

OUT OF PRINT

AN ANNOTATED BIBLIOGRAPHY OF RURAL
DEVELOPMENT IN SENEGAL:
1975-1980

by
Gail Kostinko and Josué Dioné

African Rural Economy Paper No. 23

1980

AFRICAN RURAL ECONOMY PROGRAM

Department of Agricultural Economics
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U.S.A.

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*Published under terms of Alternative Rural Development Strategies Cooperative Agreement AID/ta-CA-3 at Michigan State University funded by the Agency for International Development.

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PREFACE

This bibliography cites a selection of publications on agriculture and rural development in Senegal from 1975 thru February, 1980. Since this bibliography was compiled in the U.S. some of the publications of the Government of Senegal were unavailable for examination. The two major bibliographic sources for government publications and publications of research institutes are the Senegal National Bibliography and the National Scientific and Technical Documentation Center Index.

The geographic area covered by the literature search was restricted to publications which specifically dealt with Senegal. This means that publications treating the Sahelian region in general are not cited here unless specific chapters or sections are devoted to Senegal. The Sahel regional materials are already covered by several reference periodicals, most notably, THE SAHEL BIBLIOGRAPHIC BULLETIN (MSU), SAHEL DOCUMENTATIE (Royal Tropical Institute), and ELEMENTS FOR A BIBLIOGRAPHY OF THE SAHEL DROUGHT (OECD Development Center).

We wish to extend a special note of thanks for suggestions and cooperation to: Joe Lauer and Jim Bingen (MSU); Dan Matthews (African Bibliographic Center); Joanne Zellers (Library of Congress); Sarah Lynch and Cathy Jabara (USDA); Susan Weintraub, Phil Steffen, Karen Reed and Kay Raider (USAID); Susan Hodges (IDRC); Thomas Battle (Howard University).

I. RURAL DEVELOPMENT IN HISTORICAL PERSPECTIVE

1. Barker, Jonathan. "Stability and stagnation: the state in Senegal," Canadian Journal of African Studies, 11(1) 1977, pp. 23-42.

Author sets forth the thesis that Senegal's "political stability in the context of economic stagnation" is maintained by the way political energies are controlled and channelled in rural Senegal. Presents an analysis of rural underdevelopment in the colonial period and the politics of rural reform in the post-colonial period. Change in the rural area is seen as a function of taxation and growing tension between the state organizations and the peasantry.

2. Behrman, Lucy Creevy. "Muslim politics and development in Senegal," Journal of Modern African Studies, 15(2) June 1977, pp. 261-277.

Reassessment of the influence of the Muslim brotherhoods on politics in Senegal, from the perspective of the development process. Looks at the fall in groundnut production, the basis of the political and economic power of the marabouts. The marabouts' resistance to certain development programs, specifically health programs, leads the author to conclude that "modernization" has been slowed in those areas where the religious leaders are strongest. Since 1960, the position of the marabout as the intermediary between political leaders and the rural communities remains fundamentally the same.

3. Gastellu, J.M. "L'Absence de différenciation économique en pays Sérér." In: Essais sur la Production de Formations Sociales Dominées, pp. 25-38. Paris: O.R.S.T.O.M., 1977 (Travaux et Documents No. 64).

Examination of the extension of groundnut cultivation into the Serer of Baol area at the beginning of the century. The cultivation of groundnuts integrated the region into the global economy, but it has not resulted in economic differentiation within the area because the ecology of the region, the internal organization of Serer society and the history of the contacts with the outside world.

4. Hadj, A. Les Innovations Agricoles et les Problèmes Démographiques dans le sud Saloum: Etude de cas dans la Communauté Rurale de Keur Saloum Diane. Dakar: IDEP, 1977, 50 p.

This study attempts to relate changes in land use and production systems to social change among the communities

involved. Particular reference is made to the village of Keur Saloum Diane in the South Saloum Region, where agricultural modernization has widened the gap between wealthy and poor peasants.

5. Karp, M. "The protestant ethic of Mourids in Senegal." In: African Dimensions: Essays in Honor of William O. Brown, pp. 197-213. Boston: Boston University, African Studies Center, 1975.

Examination of the Mourid principles of diligent work, saving and investment, examines the origin and growth of the brotherhood and the economic basis for participation in politics.

6. Lacombe, B. Société et Environnement: Des Rapports Non-figés: L'exemple du Bas-Saloum (Sénégal). Dakar: E.N.D.A., May 1976, 15 p. (African Environment Supplement, Occasional paper No. 4).

An analysis of the complex and close relationships between man, society and the environment in the Lower-Saloum region in the Groundnut Basin. The gradual deforestation of the region is largely attributed to the extension of the market economy through groundnut production. The colonial system favor migration and settlement in the area. The author identifies various factors which have favored rapid population growth in the zone and induced changes in people's notions of religion and ethnicity.

7. O'Brien, Donal B. Saints and Politicians: Essays in the Organization of a Senegalese Peasant Society. London: Cambridge University Press, 1975, 213 p.

Series of essays about the changes in Wolof society brought about by colonial rule and an interpretation of the present status of peasants, taking into account the commercial market and the state structure. The "saints" of this analysis are the leaders of the three major Muslim orders which claim allegiance among the Wolof; the "politicians" include other religious leaders, village leaders, bureaucrats, traders and elected officials. A central theme is the importance of the various intermediaries who stand between the bureaucratic state and the Wolof peasants.

8. Roch, Jean. "La richesse paysanne en bassin arachidier sénégalais: inventaires et essai d'évaluation des biens familiaux," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 13(4) 1976, pp. 383-407.

An attempt to determine the material condition of three groundnut farmers in Darou Rahmane II after a century of marketing.

9. Sall, Alioune. Transformations Sociales dans une Banlieue Maraîchère: L'exemple de Mbidieum. Dakar: E.N.D.A., December 1977, 41 p. (African Environment Supplement, Occasional paper No. 77-21).

Analyzes the social transformations resulting from the introduction of truck (vegetable) farming in the village of Mbidieum (Region of Thies) since 1945. Argues that the introduction of vegetable cropping has destroyed the traditional land tenure system based on family relationships, the community of production formed by the union of family units and reduced livestock production and fishing activities. The author argues that expanded vegetable production has increased the incomes of some farmers.

10. Sow, A. "Evolution du système de production agricole dans la région du Cap-Vert. Essai d'analyse de son degré d'intégration à l'économie urbaine dakaroise," African Administrative Studies (17) 1977, pp. 59-65.

Discusses two opposing views of rural-urban relations: the city as the cause of the underdevelopment in the countryside versus the city as a necessary factor in the countryside's economic development. Arguing that the historical relationship between the rural and urban areas in the development process is consistently ignored, the author discusses the evolution of agricultural production in Cap-Vert and demonstrates the linkages between Dakar and Cap-Vert at each stage of evolution.

11. Venema, L.B. The Wolof of Saloum: Social Structures and Rural Development in Senegal. Wageningen: Centre for Agricultural Publishing and Documentation, 1978, 228 p.

Examination of the factors which have induced change in rural social stratification, cooperation and cohesion, and the significance of these changes for rural development administration. Based on a literature review and field study, the paper analyzes the impact of the Islamic reform movement, colonialism, the expansion of groundnuts as a cash crop and the post World War I acquisition of wealth by former slaves. The author suggests that incorporation into money-economy and the application of Islamic law has led to the establishment of separate households. Some development schemes have not taken sufficient account of this process of fragmentation and the local power networks and cultural patterns. Study concludes that development innovations did not decrease indebtedness or the difference in wealth among the villages.

II. ECONOMIC POLICY, PLANNING AND TRADE

A. Development Policy and Planning

12. Amin, Samir; M. Franco; S. Sow, eds. La Planification du Sous - Développement. Paris: Editions Anthropos-I.D.E.P., 1975.

Critique of the techniques used in project analysis followed by a discussion of how these methods may lead to inappropriate projects, from the point of view of the local population, in the Senegal River Valley.

13. Bloch, Peter C. Labor Relations in Senegal: History, Institutions and Perspectives. Ann Arbor, Mi.: University of Michigan, Center for Research on Economic Development, January 1978, 41 p. (CRED Discussion Paper No. 72).

Reviews the system of labor law in Senegal, including the provisions of the Labor Code under the French rule, the development of trade unionism, structure and function of trade unions, trade union law, the role of trade union in the political system and the role of government in labor relations.

14. Burisch, Michael. Der Wirtschaftsraum Senegambien. Hamburg: Institut fur Afrika-Kunde, 1976, 79 p.; bibl.

A general survey of the major sectors of the economy and the aims and perspectives of the development policies adopted by the Senegalese and Gambian governments, with a comparison of the two. The author concludes that the periodically discussed, albeit unpopular, notion of integrating the two countries into one state would make little economic difference, but points to areas where both countries would stand to benefit from increased cooperation.

15. CILSS; Club du Sahel. Mission d'Identification des Besoins Sahéliens en Matière d'élaboration, Gestion, Suivi des Projets de Première Génération. Document de Travail No. 8 Sénégal. Ouagadougou/Paris: CILSS/Club du Sahel, November 1978.

Report presented to the Third Conference of the Club du Sahel, held in Amsterdam in November 1978. Report focuses on needs in the areas of project design, management, follow-up and evaluation; attempts to define the means necessary to improve project planning and programming within the context of the national development plan, and recommends appropriate policy and action measures.

16. Experience Inc. Casamance Regional Development Project Design Studies. Washington, D.C.: Experience Inc., 1976 (Report prepared for USAID).

Objective of studies was to provide the preliminary engineering and sociological analysis necessary to design a multi-faceted agricultural development project for the Casamance. Studies include: "Maize in the Casamance"; "Feasibility of Managing Water and Soil Resources to Increase Agricultural Production"; "Water Resources Report"; "Etude de pre-investissement pistes de désenclavement"; "Social Soundness Analysis: Small Farmer Credit and Agricultural Development in the Casamance."

17. France. Ministère de la Coopération, Service des Etudes Economiques et Questions Internationales. Sénégal - Janvier 1978 - Analyse et Conjoncture. Paris: Ministère de la Coopération, 1978, 107 p. + annexes (90 p.).

Critical economic review covering the primary sector (agriculture, fishing, livestock), industry, mining, energy, infrastructure, commerce, finance, debt; the human resources section covers population, migration, employment (including rural employment) education and training, and health. A critical analysis of the Fifth National Development Plan (1977-1981) is presented.

18. Gautron, J.C. "Les entreprises publiques, acteur et indicateur du changement social," Revue Francaise d'Etudes Politiques Africaines, (158) February 1979, pp. 43-63.

Reviews the historical and ideological background and development of public enterprise in Senegal. Limitations imposed by personnel and financial constraints on the development of public enterprises are discussed.

19. Henry, P.; M. Griffon. Methodology of Monitoring Rural Development Projects. Comparison of Various Monitoring Systems Used in Senegal by Regional Development Corporations. Rome: FAO, February 1978, 27 p. (FAO access No. 38557).

Paper presented by the Policy Analysis Division of FAO to the "Near East Workshop on Agricultural Investment Projects," Rome, 9 January 1978.

20. Horenstein, Nadine. "Senegal". In: Comparative Analysis of National Plans and Budgets of the Sahelian Countries, pp. 133-158. Washington, D.C.: BLK Group, December 1979 (Report prepared for USAID).

Examination of the Fifth Development Plan (1977-1981) with general observations on the previous plan which covered the period

1973-1977. Detailed breakdown of rural sector investments is presented. Cites attempt of the Fifth Plan to move away from concentration on urban areas into rural development sectors. National budget priorities as well as levels of financing and actual investment to date are analyzed. Evaluates the Fifth Plan vis-a-vis compatibility with USAID policy objectives.

21. Lecaillon, J.; D. Germidis. Inégalités des Revenus et Développement Economique: Cameroun, Côte d'Ivoire, Madagascar, Sénégal. Paris: Presses Universitaires de France, 1977, 236 p.; tables.

This study was prepared for ILO's World Employment Program; the section on Senegal examines the disparities between rural and urban workers' salaries, agricultural income, socio-professional differences, and a breakdown by sector, region and nationality.

22. Sénégal. Ministère du Développement Rural. Rapport de la Conférence Mondiale sur la Réforme Agraire et le Développement Rural. Contribution de la République du Sénégal. Rome: FAO, 1978, 297 p. (FAO access No. 38050).

Report presented to the World Conference on Agrarian Reform and Rural Development, held in Rome in July 1979. Information is given on resources, rural population, land tenure, potential production, education, social conditions, government policy and programs for agrarian reform and rural development. Describes measures taken with regard to education, training, agricultural development and the role of women. Annexes cover land legislation relating to rural communities and information on land settlement projects.

23. Sénégal. Ministère du Plan et de la Coopération. V^e Plan Quadriennal de Développement Economique et Social 1977-1981. Dakar: Ministère du Plan, June 1977, 3v.

Volume 1, "Evolution et Perspectives Economiques," covers population and employment; economic evolution; execution of the 4th Plan; the elaboration and execution of the 5th Plan; development strategy of the 5th Plan; the major thrusts and global objectives of the 5th Plan. Volume 2, "Les Secteurs: Primaire, Secondaire," presents primary sector activities planned for agriculture, livestock, forestry, environmental protection, fishing and rural water supplies; and for secondary sector activities in handicrafts, industry and energy. Volume 3, "Les Secteurs: Tertiaire, Social, Etudes et Recherches; Schema Général de Financement," details plan for trade, tourism, transport and telecommunications; urbanism, habitat, health, education, culture and information. In April 1979 the Ministry issued V^e Plan Reajuste. Tome I; periodical reports of the progress of the Plan appear in Bulletin Semestriel de l'information sur l'exécution du Plan, also issued by the Ministry.

24. Sine, Babakar. "Classes et forces sociales face au développement: l'exemple du Sénégal." In: Imperialisme et Théories Sociologiques du Développement by Babakar Sine, pp. 335-382. Paris: Editions Anthropos-I.D.E.P., 1975

A critical analysis of the Senegalese middle-class in the development process, some successes and failures of working class movements and its overall separation from the rural population.

25. Thomas, Louis-Vincent, ed. Prospective du Développement en Afrique Noire un Scénario: Le Sénégal. Brussels: Editions Complexe, 1978, 186 p.; bibl.

A series of essays on development in Senegal which covers the following topics: ideology and development, with attention to Mouridism, socialism and Marxism in Senegal; data bases and development models, an evaluation of research on national development planning; problems of unequal development, water management and pastoral programs; remote sensing applications to resource inventories and new land searches. An annex of extensive economic data is also included.

26. U.N. Sahelian Office; CILSS. Inventaire des Points d'Eau et des Barrages. Projet du Comité Inter-Etats de Lutte Contre la Sécheresse dans le Sahel Concernant les 8 Pays Membres. Rapport et Proposition de Projet Concernant la République du Sénégal. New York: UNSO, May - June 1976, 14 p. + annexes.

Report on project aimed at identifying water resources and local water supply needs, the factors affecting these needs, management of the existing supply and definition of future hydraulic equipment programs. Discusses Senegal's hydrogeologic service which proposes to collect baseline data necessary for study and management of ground water supplies; with personnel and resource requirements of the service necessary for execution of immediate tasks and future programming.

B. Public Finance

27. Dieng, Amady Aly. "L'accumulation du capital et la répartition des revenus au Sénégal," Présence Africaine(93) First Quarter, 1975, pp. 25-57.

Article examines the export of capital from Senegal and recommends actions to mobilize local savings for productive operations which address the unemployment problem.

28. Fourrier, Charles. Finances Publiques du Sénégal. Paris: Editions A. Pedone, 1975, 395 p.

An analysis of public finance in Senegal.

29. Roch, J.; Guy Rocheteau. "Le Rôle de l'état dans le Contrôle du Crédit au Sénégal," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(3) 1975, pp. 221-234.

Examines the 1962-1973 period during which the first treaty of the Union Monétaire Ouest-Africaine was in effect. Concludes with an examination of institutional changes and new conditions for state intervention introduced by the second UMDA treaty.

C. Consumption

30. Sénégal. Direction de la Statistique. Enquête Expérimentale: Budget et Consommation des Ménages, 1973-1975. Volume 1: Méthodologie, Instructions et Questionnaires. Dakar: Direction de la Statistique, December 1976, 211 p.

Presents the methodology of an experimental survey on household budget and consumption for the 1973-1975 period. This multi-purpose survey was designed to integrate demographic, nutritional, and agricultural surveys which are usually studied independently. Another objective is to test methods of data collection. A purposive sampling method was used because of the multiple objectives and financial constraints. The document describes the sample selection procedures as well as other technical aspects. Copies of the questionnaires are included.

31. Sénégal. Direction de la Statistique. Enquête Expérimentale: Budget et Consommation des Ménages. Volume 2: Résultats. Tome 1: Série Démographique. Dakar: Direction de la Statistique, June 1978, 71 p.

An experimental survey of household budgets and consumption (1973-1975). Overview of the methodology and socio-demographic characteristics found in the survey. Notes that most families range from 10 to 19 persons, with agriculture as the main activity in almost 60% of the cases. Most chiefs of families engage in more than one economic activity. Other characteristics include number of active workers per household, distribution of households by caste and by social function, and the number of spouses. Statistical data are presented in an appendix.

III. DEVELOPMENT ASSISTANCE

32. Belgium. Administration Générale de la Coopération au Développement. Belgen in Sénégal. Brussels: Administration Générale de la Coopération, 1976, 64 p.

Description of Belgium's assistance program and development projects.

33. CILSS, Club du Sahel. "Sectoral analyses of ODA Commitments for each Sahelian country: Senegal." In: Official Development Assistance to CILSS Member Countries From 1975 to 1978. Volume I: Analysis and Synthesis (Preliminary Report): pp. 209-211. Paris: Club du Sahel, October 1979.

Statement of assistance in non-project aid, rural development sector (26% of all commitments in 1975-78), human resources, economic infrastructure, natural resources, industry and tourism with a summary of main projects in the rural development sector. Forthcoming Volume II Annex A of this report will list all projects for Senegal by sector. [Note: a preliminary version was issued in December 1979 under the title STATUS OF FIRST GENERATION PROJECTS, in which Senegal projects are listed by sector on p. 75 through 87.] Volume I also lists a synthesis page of current socio-economic data for Senegal derived from the CILSS/Club publication on SOCIO-ECONOMIC DATA BOOK FOR THE SAHEL COUNTRIES (PRELIMINARY REPORT), (November 1978, 120 p.); this presents data for each country on demography, agriculture, nutrition, health, education, employment, transport, economic accounts, foreign trade, and aid.

34. France, Ministère de la Coopération; Caisse Centrale de Coopération Economique. Contribution à l'Etude des Charges Récurrentes des Projets de Développement Rural: Le cas du Projet Sine-Saloum au Sénégal. Paris: Caisse Centrale de Coopération Economique, October 1978, 43 p.

This recurrent costs study was presented to the Third Conference of the Club du Sahel, held in Amsterdam in November 1978. The case study is an agricultural development scheme in Sine-Saloum managed by SODEVA, which aims at increasing and diversifying production.

35. Garritty, Monique P. Le Coût Récurrent des Projets d'hydraulique Rurale du Sénégal. Rapport Provisoire. Ouagadougou/Paris: CILSS/Club du Sahel, October 1979, 62 p.

One of a series of studies being carried out for the CILSS/Club Recurrent Cost Working Group by the Harvard Institute for International Development. The study aims to: estimate the level of recurrent cost financing necessary to attain the maximum economic benefit from rural water projects; evaluate the economic consequences of under-financing of recurrent costs; examine revenue producing schemes for management and maintenance of the projects and the potential role of foreign assistance in financing recurrent costs.

36. USAID. Development Assistance Program by 1975. Section Three: Senegal, Mali, Mauritania. Annexe A: Senegal. Washington, D.C.: USAID, March 1975, 66 p.

A macro-economic assessment of the agriculture, livestock, education and health sectors in Senegal with attention to development programming, includes suggestions for assistance projects.

IV. RURAL DEVELOPMENT POLICY AND PLANNING

37. Adams, Adrian. "An open letter to a young researcher," African Affairs, 78 (313) October 1979, pp. 451-479.

The "young researcher" in question is a French graduate student conducting research on the Senegal River Basin's development, who seeks out the author to discuss development programs in the region. The student's preconceived notions of the development process prompted this response which chronologically describes the "parade" of European (including North American) researchers and technicians through the region between 1972 and 1977. The impact of researchers, SAED, and development programs on the people of Jamaane are chronicled by the author.

38. Adams, Adrian. "The Senegal River Valley: what kind of change?" Review of African Political Economy (10) September/December 1977, pp. 33-59.

An account of the conflict between the Jamaane village association in the Bakel region and SAED, the state agency responsible for the development of the Senegal River Valley. The conflict is presented in terms of "developpement paysan" versus "Developpement fonctionnaire." The impact of foreign

assistance as attracted by and channeled through SAED, is discussed. The author argues that SAED displayed insensitivity in its dealings with the local population and further views the creation of OMVS as a solidification of SAED's position.

39. Balans, J.L.; C. Coulon; J.M. Gastellu. Autonomie Locale et Intégration Nationale au Sénégal. Paris: Pedone, 1975, 178 p.

A series of three essays on oligarchical power and socio-political changes among the Tukulor of Fouta-Toro; autonomy and modernization among the Niominka; local autonomy and the Sere of Mbayar. For each group the authors examine the concepts of: the institutions and values of central political systems in relation to villagers; political organization of the peripheral sector; projects and programs of the central system designed to affect the political periphery; intermediaries through which these programs reach the peripheral sector; reactions of that sector to the programs and projects, adoption, rejection or transformation.

40. "Bonne perspective malgré les difficultés - interview de M. Medoune Diene, Directeur de la production agricole (Sénégal)," Afrique Agriculture, (37) September 1978, pp. 15-17.

Discussion of grain storage, post-harvest losses, and peasant receptivity to innovations.

41. Bourliand, J.; J.M. Boussard; J. LeBlanc. "La programmation linéaire comme outil descriptif du comportement des paysans africains: une étude pilote au Sénégal," Mondes en Développement (17) 1977, pp. 49-74.

Results of a linear programming model which simulated farmers' behavior in Central Casamance.

42. CILSS/Club du Sahel. La Promotion des Cultures Sèches au Sénégal. Ouagadougou/Paris: CILSS/Club du Sahel, March 1977, 10 p.

Document presented to the CILSS/Club Dryland Agriculture Team at the Second Conference of the Club du Sahel, held in Ottawa in May 1977. Project documents on agricultural research, cereals production, and rural development projects in various regions are included.

43. Coulon, C. "Les marabouts sénégalais et l'Etat," Revue Française d'Etudes Politiques Africaines (158) February 1979, pp. 15-42.

An examination of the alliance between the marabouts and the state authorities.

44. Craven, K.; A.H. Tuluy. "Rice Policy in Senegal." Stanford C.A.: Stanford University Food Research Institute, July 1979, 50 p.; tables (Report prepared for USAID).

Paper analyzes the evolution of the rice sector in Senegal. Describes the historical changes that have influenced rice policy and evaluates the impact of major policies, production investment, input subsidy, producer price, consumer price and trade policies on overall economic objectives. The expansion of domestic rice production is seen as requiring an improvement in production methods and a reduction of marketing, milling and production costs. The study concludes that an expansion of domestic production must be seriously weighed against the alternative of rice imports, and that the Senegalese government might consider policies other than increased rice production in order to reduce rice imports.

45. Decupper, J. "Défonctionnariser l'agriculture sénégalaise," Africa (Dakar) 13(73) January-February 1975, p. 47-57.

Reviews obstacles to agricultural development in Senegal. Author maintains that agricultural administration authorities lack dynamism and suggests that private enterprise be allowed to play a larger role in the agricultural sector.

46. Dieng, A.; Y. Bodian. La Planification Agricole au Sénégal. Rome: FAO, November 1976, 21 p. (FAO access No. 34357).

Report presented at the FAO/NORAD seminar "La Planification Agricole; Analyse Sectorielle et Analyse des Projets pour les pays francophones d'Afrique," Dakar, 29 November 1976. Discusses agrarian structure, the evolution of agricultural production, and the status of agronomic and agricultural research programs.

47. Ecole Nationale d'Economie Appliquée. Aperçu sur les Problèmes du Monde Rural Sénégalais; Contribution à l'analyse des Problèmes de Promotion d'emplois. Dakar: Ecole Nationale d'Economie Appliquée, 1975, 137 p.

Report on trends in rural development and planning in Senegal with emphasis on employment generation. Examines Senegal's strategy for rural employment in the fourth national planning period (1973-1977).

48. FAO Freedom from Hunger/Action for Development. Diourbel: In Pursuit of an Ideal. Planning Development Action with the Participation of Rural Communities in Senegal. Rome: FAO, 1977, 64 p. (FAO access No. 38737).

FFHC/AD study of agricultural and rural planning and an integrated approach to development of the Diourbel Region.

49. FAO. Oilseeds and Vegetable Oils: Review of National Production Policies and Programmes - Senegal. Rome: FAO, February 1975, 4 p. (FAO access No. 28447).

Paper presented to FAO Committee on Commodity Problems, Intergovernmental Group on Oilseeds, Oils and Fats, 9th Session, Rome 26 March 1975. Reviews national policy on pricing and production plans for oilseeds and vegetable oils.

50. FAO. Republic of Senegal: Report of the 1977 Multidonor Mission. Requirements in Staple Foods and Agricultural Inputs for the Agricultural Year 1977-1978. Rome: FAO, November 1977, 15 p. (FAO access No. 38746).

Report on the drought, emergency relief, food aid, food requirements and agricultural inputs. Estimates food balance and food requirements of staple foods for 1977-1978.

51. Fell, A.M. Administrative Reform in Senegal: The Rural Community. Paris: Club du Sahel, July 1978, 11 p.

Describes the organization of rural communities in light of Senegal's administrative reform.

52. Foltz, William J. "Social structure and political behavior of Senegalese elites." In: Friends, Followers and Factions: A Reader in Political Clientelism, ed. by Steffen Schmidt, et. al., pp. 242-248. Berkeley: University of California Press, 1977.

Examines the ways traditional social structures and patterns of behavior influence the contemporary political system. The current political system is seen as a reflection of a transitional society. Author concludes that without major changes in its elitist culture, Senegal will be hard pressed to generate any political and economic development that will not alienate or subjugate the vast majority of its citizens.

53. ISRA. Département d'Economie et Sociologie Rurale. L'approche Socio-économique des Exploitations Agricoles du Sénégal. Dakar: ISRA, October, 1978, 41 p.

First of a series of documents by CNRA researchers. This document presents a set of five articles and a bibliography on rural economy and sociology. The first article by J. Faye discusses an approach to rural development research in Senegal based on a combination of on-station technical research and on-farm research problems at the farm level, using the framework of the "Unités Experimentales." The third abstract by P. Nemus and E. Tchakerian outlines the technico-economic approach to integrating crop and livestock production. In the fourth paper, M. Fall summarizes ISRA's approach to the study of farm economics. Finally, M.B. Cattin discusses management advice to farmers.

54. Jalee, Pierre. "L'exploitation de l'économie sénégalaise." In: Qui est Responsable du Sous - Développement? by Union Générale des Travailleurs Sénégalais en France, pp. 5-12. Paris: Maspéro, 1975.

Discussion of the drought and a general criticism of Senegal's agricultural policy as well as the OMVS development program.

55. Labonne, M.; B. Legagneux. Réflexions sur l'agriculture Sénégalaise: Etude Préalable à une Modélisation. Montpellier: INRA, Novembre 1977, 148 p.

Analyzes the agricultural sector of Senegal, including an assessment of its organization, its place in the economy and the main events in its evolution from 1960 to 1975. The factors explaining the present level of production (land, climate, labor, and limited agricultural policy alternatives) are discussed. Past and present experiences with technology transfer and appropriate technology are discussed. The paper is designed to serve as background information for a regional model and simulation of Senegalese agriculture.

56. Labonne, M; B. Legagneux. Modèle Régionalisé de Simulation de l'agriculture Pluviale Sénégalaise. Montpellier: INRA, October 1978, 59 p.

Presents results of a linear programming model relating units of the production system to agricultural and nutritional policy objectives in Senegal. The construction of the model and its adaptation to regional conditions of Senegalese agriculture are presented. The model is then tested, by using it to simulate

the 1974-75 agricultural campaign. A final step consists of using the model to critically evaluate government objectives for 1980-81 and 1984-85 with respect to the production of the major agricultural commodities. The basic tool of the model is the "module", defined as the area cultivated by a unit of labor within a given land use pattern and a given technical level. After a satisfactory simulation of 1974-75 campaign, the model shows that the 1980-81 and 1984-85 objectives for cereal production are far beyond expectations, and thus predicts that the objective of cereal self-sufficiency by 1985 will not be achieved.

57. Maïga, M. "The policy of rice import substitution: the case of the Senegal River Valley and Delta," Africa Development (IDEP) 1976, pp. 9-22.

Senegal's rice import substitution policy has reduced its dependence on rice from abroad, but has increased its economic, financial and technological dependence on capitalist countries, and the international companies which give loans and control production and marketing of the technology required by the rice growing enterprises in the Senegal River Valley and Delta.

58. O'Brien, R.C., ed. The Political Economy of Underdevelopment: Dependence in Senegal. Beverly Hills/London: Sage Publications, 1979. 277 pp.

A collection of seven papers on the political economy of Senegal, ranging from historical considerations of the pre-colonial and colonial periods to an examination of contemporary problems which are embedded in the structures of the past. The paper by Barry analyzes the subordination of power in the context of the mercantile economy of the Kingdom of Waalo (1600-1831). Klein investigates colonial rule and structural change in the Sine-Saloum Region. R.C. O'Brien analyzes the foreign (French and Lebanese) ascendancy in Senegalese economy, taking into consideration the obstacles to the development of African capitalism during precolonial, colonial, and independence periods, the structure of foreign private investment, and the problems associated with the use of foreign public capital. Gerry concentrates on the nature of Dakar's petty commodity production sector and the mechanisms through which the evolution of this sector is retarded and blocked. McKintosh examines the political economy of industrial wages in Senegal with attention to government-set minimum wages for skilled and unskilled labor, industrial earnings, and forms of unionism in the country. She argues that wages play no dynamic role in the economy, for they are not related to productivity. Le Brun focuses on education and class conflict in colonial and "neo-colonial" Senegal, and concludes that educational reform only reinforces divisions and

the reproduction of capitalist social relations. D.B.C. O'Brien investigates the relations between the ruling class and peasantry in Senegal from 1960 to 1976 through a case study of the politics of a mono-crop economy with emphasis on the power and leadership of the Mouride brotherhood. The last section presents an annotated bibliography on political economy and dependence in Africa by McLelland.

59. Reboul, C. Causes Economiques de la Sécheresse au Sénégal. Systèmes de Culture et Calamités Naturelles. Paris: IRAT 1975, 59 p.

The first part of the paper examines production in the colonial era, particularly groundnut trade by foreign companies. The second part examines the objectives, means and results of agricultural policy since independence. The author concludes that the failure to make peasant farming more diversified was a determining factor in the drought and collapse of agricultural production in 1972 and 1973.

60. Reboul, Claude. "Economie de la production agricole sénégalaise." In: Notre Afrique, by Union Générale des Travailleurs Sénégalais en France, pp. 33-62. Paris: Maspéro, 1978.

In examining the limited number of commercial crops, the author looks at the country's recent agricultural history, including the factors behind the emphasis on groundnuts and cereals.

61. Reboul, Claude. "Economie marchande et systèmes de culture dans les campagnes sénégalaises," Tiers Monde 18(72) October - December 1977, pp. 779-796.

Analysis of agricultural production systems which are seen as manifestations of an economic and social system in which the priority objective is the market economy. The author argues that there has been little coordination of cash crops and the subsistence sector and that, with only a few exceptions, neither has prospered, with inefficient land use for cash crops leading to soil erosion, while the subsistence sector suffers from lack of equipment and resources.

62. Richard, J.F.; M. Fall. Le Modèle "4S": Programme Linéaire pour les Exploitations Agricoles du Sine-Saloum-Sud au Sénégal. Dakar: ISRA, September 1976, 224 p.

Discusses the construction of a linear programming model adapted to the specific conditions of the Sine-Saloum region. The model determines the crop rotation pattern which yields the highest net margin, and measures the impact of new factors of production or price variations on the crop rotation and the net

margin of the peasants. The model is designed for decision-making at the farm-level by development planners and agronomists. The document contains: detailed descriptions of the collection and preparation of the data; a discussion of how the model was constructed and the matrix was built; and the solutions and computer printouts. The solutions of the linear program are then compared with those of a model based on budgeting. Both models converge, and allocate about 60% of the cultivated area to cash crops and 40% to food crops, although there is a divergence on the recommended crop rotations. Also economic results of the two models differ; this difference is attributed to variations in the ways of computing depreciation and labor constraints. A summary version of this paper, titled: Les Méthodes d'analyse Mathématique de Systèmes et Leur Application au Niveau des Exploitations Traditionnelles-Cas du "Modèle 4S" Sénégal, was presented by M. Fall to the CILSS/Club du Sahel colloquium "Integrated Rural Development Projects and Improvement of Agricultural Production Systems," held in Bamako in February 1978.

63. Schumacher, Edward J. Politics, Bureaucracy and Rural Development in Senegal. Berkeley: University of California Press, 1975, 279 p.; bibl.

An analysis of institutional change and policy evolution during Senegal's first decade of independence. Evaluates the character of authority exercised by the national leadership, especially resource constraints and organizational weaknesses within the party and the state bureaucracy, and their influence on the leadership's approach to rural development. The author argues that the approach to rural development has evolved in a subtle but significant manner. Chapters on cooperatives and groundnut marketing and agricultural credit, productivity and development policies, are included.

64. Sène, I. Farmers Behavior Towards Technology: The Senegalese Case. East Lansing, MI: Michigan State University, Department of Agricultural Economics, 1978, 42 p. (Master's Thesis).

An analysis of intermediate technology which is seen as a necessary transitory stage from "traditional" technology to "modern" technology. The author describes the different level of agricultural intensification defined by present agricultural research and extension as well as the social organization of the rural family. He then analyzes various impediments to the adoption of the new "intermediate technology" including equity, methodological, political and psychological concerns. Arguing that the lack of technical structures is a constraint on the adoption of intermediate technology, the author concludes there is a need for a radical change toward the introduction of new technology.

65. Sénégal. Ministère du Développement Rural. Direction des Etudes, des Méthodes et du Plan. Food Investment Strategy 1977-1985. Dakar: February 1977, 54 p.; tables.

Presents proposals for the production, processing and distribution of cereals and cereal products. A food policy centering on cereals is considered the most efficient vehicle to deal with the double problems of improving the nutritional status of the rural population and a reduction of the foreign trade deficit. The centerpiece of this policy consists of an integrated set of actions to expand agricultural production and stimulate the consumption of coarse grains, in conjunction with measures to check the imports of wheat and rice. The document describes the food situation, the Fifth Plan (1977-81), and proposed agricultural policy and production programs for 1981-85.

66. Sénégal. Ministère du Développement Rural. Direction Générale de la Production Agricole. Rapport Annuel: Campagne 1975-76. Dakar: DGPA, 1976, 235 p.

Presents data on Senegalese agriculture in five different categories: (1) the distribution of seeds and the execution of the agricultural program; (2) relationships between rainfall, the beginning of the planting season and the general crop situation; (3) production statistics (acreage, yields and production) for all food crops and cash crops, including fruits and vegetables; (4) marketing information for groundnuts, rice, millet and corn, and (5) regional agencies responsible for the various agricultural development projects.

67. Shaw, Margaret. "Senegal." In: Administrative Structures and Civil Service in the Sahel Countries, pp. 52-63. Washington, D.C., UDAID, March 1979.

Description of national and local government administration and the organization of the civil service in Senegal.

68. SONED. Présentation et Références. Dakar: SONED, July 1978, 40 p.

Discussion of the past and current work of SONED (Société Nouvelle des Etudes de Développement). SONED was created in November 1974, to carry out technical and economic development studies and project evaluations in rural development (agriculture, livestock, fisheries and forestry), industrial and mineral development (industry, energy and mines), infrastructure, civil engineering, urbanism, regional economics, planning and development, and economics and management of firms.

69. Thiam, A. Aziz. "Les Mourides sénégalais: le salut par le travail," Afrique Presse, July 1978, pp. 94-97.

Examines the pivotal role the Mourids play in the economic and political activities of Senegal.

70. USAID. Sahel Development Program Team Evaluation Briefing Data and Issues: Senegal. Washington, D.C.: USAID, October 1977, 63 p.

A review of Club/CILSS goals for Senegal in rainfed and irrigated agriculture and livestock production. Analyzes demand projections and production trends for major food crops, including rice, wheat, millet, sorghum, and maize, for the period of 1980-2000.

71. Valentin, C. "Nationalisation sans nationalisation," Africa (Dakar) 13(76) July-August 1975, pp. 25-27.

Brief review of Senegal's nationalization strategy with particular reference to state participation in mixed enterprises.

V. FOOD, AGRICULTURE AND LIVESTOCK

A. Overview of Agriculture

72. "L'agriculture au Sénégal," Afrique Agriculture, (22) June 1977, pp. 18-63.

Interview with various Ministers and agricultural office directors. Review of the Fourth and Fifth National Development Plans and groundnut production activities.

73. France. Ministère de la Coopération, Service des Etudes Economiques et Questions Internationales. Sénégal - Janvier 1978 - Analyse et Conjoncture. Paris: Ministère de la Coopération, 1978, 107 p. + annexes (90 p.)

Critical economic review covering the primary sector (agriculture, fishing, livestock), industry, mining, energy, infrastructure, commerce, finance, debt; the human resources section covers population, migration, employment (including rural employment), education, training, and health. A critical analysis of the Fifth National Plan (1977-1981) is presented.

74. "L'Industrie Sénégalaise," Marchés Tropicaux et Méditerranéens 34, (1684) 1978, pp. 385-572.

An overview of Senegalese agriculture. Examines the development of different crops including groundnuts, sorghum, rice, fruits, maize, vegetables, cotton, sugar cane, use of fertilizers, improved varieties, application of pesticides, and the use of agricultural implements.

75. Jabara, Cathy J.; Robert L. Thompson. "Agricultural Comparative Advantage under International Price Uncertainty: The Case of Senegal." American Journal of Agricultural Economics 62(2) May 1980, pp. 188-198.

An analysis of the agricultural comparative advantage for a small country under conditions of uncertainty in international trade. A linear programming model shows that under certain conditions, Senegal has a comparative advantage in groundnut production and a comparative disadvantage in cereals production; with uncertainty in international prices and domestic export production, cereals production increases at the expense of groundnuts; with risk in domestic production of import substitutes as well as the other uncertainties specified in the study, the pattern of comparative advantage is not clear, being dependent upon the relative weights associated with various sources of uncertainty. The results indicate that, depending upon the source and degree of uncertainty, a trade strategy of less groundnut specialization and greater cereals self-sufficiency may be superior to free trade.

B. Land Tenure

76. De Weerd, G. "Révolution foncière et structure de base au Sénégal," Africa, Latin America, Asia. (Antwerp) (6) 1979, pp. 1-24.

The article describes customary rights to land, land legislation after independence, land management, and the evolution of land ownership.

77. Faye, J.; M. Niang. "An experiment in agrarian restructuring and Senegalese rural space planning," African Environment, November 1977, pp. 143-153.

Description of a land tenure study undertaken in two of the "Unites Experimentales" in the southern Sine-Saloum region. Purpose of the study was to identify land-tenure constraints on the intensification of cropping, such as fragmentation and dispersion of plots, title disputes, unequal access and the existence of two legal systems: the traditional land tenure system and the land legislation used as a frame of reference by administrative authorities but disputed by the peasants. Article

discusses the operations of land restructuration and consolidation carried out during the three years of the project (1974-1976).

78. Klei, J. van der. "Customary land tenure and land reform: the rise of new inequalities among the Diola of Senegal." In: Stratification and Class Formation, ed. by R. Buijtenhuijs and P. Geschiere, pp. 35-44. Leiden, The Netherlands: Africa-Studiecentrum, 1978 (African Perspectives 1978/2).

Examines the effect of land reforms introduced in 1964, on the Diola of the Basse-Casamance region. Describes the people of the village of Diatock. Analyzes the principles of the Diola land tenure system during the pre-colonial period and changes induced by the market economy during the colonial period. Contrasts the traditional system which provided each household with sufficient land for its own food production, with the state system which is geared to optimal agricultural exploitation. The author sees land reform as a means of furthering the integration of the rural population into the market economy.

79. Niang, Mamadou. "Réflexions sur le régime des terres au Sénégal." Bulletin de L'IFAN (Dakar) 37(1) Serie B, January 1975, pp. 137-153.

An analysis of the land tenure system in Senegal, both in the traditional and contemporary context. An examination of the traditional modes of acquisition, management and allotment is followed by a discussion of the administration of land reform. The author concludes that understanding the sociological milieu will contribute to the success of land reform.

80. Snyder, F.G. "Land law and economic change in rural Senegal: Diola pledge transactions and disputes." In: Social Anthropology and Law, ed. by I. Hammett, pp. 113-157. London: Academic Press, 1977.

An examination of traditional land tenure of the Diola and the social consequences of land reforms.

C. Land Settlement (New Lands Programs)

81. CILSS; Club du Sahel. République du Sénégal: Terres Neuves. Ouagadougou/Paris: CILSS/Club du Sahel, March 1977, 10 p.

Report presented to the Dryland Agriculture Team at the Second Conference of the Club du Sahel, held in Ottawa in May 1977. The activities of the state organization 'Société des Terres Neuves' created in 1972 are described with emphasis on soil and environmental protection, sociological questions, specific

local operations, integrated rural development strategy and migration policy.

82. CILSS; Club du Sahel. "La Société des Terres Neuves (STN), Sénégal." In: La Mise en Valeur des Terres Neuves au Sahel; Synthèse du Séminaire de Ouagadougou; pp. 67-74. Paris: Club du Sahel, 1979.

Report on the problems and experiences of the STN.

83. DuBois, J.P. "Les Sérér et la question des terres neuves au Sénégal," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(1) 1975, pp. 81-120.

An examination of the Serer district which has the highest rural population density in Senegal but modest outmigration. Describes government efforts in guided and organized migration in the area, as well as programs to intensify and diversify crop production in the settlement area of eastern Senegal.

84. DuBois, J.P.; P. Milleville. Opération Terres Neuves: Projet Pilote Koumpentoum-Maka. Etude d'accompagnement; Rapport de fin de Campagne 1974-1975. Vol. 1. Dakar: ORSTOM, July 1975, 107 p.

First volume in a series of three, evaluating the third year of the New Lands Settlement project in eastern Senegal. Progress of the project (settlement, infrastructure, demography, extension and credit, etc.) and the results of the 1974-75 agricultural campaign for both settlement villages and original villages in the region. Economic results for the year are remarkably good with an increase in the area cultivated per capita. On the other hand, this increase in area raised the question of where to find additional land and suggests the need for a rather intensive farming system in the new area. Also a cereal market is considered a prerequisite to intensifying production systems.

85. DuBois, J.P.; P. Milleville; P. Trincas. Opération Terres Neuves: Projet Pilote Koumpentoum-Maka; Etude d'accompagnement. Rapport de Synthèse. Dakar: O.R.S.T.O.M., March 1976, 59 p.

Attempts to assess the first three years of a settlement project in eastern Senegal, designed to reduce the population pressure in the Groundnut Basin. The objectives of the project are outlined, followed by a description of the project zone, the execution of the settlement program, the characteristics of the migrants, the demographic situation of the new villages as well as the development of the new lands. Finally, agricultural and economic results and social relations are assessed for 1972-1975. The objective in terms of number of settlers was achieved and the economic incentives were high enough to retain all the new settlers in their new environment, also there has been no major

conflict between new settlers and original farmers of the region. But farmers participating in the project tend to develop a mentality of socially assisted people, due to the externally administered character of the program.

86. Hunter, John M. "Senegal." In: Search Areas for New Lands in the Sahel Part 6. Ouagadougou/Paris: CILSS/Club du Sahel, November 1977.

This document is a companion piece to the CILSS/Club 1977 New Land Report and it includes a series of detailed maps of new land areas in Senegal. The text presents the researcher's observations, description of findings and recommendations, with a tabular presentation of data which corresponds to the 12 maps done for Senegal.

87. Rocheteau, G. "Pionniers mourides au Sénégal - colonisation des terres neuves et transformation d'une économie paysanne," Cahiers O.R.S.-T.O.M. (Série Sciences Humaines) 12(1) 1975, pp. 19-53.

Article addresses the issue of whether the current Mouride farming system, will lead to the emergence of a more open type of economy and a more progressive type of agriculture. The author deals with the comparative balance sheet of the different systems of peasant economy in the area and the new land zones. At the village level, the author observes that differential access to new settlements and economic dependence leads to changes in economic stratification. At the farm level changes are observed in the conditions of agricultural production and in social relationships.

88. Trincaz, P. Opération Terres Neuves: Projet Pilote Koumpentoum-Maka. Etude d'accompagnement. Rapport de fin de Campagne 1974-1975. Vol. 2. Dakar: ORSTOM, July 1975, 72 p.

Second of three volumes evaluating the New Lands Settlement project in eastern Senegal. Concentrates on the migration process and a sociological study of the New Lands villages. Socio-economic factors which constitute incentives to migrate from the region of the Sine include high population density, low fertility, level of land and low and irregular rainfall. Migration patterns follow family and ethnic links. From an economic point of view the operation is seen as a success at least in the short term. But, there still remains the problem of providing the new migrants with an adequate water supply system, schooling and medical service.

D. Agricultural Production

89. Barnett, Doug. A Study of Farmers' Goals and Objectives and their Effects on the Cultivation of Crops in Sine-Saloum, Senegal. West Lafayette, Indiana: Purdue University, 1979 (Master's thesis).

Development of linear programming model of farmers in the Sine-Saloum region.

90. Boisclair, P.A. "Sénégal: les jardins communautaires de Podor; pour l'autosuffisance alimentaire," : Escargot (Montreal) 2(3) May 1976, p. 4-5.

Brief description of a project to introduce vegetable crop cultivation in 25 villages in the Podor Region.

91. Copans, Jean. "La sécheresse en pays Mouride (Sénégal); explications et réactions idéologiques paysannes." In: Sécheresses et Famines du Sahel. Tome II: Paysans et Nomades, pp. 102-119. Paris: Maspéro, 1975.

Description of peasant reaction to the drought, with an analysis of the ideological basis of the Mourid brotherhoods and the marabouts' strategy of reciprocity in aid which maintains the dependent relationship with their followers.

92. Couty, P.H. Emploi du temps et Organisation du Travail Agricole dans un Village Wolof Mouride: Darou Rahmane II. Paris: O.R.S.T.O.M., 1977.

The village studied has little socio-economic differentiation and is almost entirely dependent on groundnut cultivation. Because of the dense population, irregular rainfall, poor soil and lack of new land for cultivation, the food supply is inadequate; this has induced an increase in millet production at the expense of groundnut cultivation. Labor data were collected from four representative households for more than a year. The division of work between men and women is presented. Discusses the reciprocal obligation involved in cooperative agriculture.

93. Delvaque, J. Etude Economique des Productions de Légumes Frais, au Sénégal. Dakar: Ministère du Développement Rural, 1975, 43 p.

This study analyzes both national and international markets for vegetables. The author notes that although exports, have increased dramatically since 1972, when a foreign company started to produce vegetables on a plantation scale, future expansion of exports is limited by a shortage of sea transport. Attention is given to increasing fresh vegetable production through better organization, packaging, quality control and judicious varietal selection.

94. Dioné, Josué. Les Conditions du Développement des Céréales sur L'unité Expérimentale de Thyssé - Kaymor de 1969 a 1975. Bambey: CNRA/ISRA, December 1975, 39 p.

The Experimental Units (Unités Expérimentales) are selected villages where the National Agricultural Research Center (CNRA) seeks to translate research recommendations from the research stations to the peasants' field. The main objective of the project is to search for practical solutions to farmers' problems. This report summarizes information which the author collected on the Experimental Unit of Thyssé - Kaymor, particularly the food grain situation from 1969 to 1975. Information is included on area, yield, production by commodity, on-farm storage, processing, marketing and consumption of food grains. It is proposed that the cooperative, which has succeeded in buying grain surpluses, be granted the right to organize the resale of cereals to the needy families. It is suggested that a major constraint on future expansion of grain production beyond families' own requirements arises from the farmers' interest in groundnut cultivation which is more profitable at prevailing government-fixed prices.

95. Dioné, Josué. Résorption du Déficit Céréaliier du Sénégal: Voies et Moyens. Québec: Université Laval, Dept. d'Economie Rurale, 1977, 302 p. (Master's Thesis).

Analysis of food grain deficit which notes that despite the Government's repeated intervention to make food self-sufficiency a number one objective, food grain imports have expanded at an annual rate of 4.85% during the country's first fourteen years of independence. A comprehensive analysis of the objectives, concrete actions and results of the first four-year development plan of Senegal, show that little, if anything was done to foster the production of cereals. Almost all investments in grain production were absorbed in rather unproductive irrigation schemes. The author argues for the development of an efficient marketing system, incentive prices for farmers, and the upgrading of traditional techniques rather than costly and hasty implementation of capital intensive systems of production.

96. FAO. Etude de Cas: Projet de Développement Rizicole en Casamance (Sénégal). Rome: FAO, January 1977, various paging (FAO access No. 34338).

Paper presented at the FAO/NORAD seminar on La Planification Agricole; Analyse Sectorielle et Analyse des Projets pour les Pays Francophone d'Afrique; Dakar, 29 November 1976. Analysis of the Casamance rice development project, including land tenure, infrastructure and agroclimatology.

97. FAO Freedom From Hunger/Action for Development. Comité National Sénégalais. Etude Socio-economique et Programme d'actions de la Région de Diourbel. Rome: FAO, June 1976, 98 p. (FAO access No. 33869).

Study of the economic, sociological and public health aspects of the region's crop, animal and forest production, including a review of cooperatives and proposals for action.

98. International Fertilizer Development Center. West African Fertilizer Study. Volume 2: Senegal. Florence, Alabama: IFDC, April 1977, 58 p. (Report prepared for USAID).

Study discusses the current capacity and potential of Senegal to produce, market and utilize fertilizers, all within the context of increasing food production. Looks at population and food needs; agricultural production and research; fertilizer use, potential and supply.

99. Kleene, P. "Notion d'exploitation agricole et modernisation en milieu Wolof-Saloum (Sénégal)." Agronomie Tropicale, 31, (1) 1976, pp. 63-82.

This analysis of the socio-economic structures and farm labor inputs in the Sine-Saloum region. Provides a basis for agro-economic research and for extension programs.

100. LeBeau, F.J. Evaluation of the Senegal Cereals Project. Dakar: USAID, February 1978, 20 p.

Evaluation of a cereal production project financed by USAID and implemented by SODEVA, a Senegalese semi-autonomous agricultural development and extension organization. The evaluation examines the effectiveness of the extension effort, the impact on production and income of farmers, activities of the national agronomic research center (CNRA) liaison office and external forces which constrain project results. The author recommends a second phase of the project.

101. Minivielle, J.P. Methodology of Study of Rural Production Systems in the Middle Senegal Valley. Dakar: O.R.S.T.O.M., April 1978, 65 p.

A description of the methodology employed in a study in the Matam Region. Observations cover agricultural and artisanal production, food consumption, consumer goods, exchanges and distribution and migration. In addition to interviews, questionnaires, and topographical surveys, the historical aspect is also studied.

102. Monnier, J. "Farm mechanization in Senegal and its effects on production and employment." In: Meeting of the FAO/OECD Expert Panel on the Effects of Farm Mechanization on Production and Employment, Rome, 4 February 1975. pp. 215-250. Rome: FAO, 1975 (FAO access No. 30807).

Provides data on animal draught cultivation and cultivating equipment for oilseeds and cereal production. Compares mechanized and traditional farming systems and their effects on rural employment and living conditions.

103. Rigoulot, Jean-Pierre. An Analysis of Constraints on Expanding Rice Output in the Casamance Region of Senegal. African Rural Economy Working Paper Number 31, East Lansing, Mi: Michigan State University, Department of Agricultural Economics, 1980, 65 p.

Objective of study is to analyze constraints on the expansion of rice production in the Casamance. Specific factors studied are climatic uncertainties; competition between groundnuts and rice for the allocation of family labor and institutionalized constraints on the marketing system in general and processing in particular. Analyses suggest that results from the present rice production - marketing sub-system could be significantly improved if more consistent price and marketing policies were defined and applied, and if production and credit were reorganized.

104. Rocheteau, G. "Mouroudisme et économie de traite. Dégagement d'un surplus et accumulation dans une confrérie islamique au Sénégal." In: Essais sur la Production de Formations Sociales Dominées, pp. 39-54. Paris: O.R.S.T.O.M., 1977 (Travaux et Documents No. 65).

Examination of the Mourids' role in groundnut production, their expansion and the penetration of agrarian capitalism in the groundnut basin; the economic dependence of their followers, the translation of religious movement into economic success; wealth accumulation in the brotherhoods' hierarchical frameworks; and how the marabouts utilize the surplus.

105. Skinner, Elliott P. Senegal, Niger, Upper Volta: New Adaptive Social Mechanisms Evolving Among Three Sahelian Populations Affected by the Drought - August 1975 - July 1978 - Final Report. Washington, D.C.: African - American Scholars Council, October 1978, 423 p. (Report prepared for USAID) (Specific sections on Senegal on pp. 1-25; 34-117; 253-256).

This study addresses the need for baseline socio-economic and cultural data on adaptive strategies used by farmers and

herders affected by the drought of 1966-1973. The study covers the Diourbel and Delta regions. In the Diourbel region, innovative strategies among Wolof farmers include livestock fattening as a commercial investment and a hedge against lean times rather than a source of food, increased permanent exodus of younger males for full-time, non-farm employment in cities, seasonal exodus to the commercial center of Touba, widespread consumption of groundnut seeds and widespread selling and pawning of farm tools and equipment. More dramatic adaptive strategies among Fulani herders include movement into groundnut farming for the first time, increased movement into occupational activities (e.g. gum tree exploitation), increased marketing of milk during transhumance and through non-traditional distribution channels, and participation in the agricultural system as advisors and assistants in the animal traction program of SODEVA. In the Delta Region, farmers' adaptive strategies comprise an accelerated rate of outmigration, increased interest in vegetable gardening as a source of income, and small irrigated perimeters. The Delta herders adopted irrigated agriculture as supplementary production, and exhibited a heightened interest in selling cattle products.

106. SODEVA. Premier Rapport du Suivi P.A. (Programme Agricole). Dakar: SODEVA, 1976.

Presents the first results of a study analyzing the effects of the agricultural program on farms in the groundnut basin. The study involved 24,000 members of 150 cooperatives. A second study has been undertaken covering 3000 cultivated plots chosen from the same 150 cooperatives. Partial results from both surveys have been reported in the following documents issued by SODEVA: 2^{ème} Rapport du Suivi P.A. (1977). Réunion d'harmonisation des Méthodes d'estimation de Surfaces et de Production (1977); 3^{ème} Rapport du Suivi P.A. (1978); Typologie des Exploitations Agricoles du Sine-Saloum (1978); Etude des Rendements et des Revenus Moyens par l'exploitation pour le mil et l'arachide-Région de Diourbel (1978); Etude des Rendements et des Revenus Moyens par Exploitation pour le mil et l'arachide-Région de Thiès (1979).

107. Wanders, A.A. "International research projects on mechanization of rice in Senegal." In: Rice Project Managers Meeting, Monrovia, 4 February 1979. pp. 54-70; Monrovia: Warda, January 1976 (FAO access No. 34561).

UNDP project meeting paper describes international research program in the Senegal River Basin area. Focuses on small agricultural mechanization with data on irrigated rice cultivation practices, harvesting and threshing. Presents research results and recommendations.

108. Weber, R. Operation Times in Motorized Farming in Senegal. Antony, France: C.E.E.M.A.T., October 1978, 109 p.

Author describes the methodology and then, in a series of data sheets, sets out the operation times for mechanized farming, recorded at CNRA (Bambey) from 1973 to 1976 inclusive. Data sheets present standard times by crop, and standard times for agricultural operations for groundnuts and millet.

109. Wills, Dorothy Davis. Culture's Cradle: Social Structural and Interactional Aspects of Senegalese Socialization. Austin: University of Texas, 1977, 656 p. (Ph.D. Thesis).

Study is based on field work involving the Wolof of Tivaouane. Looks at the Wolof compounds as a communicative network. The unique social structure and role of children in the society are examined.

110. Zerbo, D.; M. LeMoigne. "La mécanisation agricole au Sénégal." In: Problèmes Posés Par la Mécanisation dans les pays Membres du CILSS; pp. 249-330. Antony, France: C.E.E.M.A.T. (for CILSS and Club du Sahel), December 1977.

Presents an analysis of mechanized agricultural production in Senegal being managed by the state agencies SISCOMA, SAED, SODEFITIX, SODEVA and SOMIVAC. Examines the problems of equipment, credit, training and research or mechanization. Presents current project data and in a synthesis section, identifies sectoral problems arising from mechanization, with recommendations proposed for improving the situation.

E. Livestock Production and Marketing

111. CILSS/Club du Sahel. "Heterogeneity of ecosystems: cases." In: Integrated Rural Development Projects and Improvement of Agricultural Production Systems: Synthesis of the Bambako Colloquium; pp. 19-20. Paris: Club du Sahel, 1979.

Synthesis of the presentation by J. Faye of ISRA on livestock production efforts in the Sine-Saloum aimed at diversifying farmers' incomes in this groundnut zone.

112. CILSS/Club du Sahel. "Sénégal." In: Rapport sur les Politiques Commerciales des pays du Sahel, Proposition du Financement dans le Secteur Commercialisation du Bétail et des Viandes; pp. 26-35, Ouagadougou/Paris: CILSS/Club du Sahel, January 1979.

Summary of official livestock marketing policy, government organizations and interventions and professional staffing requirements for management.

113. Consortium for International Development. Final Design Report, Bakel Range Livestock Project, Eastern Senegal. Logan, Utah: Utah State University, CID Executive Offices, 1975, 377 p. (Report prepared for USAID).

Objective was to collect and analyze pertinent base-line data in areas of climate, soils, geology, water resources, wildlife, forestry, forage resources, livestock, animal health, training and economics. Document presents a design for an integrated range-livestock management project.

114. FAO. Projet D'intensification de L'utilisation des Fourrages dans L'alimentation du Bétail en Zone Sylvo-pastorale par la Constitution de Réserves Fourragères, Sénégal. Rapport Terminal. Rome: FAO, March 1976, 13 p. (FAO access No. 34833).

Proposals for improvement of grass forage resources to provide reserves for animal feeding in sylvo-pastoral lands, specifically natural prairies. Discusses socio-economic aspects and provides data on proposed project organization, plan of operation and farm equipment.

115. Reboul, C. "Danger d'oasis? Aléas d'une politique de sédentarisation. Le forage de Labgar au Sénégal," Civilisations (Brussels) 28(1/2) 1978, pp. 120-139.

Area discussed is in the wooded pastoral region of Diourbel. Since 1952, the drilling post at Labgar has provided an abundant water supply to the rural community and their livestock. The government, attempting to preserve the character of the region, has deterred groundnut cultivation in the areas so as not to compete with livestock production. This policy has encouraged increased fodder production, the result of which has been serious damage to the balance of the physical environment. The mismanagement of the land resources at Labgar, where a large population intensively cultivates a concentrated land area, leads the author to conclude that rather than an oasis, the area has become a desert.

116. Sall, A. "Quel aménagement pastoral pour le Sahel?" Tiers Monde, 19(73) 1978, pp. 161-169.

This study focuses on pastoralism in the Senegalese Sahel where over-grazing has become a social and economic problem. It is concluded that the only solution lies in the establishment of land use laws which extend grazing in certain areas and limit it in others. Peasant participation in development of the proposed scheme is seen as essential; the author also urges that the peasants be integrated more fully into socio-economic development activities so as to reduce their dependency upon pastoralism.

117. Santoir, C.J. Les Sociétés Pastorales du Sénégal Face à la Sécheresse (1972-73): Réactions à la Crise et Degré de Rétablissement Deux ans Après. Le cas des Peul de Galodjina. Dakar: O.R.S.T.O.M., August 1976, 48 p.

An analysis of the situation of the nomadic cattle raisers (Peul) of the Galodijina region of Senegal before, during and after the drought of 1972-73. The general mobility and the aptitude to change exempted them from being forced to migrate to cities during the drought. The author argues that the relative immobility of the Peul before the drought was the result of a water supply policy which had given them an illusion of security. Among the solutions to consider in trying to improve Peul life, the author emphasizes the reconstitution of grazing pastures, health care, suppression of tax on livestock, and particularly the reorganization of cooperatives and the use of cooperatives in providing economic insurance.

118. Sénégal. Ministère du Développement Rural. Direction de la Santé et des Productions Animales. Rapport Annuel 1975; 1976. Dakar: Ministère du Développement Rural, 1975, 120 p.

Annual report on livestock health and production. The last section presents an extensive set of data on the livestock sub-sector.

119. Snyder, Francis G. "Legal innovation and social change in a peasant community: a Senegalese village police." Africa (Journal of the International African Institute) 48(3) 1978, pp. 231-247.

Article examines an attempt by a village in the lower Casamance to control the movement of animals during the agricultural season. To prevent crop damage, two youth associations, sponsored initially by the village elders, began to establish norms and to impose sanctions on all village residents. These sanctions led to serious conflicts and were eventually abandoned. The experiment failed because of the reduction of control of elders over youth.

120. Teitelbaum, J.M. Human Versus Animal Nutrition: A "Development" Project among Fulani Cattle Keepers of the Sahel of Senegal. Washington, D.C.: USAID, December 1975, 35 p.

Addresses problems of transforming a subsistence society into a "cashcrop" system, with the nutritional risks that agricultural development entails in an African context. Presents a brief review of Senegalese government planning efforts in livestock development, followed by a description of the population and the ecology, an ethnographic analysis, customary food patterns, cattle movements, and other aspects related to weaning and malnutrition among the cattle keepers. The project aims to

improve forage and water supply for the cattle by adjusting cattle numbers to the carrying capacity of the grasses. The paper concentrates on anthropological matters, concluding that there is a precarious triangular human ecological interaction with land and cattle. The author states that the very small margin of safety provides no incentive for change in customary cattle husbandry and foresees potential conflicts among administrative servants and Fulanis. Recommends that the project be reoriented along more modest lines with emphasis on nutritional needs and the human factor.

121. Ware, Theresa A. Wolof Farmers and Fulani Herders: A Case Study of Drought Adaptation in the Diourbel Region of Senegal. Ann Arbor, MI: University of Michigan, 1979, 249 p. (Ph.D. Thesis).

Study of how subsistence farmers and herding populations in the drought-affected areas adapted to and survived the drought through innovative strategies. Two districts in the Diourbel Region were selected to study adaptation mechanisms, Ndam and Dahra, both of which suffered severely as a result of the drought.

F. Irrigated Agriculture

122. Bâ, A. Aménagement Hydro-agricole et Etudes Socio-économiques de la Cuvette de Dagana. Dakar: University of Dakar, Department of Geography, 1976 (Master's Thesis).

Examination of the social organization of production of SAED's Dagana perimeter. Study focuses on the emergence and function of the producer groups within the cooperatives. Data are presented on costs of production and yields.

123. Bâ, Sékou Oumar. Sociology of the Irrigated Perimeters, Bakel, Senegal. Dakar: I.D.E.P., 1976, 58 p. (Translation by USAID/Dakar).

Study covers approximately 30 villages located in the Bakel and Matam departments, most of which are the site of simultaneous rain-fed and flood recession farming. Given that the river's floods have shaped the life of the communities for centuries, the author sees the land system as the key to understanding the population. Because of marked difference in social organization, the author insists that each group in the area must be approached differently, stating that strategies to reach the Peul, for example, would not be effective for the Sarakolle societies. Study attempts to identify the decision-makers in the villages and the centers for decisions about the organization of labor. The author further discusses how the area's cooperatives actually operate. Study concludes the project will be successful provided it can connect with or better integrate the traditional management of labor stating that contradictions between SAED and village levels will doom it to failure.

124. Bechtel Overseas Cooperation. Development of Irrigated Agriculture at Matam, Senegal. A Feasibility for the U.S. Agency for International Development. Reno, Nevada: Bechtel Overseas Corp., December 1976; various paging (11 chapters, 7 annexes).

Objectives of the study were to determine an optimum pattern of land and water resources utilization in the Matam area and to prepare a feasibility report on the irrigation project as a basis for soliciting donor participation. Sections include: analyses of national resources, present agricultural practice, soils, socio-economic conditions of the area; assessment of potential for irrigated agriculture in terms of crop adaptability, yields, cropping patterns and farm budgets derived for crops deemed suitable at Matam; description of the irrigation project in terms of utilization of water resources for double cropping, selection of land, flood control, drainage, power supply; presentation of a three stage plan for project implementation including farmer training and structure for operation and maintenance costs of the system; economic analysis of the project focusing on farmers' incomes, ability to pay water costs and economic benefits at the local and national levels; projection of impact of the project on farmers, existing social institutions, national economy, resources of the area and the environment. Annexes provide background data on geology, hydrology, climatology, hydrogeology, soils, land classification methods and calculations for irrigation water requirements and crops budgets in terms of farm income and economic benefits.

125. Bruyères, M.F. des; A. Kéita. Le Rôle des Organisations Populaires dans le Cadre de l'insertion des Ruraux Pauvres dans le Développement Rural, Sénégal. Rome: FAO, February 1978, 155 p.; tables; maps (FAO access No. 38244).

Paper prepared for the July 1979 World Conference on Agrarian Reform and Rural Development. Background information on Senegal's agricultural sector and detailed information on the origin, structure, and function of groundnut producer cooperatives.

126. Bugnicourt, Jacques. Senegal River Valley: A Threatened Environment and Landscape. Dakar: E.N.D.A., November 1976, 28 p. (African Environment Supplement; Occasional paper No. 76-11).

The author argues that the projects being considered will transform the Tukolor and Sarakole economy. Suggests that the decision-making power has passed into the hands of technicians and administrative agents, and that peasants are not being consulted about the changes being made in their lifestyle. Recommends restoring to the villagers and herdsmen, large proportion of the decisions on the projects since they are the ones who know their villages and land holdings best.

127. CILSS; Club du Sahel. Rapport National, Sénégal (L'irrigation). Ouagadougou/Paris: CILSS/Club du Sahel, March 1977, 55 p. + Annexes.

Report presented to the Irrigated Agriculture Team at the second conference of the Club du Sahel, held in Ottawa in May 1977. Purpose of the study is to inventory and analyze irrigation development in Senegal with recommendations for long-term hydro-agricultural planning.

128. Cournot, C. "Développement, administration territoriale et participation de la population: l'exemple du Sénégal (1960 à 1977)," Revue Française d'administration Publique (7) July-September 1978, pp. 503-523.

Review of Senegal's agricultural policy and its administration of rural cooperatives, expansion centers and "animation rurale."

129. Diagne, P.S. "Aménagement et organisation professionnelle dans le Delta du Sénégal, Notes Africaines, (147) 1975, pp. 82-88.

Discusses the agricultural potential of the Senegal River Delta, including physical and demographic characteristics, the development plan, and the organization of agricultural production.

130. _____. "Une expérience originale: les petits périmètres de Matam," Notes Africaines (Dakar) (149) January 1976, pp. 8-10.

Description of the Matam small irrigated perimeters project, including participation of the local population and future management of the project.

131. Duc, T.M.; H. Duc Tilly; M. MBodj. Irrigation de la Zone Centre-Nord du Sénégal. Résultats de Recherches et Perspectives. Bambey: CNRA/ISRA 1975. 17 p.

Preliminary technical and economic results after two years of experiments with pearl millet, cotton, vegetables and storage crops were grown under full or supplementary overhead or trickle irrigation, using underground water. The principal findings were that trickle irrigation is very suitable for dry season vegetables; that supplementary irrigation in the rainy season, although increasing crop yields, is not always economically profitable; that it was more efficient to plant early and to till the soil only once at the beginning of this season; that dry season vegetable production for local market and for canning was financially promising; and, that a thermo-pump was cheaper than an electric pump.

132. Franzel, Steven. An Interim Evaluation of Two Agricultural Production Projects in Senegal: The Economics of Rainfed and Irrigated Agriculture. East Lansing, MI: Michigan State University, Department of Agricultural Economics, June 1979, 65 p.; bibl. (African Rural Economy Working Paper No. 28).

Preliminary assessment of the economic impact of two USAID assisted projects: the Senegal cereals project, and Bakel small irrigated perimeters project. Background information is followed by economic and financial analyses for each project. The two projects are compared with respect to achieving the goals of economic viability, income distribution, and food self-sufficiency and security. Both are found to be achieving low economic returns. Preliminary data suggest that the benefits of the rainfed cereal project may accrue to large farmers, while irrigation project may benefit only a small portion of the rural population in the region. Both projects contribute to food self-sufficiency, but only at very high opportunity costs. Recommendations are presented to improve the performance of the two projects.

133. Fresson, Sylviane. Village Participation in Pump Irrigation Areas in the Matam Zone in Senegal. Paris: OECD Development Center, April 1978, 130 p.

Assesses a village irrigation program carried out by SAED. The program is based on participation of the people and it requires low investment. Low investment costs were achieved because almost all improvements are done by hand, and on a voluntary basis; and all collective works are organized and supervised by village officials. Also discussed are conditions for participation which include involving villagers in decision-making concerning the selection of the site, and the system of production, as well as in the social organization and financial aspects of the project.

134. Gallais, J. and A.H. Sidikou. "Traditional strategies, modern decision-making and management of natural resources in the Sudan-Sahel." In: Management of Natural Resources in Africa: Traditional Strategies and Modern Decision-making, pp. 11-33. Paris: Unesco, MAB Technical Notes 9, 1978.

A case study of an agricultural project in the Senegal River delta. Reviews the historical background and the results from 1965-1974. Examines the relationship between the local population and SAED and the environmental effects and social impact of the project.

135. "Irrigated perimeters," Afrique Agriculture (52) 1980, pp. 14-15.

In this special issue on the role of the CILSS and Club du Sahel in the development of agriculture in the Sahel, a brief review of SAED's most recent activities is presented with a section on the evolution of technical efforts to develop delta lowlands.

136. Maynard, J. Incidences d'Innovations: Un Cas Concret d'Etude d'un Milieu Réel de Production. Dakar: O.R.S.T.O.M., 1975.

Examines the response of the local population to efforts to spread upland rice cultivation in the Middle Casamance.

137. Nelson, Gary; Fred Tileston. Irrigation: A Paradox for Sahelian Development. Part II: Case Studies. Abidjan: USAID, REDSO West Africa, March 1977, 21 p.

Examination of the risks and pitfalls involved in irrigation projects from technical, economic, social and environmental viewpoints. Of the seven case studies presented, three are Senegalese: Matam irrigated perimeters, Bakel crop production and Diagambal irrigated perimeters.

138. "Les programmes nationaux d'aménagement hydroagricoles et de construction de barages-Sénégal." In: L'Economie des Pays du Sahel, pp. 93-112. Paris: Ediafric, 1976.

Summary of SAED's water management and agricultural production program in the Senegal River Valley.

139. "Sénégal: trente mois pour trois mille pompes," Afrique Agriculture (53) January 1980, pp. 41-43.

Note on inauguration at Ndjebel in Sine-Saloum of the first in a planned series of 3000 solar energy hydro-pumps throughout the Sahel.

140. Tuluy, A. Hasan. "Comparative Costs and Incentives in Senegalese Rice Production." Stanford, CA: Stanford University Food Research Institute, July 1979, 40 p.; tables (Report prepared for USAID).

An attempt to estimate the private and social profitability of seven rice production techniques in different regions of Senegal. The techniques range from traditional swamp and mangrove farming to pump-irrigated and double-cropping mechanized techniques. Each technique is described, evaluated and compared with the others. Other activities such as collection,

milling, and distribution of rice are analyzed. The author estimates and compares some indicators of social and private profitability for a set of activities and for different locations in the country. It is found that none of the domestic production techniques is competitive with imports on the Dakar market; the most efficient import-substitution should favor production in the Casamance. The costs of providing food security are reflected in negative social profit rates and high per unit output, because of extensive subsidies on capital and maintenance costs of irrigation networks. The author concludes that in most cases, the social costs exceed the benefits of rice cultivation in Senegal.

141. Waldstein, Abraham S. Government Sponsored Agricultural Intensification Schemes in the Sahel: Development for Whom? Abidjan: USAID/REDSO West Africa, August 1978, 114 p.; bibl.

Paper examines distribution of benefits from large scale agricultural intensification projects, maintaining that the chief beneficiaries have been national or international management institutions. Based on the author's field experience in Senegal the paper concentrates on irrigation schemes in the Valley and the operations of SAED. Presents an historical overview of the Richard Toll schemes, which collapsed in 1971, as a forerunner to SAED activity in the Valley. Examines intensification schemes from the point of view of the farmers and herders who work them, or are displaced by them.

142. Waldstein, Abraham S. "Peasantization" of Nomads and "Nomadization" of Peasants; Responses to State Intervention in an Irrigated Agricultural Development Scheme in the Senegal River Delta. Durham, New Hampshire: University of New Hampshire, May 1978.

Paper presented at a "Symposium on Regional Development in the African Sahel", held at the University of New Hampshire in May 1978. Paper examines the role of irrigation projects in the strategies of pastoralists in the Senegal River Delta. Discusses the limited benefits received by the tenant from participating in SAED's Delta perimeter. Demonstrates how different sedentary cultivators and pastoralists adjusted their subsistence strategies to maintain their cultivation rights on the perimeters and compensate for the deficiencies of participation.

143. Weiler, E.M. Social Cost-benefit Analysis of the Nianga Pilot Project, Senegal. West Lafayette, Ind.: Purdue University, Department of Agricultural Economics, May 1979, 291 p.; tables; bibl. (Master's Thesis).

Ex-post analysis of the Nianga project, which has been in operation since 1975. A social cost-benefit analysis from an ex-post perspective was used to derive three measures of project

worth; sensitivity analysis was used to examine the effects of various yields, prices, etc. on the foregoing results. Finally, a comparison was made between the ex-ante feasibility study and the present ex-post analysis. Results of the analyses show that the project, as currently designed, is modestly profitable from a social standpoint, but unprofitable from a financial perspective. The recent rise in world commodity prices has increased the social profitability of projects like this to the extent that the "conventional wisdom" on the unprofitability of tertiary irrigation needs to be considered. It was found that the decision-makers of OMVS and FAO failed to reformulate the project's design despite the unfavorable findings of an ex-ante study. Had previously recommended cost-cutting proposals been implemented, the project's profitability would have been significantly enhanced. It was concluded that tertiary irrigation, though not as currently designed and operated at Nianga, is potentially an economically viable enterprise in the Senegal River Valley.

VI. POPULATION, EDUCATION AND MIGRATION

A. Population

144. Chandry, S.L. Development of a Plan for Family Planning Training and Educational Activities in Senegal. Washington, D.C.: American Public Health Association, October 1976, 15 p. (Report prepared for USAID).

Report assesses the status of family planning training and service within various governmental health facilities and academic institutions, with a review of the curriculum of schools. Identifies future tasks to be accomplished in planning a project for a comprehensive family planning service in Senegal.

145. Family Health Care, Inc. "Senegal." In: An Inventory of Demographic Capabilities and Activities in the Sahel, pp. 80-95. Washington, D.C.: Family Health Care, Inc.; New York: Population Council (in collaboration with the Sahel Institute, July 1979.) (Report prepared for USAID).

An analysis and assessment of Sahelian institutional capabilities in demography. Identifies and assesses currently available resources in demography in terms of trained personnel, public and private institutions, facilities, data sets, sources of financial support, training, data collection and analysis, and research and publication.

146. Free, Michael J.; Margot L. Zimmerman. Family Planning in Senegal: Assessment and Recommendations. Seattle, Washington: PIACT (Program for the Introduction and Adaption of Contraceptive Technology), December 1979, 102 p. (Report prepared for USAID).

Report presents an overview of the current status of family planning in Senegal, including the attitudes of various groups from government officials to users and potential users towards family planning. Identifies available resources, potential impediments, factors influencing the cultural acceptability of specific methods, and makes program recommendations. Concludes that there is widespread interest in family planning, a need for such services within the context of maternal/child health care, and a strong need for contraceptive information and education of the general population. Recommends that contraceptive devices be as culturally appropriate as possible, that suitable instructional materials be developed and that future efforts to expand family planning projects include a social marketing program, community-based distribution and outreach activities and extensive education programs aimed at motivation and reinforcement.

147. Herzog, J.R. Population Change and Productivity Activity Among the Serer of Senegal: Some Hypotheses. Dakar: IDEP, 1975, 38 p.

A study of population dynamics, population growth and economic conditions among the Serer.

148. Lacombe, B.; J. Vaugelade. "Senegal." In: Population Growth and Socio-Economic Change in West Africa, ed. by John Caldwell, et. al., pp. 701-719. New York: Columbus University Press, 1975.

Reviews population surveys in Senegal. Data on population patterns, change and projections and mortality and fertility rates are presented. Three surveys examined most extensively were those carried out in the 1960's in Khombole, Sine-Saloum, and Sakao.

149. Snyder, Francis G.; Marie-Angelique Savane. Law and Population in Senegal: A Survey of Legislation. Leiden, The Netherlands: Afrika-Studiecentrum, 1977, 242 p.; bibl.

A survey of legislation enacted in Senegal from 1960 to 1975, which potentially affects mortality, migration and fertility. The section on mortality covers legislation concerning health facilities, health insurance, medical profession, drugs, disease control, food, and environmental protection. A section on migration reviews laws concerning nationality, limits on internal population movements, taxation, employment, housing, education and rural development, and those laws

regulating immigration into Senegal and emigration from the country. The section on fertility legislation covers the status of women, marriage, family planning, children and child welfare, taxation, public welfare, inheritance, military service and penal institutions.

B. Education and Training

150. Billaz, R.; M.E. Chonchol; S. Sigal. Aspects Institutionnels de l'écodéveloppement: Pédagogie du Milieu et Organisations Paysannes. Paris: Centre International de Recherche sur l'environnement et le Développement, 1976, 161 p.

This study presents theoretical aspects of the equilibrium of eco-systems, the role of agricultural cultivation in rural development, and education for self-reliance. In this context, a case study from Senegal is presented which examines practical education at an agricultural training center. (Note: the case study presented in the discussion on peasant organizations is from Chile).

151. Bordenave, Juan E. Diaz. "Pilot project in the use of communication media for adult education - Senegal." In: Communication and Rural Development, pp. 43-48. Paris: Unesco, 1977.

Brief description and evaluation of Senegal's rural radio and experimental television educational programs begun in the 1960's. Citing the comparative successes and failures of each program, the author points out that any medium must be coupled with effective community organization.

152. Bourgeois, M. "Attitudes et comportements de la population rurale sénégalaise vis-à-vis des moyens audio-visuels de formation," Tiers Monde 18(70) April-June 1977, pp. 381-396.

Discussion of Senegal's rural radio program, as an effective instrument for training and rural development. Conceived as an exchange or dialogue between listeners and broadcasters, the fundamental aspects of the program are production, reception and listener control. Article focuses on the publication "Dissoo" which is a regular compilation of listener reaction to the program and is distributed to government officials, thus presenting them with a "barometer of the rural world." The program is seen as an instrument of reciprocal information and a mode of mass intervention for rural development.

153. CILSS; Club du Sahel. Equipe Ressources Humaines: Rapport de la Commission Opérationnelle et de Synthèse - Dakar, 29-31 Mars 1977. Annexe 7: Sénégal. Ouagadougou/Paris: CILSS/Club du Sahel, March 1977, 61 p.

Report of mission to identify potential training programs linked to agricultural development projects. Reviews training in the rural context covering professional, literacy and practical training programs as well as rural radio and the "Maisons Familiales Rurales." Presents specific project proposals for the National School of Applied Economics, a national school for horticulture, an ONCAD cooperative training center, the "Maisons Familiales Rurales," and a women's training program.

154. CILSS; USAID; BIT. Besoins en Formation des Cadres des Niveaux Supérieur et Moyen dans le Domaine des Activités Rurales Durant la Période 1978-1982 pour les pays Membres du CILSS. Rapport Final. 7 - Rapport de Mission au Sénégal. Ouagadougou: CILSS, April 1978, various paging.

Analysis and projection of personnel needs for rural development activities for all government related offices with specific projections for each administrative agency and office, and projections for rural development related research personnel needs. Inventories schools and training institutes; presents program proposals to meet projected needs.

155. Cissé, B.M. "Why practical education?" Rural Africana, Spring 1976, pp. 41-51.

Investigates the motives and objectives of "L'enseignement Moyen Pratique" (practical education) in Senegal.

156. Dione, Samba. "Middle-level practical education in Senegal." In: Educational Reforms and Innovations in Africa, pp. 11-18. Paris: UNESCO, 1978.

Description of a project to address the problem of primary school leavers.

157. Diop Fal, Arame. "Fondements pour un changement éducatif," Notes Africaines (Dakar) (149) January 1976, pp. 14-19.

Discusses the work of the University of Dakar's Center for Applied Linguistics in introducing local languages into educational programs. Author argues that change in language alone can not adequately address the problems of Senegal's education system which are seen to arise from its distance from the interests, and requirements of the society.

158. "L'expérience des Maisons Familiales Rurales," Famille et Développement, (10) April 1977, pp. 36-41.

Interview with two officials from the Maison Familiale Rurale in Diogo. Discussion of training methods used for agricultural production and health, and the priority educational themes of the program.

159. Gueye, M. et. al. "The integration of basic education in development structures: preliminary study of a structure for participatory development in Senegal." In: Basic Services for Children: A Continuing Search for Learning Priorities - II, pp. 80-97. Paris: Unesco, 1978.

An examination of Senegal's Centres d'Expansion Rurale Polyvalents (multidisciplinary rural development centers), and the role of these centers in the planning and implementation of small-scale integrated rural development projects.

160. ILO. Sénégal: Consolidation des Centres de Perfectionnement Agricole et Artisanal Existants, y Compris la Formation des Instructeurs. Geneva: ILO, 1975, 61 p.

Technical report on the expansion of agricultural education and handicrafts training centers. Outlines project achievements in terms of personnel, instructor training, buildings, equipment, training courses; with recommendations for future action.

161. ILO. Sénégal: Formation Professionnelle Rurale. Geneva: ILO, 1976, 69 p.; tables.

Project report and recommendations concerning the expansion of vocational training, including agricultural training activities in rural areas in Senegal.

162. Johnson, Robert Crawley. Higher Education and Development in Senegal. Seattle: Washington University, 1976, 995 p. (Ph.D. Thesis).

The results and conclusions of an investigation of the role of higher education in the development process. Study focuses on the University of Dakar and its students, looking at their socio-economic backgrounds, career aspirations, views on development and the relevancy of their education to the development of the country. Author concludes that the University is not playing an effective role as an institution of national development.

163. Kater, A. "Senegal." In: Educational Aid and National Development: An International Comparison of the Past and Recommendations for the Future, ed. by Nancy Parkinson, pp. 136-164. London: Macmillan, 1976.

Discussion of historical background and development of Senegal's educational system; education in the Second and Third National Development Plans; foreign assistance in the education sector, especially British, Canadian and UNDP activities; and migration.

164. LeBel, Phillip G. A Linear Planning Model for Education with Applications to Senegal. Boston: Boston University, 1977, 243 p. (Ph.D. Thesis).

Study specifies a model of educational production, applied to Senegal's recent educational plans which are seen to have many infeasible and inconsistent objectives. The model seeks to project total and grade level enrollments and determine the consistency of educational objectives as well as the consequences of technological change in educational production; determine net educational output, both on an annual and terminal year basis; cost projections are derived and used to examine possible patterns of total educational expansion.

165. Moulton, J.M. Animation Rurale: Education for Rural Development. Amherst, Mass.: University of Massachusetts, Center for International Education, 1977, 249 p.

Study of problems and issues of non-formal education programs based on the concept of social participation and self-help, and designed to enhance rural development. A case study from Senegal figures prominently in the analysis of the theory, historical and philosophical roots of animation rurale programs.

166. OECD Development Assistance Committee. Aid for Education and Training for Rural Development and the Satisfaction of Basic Needs. Annex 1: Case Studies. Paris: OECD, April 1978, 46 p.

Senegalese case studies include: the practical intermediate education program; the University of Dakar's Applied Linguistics Center's work on introducing local languages into educational curricula in Senegal; the rural education radio program; mid-level training activities of the National School for Applied Economics.

167. "Des paysans enseignent . . . une expérience éducative originale - l'enseignement moyen pratique," Famille et Développement (2) April 1975, pp. 28-31.

A dialogue between peasants and students in Senegal's mid-level practical education program illustrates the community

participation aspect of the program which trains Senegalese youth who otherwise face extreme difficulty being absorbed into the labor force upon completion of primary level education.

168. Seck, Boubacar. "L'utilisation de la radio diffusion pour l'animation et l'éducation des communautés de base (l'expérience sénégalaise)," Présence Africaine, (107) Third Quarter 1978, pp. 93-110.

An examination of Senegal's rural radio project; looks at both the cultural and educational aspects of the project and the participation of the rural community in making this effort a success.

169. Sine, Babakar. Non-formal Education and Education Policy in Ghana and Senegal. Paris: UNESCO, 1979, 35 p.

This study looks at local initiatives and local populations' analyses of their educational needs.

170. TaNgoc Chau, F.C. Financement et Politique Educative: Le cas du Sénégal. Paris: Institut International de Planification de l'Education (UNESCO), 1976, 270 p.; tables.

An examination of Senegal's educational policy, the obstacles to carrying out the policy and its financial implications. The role of foreign aid in financing education is also examined. The future of the policy which is seen as seeking to improve the quality of education while adapting it to Senegal's economic realities, is discussed. A detailed economic analysis of the costs of different types of training is presented, including the factors which elevate costs for particular types of educational programs.

C. Health

171. Diop, Massamba. "An experience in a rural dispensary," African Environment, 1(4) 1975, p. 111-115.

Interview with Massamba Diop, a state-licensed male nurse who heads the Niodior village dispensary in the Sine-Saloum region. Community participation and incentives, health education and preventive medicine efforts of the dispensary are explained. Diop concludes that, after four years of operation, more than 50% of the local population have accepted the health program. Plans to extend these activities to each of the villages in the district are noted.

172. Downs, Wilbur; Herbert Sacks. Senegal River Pilot Health Research Program Eighth (Final) Report. New Haven, CT: Yale University, December 1977, 139 p. (Report prepared for USAID).

Final report of a team which conducted a pilot study on transmissible disease problems in a limited area of the Senegal River

Basin. Purpose was to establish the feasibility of long-term scientific projects which could provide the data required by USAID and OMVS in designing preventative and curative health projects.

173. Gibson, Ulrich et. al. Environmental Assessment and Health Component Design: Bakel Irrigated Perimeter Project. Washington, D.C.: American Public Health Association, June 1977, 214 p. (Section II, Part D, Volume 3 of The Sahel Epidemiological and Environmental Assessments Project). (Report prepared for USAID).

Study examines the potential impact of the Bakel project on public health in the region of the Bakel project. Looks at the magnitude of present tropical disease problems, with particular attention to malaria and shistosomiasis; the magnitude of present diseases emanating from poor sanitation; nature and extent of public health services operating in the area; nature of preventive medicine and sanitation infrastructure in place; upstream and downstream water quality; social habits and attitudes among local population vis-a-vis health and sanitation. Proposes and evaluates options for alleviating the potentially adverse environmental impact of the proposed project.

174. Jett, Joyce. "Senegal." In: The Role of Traditional Mid-wives in the Modern Health Sector in West and Central Africa, pp. 13-30. Abidjan: USAID/REDSO West Africa, January 1977.

The objectives of the study were to identify and assess existing information and data sources on traditional midwives. Examines the role of midwives in delivery of improved health services in rural areas; analyzes constraints inhibiting the utilization of traditional midwives in the modern governmental health sector. For Senegal, a demographic profile is presented with observations on health resources and administrative reforms affecting the health sector: an overview is presented of role of traditional birth attendants. Describes training programs for the midwives and cites two examples of their activities, in the Mbadalhoun rural maternity ward and the Loul-Sessen health post.

175. Johnson, Charles C., Jr. Environmental Assessment for Lampsar/Diagambal Irrigated Perimeter Project - Senegal. Washington, D.C.: American Public Health Association, March 1977, 48 p. (Section I, Part D, Volume 3 of The Sahel Epidemiological and Environmental Assessments Project). (Report prepared for USAID).

Provides data on the impact of the project on land use, water resources, ecology, biology and public health in the region. Discusses public health in the target areas of the project in terms of vector borne diseases which irrigation may affect; provides data on use and proposed use of fertilizer and pesticides, looking at run-off, drainage and real and potential downstream uses of water.

176. Lauture, H. de, et. al. Médecine de Développement: L'exemple de Guinguineo au Sénégal. Dakar: E.N.D.A., June 1978, 31 p. (African Environment Supplement occasional paper no. 78.26).

Analysis of the Catholic health center of Guinguineo, a locality of 12,000 inhabitants in the Groundnut Basin of Senegal. The Catholic mission has succeeded in overcoming great difficulties in transforming peoples' knowledge, beliefs, superstitions and customs in a manner consistent with medical prevention. The mission has preferred to listen to people and not to undertake any action unless it came from peoples' expressed needs. This example shows that development depends upon the participation of the population. The mission is now undertaking a progressive extension of its activities to other villages of the region and to other fields such as training of midwives for each village.

177. Lauture, H. de; I. Wone. "An experience in 'medical education in the fields' in Senegal," African Environment, November 1977, pp. 297-300.

Description of a program initiated by the University of Dakar's School of Medicine in 1976. Placed six medical students as medico-social supervisors in childcare centers in the Casamance, thereby confronting these future physicians with problems faced in common medical practice, and involving them in a development activity.

178. Menes, Robin J. Syncrisis: The Dynamics of Health. Volume XIX: Senegal. Washington, D.C.: U.S. Dept. of Health, Education and Welfare, Public Health Service, June 1976, 144 p. (Report prepared for USAID).

Purpose of the study is to identify and examine interventions in the health system which will contribute to socio-economic development, and to identify the impact of other development activities on the status of health in the country. Chapters include: population and population planning; health status; nutrition; environmental health; health infrastructure; health sector manpower; national health policy and planning; interventions of international organizations; drought-affected regions of Senegal.

179. Terry, Julia; Norman McEvers; Eli Newberger. Health in the Development of Senegal: Options for Research. Report to the Secretariat of State for Scientific and Technical Research, Republic of Senegal. Washington, D.C.: Family Health Care, Inc., June 1979, 65 p. + annexes. (Report prepared for USAID).

Describes present health research structures, resources and personnel with an analysis of current programs and plans, addressing outstanding issues of research policy, planning and

administration. Final section outlines options for the Senegalese government to consider with regard to the future development of medical, health, and health-related research in the country.

180. Wade, M.A. Approche Sanitaire du Sénégal. Marseille: Université de Marseille II, 1975, 118 p.; maps; tables.

Analysis of delivery systems, social considerations, institutional framework, medical personnel, medicine supplies, and mortality rates.

181. Westinghouse Health Systems. Final Report of Program Development in Support of Senegal Rural Health Services Development. Columbia, MD: Westinghouse Health Systems, July 1976, unpag. (Report prepared for USAID).

Report of a team which conducted an on-site review of rural health services in the Sine-Saloum, led to the preparation, in cooperation with USAID/Dakar, of a Project Paper on rural health services.

D. Migration and Employment

182. Adams, Adrian. Le Long Voyage des Gens du Fleuve. Paris: Maspéro, 1977, 222 p.; bibl.

Analysis of history of migration from the Senegal River Valley to France. The author examines the impact of development programs in the region on migration both before and after World War II. The present development setting in the Bakel region is discussed with a focus on peasant agricultural organizations. The author views the current situation as one of 'development for the peasantry' versus 'development for the civil servant', i.e., state agricultural administration agents. The establishment of the OMVS is seen as an extension of government control of the region. An annex to the study presents the by-laws of a peasant federation organized in the Soninke zone of Bakel.

183. Adams, Adrian. "Prisoners in exile: Senegalese workers." In: Peasants and Proletarians: The Struggle of Third World Workers, ed. by R. Cohen, P. Gutkind and P. Brazier, pp. 307-330. New York: Monthly Review Press, 1979.

Article focuses on the Tukulor and their migration from the Senegal River Valley to France. The Tukulor movement, first to Dakar and then to France is examined in historical perspective, with an analysis of the impact of land reform on the region. The migrants' poverty in Dakar and France is discussed. The author concludes that the migration to France is advantageous to both the Senegalese and French economic systems in that Senegal is relieved of an unemployment problem and France is supplied with cheap labor, an arrangement which is compared to the labor reserves of South Africa.

184. Balde, M.S. "Un cas typique de migration inter-africaine: l'immigration des Guinéens au Sénégal." In: Les Migrations Africaines, ed. by J.L. Amselle, pp. 63-98. Paris: François Maspéro, 1976.

Study looks at the historical stages of the gradual settlement of Guineans in Senegal, first in the eastern region, then in Casamance and the urban areas. Migration is seen as a result of an economically and politically oppressive colonial situation, this stage being followed by seasonal migrant farming connected to the expansion of groundnut production in Senegal.

185. Colvin, Lucie G., et. al. The Uprooted of the Western Sahel: Migrants' Quest for Cash in the Senegambia. Baltimore, MD: University of Maryland, Baltimore County, February 1980, 307 p.; maps; tables. (Draft report prepared for AID).

Study describes and analyzes population movements within the Senegambia in relation to the past and present economy of the region and explores the policy implications of migratory patterns. Looks at the historic policies which have accentuated migration, unequal development patterns and policy alternatives which may mitigate the negative consequences of these trends. In the River Valley and ferlo of northern Senegal competing patterns of land use require nomads to settle. The groundnut basin has more complex migratory patterns; the border provinces of eastern Senegal and Upper Casamance supply the cash crop zones with migrant labor and receive settlers from areas across neighboring borders.

186. Delaunay, D. Migrations et Pénétration de l'Economie Marchande: Le Waalo (Région du Fleuve). Dakar: O.R.S.T.O.M., October 1975, 47 p.

A study of contemporary migration in a historical perspective in the Waalo region of northern Senegal. Economic history of the region shows that during the colonial period commercial capital mobilized domestic labor for the commercial production of agricultural goods and for wage labor. The author reviews the Atlantic trade of the 18th century, the commercial production of rubber, slavery, and the failure of the agricultural colonization in the region. The migration flows were essentially directed toward the groundnut region. After the Second World War, the problems associated with groundnut production and the development of import substitution industries reoriented the migration flow toward cities.

187. DeLeede, J., et. al. Migration and Employment in Senegal: An Introductory Report. Washington, D.C.: World Bank, September 1976, 54 p.

Preliminary report of a World Bank mission on migration and employment in Senegal. The document supports the rural orientation of the Government's development strategy. International migration, mainly to and from neighboring African countries and France is important for some regions but does not influence the country's overall demography. Questions of domestic migration are important

for Senegal because of the very rapid growth of Dakar, the high population density in the central Groundnut Basin, and the agricultural potential of the under-populated southern part of the country. Recommends the Government develop a region as first priority, and then encourage and guide spontaneous migration. Suggests that the Government's efforts to intensify farming will result in an increase in farm size and a reduction in the man/land ratio, creating therefore a higher agricultural underemployment in the Groundnut Basin and inducing more migration toward towns. Irrigation in the Senegal River Basin will have an important impact on migration flows, but will probably not provide an opportunity for massive resettlement of farmers from the Groundnut Basin. It is argued that the Government cannot do much to relieve the population pressure in the central Groundnut Basin, but migration into Dakar can be affected by small changes in relative rural and urban terms of trade.

188. Dubresson, A. "Les travailleurs Soninké et Toucouleur dans l'ouest parisien," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(2) 1975, pp. 189-208.

Article examines migrant workers in Paris, 64% of whom are Soninke and 14%, Tukulor. Though their wages are among the lowest and rate of under-employment the highest, they manage to send money to families in their home areas.

189. Elkan, W. Rural Migration, Agricultural Settlement and Practice in Senegal. Durham: Durham University, Department of Economics, 1976, 37 p. (Working paper no. 4).

There is widespread belief that overcrowding in the Groundnut Basin is the major cause of migration to towns. This paper examines out-migration from the Groundnut Basin, Casamance, and from the Fleuve Region to France, and back.

190. ILO. L'emploi au Sénégal. Geneva: ILO, (for CILSS), February 1977, 25 p.

Report is one of a series prepared by ILO's Programme des Emplois et des Competences Techniques pour l'Afrique, for CILSS.

191. Jonge, Klaas, et. al. Les Migrations en Basse Casamance (Sénégal). Projet d'une Recherche Multidisciplinaire sur les Facteurs Socio-économiques Favorisant la Migration en Basse Casamance et sur ses Conséquences pour les Lieux d'Origine. Rapport Final. Leiden, The Netherlands: Afrika-Studiecentrum, 1978, 180 p.; bibl.

This multi-disciplinary study of migration analyzes the inter-relations of social, economic and demographic factors which influence the rate and direction of migration from the Casamance Region.

192. Kane, F.; A. Lericollais. "L'émigration en pays soniké," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(2) 1975, pp. 177-187.

Examines the Soninke migration to France which takes up about one-third of the active male population in the home area and over half of the manpower among the young. Authors attempt to explain why this type of migration has developed, how the local economy has been affected by the absence of the migrants and by the money which they send to their families and the consequences on the social life of the area.

193. Lericollais, A. "Peuplement et migration dans la vallée du Sénégal," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(2) 1975, pp. 123-135.

The author analyzes whether migration is a way of solving the problem of relative over-population, given the natural conditions, the techniques of production and the agro-pastoral systems of the Senegal River Valley.

194. Lericollais, A.; M. Vernière. "L'émigration toucouleur: du fleuve Sénégal à Dakar," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(2) 1975, pp. 161-175.

For three decades the young members of the village of Guia have migrated in search of cash incomes.

195. Mansari, Demba. "Devenir paysan," Famille et Développement (6) April 1976, pp. 24-34.

A personal account of the author's decision to leave Dakar in 1966 and "return to the land." He recounts his ten year experience in the Casamance, the initial problems of acceptance upon his return to the village cooperative. Concludes with a commentary on the essential need for agricultural extension agents to be integrated into, and therefore sensitive to, the human environment in which they operate.

196. Remy, G. "Du fleuve Sénégal aux rives de la Seine: vers l'asservissement d'une société," Tiers Monde, 18(69) January-March 1977, pp. 158-162.

Discussion of the historical and present-day reasons for out-migration from the River Valley. Attention is given to the flow of money from the migrant workers in France back to their families, who in turn spend it on imported products. As a result most of the income eventually returns to France and the economic stagnation of the Valley remains unchanged.

197. Roch, J. "Les migrations économiques de saison sèche en bassin arachidier sénégalais," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(1) 1975, pp. 55-80.

Author discusses the seasonal migration of groundnut farmers during the dry season. The migrants aggravate the struggle for employment in urban areas. The author finds that the seasonal migrations betray the seriousness of the social crisis in Senegal, in both the urban and rural areas.

198. Rocheteau, G. "Société wolof et mobilité," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(1) 1975, pp. 3-18.

With a view to accounting for the present causes and the economic implications of rural migration in the groundnut zone, this paper attempts to interpret geographic mobility through an analysis of Wolof society. The author finds geographic mobility to be a structural characteristic of the Wolof mode of production and also as a way the society is attempting to solve one of its inner contradictions, i.e., the emergence of discrepancies between the family structures of traditional authority and hierarchical systems with regards to land tenure control.

199. Santoir, C. "L'émigration maure: une vocation commerciale affirmée," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 12(2) 1975, pp. 137-159.

Author first presents the historical background of Mauritanian migration to Senegal. First using their caravans for transport during the early growth of groundnut production in Senegal, the Mauritians reinvested their profits in retail trade which found a market among the farmers of the groundnut region. At the same time they secured a position in Senegalese livestock markets. The more recent migration to Dakar and the Cap-Vert region is examined. The strong ties of the migrants to their country result in the reinvestment of their profits in Mauritania. The migrants are seen as a marginal and industrious minority whose role in the Senegalese economy cannot be ignored because of their monopoly in certain sectors of trade.

E. Women in Development

200. Barthel, Diane. "The rise of a female professional elite: the case of Senegal," African Studies Review, 18(3) December 1975, pp. 1-17.

Examines the female elite of Senegal, their highly privileged family backgrounds, their motivations for acquiring higher education and professional training and their views on development, the status of women, and rural life. Evaluates their evolution as an elite and their relationship to other women within the society.

201. Braun, Armelle. "Escape from the passive past," Ceres (FAO Review on Agriculture and Development), 11(4) July-August 1978, pp. 40-44.

Looks at the role of women in rural development activities in Senegal; with a brief description of some of the activities of the Koungeul Women's Cooperative Center for Savings and Credit.

202. Kane, F. "Femmes prolétaires du Sénégal, à la ville et aux champs," Cahiers D'Etudes Africaines 17(65) 1977, pp. 77-94.

A comparison of women employed by the BUD plantations and by the canned food industry in Dakar. The author finds that even though conditions of employment in the city are more regular, with higher salaries, social benefits and some trade union protection, the resemblances between urban and rural workers are more striking than the differences. The study, based on field work, questionnaires and interviews, details the recruitment, salaries and work conditions of the rural women and their lives within the village and family contexts.

VII. AGRICULTURAL PRICING POLICY, MARKETING AND STORAGE

A. Pricing Policy and Marketing

203. Banque Centrale des Etats de l'Afrique de l'Ouest. "La commercialisation de l'arachide au Sénégal, 1977-78," Notes d'information et Statistiques, (277) November 1979, pp. 3-36.

Data on groundnut production and marketing and the economic consequences of the 1977-78 yields. Statistics for previous years appeared in the following issues: 1976-77 in No. 242, August/September 1976; 1973-74 in No. 233, November 1975.

204. Ross, Clark. "Senegal." In: Marketing, Price Policy and Storage of Food Grains in the Sahel: A Survey. Volume 2: Country Studies, 81 p. section. Ann Arbor, MI: University of Michigan, Center for Research on Economic Development (for CILSS and Club du Sahel), 1977.

Focus is on cereal markets and price policy as they affect food self-sufficiency. Topics include: production, imports and food aid; government institutions, the Ministries and Regional development organizations; marketing and price policy for groundnuts, millet, sorghum, rice and maize; consumer and producer pricing policies; agricultural inputs and storage. Statistical tables include production of major crop 1960-1975; transport costs; imports and food aid 1976-1977.

205. Ross, Clark. A Village Level Study of Producer Grain Transactions in Rural Senegal. Ann Arbor, MI: University of Michigan Center for Research on Economic Development, June 1979, 51 p. (CRED Discussion Paper No. 81).

Report on a micro-level study of grain transactions (consumption, sales, purchases and other exchanges for 30 families from three villages in Senegal. A summary of Senegalese agriculture, socio-economic details of the three villages and marketing alternatives available to producers in each village. It was found that on the average, millet holdings per compound were 73% of the production. It was observed that grain was stored not only for security reasons, but also for speculative purposes by producers. The author argues that despite its technical feasibility, the domestic resource cost of increasing rice production from 100,000 to 300,000 tons in 1985 exceeds the current costs of imported rice, which will pose pricing problems. The production objectives were found to be reasonable, but likely to be attained at the expense of millet. The projected increase in millet production appears to be unlikely. Reconstructing rice consumption requires a possibly unpopular increase in consumer price.

206. SONED. Etudes sur la Commercialisation et le Stockage des Céréales au Sénégal. Dakar: Ministère du Développement Rural, 1977, 2 volumes.

Comprehensive study of the marketing of millet, sorghum, maize and rice. Presents a detailed history of government intervention and a field study of the parallel marketing system. Attempts to determine rates of return for transporting, storing and processing, and compares private trade with the operation of state enterprises. Presents projections for supply, demand, balances and inter-regional transfers.

B. Storage

207. Arup Partners Ireland, Int. "Sénégal." In: Etude sur le Stockage des Céréales dans les pays du Sahel. Tome 2: Etudes par pays; 42 p. section. Paris: Club du Sahel, October 1978.

Description and analysis of storage systems, with estimates of cereal production and consumption. A socio-economic section examines: cereals in the agricultural sector in terms of cultivated land, production, and technical and economic aspects of traditional and government storage systems.

208. Spencer, W.P.; D.L. Pfost; J.R. Pederson. Recommendations for Grain Storage and Preservation in Senegal. Manhattan, Kansas: Kansas State University Food and Feed Grain Institute, 1975, 132 p. (Report prepared for USAID).

Reviews the grain storage and marketing system in Senegal with specific emphasis on the need for grain storage facilities

to maintain a reserve stock of grains and a program to train Senegalese in grain storage and preservation.

209. Yaciuk, G. Méthodologie de l'Enquête sur la Technologie Post Récolte en Milieu Paysan. Bambey: CNRA/ISRA, July 1977, 80 p.

Outline of the methodology used in a survey of peasants' post-harvest technology. Objectives of the survey include: obtaining data on post-harvest techniques used on farms and determining research required to develop new techniques. Cluster, non-random, sampling was used in which the governor and his local assistants selected the villages, while the village chiefs chose the families. Selection of interviewers was based on their knowledge of the local language, their previous relations with the interviewed people, their experience in group work, their willingness to work under difficult conditions and their aptitude to learn. The document also covers the training program of the interviewers, their program, questionnaire preparation, and a description of the computer program used to process the data. The questionnaire is presented in an appendix.

210. Yaciuk, G. Résultats de l'Enquête sur la Technologie Post-Récolte en Milieu Paysan. Bambey: CNRA/ISRA, September 1977, 40 p.

Second of three reports on a survey of post-harvest technology. The results are reported in tabular form using the numbers of the questions from the survey instrument. (This report must be read simultaneously with the first volume (methodology) where explanation and codes are given.) The first set of tables presents frequency distributions stratified by region. A second section deals with questions of seasonal changes in post-harvest techniques used by farmers.

211. Yaciuk, G.; A.D. Yaciuk. Discussions des Résultats de l'Enquête sur la Technologie Post-Récolte en Milieu Paysan au Sénégal. Bambey: CNRA/ISRA, November 1977, 120 p.

Third of three reports of a survey of post-harvest technology. Statistics are presented on the ethnic and religious composition of the sample from eight different regions as well as on other characteristics - age distribution, marital status, number of children, education, profession, housing - of the interviewed people. The majority of the population is Wolof and changes in education and housing are positively related to income level. Threshing of millet is done according to immediate needs of the family except in the region where there is a threshing machine. Grains are mainly stored in granaries or sacks and the major problems of conservation are insects, moisture, fire, and robbery. Millet is the most important food grain in rural consumption, therefore the authors urge that research should be oriented toward the selection of seed varieties and extension of their use by farmers.

C. Cooperatives

212. Belloncle, Guy. "L' expérience sénégalaise." In: Coopératives et Développement en Afrique Noire Sahélienne, pp. 21-187. Sherbrooke, Québec: Université de Sherbrooke, Centre d'Etudes en Economie Coopérative, 1978.

A brief history of the plans to open a College Cooperative in Senegal, initiated by Mamadou Dia and eventually opened as the College de Cooperation within the National School for Applied Economics in 1964. The balance of the paper includes ten re-produced texts, mostly from French and Senegalese government sources in the early 1960's, which cover topics such as cooperatives and economic development cooperatives as instruments of development, training of cooperative agents, and agricultural credit. The paper is intended to shed light on early post-independence policy on cooperatives.

213. Gagnon, G.; Savaria, J. "Le Sénégal." In: Coopérative ou Autogestion: Sénégal, Cuba, Tunisia, by G. Gagnon, pp. 17-149. Montréal: Les Presses de l'Université de Montréal, 1976.

Mechanisms for involving the population in the development process (unionization, cooperatives and "animation rurale") are examined. In a section entitled "Cooperatives et animation rurale: participation ou exploitation?", the authors conclude that the cooperative system has essentially served to integrate the rural population into the capitalist production system.

214. Storm, R. "Government cooperative groundnut marketing in Senegal and Gambia," Journal of Rural Cooperation (Tel-Aviv) 5(1) 1977, pp. 29-42.

The author contends that the use of the word "cooperative" to describe the government's groundnut marketing system hardly seems justified because the government extracted revenues from the peasantry through the "cooperative" organization. But in the case of Senegal, the withdrawals have been primarily to meet urban needs.

VIII. RURAL INDUSTRY

215. FAO. Developpement Agro-industrial. Mission au Sénégal, 7-15 Novembre 1976. Rapport au Gouvernement du Sénégal. V.1: Déroulement de la Mission. V.2: Documentation de Base. Rome: FAO, 1977, 53 p.; 30 p.; maps (FAO access No. 39039).

Report of a FAO Industry Cooperative Program mission to Senegal focusing on agricultural industry and forestry development. Reviews proposed agro-industrial projects and data on the forest inventory and development project in the Casamance region.

216. Sénégal. Ministère du Plan et de la Coopération. La Décentralisation Industrielle dans le Cadre de l'Industrialisation en Milieu Rural. Dakar: Ministère du Plan, December 1975, 19 p.

Review of the objectives and principle characteristics of Senegal's rural industry policy with discussion of specific types of industrial activity: construction and transport linked to agricultural production; handicrafts; auxiliary manufacturing.

217. Sonko, A. Organization Analysis and Development of an Enterprise. Vienna: UNIDO, 1975, 5 p.

Examines entrepreneurship and management problems of small-scale industry, including handicrafts and industrial promotion.

IX. TRANSPORTATION

218. Berger, Louis, Inc. Etude Diagnostique d'Entretien Routier au Sahel. Note Complémentaire. Tome 8: Sénégal. Washington, D.C.: Louis Berger, Inc. (for CILSS and Club du Sahel), March 1978, 22 p., tables.

Commentary by the Senegalese government on the 1977 Berger road diagnostic study with a proposal for a national training program and modification of the program's costs.

219. Berger, Louis, Int.; Ingecot. "Sénégal." In: Road Maintenance Diagnostic Study for the Sahel (Draft Final Report). Volume 1: Synthesis; section 1.8, 16 p., Washington, D.C.: Louis Berger, Int.; Abidjan: Ingecot (for CILSS and Club du Sahel), June 1977.

A proposal for a six year road maintenance program to rehabilitate the road network, raise primary routes to an optimum maintenance level, and reinforce the means and organization of road maintenance services. An economic analysis of rehabilitation, maintenance, and aggregate resource requirements, constraints to the proposed program and maintenance alternatives.

220. Covindassamy, A.M. "Politique des transports et développement au Sénégal," Mondes en Développement (17) 1977, pp. 153-180.

An analysis of Senegal's transport policy which is seen as an effort to reorganize economic space, aimed at improving local transport, integration of local markets into the national resources. Despite partial but undeniable local successes the policy has been abandoned in favor of the modern capital-intensive sector.

X. ENVIRONMENT, FORESTRY AND FISHERIES

A. Ecology, Environment and Forestry

221. Bille, J.C. Etude de la Production Primaire Nette d'un Ecosystème Sahélien. Paris: O.R.S.T.O.M., 1977, 82 p.; bibl.; map. (Travaux et Documents No. 65).

Analyses of relationships between agricultural production, livestock feeding and problems caused by rodents, birds and insects in northern Senegal between 1969 and 1975.

222. Centre Technique Forestier Tropical; Oficina Tecnica de Empresas e Ingenieria. Mise en Valeur de la Basse et Moyenne Casamance, République du Sénégal. Inventaire Forestier - Rapport Technique 1. Rome: FAO, 1975, 296 p.; illus.; tables; maps (FAO access No. 37745).

UNDP project report on Casamance forest inventory, forestry development and forest mapping. The three volume report includes descriptions of the survey areas, methodology of forest surveying, research results and recommendations on data processing, forest mapping and forest mensuration. Includes 18 vegetation maps (1:50,000).

223. Deuse, J.P.L. "La contamination de l'impact sur l'environnement causée par l'emploi des pesticides et les conséquences pour la santé de l'homme dans les pays tropicaux." In: Cours de Formation à Lutte Contre les Ennemis des Cultures et Plus Spécialement à la Lutte Contre le Criquet Pèlerin et aux Recherches sur cet Acridien en Asie et en Afrique; Dakar, 15 Février 1975. pp. 340-351. Rome: FAO, 1976 (FAO access No. 35969).

UNDP project paper on the environmental impact of pesticide residues of DDT and its metabolites DDD and DDE, and the potential damage to flora and fauna and human health.

224. Fayemi, J.M. Note on Housing and Rural Environment in Serer Country (Senegal). Dakar: E.N.D.A., May 1976, p. 9. (African Environment Supplement; Occasional papers. 76-5). Paper presented at the seminar on Rural Environment and Housing in Intertropical Africa, Butare, Rwanda, October 1975.

Describes the Serer society and family, their villages and housing patterns. Agricultural labor groups work on collective fields and help sick farmers. The extended families are linked and decisions on land organization are made collectively. Land is considered the individual property of the families. The author argues that colonization and the development of the monetary economy have upset the traditional structure.

225. Lacombe, B. "Démographie et environnement," Cahiers O.R.S.T.O.M. (Série Sciences Humaines) 13(3) 1976, pp. 311-320.

Using a limited geographical area at Bouches in Sine-Saloum, the author discusses the inter-relationships between population, economy and natural environment, including land use, navigation, seasonal migration, salt extraction, hunting and fishing.

226. "Premier salon sur l'agriculture et l'hydraulique en Afrique: le Sénégal face à la désertification," Afrique Agriculture, (29) January 1978, pp. 55-56.

Review of the desertification problem in Senegal, including rural development and ecosystem protection, rain-fed agriculture and water management policy.

227. U.N. Sahelian Office. Analyse du Problème de la Désertification et Examen des Activités en Cours et Prévue Pour la Mise en Oeuvre du Plan d'Action Pour Combattre la Désertification en République du Sénégal. New York: UNSO, October 1979, 54 p. + annexes (issued as separate volumes: V.1, 152 p.; V.2, various paging).

Desertification and efforts to control the problem. Details the national desertification strategy, current activities, cost

and status of projects. Identifies assistance required to create a national system for evaluation and surveillance of desertification problems. Two separately issued annexes, both titled Projets Prioritaires Pour Combattre la Desertification Soumis a l'UNSO par le Gouvernement de la République du Sénégal, contain 22 project proposals for which UNSO is being requested to seek funding.

B. Fisheries

228. CILSS; Club du Sahel. Stratégie de Développement et des Pêches Maritimes et Continentales Jusqu'aux Années 1990 et 2000. Sénégal. Ouagadougou/Paris: CILSS/Club du Sahel, March 1979; 15 p.

Overview of the fishery sector was presented to the second meeting of the CILSS/Club Fisheries Team, held in Mindelo, Cape Verde in March 1977, forming part of the dossier Stratégies Nationales de Développement de la Pêche et Projets de la Première Génération. States overall objectives of the country's fisheries program, an analysis of needs, sector development strategy, with a table of current investments and projected program results.

229. DeJonge, K. Shrimp Fishing in Casamance (Senegal). A Case Study of Birkama. Leiden, The Netherlands: Afrika Studiecentrum, 1979.

Description of the relationship of seasonal fisheries with two central institutions: the shrimp industry, controlled by European enterprises, and the fisheries service, a public institution. Discusses the direct relations of dependence with the industry, and the fishery services' strict controls, including arbitrary decisions on opening fishing waters and on undermining strike actions by workers.

230. Montigny, André de. Etudes des Opérations de Développement. Le Secteur de la Pêche au Sénégal. (Document de Travail). Montréal: Université de Montréal Centre de Recherche en Développement Economique, October 1979, 59 p.

Paper submitted to the CILSS/Club Recurrent Costs Working Group. Describes a motorized fishing boat project, financed since 1972 by CIDA, and discusses the important role of the fishery sector has traditionally played in Senegal. Costs and investment returns at the level of the state administrative organization, CAMP, are analyzed with projections on the future operations of CAMP (Centre d'Assistance a la Motorisation des Piroques).

231. Sénégal. Ministère du Développement Rural et de l'Hydraulique. Service des Eaux, Forêts et Chasses. Rapport National sur la Pêche Continentale au Sénégal. Rome: FAO, 1977, 9 p. (FAO access No. 37988).

Paper presented to the Symposium on River and Floodplain Fisheries, Bujumbura, Burundi, 21 November 1977. Discusses development of Senegal's inland fisheries, focusing on specific projects and financing.

XI. OMVS

232. Bensoussan, N.; J. Chaumney; W.E. Roell. Etude Hydro-agricole du Bassin du Fleuve Sénégal. Organisation pour la Mise en Valeur du Fleuve Sénégal. V.1: Rapport de Synthèse des Etudes Travaux. V.2: Rapport de Synthèse des Etudes et Travaux, Plans. V.3: Carte Pédologique et Géomorphologique de la Vallée et du Delta du Sénégal. V.4: Cartes d'Aptitudes Culturelles des Terres de la Vallée et du Delta du Sénégal. Rapport Technique I. Rome: FAO, 1977, 329 p.; illus.; tables; maps (FAO access No. 37453).

UNDP technical report on River Basin development covering rural development, land reclamation, water management, hydrology and mapping of the area. Contains data on soil surveys, climate, agronomy, water resources development, animal production, fishery development, forestry development and hydraulic structures, specifically dams and drainage works. Economic and sociological aspects include land tenure and health problems. Included are 77 detailed soil, irrigation and geologic maps.

233. "Dossier: OMVS," Afrique Agriculture, (3) February 1978, pp. 22-59.

Round table interview with key participants at the first OMVS Consultative Council Meeting.

234. Gannett, Fleming, Corddry and Carpenter, Inc.; Orgatec; Saet. Assessment of Environmental Effects of Proposed Developments in the Senegal River Basin. Partial Report for Socio-economics. Dakar: OMVS, 1979, 188 p.; tables.

Study's stated objective is to obtain information on the sociological patterns of people in the Senegal River Basin in order to determine the impact of the OMVS development program on their lives and their responses to the predicted environmental changes. Presents an historical overview of the region, the sociological organization of the major ethnic groups and the forces already affecting the rural economy, i.e., migration, urbanization and private and governmental development efforts. The OMVS program is described,

including its plans for future development of the Basin, from the socio-economic point of view. The changing socio-economic environment is analyzed and discussed in detail for each of the four major components of the OMVS program (the Manantali, and Diama, dams, plus irrigation and navigation possibilities) followed by an issues discussion of the measures to mitigate the negative impact of proposed interventions on the socio-economic environment. Finally presents a plan of action for OMVS and member states aimed at enhancing benefits of the OMVS development program in the socio-economic context, with program implementation requirements.

235. "Les grands systèmes fluviaux et les organismes inter-étatiques de mise en valeur - OMVS." In: L'Economie des Pays du Sahel, pp. 37-78. Paris: Ediafric, 1976.

Overview of the development program of OMVS, and conclusions of the second donors meeting on the program.

236. Lubin, S. "The environmental impact of the Senegal River Basin project," KIDMA (Tel-Aviv), 3(3) 1977, pp. 36-39.

Examines the history, organization and planning efforts of the Basin development project in order to shed light on the Israeli Mediterranean-Dead Seas Canal project evaluation.

237. Maïga, M. Capitalisme, Exploitations des Ressources Hydrauliques du Fleuve Sénégal et Développement des pays Riverains. Paris: Université de Paris, 1976 (Doctoral thesis).

Examination of the dependency of the Senegal River Valley on the world economy. The current program for the integrated development of the Valley, which is seen as perpetrating that condition, is critically analyzed.

238. Moscal, T.; T. Ton That. Recherche Agronomique et Développement Agricole. Bassin du Sénégal. Organisation pour la Mise en Valeur du Fleuve Sénégal. Les Cultures Céréalières. Rome: FAO, 1978, 137 p. (FAO access No. 39805).

UNDP project technical report on cereal crops, agronomy and plant production in the Basin area. Presents preliminary results from variety trials, and on cultivation practices, including fertilization and irrigation.

239. OMVS. Hydroagricultural Projects in the Senegal River Basin: Rates of Development and Flood Regulation. Dakar: OMVS, April 1977, 129 p. + appendices.

Study presents the current situation of agricultural development in the Basin from the standpoint of development rates and flood regulation. Looks at traditional activities in irrigated farming and status of agricultural development planning in the Valley, with a synopsis of SAED's short and medium term action programs. Examines constraints on hydro-agricultural development in terms of spatial distribution, human resources, infrastructure, connections between training, research and development, and financial and institutional constraints; with proposals for overcoming the socio-economic constraints.

240. OMVS. The OMVS Programme: Presentation, Methods, and Means of Implementation. St. Louis, Senegal: OMVS, May 1976, 140 pp.

A follow-up to a report entitled "The Objectives and Broad Lines of the Senegal River Basin Integrated Development Strategy", adopted by the OMVS in July 1974. The first part summarizes the 1974 report, describing the OMVS development program. This program consists of a first phase of regional infrastructure development, including construction of dams, and improvement of port facilities and navigable waterways, followed by a resource development phase involving the irrigation of 400,000 hectares and the exploitation of the energy potential from the dams for use in mining and industry. The second part discusses the methods and means for carrying out the program, and includes comments on financing, the organization of OMVS and the impact of the program on human resources and institutional development.

241. OMVS. L'organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS). Une Grande Entreprise Multinationale de Développement Intégré. Saint-Louis, Sénégal: OMVS, 1978, 22 p.

Presents the objectives and goals of the OMVS and describes agricultural, industrial and transport programs. Financing and revenue-producing aspects of the program are reviewed and project data are provided for the Manatali and Diama dams, port construction at St. Louis and Kayes, and the development of a navigation channel between Kayes and St. Louis.

242. OMVS. Direction de la Planification et de la Coordination. Etude Socio-Economique du Bassin du Fleuve Sénégal: Rapport Provisoire. Dakar: OMVS, June 1978, 175 pp.

The results of a socio-economic study of the Senegal River Basin indicates that the irrigation program has not been adapted to local differences. Production costs are high, and the organization of production by groups of farmers or cooperatives is inadequate. Three interrelated problems must be solved: dam

construction and its cost, the cost of irrigation, and the size of irrigated fields. There is an urgent need to develop an integrated policy for small and large irrigated perimeters.

243. Reichold, W., ed. Der Senegarstrom Lebensader Dreier Nationen. Munich: Weltforum Verlag, 1978, 383 p.

An encyclopedic presentation of the Senegal River Valley, its physical and human environment, history, development methodology and the planning and finance of specific development programs.

244. Riley, J. Paul. "Senegal River Basin Planning." In: Towards a Rational U.S. Policy on River Basin Development in the Sahel. Proceedings of the Colloquium, March 31-April 1, 1978, Washington, D.C. (Prepared by Charles L. Joyce), Chapters 11 and 12. Washington, D.C.: USAID, 1978.

Reviews the physical characteristics of the Senegal River Basin and summarizes existing and potential additional water uses for the three countries concerned. Senegal's interest in the development of the Basin are in power generation and irrigation. Development of the water resources of the Basin requires the establishment of water control structures, the construction of the irrigation systems, and the development of the complex social infrastructure. The author recommends that the U.S. support and strengthen OMVS, continue and expand its emphasis on valley development, assist in developing effective experimental farms and extension programs as well as education related activities. Chapter 12 reports the discussion of Riley's paper by various members of the colloquium.

245. Riley, J. Paul, et. al. Cost Allocation Alternatives for the Senegal River Development Program. Logan, Utah: Utah State University, June 1977, 164 p. (Report prepared for USAID).

Study examines the possibility of using estimated project benefits as a basis for distributing the capital, operating, maintenance and replacement costs associated with the proposed Senegal River development program. Report proposes an economic model which estimates economic benefits of the program for each of the various use sectors and then distributes benefits to each of the three participating countries. In order to demonstrate its use and capabilities, the results of several runs of the model are included. Each run is based on specific assumptions concerning such parameters as commodity prices and rate of project development.

246. Sir Alexander Gibb and Partners. Organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS). Global Evaluation of the Regional Development Programme. London: Sir Alexander Gibb and Partners, July 1978, 96 p. + appendices; tables.

A technical and economic evaluation of the Manantali and Diami dam projects. Provides quantitative and qualitative evaluations of the effects of the combined functions of the dams in relation to the objectives of the OMVS program. Evaluating the combined projects induces modifications in the design of each project separately. Alternative solutions for combined and separate projects are discussed with cost estimates. Assesses the major objectives of the OMVS for agriculture, navigation and energy to determine the extent to which each project or variant, separately and in combination, can meet those objectives. Rates of return are derived for various project formulations and sequences of development. (Note: A brief Supplementary Report to the Global Study was issued in August 1978, after the main report had been reviewed by the OMVS. The OMVS subsequently issued the document Report on the Global Evaluation Study (74 p.) which contains member-states' commentaries on the main report.)

247. Slocum, Glenn. U.S. Assistance to the OMVS and the Senegal River Basin. Washington, D.C.: USAID, February 1978, 62 p.

Background and historical information on the OMVS and the Basin and suggests a policy framework and action program for USAID assistance. Examines a series of options for program implementation using a sectoral development approach covering agriculture, transport, environment, health, human resources, minerals, management and integration and coordination with other donors.

248. Stevens, Thompson & Runyan, Inc. Environment Program for the Integrated Development of the Senegal River Basin. Boise, Idaho: Stevens, Thompson & Runyan, Inc., April 1975 (Report prepared for USAID).

A review of the environmental impact problems involved in the development of the Senegal River Basin.

249. A Study for the OMVS Organization and Training Program. Houston, Texas: CRS Design Associates, 1975, 67 p. (Report prepared for USAID).

Study's objective was to collect data to assist OMVS in developing the organizational structure and human resources required to implement the Senegal River Basin development plan.

250. U.S. Congress. House of Representatives. "The Senegal River Basin Project." In: U.S. Development Aid Programs in West Africa. Report of a Staff Survey Mission to the Committee on International Relations, U.S. House of Representatives, 94th Congress, 2nd Session, March 22, 1976, pp. 33-48. Washington, D.C.: U.S. Government Printing Office, 1976.

Presents recommendations to the Committee on USAID commitments to the OMVS Senegal River Basin project. Assesses the Manantali and Matam perimeters projects. Presents a critical review of SAED and highlights economic, socio-cultural, environmental and health problems in the area.

251. U.S. Department of the Interior. Bureau of Reclamation. Senegal River Basin: Preliminary Basic Data Examination and Suggested Study Program. Washington, D.C.: U.S. Dept. of the Interior, April 1976, 195 p.

The purpose of this review, conducted at the request of USAID, was to assess seven development sectors for short, medium and long term development strategies for USAID and OMVS. The sector assessment cover: flow regulation as it relates to agriculture and livestock production; electrical energy and industrial development, including mineral exploration and development; navigation and transport, with attention to mineral and industrial development requirements; social factors, with the emphasis on water supplies, health and sanitary problems; environmental factors, especially those related to forestry and fishing; training and extension work, related to agriculture and other sectors; research especially on increased agricultural production.

XII. AGRICULTURAL EXTENSION AND RESEARCH

252. Bond, M.; M. Lam. "La production des semences sélectionnées d'espèces vivrières au Sénégal." Agronomie Tropicale, 31(2) 1977, pp. 170-178.

Discussion of a program, initiated in 1973 for the production of selected seeds for millet, sorghum, rice, maize and cowpeas.

253. Doucouré, M. "Agronomic research and agricultural development for exploitation of the Senegal River." In: Rice Project Managers Meeting, Monrovia, 4 February 1974. pp. 291-302. Monrovia: WARDA, January 1976 (FAO access No. 34575).

UNDP paper discusses principal problems of and a research program for Senegal River Basin development, including references

to intensive double cropping and rice cultivation systems; data on soil and climate conditions, and land preparation, and an evaluation of rainfed rice cultivation in mangrove soil.

254. France, Ecole Supérieure d'Agronomie Tropicale. Encadrement du Paysannat et Vulgarisation Agricole au Sénégal: Elements d'une Evaluation et Perspectives. Nogent-sur-Marne: Ecole Supérieure d'Agronomie Tropicale, 1978.

The failure of classical extension methods to help peasants include factor prices which are not conducive to crop intensification and diversification, and lack of access to credit and supplies necessary to carry out the advice of extension agents.

255. Hopkins, Elizabeth. Wolof Farmers in Senegal: A Study of Responses to an Agricultural Extension Scheme. Brighton: University of Sussex, 1975 (unpublished Ph.D. thesis).

Linear programming analysis of farmers' responses to an extension scheme in southern Sine-Saloum which suggests that the extension scheme failed to increase groundnut and grain output because the recommended techniques were unsuitable and not because farmers were unwilling to accept new techniques. Concludes that resource constraints prevent most farmers from adopting recommended techniques and that better returns can be achieved by utilizing available resources less intensively, and by expanding the range of crops grown.

256. International Agricultural Development Service/ISRA. Senegal: Agricultural Research Review. Dakar: ISRA, December 1978, 94 p.

Report on an ISRA-IADS study team on agricultural research and development activities in Senegal. The report recommends that ISRA concentrate its activities on coordinated, commodity-oriented projects and on production-oriented problems. The report also recommends the reorganization of ISRA into departments of crop science, animal science, farming systems, forestry, oceanography, economic and social research, and support services. The study team also suggests that ISRA create six research regions in Senegal based on ecological conditions, each provided with a regional research center, one or more experimental stations, and several outlying research sites.

257. International Agricultural Development Service (IADS). Senegal Agricultural Research Project. Dakar: Delegation Generale de la Recherche Scientifique et Technique, July 1979, 84 p.

Proposal to (1) strengthen national research capabilities through a more efficient organization and supporting services

for ISRA (Senegal's agricultural research institute) headquarters, (2) create and support multidisciplinary teams, conducting research on basic food crops (millet, sorghum, maize, rice, cowpeas, vegetables, and groundnuts), (3) strengthen farming systems research programs, and (4) provide for close and effective communications between research and development authorities.

258. Kleene, P.; Bigot, Y. "Dimensions des exploitations et modernisation agricole en milieu Wolof-Saloum (Sénégal)," Agronomie Tropicale (2) 1977, pp. 163-173.

A method of classifying farm size is presented. Evaluation of the rate of adoption of technical innovation by the various categories of farmers. The authors conclude that extension programs must be oriented more towards small and medium sized farms.

XIII. BIBLIOGRAPHIES AND REFERENCE

259. Adam, Francois et. al. Atlas National du Sénégal. Paris: Institut Géographique Nationale, 1977, pp. 147.
260. Archives du Sénégal. Bibliographie du Sénégal. Dakar: Archives (periodical).

Periodic listing of official publications with occasional supplements on specific topics.

261. Bingen, R. James. Research Studies in Sahel Francophone West Africa: Senegal. An Inventory of Research, Studies and Reports Sponsored by the U.S. Agency for International Development. Washington, D.C.: USAID, August 1977, 77 p.

An inventory of USAID-sponsored studies undertaken in Senegal, during the period 1962-1977. Summaries are included for project reports, evaluations, reviews, and long and short term studies.

262. Bulletin de l'Afrique Noire. Paris: Ediafric - weekly periodical.

Information on all sectors of the Senegalese economy appears regularly in this publication, with a focus on a specific sector at least once monthly.

263. Ediafric. L'Economie Sénégalaise. Paris: Ediafric, 1977 (4th ed.)

Reference work on economic, industrial and social development.

264. Evaluation Technologies, Inc. Senegal: A Country Profile. Arlington, Virginia: Evaluation Technologies, Inc., February 1979, 71 p. (Report prepared for USAID).

Baseline country data in support of planning, analysis and relief operations of the Office of U.S. Foreign Disaster Assistance (OFDA).

265. Kane, F. Femmes Sénégalaises: Bibliographie. Dakar: IDEP, August 1976, 23 p.

Publications dealing directly or indirectly with women, including religion, migration, marriage, childcare and urban life.

266. OMVS. Centre de Documentation. Aménagement et Mise en Valeur du Bassin du Fleuve Sénégal. Index. Saint Louis, Sénégal: OMVS, N.1, 1971.

Analytical bibliography of documentation concerning the Senegal River Basin.

267. O.R.S.T.O.M. Bibliographie: Sciences Humaines. Dakar: O.R.S.T.O.M., 1977, 14 p.

A bibliography of publications in social sciences related to Senegal. References are classified into nine groups: social anthropology - agricultural work and social organization - spatial organization of rural areas - urban problems - migration and settlement of new lands - mortality problems of the population - general demography - industries, incomes and wages - economics of the Senegal River Valley.

268. O.R.S.T.O.M. Liste Bibliographique des Travaux des Chercheurs de l'O.R.S.T.O.M. au Sénégal. Dakar: O.R.S.T.O.M., 1975, 39 p.

A bibliographical listing of O.R.S.T.O.M.'s publications from January 1971 to December 1974. The bibliography is divided into three broad categories. The first entitled "Land Sciences" includes geophysics, geology, hydrology and Soil Science. The second ("Sciences of Life") covers agronomy, botany, zoology, medical entomology, soil microbiology, nematology and serology. The last section deals with "human sciences": demography, economy, sociology and geography.

269. Porges, Laurence. Bibliographie des Régions du Sénégal (Complément pour la Période des Origines à 1965 et Mise à Jour 1966-1973). Paris: Mouton (for Agence de Coopération Culturelle et Technique), 1977, 637 p.

An update of the 1969 Regional Bibliography published by the Senegalese Ministry for Planning and Development, compiled by the same author. Covering the period up to 1973, this compilation lists over 7000 titles, all with brief annotations; references are arranged in seven chapters covering the regions Cap-Vert, Casamance, Diourbel, Senegal River Valley, Senegal Oriental, Sine-Saloum and Thies.

270. Quarterly Economic Review of Senegal, Mali, Mauritania, Guinea. London: The Economist Intelligence Unit, Ltd. (quarterly journal).

Regular section on Senegal in this periodical covers: political developments; economic policies; trends in investment and consumer spending; performance of key business indicators; evaluation of foreign trade data; assessment of the development plan and economic statistics.

271. Sénégal. Archives du Sénégal - Centre de documentation. Bibliographie: La Plannification au Sénégal: IVème et Vème Plan (Mise à Jour). Dakar: Archives du Sénégal. 1978. 7 p.

A listing of planning documents in Senegal, covering especially the Fourth and Fifth Plans. Publications are classified under three major headings: the preparation of the Fifth Plan, including technical notes on planning, publications of planning commissions, regional development plans, and national development plan; the execution of the Fourth Plan and the financing of the Fifth Plan.

272. ———. Délégation Générale à la Recherche Scientifique et Technique. Centre National de Documentation Scientifique et Technique. Index Courant de Documentation Economique, Scientifique et Technique. Dakar: CNDST, V.1, N.1, 1977.

An analytical bibliography on scientific, technical and economic information on Senegal.

273. ———. Direction de la Statistique. Comptes Economiques, 1976. Dakar: Direction de la Statistique, 1978, 169 p.

Collection of statistical data on the economy of Senegal for 1975.

274. Sénégal. Direction de la Statistique. Exportations. Douze Mois, 1975. Dakar: Direction de la Statistique, September 1977, 300 p.

Collection of statistical data on international trade of Senegal. Quantities and values of exports by commodity are given for a period covering the 12 months of 1975.

275. _____. Importations - Douze Mois, 1975. Dakar: Direction de la Statistique, December 1976, 473 p.

Collection of statistical data on international trade of Senegal. Quantities and values of imports by commodity are given for a period covering the 12 months of 1975.

276. Société Africaine d'Édition. Business au/in Sénégal. Dakar: Société Africaine d'Édition, 1979, 370 p.

This bilingual publication, intended as a businessman's guide to Senegal, presents information on the Senegalese economy, including a summary of government offices (with titles and addresses).

277. "Statistiques économiques et monétaires - Sénégal," Banque Centrale des États de l'Afrique de l'Ouest. Notes d'Information et Statistiques. (278) November 1979.

Statistics on money and credit, production, salaries and prices, internal trade, public finance, external commerce and balance of payments.

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