Oxford University Press.

SCOPE: POPULATION

PURPOSE: Intensive analysis of the micro- and macro- determinants and consequences of migration in economic development of Tanzania. Based on the National Urban Mobility Employment and Income Survey of Tanzania (NUMEIST) covering 7 towns in Tanzania carried out jointly by ERB and Ministry of Planning in 1971.

RESULTS: Shows determinants of migration, demographic characteristics and socio-economic background of migrants, occupational opportunities, the social costs of urban surplus labor and the options available to deal with the problem.

CONCLUSIONS: Concludes that migration is due to the decline in wage employment in the rural sector and the rise of wage employment opportunities in the towns where most of the services and industries are located. Two other factors also play a key role in migration: the relationship between employment and education and the "mismatch" of school curriculum and vocation in small scale agriculture.

Of the migrants in the seven towns about 2/3 were located in Dar es Salaam, Mwanza had 13 percent, while the other five towns had 23 percent altogether. The migrants were found to be young people; the average age for males and females was 22.2 years and 25.1 years. In the past migrants were predominantly men but in the more recent years females had higher rates of migration. Also in the past, about 2/3 of the women came into towns as dependents compared to 70 percent males who said they came to look for jobs.

However, recent trends showed that independent women (divorced, widowed, single) were moving into towns in response to rural-urban economic differentials.

The author argues that wage employment cannot keep up with labor supply and migration. Open unemployment rates are as high as 5.8 percent for men and 33 percent for women. However, he argues that the urban labor surplus costs are not high since they are absorbed by relatives and temporary low-level self-employment activities. In the last resort the unemployed can always return to the rural areas.

Sharma, A.C. 1974. Economy of Ujamaa and Individual Shambas in Iringa Region. Morogoro: University of Dar es Salaam, Morogoro, Department of Rural Economy and Extension.

SCOPE: EVALUATION OF UJAMAA

CONTENT: A detailed study of farm resources - land, labor and capital, contains first hand field collected data.

EVALUATION: Excellent, in-depth study.

A Strategic Grain Reserve Programme for Tanzania. Vols. 1 and 2. 1974. Marketing Development Bureau. FAO/UNDP Project SF TAN 27. Dar es Salaam: Ministry of Agriculture.

SCOPE: FOOD

CONTENT: Description and implication of 1972/73, 73/74 food crisis, some 1974 estimated data on production, purchases, food relief and shortfalls. Some historical graphs 1963-74, data from existing sources.

EVALUATION: Interesting information and data, especially in volume 2.

Tandon, Y. 1978. The Food Question in East Africa: a Partial Case Study of Tanzania. Africa Quarterly. 17(4): 5-45.

SCOPE: FOOD

The roles of imperialism and of multinational enterprises in the emergence of the food crisis of 1973-75 are discussed. The possibility of a long-term food strategy for Tanzania which is in the interests of the multinationals is also discussed.

SOURCE: C.S./CAB.ABS

1979. Tanzania, New African Survey. New African 139: 68-69.

SCOPE: FOOD/POPULATION/ENERGY

PURPOSE: To examine important financial sources, or aid sources for Tanzania.

**RESULTS:** Six western countries, including Canada, W. Germany, Holland, and the three Scandinavian countries (Sweden, Norway and Denmark) play an important role in providing aid for Tanzania. The biggest source of aid to Tanzania in the 70's has been China. Approximately \$2 billion in debts.

Tanzania. 1980. Statement of the Ministry of Water, Energy and Minerals during Presentation in the National Assembly of Estimates of Expenditure for the Year 1980/81. [Section on Energy: pp. 19-22]. Dar es Salaam: Government Printer.

**SCOPE:** ENERGY

**PURPOSE:** Annual budget speech to the National Assembly to discuss performance over the last financial year and present budget requests for the next financial year.

**SUMMARY:** In view of the high cost of oil, reports that the Ministry has taken steps to assess the quality and quantity of various other sources of energy such as geothermal, coal, natural gas, as well as renewable resources such as solar, wind, running water, biomass and wood.

Some research done so far on newer resources:

Windmills - University of Dar es Salaam, over the last four years.

Biogas - SIDO; by 1979 about 80 cow-dung plants had been established throughout the country.

Geothermal - "great potential exists...further investigation to be carried out in Mbeya and Arusha."

Mini-hydro-electric power stations - TANESCO is at present surveying potential sites particularly in Southern and Western Tanzania.

The older systems.

TANESCO - 1970-79 Tanesco's electricity sales rose from 341 million units to 642 million units; an increase of 88 percent. Maximum demand rose from 72 MW in 1970 to 130 MW in 1979. Main achievement was the completion of Kidatu Phases I and II capable of 200 MW. Thermal generation decreased from 23 percent in 1970 to 14 percent in 1979. National grid network now covers Dar es Salaam, Tanga, Morogoro, Moshi, and Arusha Regions. Zanzibar is also supplied from Kidatu via a submarine cable inter-connector.

Proposed schemes: Mtera dam due to be completed in December 1980 to support Kidatu; a 24 MW coal fired thermal station at Songwe-Kiwira, Mbeya Region by Chinese aid; construction of the 220 KV line from Kidatu to Mufindi Pulp and Paper Mill via Iringa; northwest extension to Mwanza, etc. It is also proposed to build the Stiegler's Gorge to produce 1,200 MW in four phases. This project is necessary to cope with shortages of electricity power supply which will be experienced by 1987. Financing might be a serious problem for commissioning the project by 1987 as visualized by the Ministry.

Rural electrification in Tanzania means electrification of small towns - not villages. Three years ago only seven small towns had electricity. By 1980 this was extended to 28 towns. Some few villages notably Chamwino and Ikwiriri.

**COMMENT:** The Ministry had also commissioned a 4-man team to assess the energy needs of the country. The report is completed but its availability is restricted. One possible source for this report might be the Tanzania National Scientific Research Council.

Tanzania. Ministry of Agriculture 1979. Bulletin of Food Crop Production Statistics, 1963/64 - 1977/78. Data collected and compiled by the Statistics Section, Planning Division, Ministry of Agriculture, Dar es Salaam: Government Printer.

SCOPE: FOOD

PURPOSE: To provide data for "various organizations" and show general trends of food crop production.

RESULTS: As the title implies, the report is designed to give food production figures over the last 15 years. The crops covered include maize, paddy, wheat, sorghum millet, cassava, sweet potatoes, round potatoes, bananas and mixed beans. Regional figures are provided for production, quantities marketed and produce prices for maize, paddy and wheat but only production figures are given for the other crops. The figures show great fluctuations in maize production with a general decline in the '70's judging from the increase in imports and the practical disappearance of exports. The last good year for maize appears to be 1970/71 when 53,427 metric tons of maize were exported and there no imports. The imports were highest for 1973/74 and 1974/75, 291,141 m. tons and 225,447 m. tons respectively, tapering down to 47,591 m. tons in 1976/77 showing an improvement in food production but still a national food deficit. The figures for paddy are incomplete but the trend appears to show a greater tendency for imports beginning with 1973/77. The last good year appears to be 1972/73 when the country exported 19,178 metric tons of paddy. Producer prices show an upward trend. Prices for maize for example rose from 26 cents per kilogram in 1971/71 (earlier figures unavailable) to 85 cents/Kg. in 1977/78.

COMMENTS: Good production trends continued until 1978/79 when no maize was imported for the first time in many years. Because of high producer prices, subsistence crops have been converted into cash crops. With the poor rains in 1979/80 the country has again had to import food on a large scale. Nevertheless there is a growing awareness that failure of rains is not the only cause for food shortages. Many of the problems are associated with NMC's inability to cope with purchases, storage and milling. The food accounting system also appears to be poor.

The compilers caution that the statistics provided are "mere estimates arrived at by subjective methods" - Preface.

Tanzania. Community Development Trust Fund (CDTF). 1977. Appropriate Technology for Grain Storage. Dar es Salaam: CDTF; New York: Institute of Education and Economic Development Bureau.

SCOPE: FOOD

PURPOSE: The objective of the project was to develop, in the course of discussion meetings with villagers, improved designs and strategies of grain storage appropriate to local conditions and to implement these improvements.

RESULTS: In the course of about 20 formal meetings over 8 weeks, existing structures were critically surveyed and suggestions for improvements discussed and implemented. Three major types of modifications were implemented under the supervision of the village storage Committee. 1) outside, sun-dried, insect - protected, rat proofed, elevated storage - (Improved Sun-drying Crib). 2) outside, fire-dried, insect-protected, rat-proofed, elevated storage - (Improved Dungu). 3) inside, fire-dried, in roof and subsequent transfer to rat-proofed insect-protected woven

cylindrical storage----(Kihange). Immediate benefits included the construction of 15 improved rat-proofed storage structures (dungus) with a storage capacity of 25 tons and the use of insecticides on 12 tons. The saving was estimated to be Shs. 10,000/= in the first 6 months. Long-term benefits include an awareness among the villagers of the importance of the principles of food storage. CDTF should subsidise the construction of improved village storage facilities and cooperate with the Institute of Education to disseminate information about such technology.

COMMENTS: On farm and village, storage facilities play a significant role in attaining food self-sufficiency, particularly since loss from bad storage facilities can be as high as 30 per cent. The study is also useful because of the participatory nature of the project, which ensured the success of the project through participation of the villagers and their elected committee.

Tanzania. (Central Statistic Bureau, Ministry of Economic Affairs and Development Planning.) 1979. 1978 Population Census. Dar es Salaam: Government Printer.

SCOPE: POPULATION

PURPOSE: To produce demographic statistics at national, regional, district ward and village level. 2nd national post-independence census.

RESULTS: No reports are yet available although 8 volumes are planned for. However; a few results have been published in the news media indicating the total population of mainland Tanzania as being 17,048,329. Of these 8,357,020 are males and 8,691,309 are females. On the basis of these figures the current growth rate is given as 3.3.

Tanzania Ministry of Agriculture, Research Division, and the University of Dar es Salaam, Faculty of Agriculture. 197 . Demonstration of an Interdisciplinary Approach to Planning Adaptive Agricultural Research Programmes. Report no. 2, The Drier Areas of Morogoro and Kilosa Districts, Tanzania. Nairobi: Government Printer.

SCOPE: FOOD

CONTENT: Detailed description of farming system, resources used, hazards encountered, first hand data

EVALUATION: Very good, availability questionable

Tanzania. (Ministry of Agriculture.) 1979. The 1978 Livestock Count in Mainland Tanzania and Beef Demanded and Supply Study. Dar es Salaam: Government Printer.

SCOPE: FOOD

PURPOSE: a) To get accurate figures for the total number of cattle, goats and sheep in Mainland Tanzania. b) To undertake a meat supply and demand study based on figures obtained from the livestock count of (a) above.

RESULTS: Total counts for cattle, goat and sheep were as follows: Cattle: 12,031,614 - a rise of 2.3% per year since 1964. Goats: 5,534,949 - a rise of 2.2% per year since 1964. Sheep: 3,565,323 - a rise of 1.9% per year since 1964. Also discusses factors affecting low level of livestock production and the increasing demand for meat.

CONCLUSIONS: Concludes that supply will only barely meet local demand at a national off-take of about 12%.

Tanzania, Ministry of Economic Affairs and Development Planning Central Statistical Bureau, and University of Dar es Salaam. Bureau of Resource Assessment and Land Use Planning. 1975. 1973 National Demographic Survey of Tanzania, 6 volumes Dar es Salaam. Government Printer.

SCOPE: POPULATION

PURPOSE: (i) To derive accurate estimates of fertility and mortality for each region of mainland Tanzania and investigate trends in fertility. (ii) To provide data to show fertility and mortality differentials among various socio-economic and cultural groups.

RESULTS: The findings are discussed in volume 6 entitled Demography of Tanzania but can be summarised as follows: (i) Average fertility rate for Tanzania is 6.3 with a low of 4.7 for Dar es Salaam City and 5.1 for Coast and Lindi Regions to a high of 7.1 for Mbeya and 7.0 for Kilimanjaro Regions. (ii) The estimated Crude Birth Rate is 47 the Crude Death Infant mortality is about 185 per thousand while a further 118.7 die before their 5th birthday. The greatest cause of death is given as malaria followed by measles for infants and children and malaria and tuberculosis for adults. (iii) Average expectancy of life at birth is about 47 years. This represents a decline in mortality over the 35-40 years estimated in 1957; and the 40-43 years estimated from the 1967 census. However the national range is from 40 to 55 years with the highland areas and coast, Dar es Salaam and Rukwa Regions having higher life expectancy rates. (iv) Childlessness and sterility were found to be quite high and ranged from 17% for Tabora and 14% for Tabora and Dar es Salaam to less than 6% for Iringa, Arusha, Mbeya, Kilimanjaro and Ruvuma. (v) Mortality and fertility differentials are also given according to various social characteristics and "modes of life".

DATA: National, involved 65,000 households in 70 rural clusters (4 to each region) and 22 urban towns. The total sample was approximately 2% of the population.

COMMENTS: The NDS Survey results and analysis are extremely difficult to interpret. Even the analysis volume seems to have been written just for demographers. Thus the NDS loses much of its value for planners.

Tanzania. 1976. Third Five Year Plan for Economic and Social Development 1st July 1976 - 30th June 1981. Dar es Salaam: Government Printer. (Section on Developing Food Crops pp 40-68).

SCOPE: FOOD

OBJECTIVE: To be self-sufficient in food by 1981.

RESULTS: Food requirement estimates: (without consideration of exports) 75,000 tons of maize, 15,000 tons of Paddy, 20,000 tons of wheat, 10,000 tons of corn.

CONCLUSIONS: "If", "then" proposition: If certain things will take place, then the expected food crop production targets will be met.

COMMENTS: The work tries to answer the question normatively and not statistically-but is very difficult to form rational expectations and therefore policies.

Temple, Paul, A. 1972. Soil and Water Conservation Policies in the Uluguru Mountains, Tanzania. Geografiska Annaler 54A (3-4):110-23.

SCOPE: FOOD/POPULATION (SOIL/WATER CONSERVATION)

**PURPOSE:** To present a case study of official conservation policies and their impact on the partly deforested and densely settled stream-source area of the Uluguru Mountains of Tanzania.

**RESULTS:** 1) From the geomorphological data on slide locations, it is possible to identify specific sites where tree planting would be most beneficial. a) it would ensure a supply of building timber and firewood at hand; b) it would decrease the illegal depletion of the forest reserve; c) it would generate local employment; d) it is already recognized locally as an effective remedial measure against land-slides; e) it is cheap and feasible. 2) The introduction of new tree crops and the expansion of the area covered by tree crops would have the following advantages: a) it would curtail erosion of all types; b) it would be a means of introducing better husbandry methods; c) it would provide supplementary income and improved diet for the farmers.

**CONCLUSIONS:** Experience from this area indicates clearly that certain conservation measures are both desirable and necessary. Proper use of soil and water resources in major stream source areas is vital both for the short term advantage of the local economy and for the long term advantage of the whole community.

**COMMENTS:** The article contains a review of past experiences together with newly available technical data, which forms a basis for comment concerning the future conservation measures in this area.

Temu, P.E. 1974. Marketing Board Pricing and Storage Policy with Particular References to Maize in Tanzania. Ph.D. dissertation. Stanford University, Stanford, California.

**SCOPE:** FOOD

**PURPOSE:** To develop a framework within which a national pricing and storage policy can be worked out.

**RESULTS:** The main argument of the thesis is that the pricing procedures are too rigid and therefore an impediment to price efficiency. It shows also, that the prices guaranteed by the NAPB have little comparison to what the producers actually get due to deductions in the form of taxes, etc. For instance in 1969/70 the Board's into-store price was given as Shs. 5/20 but producers got between 2/14. (Tanga Region) to Shs. 2/63 (Arusha Region). This has a considerable effect on the extent of the black marketing of maize. "There seems little doubt that the overriding reason why maize growers and traders sell outside the official channels is because they can realize a higher price in the open market".

**CONCLUSIONS:** Recommends more flexibility in the pricing structure of producer prices and shows how better prices have an immediate effect on the availability of crops for purchase.

**COMMENTS:** Although one cannot deny the value of better producer prices as an incentive for farmers to sell more to the official Agricultural Products Board, pricing alone cannot be a factor affecting sales. Many of the problems facing National Milling Corporation (NMC) which is the successor to NAPB are more serious and complex than poor prices. Lack of information about surplus areas, lack of transport during harvest seasons, lack of funds to buy produce, lack of storage facilities are equally important factors frustrating NMC's attempts to purchase sufficient stocks.

Thomas, I.D. 1978. Population Policy in Tanzania. Development Studies Discussion Paper no. 51. Norwich: University of East Anglia.

SCOPE: POPULATION

PURPOSE: Paper presented to the Conference on Population Policy organized by the Population Geography Study Group, Durham University 20-22 Sept. 1978.

CONCLUSIONS: The author concludes that although Tanzania does not have a formal population policy, nevertheless statements, strategies, regulations and legislation all relating to control and management of population, if internally consistent, may imply a policy. The principal sources of policy are the successive development plans. The important legislations are the Law of Marriage Act and the Villages Act, Immigration Act and the resolutions of the political party TANU, and CCM.

COMMENTS: Attempts a preliminary systematization of the components and their interrelationship with sectoral policies central to government activities.

Thomas, I.D. 1970. Some Notes on Population and Land Use in the More Densely Populated Parts of the Uluguru Mountains of Morogoro District. Bureau of Resource Assessment and Land Use Planning. Research Notes no. 8. Dar es Salaam: University of Dar es Salaam.

SCOPE: POPULATION

SUMMARY: "The 1967 population census maps and enumeration results for parts of the Uluguru mountains are used: first to characterize the population distribution; secondly, to provide a sampling frame for a land use and household survey; and thirdly in combination with the results of a land use survey to derive measures of agrarian population density. Maps show the population distribution and sample study areas. Tables present the basic population and land use data and methods of survey are described in the appendices."

Thomas, I. D. and Mascarenhas, A.C. 1973 Health Facilities and Population in Tanzania: Part 1 Bureau of Resource Assessment and Land Use Planning. Research Paper no. 21.1. Dar es Salaam: University of Dar es Salaam.

SCOPE: POPULATION

PURPOSE: To measure the extent to which existing hospital facilities are distributed in relation to the population.

RESULTS: See report for "Summary of Findings."

CONCLUSIONS: No matter how good the planning is, in areas where the population is widely scattered the provision of health facilities will remain a problem. Here non-conventional facilities (mobile units, etc.) might provide a partial solution, nucleation of the settlement might be possible, or the increased costs of providing more facilities each with a smaller population catchment might be considered a justifiable cost.

DATA: Two very diverse sources of data have been used in the exercise. The medical officers; provided information on the location of hospitals, rural health centers, dispensaries and special health facilities. Their data relates to the first quarter of 1972. This report deals with the distribution of hospitals, but also certain aspects of the distribution of all combined facilities. The health services were marked on the sheets of the Tanzania district map series. These range in scale from 1:100,000 to

1:500,000 but most are at 1:250,000 (1cm represents 2 1/2 km.) Where hospitals were located outside the main towns the Tanzania Gazetteer (surveys, 1960) was used to fix the location of the hospital on the district map. The second source of information related to the distribution of the population. Mr. G. Cunningham, a geographer formerly working in Devplan had used the returns from the 1967 Tanzania population census together with the district enumeration area maps to prepare a map for each district showing the distribution of population by dots. The scale of plotting was that of the district map series, but on every map each dot represented 200 people. The only departure from the use of Cunningham's maps was in the case of Mzizina District which contains the densely populated periurban fringe of the city of Dar es Salaam. Fairly large scale maps now exist for this area and it was possible for the authors to accurately ascribe population residing within the given distances from Muhimbili Hospital. As a whole the project is designed to provide macro-level information...The dot method has inherent limitations.

Tibaijuka, A.K. 1979. Strategies for Smallholder Agricultural Development in West Lake Region, Tanzania. Rapport Institutionen for Ekonomi och Statistik, Sveriges Lantbruksuniversitet no. 150.  
SCOPE: FOOD (AGRICULTURE)

Survey of smallholder agriculture in this region showed that farm incomes were low because of low yields caused by poor husbandry and lack of inputs. Holdings were small because of population density and farming methods. The area was far from the market and had a badly functioning marketing system and poor transport facilities and this discouraged farmers from growing more. There were few job opportunities outside agriculture. The report recommends an integrated development program aimed at improving: 1) transport, marketing and farm input supply; 2) extension services and general education for the farm population; 3) farming technology; and 4) accessibility to year-round production resources through a better settlement pattern and irrigation in suitable areas. There must be tackled together in the long run. In the short run, improvement of transport and accessibility has first priority.

SOURCE: C.S./CAB.ABS

Uchendu, V.C. and Anthony, K.R.M. 1974. Agricultural Change in Geita District, Tanzania. Dar es Salaam: East African Literature Bureau.  
SCOPE: FOOD/POPULATION (AGRICULTURE)

This study is one of the seven comparative studies carried out during the period 1966-1968, as part of an investigation of factors affecting agricultural change in tropical Africa. The choice of Geita District, Tanzania, was influenced by the recent and impressive growth of cash crop production in what is an area of comparatively low population density. Geita district was heavily infested with tsetse fly until the 1940's.

The development of the area was made possible by control of the tsetse fly and settlement of a large immigrant Sukuma population; thus this study illustrates the critical role of planned change, settlement programs and tsetse fly eradication, in opening up opportunities for agricultural development.

SOURCE: C.S./CAB.ABS

United Nations. 1978. National Experience in the Formulation and Implementation of Population Policy, 1960-1976. New York: United Nations.

SCOPE: POPULATION

PURPOSE: This document is one of a series of U.N. reports designed to disseminate information on the experiences of various governments in formulating and implementing population policies.

COMMENTS: The author shows that up to 1977 the official government stand was that the Tanzania government was more concerned with the high infant mortality rate of 160 per thousand live births, the high death rate of children under five estimated at about 350 per thousand and the high dependency rate of nearly 100 with over 45 per cent of the population being under 15 years. Nevertheless he points out that the government's encouragement of the activities of the Family Planning Association; the statement of the Ministry of Health that by 1980 it was planned that there would be a mid-wife trained in family planning in every maternal and child health care centre and legislation restricting maternity leave to every three years, are positive steps towards recognizing a child spacing program and therefore implicitly the need for a population policy.

CONCLUSIONS: Concludes that some demographic factors are carefully integrated in the over-all development planning particularly in priority areas such as education and health. It implies that even villagization was a response to an awareness of problems associated with a dispersed population.

United States, Agency for International Development. 1975. Development Assistance Program, FY 1976, Tanzania. Washington: USAID.

SCOPE: FOOD/POPULATION

PURPOSE: To study two sectors: food/nutrition and health/population by concentrating on food crops, livestock, and rural maternal/child health.

RESULTS: 1) Technically trained people are in short supply. 2) Transportation and communication networks are inadequate 3) Network or organizations providing agricultural services are inadequate. 4) The low levels of farm prices tend to eliminate farmer incentives. 5) Ecological limitations, including drought.

CONCLUSIONS: "The constraints upon Tanzanian agriculture are numerous: a) policy, b) infrastructure and institutional, c) financial, and d) ecological. Our strategy is to attack some of the constraints..." "There would appear to be a continuing problem of incentives to farmers if the bottleneck of prices will continue to exist.

University of East Anglia. Overseas Development Group. 1976. Iringa Region Tanzania: Integrated Rural Development Proposals for the Third Five-year Plan 1976-8. Vols. 1 & 2. Rome: United Nations Development Programme. Food and Agriculture Organization of the United Nations.

SCOPE: FOOD

PURPOSE: 1) To support the regional management team in preparing drafts of the regional plan to go before the regional development council. 2) To provide feedback to the prime minister's office and to sectoral ministries.

DATA: Relevant planning data in map and tabular form.

University of Missouri at Columbia. 1975. An Analysis of the Tanzanian Food Crop Subsector. Final report. Contract no. AID/CM/AFR-c-73-11.

SCOPE: FOOD

CONTENT: Large, very detailed report covering: resource base, food production, marketing, institutional infrastructure, nutrition, constraints and food strategies.

DATA: from previous studies, national and regional government officials.

Wagara, Amesa Oyo. 1975. "The Changes in the Settlement Patterns in Tarime District." Masters thesis. University of Dar es Salaam.

SCOPE: POPULATION

PURPOSE: To review the evolution of settlement patterns in the District and the effect of these patterns on the ecological conditions of the area.

CONCLUSIONS: Concludes that the changing settlement patterns have had a deteriorating effect on the ecology of Tarime District.

DATA: Involves field-work, interviews, air-photos in addition to documentary evidence to describe the current situation and re-construct the historical settlement patterns.

Wolfson, Margaret. 1978. Changing Approaches to Population Problems. Paris: Organisation for Economic Cooperation and Development (in cooperation with the World Bank.)

SCOPE: POPULATION (KENYA AND TANZANIA)

PURPOSE: "To review the changes that have taken place within only a few years in our thinking about a particularly elusive aspect of development-namely, problems of population."

RESULTS: Kenya: The focus of Kenya's population activities remains reduction of fertility by means of family planning activities. The costs of the current five-year population program are estimated at US \$38.8 million. The Kenyan Government has committed \$11.8 million, or around 30% of the total budget, the rest being financed by a large group of different aid donors. Tanzania: In many respects, Tanzania presents a picture which is the reverse of that of other developing countries. In countries which have a population policy, the emphasis has tended to be first on the "direct" approach, i.e., limitation of fertility through family planning, and only later has it broadened out to include some "development" activities with a view to eventually influencing fertility behavior. Tanzania, on the other hand, has effectively started with the development approach and has been pursuing it single-mindedly for the past decade. Direct government action in the family planning field came later and is still on a relatively small scale.

CONCLUSIONS: Kenya: Until an adequate infrastructure has been created and the coverage greatly extended, the main focus of Kenya's population assistance will remain for some time the "core" family planning and health activities. Tanzania: In the future, either or both of two things may happen. First, if improvement in the standard of living does not proceed fast enough, the discrepancy between population growth and economic growth may force the government into a more deliberate policy of fertility limitation.

The second is that the development activities may gather sufficient momentum to have an effective influence on fertility levels. In either case, the result will be an increasing need for family planning services. It is therefore possible that over the next few years, aid for family planning activities will come to occupy an increasing share of Tanzania's foreign aid requests.

COMMENTS: A very informative study which covers the period since the world population conference at Bucharest in August 1974.

1977 Workshop on Solar Energy for the Villages in Tanzania. Dar es Salaam August 11-19. Dar es Salaam: Tanzania National Scientific Research Council.

SCOPE: ENERGY

PURPOSE: 1) To review the state-of-the-art of small-scale solar energy devices, including both the technical and economic aspects of their utilization. 2) To suggest short and long-range projects utilizing solar devices in the villages, with particular emphasis on recommendations for implementation.

RESULTS: "...Presents a number of short and long-range applications that could benefit the people in rural Tanzania by utilizing solar energy to assist them with their daily activities."

CONCLUSIONS: "Thirteen recommendations and conclusions were endorsed. Certain established criteria should be considered in the selection of villages to be included in the proposed solar energy for villages pilot project (SEVIP). These criteria include: The village's energy/power needs; availability of renewable energy resources (eg: wind, water, and sun); availability of human skills; economic viability of the project; village enthusiasm; social utility of the project."

COMMENTS: Peter Mwombela in his closing remarks of the workshop says that this is "The beginning of the tasks ahead". Appendix F. Commentary on energy needs in Tanzania by Jeremy Elias Duwe.

UGANDA

Baker, P. Randall. 1971. Agricultural Changes in Bunyoro 1954-1968 in Studies in East African Geography and Development. edited by S.H. Ominde. pp 123-36. Berkeley: University of California at Berkeley Press.

SCOPE: FOOD

PURPOSE: Documents agricultural change in the Bunyoro region.

RESULTS: Most important agent of change = co-operative. Notes high rate of population increase (at least 25%) in the region due in part to immigration. Efforts of government focused on the radical transformation of the physical, agricultural, aspects of the environment - eg. eradication (or control) of the tsetse fly.

CONCLUSIONS: Problems in Bunyoro are similar to those elsewhere in the Third World - "an unhealthy dependence and narrow range of cash enterprises, the failure of large-scale capital-intensive ventures, the need to diversify and the need to improve."

Baker, P. Randall. 1967. Environmental Influences on Cattle Marketing in Karamoja. Makerere University, Department of Geography Occasional Paper no. 5. Kampala: Makerere University

SCOPE: FOOD (MARKETING)

PURPOSE: Notes erratic supply of cattle from Karamoja. Looks at factors which inhibit the rational exploitation of Karamoja as a stock area. Author intends to show that the instability which characterizes the cattle trade is "a reflection of the instabilities inherent in the physical and social environment."

RESULTS: "Karamoja is very much a source area and the market system is entirely related to the availability of the stock and not to the consumer." (p.17) But the environment determines availability of stock. "A high (market) price does not, as in classical economic theory bring forth a rush to sell. The rush, when it comes, is entirely a response to environmental pressures (eg. drought) and the price is a reflection of the size of these market surges."

CONCLUSIONS: Environmental resources are in a state of decline and the necessity for a program of destocking is now urgent. Author feels that if environment is not protected, the economy will fail. Notes that "although the physical elements of the environment make Karamoja an area best suited to pastoralism", planned pasture management must occur. Planned pasture management will lead to better available grazing and thus better animals on the market. Suggests a settlement scheme to introduce pasture management. Suggests that government should encourage the development of a cash economy (to increase cattle sales). Also suggests a policy of productivity improvement. Such a policy "aims at rationalizing the production of stock so that the stocking rate, grazing, management and marketed surplus are all adjusted to the resources of the natural environment." Notes that difficulty may be encountered in carrying out his suggestions.

DATA: 1963 Uganda Census of Agriculture, veterinary district files.

COMMENTS: Shows a conflict between social and economic factors that predispose people to cattle trade, and environmental degradation that implies necessity for a different economic development. Dated but prophetic.

Col, Jeanne Marie. 1980. "Food, Population and Reconstruction in Uganda." Paper read at African Studies Association Annual Meeting, 15-18 October 1980, at Philadelphia.

SCOPE: FOOD (POPULATION)

PURPOSE: To review the agenda for reconstruction in post-liberation Uganda.

RESULTS: Notes the effect of an exodus (to escape harassment of Amin's regime) on the population growth trend. There has been an absolute increase in women over men in population growth. The distribution of displaced persons throughout Uganda is fairly even. Agricultural production was both subsistence and cash cropping until shift to subsistence was experienced in 1974. Seasons and harvests were disrupted by the war. Most famine relief came from private voluntary organizations.

CONCLUSIONS: "The current difficulties in the supply of food in Uganda must be traced back to the economic policies of the Amin Regime". (Pg. 12) Amin's regime failed to provide agricultural and credit inputs necessary to maintain cash cropping, so there was a shift to subsistence production. "The distribution of relief food has been hampered by the uncertain internal situation." (p.20) "Rehabilitation aid has been less forthcoming than food relief" (p.20). "While supporting small farmers through input programs and extension, the government wants to experiment with large scale farms." (p.26) There is room for improvement with regard to internal security.

DATA: Population figures for Lango, Acholi; population by district, Population by sex (1969 and 1980) IBRD figures; USAID figures on famine relief commodities.

COMMENTS: Author notes problems in data collection in Uganda - says actual magnitude might not be correct but general trends usually are right.

Commonwealth Secretariat. 1979. The Rehabilitation of the Economy of Uganda. 2 vols London: Commonwealth Secretariat.

SCOPE: REHABILITATION (ECONOMY, AGRICULTURE ETC.)

PURPOSE: To assess the economy of Uganda and to recommend short and long term rehabilitation programs. vol. 1 is overview and recommendations, vol. 2 is data and detailed arguments of several facets on the economy. Vol 1: Problem due to weak economy on verge of ruin before war-war caused it collapse short term: 1) import necessities, such as agricultural implements 2) overcome transportation bottlenecks 3) increase export exchange by export crops 4) improve on administration problems 5) reduce black market. Long term: wide range of social needs-roads to houses to water supplies, health, education and so forth. Financial implications discussed and external donor role discussed Vol. 2. Goal to restore overall productivity per capita to 1970 levels. Major means is focus on export & export saving crops and infrastructure to support 1) increase producer prices 2) provide co-ops with finances 3) reduce farmer input losses 4) have honest administration 5) focus on hand mechanization 6) offer specific programs for major export crops & livestock.

COMMENTS: Food is underemphasized-rarely mentioned.

Dak, O. 1968. A Geographical Analysis of the Distribution of Migrants in Uganda. Makerere University Department of Geography Occasional Paper no. 11. Kampala 9: Makerere University.

**SCOPE: POPULATION (MIGRATION)**

**PURPOSE:** Analyses the distribution of migrant people in Uganda. Includes international and internal movements of people. Looks at conditions in the "home" areas that have prompted migration and looks at conditions in the "reception" areas that have made accomodation of the migrants possible. These international migrants include people from Rwanda, Burundi, Congo, Tanzania, Kenya and Sudan.

**RESULTS:** Two situations have facilitated migration; these are improved transportation and increased availability of information about various economic opportunities. The identified factors prompting migration include a lack of economic development schemes in the homeland of the migrant and critical land shortages. Two types of migration were noted: an organized type and that type which resulted from the spontaneous movement by people to places of economic opportunity.

**CONCLUSIONS:** Migration in Uganda is not a recent phenomenon. However, migration in the recent history of Uganda has been characterized more frequently by higher incidence of permanent and semi-permanent settlement. Uganda has acted as a country of asylum to many of her recent immigrants. The higher ratio of males to females in most all instances indicates that the majority of migrant groups are labor groups. The labor in which they choose to engage dictates the distribution of different peoples. There has been a constant rise in the volume of migration. "It has also been observed that where the migrants had a choice of either settling in an empty land less endowed with economic opportunities near their home area, and going to rich areas far from home, the choice has been overwhelming in favor of the latter." (p.204) "The majority of international migrants in Uganda were well established (in 1959) and could be considered de facto citizens." (p.205)

**DATA:** Ugandan governmental reports. United Nations. Colonial Office (London). Based on 1959 Uganda General African Census. Many maps showing distribution of specific peoples. An in-depth study with a lot of statistical support. Bibliography contains list of governmental reports utilized in this study (28 reports total). Sources range from Uganda Protectorate, United Nations, East African statistical department. Almost all reports are demographic levels reports or census reports, some from as early as 1938, 1920 and 1911. Some reports are on labor conditions (supplies). Statistical figures are of those that were registered. Can it be assumed that the number registered is the total number of immigrants within the country? It should be noted that the situation in Uganda has changed radically since 1969 and that little is known about the current situation.

Family Health Care Inc. 1980. Family Health Care Report: A Working Paper on Health Service Development in Uganda: Issues, Analyzes and Recommendations Washington: Family Health Care Inc. (contract no. AID/SOD/PDC-c-0198 work order 2)

**SCOPE: HEALTH SECTOR**

**PURPOSE:** To describe the development of health services and the major health problems in Uganda, pre and post 1971 Also develops recommendations for rehabilitation of health services system.

**CONCLUSIONS:** No specific conclusions other than the findings at present and recommendations for future action.

**COMMENTS:** Very recent summary and analysis of the deterioration of health services in Uganda.

**SOURCES:** Government reports, Ph.D. thesis data, International agency reports (UNICEF, World Bank, Africane)

Hanna, Lewis. W. Climate and Crop Potential in Uganda. In Studies in East African Geography and Development. Edited by S. H. Ominde. pp 99-112. Berkeley: University of California at Berkeley Press.

**SCOPE:** FOOD

**PURPOSE:** The author states that agricultural development in Uganda must depend to a large extent on accurate assessments of the physical environment, and proceeds to give just such an analysis of the physical influences on agricultural production in Uganda.

**RESULTS:** Notes expansion of tea and sugar (a desired goal to reduce countries dependence on coffee and cotton). Notes importance of moisture balance for plant growth. Discusses rainfall reliability - sufficient amounts in two periods can give two growing seasons.

**CONCLUSIONS:** According to the author, the parameters of most value in agricultural planning are those which permit an estimation of the yield of crops. The author demonstrates the need to calculate the moisture balance for individual crops. "Soil moisture has been shown to be the most important climatic influence on the yields of sugar-cane and tea in Uganda.

**DATA:** Moisture-balance of tea and sugar-cane in Uganda. Moisture-balance figures were calculated for 10 day periods.

**COMMENTS:** Notes limitations in applicability (beyond Uganda) of moisture/yield correlation findings.

Hieber, Hauns. 1969. Wirtschaftsstatistik in Entwicklungsländern: Dargestellt am Beispiel Uganda. IFO-Institut für Wirtschaftsforschung München, Afrika Studien no. 40. Munich: Weltforum Verlag.

Title in English: Economic Statistics in Developing Countries: the Example of Uganda.

**SCOPE:** PROBLEMS OF DATA COLLECTION IN DEVELOPING WORLD

**PURPOSE:** To review the methodologies, problems and reliability of economic data in east Africa, specifically, Uganda.

**RESULTS:** A step by step and column by column discussion of economic statistics. No actual statistics.

**CONCLUSIONS:** Economic statistics in East Africa have many problems. Uganda's statistics (pre Idi Amin) are better than those of other East Africa countries.

**COMMENTS:** Interesting analysis but no actual quantitative data. Written in German.

Heyneman, S.P. 1979. "Why Improverished Children do Well in Ugandan Schools", reprint from Comparative Education vol. 15 no. 2 pp 175-85.

**SCOPE:** EDUCATION

**PURPOSE:** To test whether or not there is a correlation between social status, and academic achievement, and to propose reasons why such a relationship might or might not exist, specific to Ugandan society.

**RESULTS:** Contrary to findings from such long-industrialized countries as the United States and United Kingdom where social status appears to be a major determinant of academic achievement and earnings, this study shows

little relation between status and the Ugandan child's self-confidence and resulting school progress. 1) Socio-economic status has little influence on Ugandan child's academic progress because of comparative recentness of economic stratification and close link between school progress and earnings. 2) Economic status is not linked with attitudes of self-concept. 3) "blind" examinations do not help the rich but rather the poor.

DATA: Collected from a survey of 2293 children in schools randomly selected in five districts and three urban areas.

COMMENTS: Involves defining "status", and tracing the links between self-confidence, status, and academic progress.

Hunt, Diana, 1972. The Uganda Agricultural Credit Scheme. East African Journal of Rural Development 5:1-38.

SCOPE: FOOD

PURPOSE: To evaluate the operation of the Uganda agricultural credit scheme which was introduced in 1961.

RESULTS: The main result of the expansion of the scheme has been an increase in the number of borrowers. One problem experienced by the originators of the scheme was that there was no adequate supervision of the individual use of loans. They could not be sure that the money was being invested in agricultural pursuits.

CONCLUSIONS: The existence of credit schemes had filled an institutional gap but the author questions their effectiveness beyond that point; the availability of the monies did not substantially increase the farmers output or income. Further, a need arose to finance agricultural "packages" instead of single inputs.

DATA: Uganda Government, Department of Co-operative Development.

COMMENTS: Very thorough review of the system with very understandable data. Author notes in appendix that some of the data should be regarded with misgivings.

Hyde, R.J., Langlands, B.W. 1974. Patterns of Food Crop Production and Nutrition in Uganda. Makerere University, Department of Geography Occasional paper no. 58, Kampala: Makerere University

SCOPE: FOOD

COMMENTS: This paper is an updated version of McMaster's subsistence crop study in 1962, an examination of some of the shortcomings of his zonation of Uganda into dominant staple food crop regions of banana, finger millet and cassava. Some county level data conflicts with McMaster's results. Toro and Karamoja districts were eliminated and other districts amalgamated, and other prevalent food crops were not included in the classification, such as sweet potatoes, beans, groundnuts, simsim, and maize. Only a small extent of the areas McMaster designated have one crop with primary concentration into coes and peripheries and a map is included of the diversification of food cropping in Uganda.

The second essay is on nutrition with an attempt to assess the amount of land required to provide the necessary food to feed the different age and sex groups of the country, according to regional variations in diet. Calculations were made of the areas of land needed for supplying food per district.

International Agricultural Development Service. 1980. An Assessment of the Agricultural Sector of Uganda Washington: United States Agency for International Development.

SCOPE: FOOD

PURPOSE: To assess agriculture and livestock sector, identify constraints, establish priorities for development activities, formulate strategy for agricultural and livestock development. Seven consultants visited 20 of 33 districts.

RESULTS: Typical farm - 6 persons, hoe cultivation, on 2.4 hc., grow subsistence crops and cash crops by region, with average per capita income as \$200., current agriculture problems result of eight years of 1 year warfare, and drought; 28% of area cultivated but is best land, 5 million hc. of pasture. 3.6 million hc. of surface water; data presented on various aspects land, production, and population, agricultural environmental zones. Five constraints; 1) Poor technology of smallholder. Research plots yield higher than smallholder's but res. plots have not been constructed for each of the 11 agricultural zones; yields not tested under small holder conditions; based on non cropping, no input/output consideration. 2) Seed multiplication problems - when hybrid seeds develop government lack means of reproducing. 3) Problems of animal health/nutrition- no adequate controls on diseases and no disease zones are organized. 4) Marketing and prices - government has not paid market price for crops, Smuggling or no production of it. 5) Supply of production inputs for farmers - disastrous lack of sufficient farming tools and so forth. Provides list of government agencies and programs in Uganda, university programs, international assistance. Implicit in government policies: 1) export crops are priority 2) food and nutrition are of lesser significance 3) livestock better if large-scale 4) tractor mechanization needed because it is modern.

CONCLUSIONS: Research relevant to small holder is single most urgent need- must include means of increasing output, use of mixed cropping, pasture improvement, fuelwood; USAID should stress 1) welfare of small holder is paramount and their livestock needs should be included in national goals 2) assistance should be given as a) \$13.15 million for commodities imports (tools, seeds) b) agriculture rehabilitation projects. See text

COMMENTS: Excellent base work for agriculture-aid Uganda.

Jameson, J.D. ed. 1970. Agriculture in Uganda. New York: Oxford University Press.

SCOPE: FOOD (AGRICULTURE)

COMMENTS: The first comprehensive study of agriculture in Uganda was done by Tothill published as a volume Agriculture in Uganda, in 1940. Jameson's edition is a revision and updating of Tothill's work. Included are detailed statistics and maps on climate, geology, soils, vegetation and all the major food and cash crops. A broad ecological division of agricultural systems is made from the data into the long and short grass areas. The long grass region is characterized by the cultivation of bananas and coffee in southern Uganda and the short grass area of the north, of finger millet and cotton. At higher altitudes arabica coffee and tea replace robusta coffee, sorghum replaces finger millet in the drier eastern regions and cassava to the west. This broad north-south division is broken down into a classification of agriculture in Uganda into 5 systems. The Teso system (ox drawn implements for cotton cultivation), the Banana and Robusta System of the south with

some modifications in millet and cotton, the Northern System in the short grass zone north of Teso (Lango, Acholi and West Nile districts) characterized by communal cultivation of cotton, sesame, peas, tobacco, sunflower and sorghums, the Montane Systems based on the production of bananas as the main food crop, tea and arabica coffee the main cash crops perennially in contrast to the annual crops of the north where rainfall is monomodal. The similarity with the banana and coffee system is modified by altitude, relief and population densities. The last system, the Pastoral System, refers to the Karamoja district nomads.

Jiwani, S.H.M. 1973. Agricultural Statistics and Rural Development Planning in Uganda. East African Journal of Rural Development 6: 179-189.

SCOPE: FOOD (AGRICULTURE)

PURPOSE: There exists a shortage of reliable data on Uganda. This article reviews the available agricultural statistics in Uganda.

RESULTS: Trade and marketing statistics are good. Population data is good. Food consumption data is non-existent. Livestock data is excellent. Meat production and consumption data is insufficient. Data is inadequate on total man-hours spent by farmers in different activities (p. 185). Information on labor use is inadequate. Environmental data is fairly good but temperature and climate data are needed. Employment data is insubstantial.

CONCLUSIONS: Author suggests that the statistics branch of the Ministry of Economic Development and Planning and the Department of Agriculture should be amalgamated to produce improved statistics. Publication of available statistics should be increased. According to author, farmers need to be motivated to more accurate efforts in record-keeping. Small scale successive surveys would be more productive than large scale infrequently conducted surveys. Data on subsistence food crops and indigenous population movements should be given priority.

COMMENTS: Does not suggest a method to motivate farmers to more accurate recordkeeping. Assumes that there is sufficient funding for the many small scale surveys recommended. Also assumes that there are people sufficiently qualified to conduct the surveys and that there would be no problems of priority in the decisions about which of the many small surveys should be conducted first.

Langlands, Bryan W. 1971 The Population Mapping of Uganda In Studies in East African Geography and Development, edited by S.H. Omide, pp. 113-122. Berkeley: University of California at Berkeley Press.

SCOPE: POPULATION

PURPOSE: Looks at the census figures from 1911, 1921, 1931, 1948, and 1959 in an attempt to correlate population distribution and mapping efforts of population geographics.

RESULTS: Mapping of population data hasn't been done frequently and usually reflects census dates. Intercensal changes in population distribution have been mapped only on rare occasions.

CONCLUSIONS: Mapping according to population counts is becoming more sophisticated but there is much more to be done with Uganda Population data. It shows, generally, the nature of population distribution in Uganda in this century.

Leakey, C.L.A. 1971. Factors Affecting Increased Production and Marketing of Food Crops in Uganda. East African Journal of Rural Development 4(no.2): 1-16.

SCOPE: FOOD (PRODUCTION AND MARKETING)

PURPOSE: Looks at factors that affect the increased production of food as a policy objective. Under technical factors that increase products, the author looks at implements, improved seed and planting material, fertilizers, pest and disease controls, as well as marketing and prices, and agricultural credit.

RESULTS: Notes that Ugandan people do not suffer from shortage of food, rather from lack of information; this is, in fact, the major cause of malnutrition. Notes that agricultural extension advice is often based on the assumption that scientific procedures represent improvement. Lack of information includes market information. Believes labor and not land to be main factor limiting productivity in agriculture in Uganda.

CONCLUSIONS: Feels that of available innovations, improved seeds are the most likely to be accepted because they give a very definite increased return for labor. Improved marketing structures will lead to improved food flows which will, in turn, alleviate malnutrition problems. "Efforts to shorten the paths between producers and consumers must be commenced. Supports full integration of planning process for agricultural development and does not approve of the relegation of the process to a separate ministry.

COMMENTS: Bases his argument on whether or not a farmer adopts an innovation almost entirely on economic factors. Does not consider social factors at all.

McMaster, David N. 1962. A Subsistence Crop Geography of Uganda. London: Geographical Publications Limited.

SCOPE: FOOD

COMMENTS: McMaster states that food crop production provides the stable base on which the export trade in cotton and coffee was erected. Tothill's study dealt inadequately with food crops, so McMaster aimed to map, describe and analyse the pattern of African subsistence crop production in its physical and human setting. He discusses the traditional African peasant approach to agriculture aiming at minimizing risk rather than ensuring maximum productivity. Diversity of production is stressed rather than concentration on a limited range of crops. The response to increased needs for cash with the taxation system of a high value was placed on leisure time for social interchange in the form of beer parties, the destination of a good portion of the agricultural surplus. The increased demands for cash crops were met from agricultural activities in 3 ways-labor migration, growing specific cash crops, and the sale of food crops. The Mengo district had the highest percentage of cash crops grown with a conducive climate, migrant labor cheap and abundant and also the overlap region between the northern 5 subsistence agricultural zones, cassava in West Nile, finger millet in Acholi, sorghum in Karamoja, the northwest and southwest (Kigezi) banana in Buganda and the slopes of Mt. Elgon and an intermediate zone with different combinations of the others converging around the south of Lake Kyogo.

He makes the broader distinction between the northern area with a monomodal pattern of rainfall and the bimodal rains in the south. In the north

agricultural activity is concentrated at certain times, whereas in the south it is spread throughout the year with a greater chance of higher yields. This difference is reflected in the acreages planted; averaging 4 acres in the Lake Victoria region and western uplands to 8 acres in the north of the interior plateau. Mengo, Busoga and Bunyoro districts were the targets for the migration of workers without dependents. Teso, Bugisu and Bukedi districts were the centers of intensive domestic agriculture and West Nile and Kigezi were the chief sources of labor migrants.

Mettrick, Hal. 1967. Aid in Uganda - Agriculture. London: Overseas Development Institute Limited.

SCOPE: FOOD (FOREIGN AID)

COMMENTS: This book is the third in ODI's three-part study of overseas aid in the development of Uganda. It attempts to outline the problems of providing aid to agriculture and to show how the effectiveness of aid can be assessed. The problems discussed include land tenure, mechanization, group farming, difficulties with small-scale production i.e. (peasant conservatism late planting, division of labor by sex, integration of cattle into the farming system, spacing, use of fertilizer, high quality seed, and insecticides, and the scarcity of labor), estate production, ranching (sleeping sickness, tsetse infection, overstocking and overgrazing) and resettlement schemes (husbandry practices have remained unaltered, people are unwilling to move from their homes and the government seems to have dropped the policy of organized resettlement. Other problems that apply to the previous listed ones are manpower, education, marketing and co-operatives, fluctuating cotton and coffee prices and the scarcity of agricultural credit. A survey of the colonial and first two post-independence development plans follows, as well as detailed information on the capital aid, technical assistance and specific projects that have been initiated from abroad.

Miller, Norman. 1971. The Dynamics of Population in Uganda. American University Field Staff Reports vol. 10, no. 5.

SCOPE: POPULATION

COMMENTS: In a short study of 21 pages, the major cleavages of the Ugandan population are designated as: the Bantu speaking south and Nilotic north, disparate ecological conditions, the large numbers of Non-Ugandan refugees and emigrants from neighboring African countries (Rwanda, Burundi), and the flow of internal migration to Baganda, which has served as the reception zone.

The population distribution is correlated with the amounts of rainfall, soil quality, prevalence of disease and the availability of water for domestic and irrigation purposes. The Lake districts have the lowest fertility rates, highest incomes and the most dense population. The colonial economic pattern was one of building up the south where roads are well connected in comparison with north. Migration takes place to areas of high per capita income rather than just to urban centers; there is a high rural-to-rural migration rate mainly to East and West Mengo, the Busoga districts and the sugar and tea plantations and also some urban migrations to the 4

centers in the Lake districts. Miller recommends central place planning for the outlying districts from Baganda to reduce the migration pattern to the lake districts, for with a lack of geographic centrality (Lake Kyogo's location in the center of the country separates the north from the south) and the autonomous nature of most villages, it is very difficult for government workers to reach the people without a physical meeting or a central place for a number of farmers to gather.

Miller, Norman N. 1971. Uganda and the Wonder Drug: A New Approach to Population Control. American Universities Field Staff Field Staff Reports, East Africa Series vol. 10: no. 4.

SCOPE: POPULATION (BIRTH CONTROL)

PURPOSE: Looks at research behind prostaglandin (a hormone-like substance) in the form of a once-a-month pill that can be used to prevent conception and to terminate an unwanted pregnancy. Dr. Sultan M. M. Karim of Uganda is doing this study.

RESULTS: It is hoped that the drug will have several uses: 1. contraceptive; 2. to aid childbirth by inducing labor; 3. therapeutic abortion (if administered between the first and the twentieth weeks of pregnancy); 4. to alleviate problems of male infertility; and 5. animal uses (to terminate pregnancy in animals).

CONCLUSIONS: "Their (the prostaglandins) immediate importance is in filling a major gap in contraceptive technology, particularly as a hindsight method." Due to the controversy surrounding abortion, its further development is uncertain. Also, there is a danger in attempting self-induced abortion after more than six weeks of pregnancy (could cause unspecified medical difficulties).

COMMENTS: "There is ample agreement among population experts that the only major recourse to the burgeoning human growth is easy forms of abortion." Because prostaglandin can be used to induce abortion, it is seen as a viable, increasingly important drug.

Author assumes that birth control is the answer to overpopulation. He does not consider any sociological impact that might occur if such a drug were introduced in Uganda. Dated.

Matthew. 1972. Some Aspects of Agricultural Labour Use in the Main Short Grass Zone of Uganda. East African Journal of Rural Development 5:103-22.

SCOPE: FOOD

PURPOSE: Input-output study of plow and hoe cultivation in Longo and district of Uganda; specifically Alenga and Aboke parishes of the main short grass zone; long term study, spent at least one year with some areas.

RESULTS: Demonstrated efficiency of plow over hand hoe cultivation; it reduced labor and presented return per effort; time/labor constraints and low return/labor reduced incentive to obtain pure stand cultivation.

CONCLUSIONS: Stress adoption of ox for plow; redesign time/labor conflicts to improve efficiency; especially change subsistence crop from millet to sorghum in maize.

DATA: Annual input-output in manhours by month for study areas--excellent.

COMMENTS: Use data to extrapolate for other areas.

Okereke, O. 1975. Migrant Labour and its Economic Implication to African Agriculture. East African Journal of Rural Development 8: 92-102.

SCOPE: FOOD

PURPOSE: Looks at motivating forces behind labor migration and analyzes its effect on agricultural production and productivity.

RESULTS: Those factors which force a person to leave the home are social and psychological factors, political pressure and economic motivation. "The sociological and psychological factors include love of adventure, escape from the dull life of the village, reputation for sophistication acquired abroad, avoidance of political and kinship obligations. Political pressure results from governments sponsored schemes" (agricultural schemes etc.) There are also "pull" factors which cause migration including information about urban life, the demonstration of wealth exhibited by labor returning from the city, high urban wage rates, increased labor mobility due to modern transport and the extended social structure of African families which shows relatives in the city to ease the transition of rural families.

CONCLUSIONS: Labor migration will exist as long as there is economic growth and "the process of economic growth will be accelerated if free movement of labor is encouraged." The solution is to adopt credit and price incentives so that labor will realize the opportunity cost of migration is higher than that of staying on the land.

DATA: Data taken from working document for symposium on Migrants in West Africa 1961.

COMMENTS: Assumes that migrant labor is agricultural labor - and thus less educated. Feels that better income opportunities in the rural areas are the answer to the problem of migrant labor, which in the end lays the responsibility for migratory labor on western economic reasoning despite the fact that other factors associated with labor migration are mentioned.

Oloya, J.J. and T.T. Poleman (no date). The Food Supply of Kampala: a Study in the Marketing of Basic Foodstuffs in an African Metropolitan Area. Kampala: Makerere University Institute of Social Research.

SCOPE: FOOD

PURPOSE: Addresses two questions. Looks at extent to which market inefficiencies retard farm production by reducing the share of the final price actually received by producers. Looks at extent to which marketing systems impede orderly demand and supply changes by failing to provide appropriate price indicators reflecting changes in real economic conditions.

RESULTS: "Bugerere, Kyagwe, Singo and Buddu are the major suppliers of plantain for the Kampala markets, while Kyadando is important as the major source of sweet potatoes and casawa." Major factors contributing to market dominance of Bugerere: good climate and soil, availability of cultivable land, good transport and communications network and the existence of ready markets. "Kampala markets in general are greatly superior from the hygienic point of view to those in other developing countries, particularly those of West Africa." There exists a rather rudimentary degree of specialization in the market but markets remain poorly integrated.

CONCLUSIONS: There is more room for studies of urbanization of Uganda and urban food consumption problems. Not only do markets provide a business atmosphere, "they tend to function also as an area of contact between alien and African and between urban and rural life. According to author, greater

marketing efficiency could do nothing but facilitate development of internal markets, thus freeing resources to promote development in other areas. Market efficiency could be improved by the promotion of marketing intelligence. Another way: increase loan and credit facilities to African traders so they can improve their transport system. Further, marketing research should be given higher priority in Uganda.

DATA: Survey data on major food crops (based on 15 markets). Survey on monthly prices and purchases of maize flour and bean in Nsambyr market. Annual reports of Uganda government labour department, statistics branch of ministry of economic development, Uganda government census (1959, 1969).

Opio-Odongo, J.M.A. 1975. Agricultural Productivity in Uganda: a Social Organizational Perspective. Eastern Africa Journal of Rural Development 8: 118-27.

SCOPE: FOOD

PURPOSE: This study looks at the impact of the organization of social units on agricultural productivity. More specifically, 1. the structural complexity of the district; 2. the district's level of intercommunication; and 3. the degree of rural continuity of the district and the effect on agricultural productivity is examined.

RESULTS: Ethnic mixture (as an indicator of intercommunication) shows a greater impact on productivity relative to the index of aging (as the indicator of rural continuity) and the number of trade licenses (as the indicator of structural complexity): "Higher ethnic mixture," the study contends, "probably leads to a greater circulation of information (agricultural) within and among districts." Rainfall showed up as a weak but significant predictor of agricultural productivity.

CONCLUSIONS: The positive impact of rainfall on agricultural productivity indicates the potential for the use of irrigation equipment; but the economics of irrigated agriculture may be beyond the organizational capacity of individual farmers. Ethnic mixture and the age proportions of the population cannot be manipulated directly. The author suggests decentralization of services and upgrading of rural towns to increase population mobility and thus information flow to yield increased agricultural productivity.

DATA: Relative impact of the social organization indicators on agricultural productivity."

COMMENTS: Greatly influenced by Schultz and his industrial-urban matrix theory. Believes that land is generally available (ie. not a constraint) but labor productivity is a constraint. "Increasing productivity of labor should concern us more than just increasing yields per acre." Notes that the will of individual farmers to produce in a certain way cannot be discounted in any study but that it is modified by the organizational environment of the system in which the farmer operates.

Richards, A., Sturrock, F., and Fortt, J. 1973. Subsistence to Commercial Farming in Present-day Buganda. Cambridge: Cambridge University Press.

SCOPE: FOOD (AGRICULTURE)

COMMENTS: This field study was conducted to find out what makes farmers enter commercial production of their own accord. Buganda, however, is a region with special historical significance in Uganda and the colonial

tenure arrangements of individual holdings was conducive to the adoption of cash crops by African farmers. The mailo system set the stage for land ownership representing a source of political power and prestige. This region is a fertile zone; during the period of British introduction of cash there were large areas of potentially cultivable land. The virtual absence of European settlement, the location of the railway, availability of immigrant labor and the post WWII boom in the prices of primary products all led to the leading position of this area in Uganda in cash crop production. The characteristic type of innovator was found to be the farmer who acquired capital for agricultural ventures from trade or urban occupations, government ministers or officials.

Rukuba, M.L.S.B. 1972. "Forestry in Uganda" in East Africa: Its People and Resources, 2nd edition, edited by W.T.W. Morgan, pp. 221-228. Nairobi: Oxford University Press.

SCOPE: ENERGY

PURPOSE: Notes that agriculture and energy demands can threaten forests. Uganda government has dictated a minimum area be reserved as forest. This is a review of that area.

RESULTS: Notes that the expansion of timber production to meet future needs is through two mediums; 1. silvicultural treatment of the natural forest; 2. creation of plantations.

CONCLUSIONS: The cost to expand timber reserves is low compared to the cost necessary to establish timber plantations. But plantation acreage is likely to increase. Regular patrolling to reduce forestry crimes is necessary. Forestry education of the public (to combat opposition to forestry) is very good.

DATA: Figures on current wood consumption and estimated wood consumption.

Rutishauser, I.H.E. 1974. Factors Affecting the Intake of Energy and Protein by Ugandan Preschool Children. Ecology of Food and Nutrition 3: 213-22.

SCOPE: POPULATION (HEALTH)

PURPOSE: To characterize a child's environment - diet, illness and socioeconomic conditions-in an attempt to define more precisely the factors that cause Kwashikor.

RESULTS: Recommended levels of energy and protein were not attained after the first three months of age.

CONCLUSIONS: Some factors affecting levels of intake: 1. poor appetite; 2. low energy concentration in the diet; 3. infrequency of meals; 4. small amount of food offered to children.

DATA: Intake of 45 children measured by recall on one day each month. Time period for measuring: six months to three years. Children were attending child welfare clinic at Medical.

COMMENTS: Very complete, thorough data. Could be useful in other studies. Does not report any data on disease although authors purport to be considering its effect on the nutrition levels of the children. Authors had some common types of food from which the mothers could point out what they had fed their children the previous day. Is this method really fair? Because the data was based on recall and not measured at the actual mealtime, the method has to be considered somewhat unreliable (especially when measuring amounts of food).

Scherer, Friede. 1969. The Development of Smallholder Vegetable Production in Kigezi Uganda. IFO-Forschungsberichte der Afrika - Studienstelle 23. Munich: Weltforum Verlag.

SCOPE: FOOD

PURPOSE: Assessment of vegetable market production at Kigezi, Uganda.

RESULTS: Good description of habitat; land tenure; history of agriculture (brief) in area. Data on most aspects of economics of vegetable production. Discusses problems of supply because of Kenya vegetable production; describes infrastructure of growers association - 7 cooperative system workers - as demand/price stabilized and increased production. Discussion ranges from planting technology to cooperative infrastructure to input/output data to national and international constraints. Kigezi scheme one of most successful in Africa.

CONCLUSIONS: Smallholder production of vegetables for urban market is possible but must fit into existing structure of agriculture. However, market tends to have inelastic demand so that further output only with processing facilities. Smallholder will respond to market and new situation if secure of circumstances; these psychological preconditions supercede mere technological factor. Cooperatives are competitive.

DATA: Mostly U.S. Government District files - but also own data. Data are for mid 60's.

COMMENTS: Good data base; well integrated; use as example of agricultural schemes-low profile-that have worked.

Scovill, M., and Due, J.M. 1977. The Rural Urban Income Profile of Uganda. Illinois Agricultural Economics 7(2): 28-33.

SCOPE: POPULATION

COMMENTS: The current concern of development economists include the rate of rural-to-urban migration in Africa, which is occurring in spite of limited urban employment opportunities. Research indicates that the expectation of higher incomes is an important factor in the migration decision. Lacking family income data for Uganda, the authors used graduated personal tax data to estimate rural and urban incomes by districts for 1972. The average urban incomes thus estimated were five times the average rural incomes. The ratios for Tanzania and Zambia were 6 to 1, and 4 to 1, respectively. Given such rural-urban disparities, one would expect migration to accelerate in the next decade unless positive steps are taken to improve rural living conditions.

SOURCE: CS AGRICOLA

Tinditua, R., Kateete, L. 1971. Essays on Land Fragmentation in Kigezi District. Makerere University, Department of Geography. Occasional Paper no. 22. Kampala: Makerere University.

SCOPE: POPULATION (LAND)

COMMENTS: Kigezi District is the most densely populated district in Uganda and this has resulted in a degradation of the environment (erosion on steep slopes, land stripped of vegetation from the excessive collection of firewood and overgrazing) from the reduction of the fallow period in the farming cycle, and increased intercropping. Land use maps of the different ecological zones clarify the analysis of the population in relation to the cultivable land with a sample survey. The acute land shortage has been further aggravated from the tradition of land inheritance and natural

increase fragmenting the plots further. The suggested solutions are emigration, land consolidation, planned agriculture and family planning. There has been some resettlement in the northern part of the district but the trend has been migration, to the lake districts, of young men who leave their inherited land to their wives for cultivating food crops but depriving the district of its most able-bodied men.

Tindimwebwa, D. 1972. Diffusion of Cattle Farming in Igara County West Ankole. Makerere University, Department of Geography. Occasional Paper no. 45. Kampala: Makerere University.

SCOPE: FOOD

COMMENTS: The original uneven cattle distribution in this district is changing where 75% of the cows were in four countries and the other six had more scattered populations. Exotic cattle have been introduced and pastoralism organized, but because of transportation difficulties milk production levels have fluctuated. Maps included are of the distribution of adopters of five cattle farming innovations, cattle spray, barbed wire fencing, exotic cows, cattle feeds and artificial insemination. Cattle spraying has been met with complete acceptance, with no systematic spread from one single center. For the other innovations adoption has been highest around the centers of innovation; literate farmers have been more acceptant, along with the sole cattle keepers and those with ranches along transportation routes. This article is a good analysis of the mechanics of diffusion and how it fits into the modernization process as part of the diversification movement in agriculture in Uganda.

Will, A.G.K. 1972. Performance of a Small Vegetable Garden in Uganda. East African Agricultural and Forestry Journal 38(1): 8-15.

SCOPE: FOOD (SMALL PLOT PRODUCTION)

PURPOSE: The study revolved around the operation of a garden. The garden was small and intensively cultivated. The cultivators were trying to find out the practical problems which were likely to arise in a situation such as the one created (intensive cultivation of a small garden).

RESULTS: (p. 11) "It was found that the practices of growing in soil-blocks ensured strong, healthy, well established plants free from nematodes and which suffered no transplanting checks." "The most satisfactory waste material was well rotted down coffee cherry skins, combined with composted garden refuse" (p. 12) "general fertility showed a sharp decline in the second and third years of the rotation." There was an increase in soil activity.

CONCLUSIONS: The necessity for irrigation was clear; it made the difference for the plants of merely surviving or experiencing healthy growth. The net profit of the garden was insufficient to support a family and so is recommended as a supplementary income activity only. In view of the cost of irrigation, the minimal plot size should be 2 hectares, allowing for 1-1/4 ha. to be under cultivation in a rotation system. All year production can be achieved through the use of irrigation. Swampy valleys can be cultivated - but the slopes of the valley are best. Main disadvantage of swamp location is the mists which make fungus disease control difficult.

DATA: "Compiled from the records of a small overhead sprinkler irrigated vegetable garden which was operated continuously for the five years, 1965-1969 inclusive, at Kawanda Research Station, Uganda." Tables include

meteorological data, soil analysis data and cost data.

Wrigley, C.C. 1970. Crops and Wealth in Uganda: A Short Agrarian History.  
Nairobi: Oxford University Press.

SCOPE: FOOD

PURPOSE: To review the growth of the export-crop economy in Uganda.

RESULTS: Notes existence of reliable precipitation. Notes outstanding agricultural advantages of the western spurs of Mount Elgon. Page 8 - states that women were the majority of the agricultural labor force. There was a decision (after World War II) that agriculture alone would not be sufficient to bring about rapid economic growth. "The hope for rapid economic progress now rested largely on the development of mining and secondary industry" (p. 68). But wealth came into Uganda not from large agricultural establishments nor from mining or manufacturing, but from old-established export industries "and in the main from the efforts of the African Peasant" (p. 68). There has always been a dichotomy between European (large) agriculture and African (small) agriculture -- but this isn't true anymore.

CONCLUSIONS: "There are two relatively small areas, in the far north-east and in the southwest, midway between Lake Victoria and the Western frontier, in which cultivation is a precarious and not very rewarding activity and in which the emphasis is necessarily placed on the keeping of stock. Everywhere else, except in the hot and arid Rift Valley, agriculture is reasonably productive and secure" (p. 3). "The main force of criticism, however, has been directed against the use of marketing-board surpluses to finance development" (p. 71). "In Uganda, straight forward export taxes have progressively replaced marketing profits as the instrument of extraction" (p. 71). "Uganda agriculture has been, at best, making time, and that any improvement which has occurred in the country's economic situation since the 1930's has been due solely to the fortuitous rise in export values" (p.73). There is an increased level of meat consumption so cattle trade has improved. Authorities are encouraging this development "not only for nutritional reasons but as a means of counteracting the pastoralists' tendency to overload the grazing-grounds with unprofitable beasts" (p. 76.).

There is a trend towards more regional specialization in agricultural production in Uganda.

DATA: Administrative units of Uganda (area, population), Uganda Protectorate Annual Report, Commission of Enquiry, Reports of the Agricultural Productivity Committee, Annual Trade Reports.

COMMENTS: Data is based on 1950-1960 figures. Describes Uganda as "one of the more favored parts of Africa". Some parts of this book are extremely vague. The author mentions (several times) the "winds of change" that are sweeping through Uganda but does not statistically support his statements concerning change.

A D D E N D U M

Anderson, G.W. 1972. Agriculture and Land Tenure in Uganda in East Africa its People and Resources 2nd ed. edited by W.T.W. Morgan, pp. 199-207. Nairobi: Oxford University Press.

SCOPE: FOOD (LAND TENURE)

PURPOSE: General review of the history of land tenure in Uganda, the different settlement schemes, agricultural regions and the agricultural production practices.

RESULTS: Notes power of traditional systems of inheritance and its role in the settlement scheme.

DATA: Government of Uganda statistics: Report of crop yields in 1969 for coffee, tea, cotton sugar and tobacco.

COMMENTS: Good presentation of the settlement scheme which was designed after the eradication of the tsetse fly.

## STUDIES OF COMPARATIVE INTERESTS

Bleiberg, Fanny M.; Abrun, Thierry; Gohman, S., and Gouba, Emile. 1980. Duration of Activities and Energy Expenditure of Female Farmers in Dry and Rainy Seasons in Upper Volta. British Journal of Nutrition 43(1): 71-82.

SCOPE: ENERGY/FOOD - UPPER VOLTA

PURPOSE: Measure energy of female farmers in Mossi plateau of upper Volta.

RESULTS: Mean daily calorie expenditures for dry season = 2320; for wet season = 2390.

CONCLUSIONS: Efforts of wet season cultivation increase energy expenditures and result in more rigorous body demands (eat less work more) - hard work (12 hrs/d) = a negative energy balance during rainy season.

DATA: Physiological data on sample of 12 women and energy output. Also time expenditure data.

COMMENTS: Simple study but good data relative to other surveys.

Iaachaba, F.S. 1980. Agricultural Research Policy in Nigeria. Washington: International Institute for Food Policy Research. Research Report no. 17.

SCOPE: FOOD - NIGERIA

PURPOSE: Identify reasons for ineffective agricultural research.

RESULTS: Reasons for ineffective research: inadequate funding, research staff, research staff instability, lack of materials, equipment and good system for determining results, neglect of irrigation and other inputs.

CONCLUSIONS: Recommendations: joint federal and state funding for agricultural research federal funding for livestock, fish, forest research, new federal initiatives for agricultural systems research, decentralization of program; integration of research organization and universities; greatly increased funding; establish agricultural economics section; national agricultural extension, more staff.

DATA: Niagerian sources, Abstracts on Tropical Agriculture.

COMMENTS: Recommendations for effective agricultural research may be applicable.

Lagemann, Johannes. Traditional African Farming Systems in Eastern Nigeria. IFO-Institut fur Wirtschaftsforschung Munchen, Afrika Studien no. 98. Munich: Weltforum Verlag.

SCOPE: FOOD - NIGERIA

PURPOSE: Examine Boserup's thesis for densely settled small holder areas of eastern Nigeria: test relationship that population density reduces farm size and crop fallow sequences and that without technical innovation outputs declines. - used three village level data sets.

RESULTS:

1. Soil fertility and total crop production hectares farm declines at higher population density. Farmers react by concentrating production in small compounds around houses which get mulch/manure refuse. Compound gardens have highest output. Outfields are followed to retain fallow. But loss of fertility is only slowed.

2. Income from off-farm sources is higher the greater the population density therefore decline in farm income is more than compensated by non-farm benefits.

CONCLUSIONS: Avenues of continuous cropping systems: 1. tree crops on uplands with other crop production - use tree refuse as mulch; 2. rice in valleys - high output and high employment; 3. multi-storey cropping systems.

DATA: Input/output (labor, environment, production) for three villages - appears good.

COMMENTS: Use as baseline study for agricultural component of micro level studies to be done in East Africa - data base and responses found probably not radically different in similar East African environments.

Normin, D.W. 1973. Methodology and Problems of Farm Management Investigations: Experiences From Northern Nigeria. African Rural Employment Study, African Rural Employment Paper no. 3. East Lansing: Michigan State University.

SCOPE: FOOD (FARM MANAGEMENT) - NIGERIA

PURPOSE: Presents rural economy research unit methodology - Ahmadu Bello University.

RESULTS: Discusses indepth field technology used to obtain data on village level, training data collectors, and data problems on collection and analysis. Also provides parameters for various estimates of inputs/outputs and conversing.

CONCLUSIONS: Micro level data over long time periods costly but errors of data are reduced.