

Republic of Liberia
Ministry of Agriculture
Comprehensive Assessment of the Agriculture Sector
Volume 1 - Synthesis Report



MINISTRY OF AGRICULTURE

COMPREHENSIVE ASSESSMENT OF THE AGRICULTURE SECTOR IN LIBERIA (CAAS-Lib)

Volume 1 - Synthesis Report

Liberia 2007

FOREWORD

Since January 2006, the Government of Liberia has been committed to consolidating peace and accelerating the country's economic recovery. An Interim Poverty Reduction Strategy (IPRS), which elaborates the overarching national priorities of peace and security, economic revitalization, rehabilitation of infrastructure, delivery of basic services, and the rule of law and governance, will be replaced in 2008 by a full Poverty Reduction Strategy.

The agriculture sector is expected to contribute meaningfully to the priorities of poverty reduction, food security, employment, increased personal income, and foreign exchange. Unfortunately, the contribution of agriculture to national economic growth and development has been limited over recent years by structural constraints, inadequate policies and civil conflict.

To facilitate development of the food and agriculture sector and to assess the role and contributions of the sector in meeting both urgent and longer term expectations during the process of recovery and development, Government decided to review the sector. The review was performed to provide much needed reliable information and analysis of the status, potential, constraints and opportunities of the sector. This information was intended to inform decisions on policy, strategies, programmes and activities in the sector.

The Comprehensive Assessment of the Agriculture Sector of Liberia (CAAS-Lib) project, which was led by the Ministry of Agriculture, had support from FAO, the World Bank and IFAD, and the collaboration of national agencies and other interested parties. A National Steering Committee established for the purpose provided policy guidance and advice.

The Assessment process utilized an extensive mix of national and international expertise from a wide range of sector disciplines, and applied scientific, consultative and participatory tools to generate and analyse information and data from the sector. The Assessment Team travelled throughout the country to carry out a broad consultation exercise. They discussed issues, findings and options with stakeholders in both rural and urban areas, including those in public and private sector institutions and other organizations.

The findings from the field studies and other data generating activities were discussed at Regional Workshops in the country to broaden and deepen the scope of consultations and participation in the Assessment, and at the same time to strengthen national ownership and sustainability of the outcomes.

A National Workshop was held on 28–29 May 2007 with participation from public and private institutions, farmer groups, civil society organizations and development partners; the presence of Cabinet Ministers and Parliamentarians was significant, as was the high quality of contributions from all participants. The event provided a valuable opportunity to stakeholders, who freely and openly discussed and exchanged views and experiences on policies, strategies and options for development and growth of the sector. The Workshop also validated the overall Assessment Report and recommendations, and emphasized a framework of actions to follow the Assessment.

The final Synthesis Report has passed a rigorous consultation process and will provide a valuable source of information, data and analysis to assist stakeholders in the revitalization of

the agriculture sector. The report is presented in two volumes – the first is a Synthesis Report and the second volume contains various sub-sector studies.

The findings and recommendations from the assessment have strengthened our resolve to move with utmost speed and determination to take advantage of the opportunities that are outlined in the report, and especially to encourage our partners to support us in the ensuing action plan for agricultural growth and prosperity.

I take this opportunity to express my appreciation to FAO, the World Bank and IFAD for their unstinting technical and financial support in ensuring that the assessment process was concluded successfully.

Indeed a new dawn of evidence-based decision making and action in the agriculture sector has emerged in the country. I invite everyone to assist Liberia to move in that direction.

**Christopher Toe
Minister for Agriculture
Republic of Liberia**

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The process benefited from regional consultations and a national validation workshop in May 2007, which had substantial stakeholder participation that provided a valuable contribution to the analysis and recommendations. A joint World Bank–FAO–IFAD–GoL peer review also took place, during which experts reviewed the Synthesis Document and made constructive suggestions for its improvement.

The project benefited from the dynamic leadership, guidance and contributions from the Honourable Minister for Agriculture Christopher Toe, who was the Chairperson of the project steering committee, and received support and key inputs from all the Deputy Ministers and officials of the Ministry of Agriculture, Government of Liberia. The steering committee members, international and national experts, project managers and the technical and support staff of FAO, the World Bank and IFAD contributed to the success of this effort. Dr Dunstan Spencer, the team leader, and Dr Othello Brandy, his national counterpart, lent their unstinted efforts to coordinating the work and providing technical contributions towards the completion of this project. The support team is gratefully acknowledged, particularly Ms Agnes Perkins of FAO, Monrovia, and Ms Laura Battista and Ms Ana Maria Galvan of TCAS, FAO, who bore the brunt of recruitment and other logistic issues. The latter two are also acknowledged for their patient editing and secretarial support throughout the project period.

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ACRONYMS

| | |
|----------|--|
| ACDB | Agricultural Cooperative Development Bank of Liberia |
| ACDI | Agricultural Cooperative Development International of the USA |
| ADB | African Development Bank |
| ADP | Agricultural Development Project |
| ARC | Agricultural Research Committee |
| AFLI | Association of Female Lawyers of Liberia |
| AFRACA | African Rural & Agricultural Credit Association |
| AGOA | African Growth & Opportunity Act (USA) |
| AGRIMECO | Agricultural Mechanization Company |
| AVRDC | Asian Vegetable Research and Development Centre |
| BCADP | Bong County Agricultural Development Project |
| BNF | Bureau of National Fisheries |
| BoB | Bureau of Budget |
| BWI | Booker Washington Institute |
| CAADP | Comprehensive African Agricultural Development Programme |
| CAAS-Lib | Comprehensive Assessment of the Agricultural Sector of Liberia |
| CAES | Central Agricultural Experiment Station |
| CAF | College of Agriculture and Forestry, University of Liberia |
| CARE | Cooperative for American Relief Everywhere |
| CARI | Central Agricultural Research Institute |
| CARS | College of Agriculture, Rural Development and Sociology, Cuttington University |
| CBL | Central Bank of Liberia |
| CBO | Community Based Organization |
| CDA | Cooperative Development Authority |
| CDC | County Development Committee |
| CFC | Community Fisheries Centre |
| CFSNS | Comprehensive Food Security and Nutrition Survey |
| CGIAR | Consultative Group on International Agricultural Research |
| CIAT | International Centre of Tropical Agriculture |
| CIMMYT | International Maize and Wheat Research Centre |
| CLUSA | Cooperative League (USA) |
| CMC | Cash Management Committee |
| CMC | Contracts and Monopolies Commission |
| CMP | Change Management Programme |
| CORAF | Conference des Responsables de la Recherche Agronomique Africaine (West and Central African Council for Agricultural Research and Development) |
| CPA | Comprehensive Peace Agreement |
| CRS | Catholic Relief Services |
| CST | County Support Team |
| CU | Cuttington University |
| DDC | District Development Committee |
| DECE | Department of Extension And Community Empowerment |
| DFID | Department for International Development, UK |
| DOPC | Decoris Oil Palm Corporation |

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| DP | Development Partner |
| DRC | Domestic Resource Cost |
| DTIS | Diagnostic Trade Investment Study |
| EAC | A Liberian company formerly owning part of the LBDI |
| ECOWAS | Economic Community of West African States |
| EEZ | Exclusive Economic Zone |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| FARA | Forum for Agricultural Research |
| FDA | Forestry Development Authority |
| FFS | Farmers Field School |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GEMAP | Governance and Economic Management Assistance Programme |
| GoL | Government of Liberia |
| GRT | Gross Registered Tonnage |
| HQ | Headquarters |
| IARC | International Agricultural Research Centre |
| ICRAF | International Centre for Research in Agro Forestry |
| IDP | Internally Displaced Persons |
| IDRC | International Development Research Centre |
| IFAD | International Fund for Agricultural Development of the United Nations |
| IFC | International Finance Corporation |
| IFDC | International Centre for Soil Fertility and Agricultural Development |
| IFPRI | International Food Policy Research Institute |
| IFS | International Foundation for Sciences |
| IITA | The International Institute of Tropical Agriculture |
| ILO | International Labour Organization of the United Nations |
| ILRI | International Livestock Research Institute |
| IMF | International Monetary Fund |
| INGO | International Non-Governmental Organization |
| iPRS | Interim Poverty Reduction Strategy |
| IRAT | Institute de Recherche en Agronomie Tropical |
| IRD | Institute of Research and Development (France) |
| IRRI | International Rice Research Institute |
| ISN | Interim Strategy Note (World Bank) |
| IUU | Illegal, Unreported and Unregulated Fishing |
| LACE | Liberia Agency for Community Development |
| LBDI | Liberian Bank for Development and Investment |
| LCADP | Lofa County Agricultural Development Project |
| LCCC | Liberia Cocoa and Coffee Corporation |
| LCUNA | Liberia Credit Union National Association |
| LEAP | Local Enterprise Assistance Programme |
| LED | Local Economic Development |
| LiMFU | Liberia Marketing and Farmers Union |
| LINNK | Liberian NGOs Network |
| LMA | Liberia Market Association |
| LoA | Letter of Agreement |
| LPMC | Liberia Produce Marketing Corporation |
| LPPC | Liberia Palm Products Corporation |

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| LRDA | Liberia Rubber Development Authority |
| LRRI | Liberia Rubber Research Institute |
| LU | Livestock Units |
| LWS | Lutheran World Service |
| M&E | Monitoring and Evaluation |
| MCI | Ministry of Commerce & Industry |
| MCS | Monitoring, Control and Surveillance |
| MDA | Ministries, Departments and Agencies |
| MDG | Millennium Development Goals |
| MF | Micro Finance |
| MFI | Micro Finance Institution |
| MIA | Ministry of Internal Affairs |
| MIS | Management Information System |
| MIS | Market Information System |
| MISTOWA | Market Information Systems and Traders' Organizations Network and Project in West Africa (IFDC's) |
| MoA | Ministry of Agriculture |
| MoF | Ministry of Finance |
| MoPEA | Ministry of Planning and Economic Affairs |
| MSY | Maximum Sustainable Yield |
| NARDA | New African Research and Development Agency |
| NCBA | National Cooperative Business Association (USA) |
| NCRDP | Nimba County Rural Development Project |
| NEPAD | New Partnership for Agricultural Development (African Union) |
| NERICA | New Rice for Africa |
| NFC | National Federation of Cooperatives |
| NGO | Non-Governmental Organization |
| NMTIP | National Medium Term Implementation Programme (NEPAD) |
| NPC | National Palm Corporation |
| NPFL | National Patriotic Front of Liberia |
| NSA | Non State Actor |
| NTGL | National Transitional Government of Liberia |
| OECD | Organisation of Economic Cooperation and Development |
| PAM | Policy Analysis Matrix |
| PEA | Participatory Extension Approaches |
| PFM | Public Financial Management |
| PRRA | Participatory Rapid Rural Appraisal |
| PRS | Poverty Reduction Strategy |
| PSI | Pre-Shipment Inspection |
| R&D | Research and Development |
| SPFS | Special Programme for Food Security (FAO) |
| TA | Technical Assistance |
| UL | University of Liberia |
| UN | United Nations |
| UNCCA | United Nations Compensation Claimants Association |
| UNCDF | United Nations Capital Development Fund |
| UNDP | United Nations Development Programme |
| UNFPA | United Nations Fund for Population Affairs |
| UNICEF | United Nations Children's Fund |
| UNIDO | United Nations Industrial Development Organization |

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| UNIFEM | United Nations Development Fund for Women |
| UNMIL | United Nations Mission in Liberia |
| UNOPS | United Nations Office for Project Services |
| UoL | University of Liberia |
| USAID | United States Agency for International Development |
| VAM | Vulnerability Analysis and Mapping |
| WARDA | West Africa Rice Development Association |
| WB | World Bank |
| WFP | World Food Programme |
| WOCCU | World Council of Credit Unions, Inc. (USA) |
| WTO | World Trade Organization |
| WVI | World Vision International |

EXECUTIVE SUMMARY

1. The Comprehensive Assessment of the Agricultural Sector in Liberia (CAAS-Lib) provides an evidence base to enable appropriate strategic policy responses by the Government of Liberia (GoL) and its development partners in order to maximize the contribution of the agriculture sector to the Government's overarching policy objectives¹. It is based on rigorous qualitative and quantitative analyses combined with broad participation and consultations with stakeholders. The findings of CAAS-Lib are contained in two volumes: the Synthesis Report is contained in Volume 1, while the Working Papers prepared for each of the sub-sectors and thematic areas reviewed are contained in Volume 2. A summary of the main findings and recommendations relating to policy opportunities and challenges for sustainable agricultural development in Liberia is given below.

2. **Pro-poor focus:** Given the strong relationship between growth in agricultural productivity and poverty reduction, future efforts in Liberia need to focus on productivity-enhancing measures with a pro-poor focus that increase incomes. Growth based on extensification using traditional technologies is generally not profitable and has damaging implications for the environment. Given the low level of assets possessed by most Liberians, future efforts need to address the question of access to assets (i.e. land, knowledge and inputs) in addition to providing opportunities and an enabling environment. Liberia needs to make concerted efforts to preserve and consolidate its emerging stability by focusing on interventions to ensure food security and poverty alleviation at the community and household levels. Improving access to food and generating sustainable, remunerative activities and employment are crucial to this process.

3. **Transformation of agriculture:** GoL and donors will need long-term sustained engagement in order to realize the transformation of Liberian agriculture for the benefit of smallholders. 'Transformation' in this sense means the conversion of a system characterized by an economically concentrated commercial plantation sector coexisting with large numbers of poor farm households involved in low input/low output (shifting) cultivation to one in which there is broad-based farmer participation in integrated, productivity-driven cash-crop/food crop systems. It is essential that the country avoids falling back into old patterns of growth and development based on natural resource extraction industries and a heavily concentrated plantation and commercial agricultural sector. Operationalizing this approach will require strategic direction, systematic processes and greater participation from a wide cross-section of Liberian and regional actors in order to move from specific policy and programme pronouncements to a set of concrete actions and investments that are specific to population groups and geographical areas.

4. **Public/Private Roles:** A government's provision of public goods is arguably more important in countries emerging from conflict because it has a stronger immediate impact on outcomes in the sector. At the same time a strict adherence to arguments on the provision of public good may undermine essential ingredients of economic recovery. The decision of GoL to retract public institutions from direct involvement in implementation represents a major change from the pre-war period when direct intervention in production and marketing was common. Nevertheless, experience across Africa in the last two decades has underscored the

¹ Forestry is not covered in CAAS-Lib because it has been comprehensively reviewed recently and policies have been formulated as part of the Liberia Forest Initiative.

importance of critical public functions in supporting value chain development and performance. This has involved investment in public goods such as R&D, strategic direction, coordination, supervision, regulation, monitoring and accountability. Simply withdrawing and assuming that the private sector will come in has been shown not to work. Determining the type of public goods to provide in an effective and sustainable manner is a difficult but very important task for GoL

5. Improving rural incomes, food production, food security, safety nets and nutrition:

Because the majority of Liberians are net buyers of food, reducing the real cost of food should be a major food security objective of GoL. The use of improved technology to raise yields will be crucial if real incomes are to increase for both net food buyers and net producers. *In the short term* the emphasis should be on continuation of GoL and NGO distribution programmes for seeds, tools and livestock to recapitalize smallholder agriculture. These should be complemented by matching grants to encourage small-scale productive investments that have a clear collective goods component and/or externalities (small-scale irrigation, drying floors, etc.). Increases in vegetable and fruit production will help to improve the nutrition of poor households, in addition to increasing incomes. *In the medium term* high expectations are placed on the recently developed NERICA programme and the availability of improved technology that can increase rice yields (improved husbandry, better irrigation, assured supply of inputs, etc.) as well as on small-scale mechanization. This is because large-scale mechanization of food crop production has failed in Liberia and is unlikely to be successful under current conditions.

6. Because malnutrition is likely to remain endemic in Liberia a specific nutrition strategy is required. Immediate efforts must centre on monitoring and responding to the problem of acute malnutrition, particularly in central and south-eastern regions, where the prevalence of wasting exceeds 10%.

7. **To enhance the contribution of tree crops** to the Liberian economy *short-term priorities* should include public-private sector dialogue aimed at arriving at solutions to critical issues that impinge on tree crop development, such as land tenure (options of leasing, licensing and other forms of conveyance) and the role of the out-grower plantation scheme; developing a model concessions contract and policies on divesting ownership of existing parastatal plantations; establishment of a GoL/NGO grants programme to support rehabilitation of existing viable smallholder plantations. *In the medium/long term* the emphasis should be on promotion of the widespread adoption of improved techniques in smallholder cocoa and coffee, and a nucleus estate-cum-smallholder strategy for oil palm (where the global demand for biofuels offers exciting opportunities) and rubber.

8. **In the fisheries and livestock sectors** *short-term priorities* include the conducting of basic studies (Fishery frame survey, PAM analysis of livestock systems, etc.); formulation of a national fisheries and aquaculture policy and strategy to strengthen the country's maritime and fisheries laws and regulations; and support of Monitoring, Control and Surveillance activities by UNMIL. *In the medium term* the focus should be on building up the human resources of BNF; establishment of strong collaboration at sub-regional, regional and international levels, especially for scientific research and sustainable management of shared fisheries resources; launching of special programmes to develop artisanal fishery; establishment of Community Fisheries Centres to encourage the private sector and other financial institutions to make investment credit available to artisan fisheries workers, especially women; and establishment of a number of pilot animal production centres in

selected villages that will train local entrepreneurs in modern livestock production techniques and businesses.

9. Policy and institutional reforms: GoL should maintain its liberal policy towards food imports and exports, with careful attention to the effects such a policy has on the incentive system for domestic food production. It should continue moving towards full adoption of ECOWAS Common Tariffs.

10. The Ministry of Agriculture (MoA) needs to embark on a Ministry-wide Change Management Programme that will enable it to be transformed and modernized relative to its pre-war role and function. MoA aims to become an effective and efficient organization that focuses its energy on its most important or core function – to develop and maintain an enabling institutional framework that promotes economic development and civil society. It will be critical to avoid establishing rigid structures within MoA that impede its ability to evolve and reallocate effort in response to changing conditions.

11. The central focus for renewal of the extension system should be on building a pluralistic and participatory agricultural advisory and extension service. The extension system needs to transform from the transfer of technology model to a pluralistic extension system that involves multiple public and private sector service providers using Participatory Extension Approaches.

12. In rebuilding Liberia's agricultural R&D system *short-term priorities* should concentrate on 'quick win' measures that focus on reinitiating adaptive and applied research, capacity building activities (human and physical), formation of strategic alliances and partnerships with key stakeholders, resource mobilization, and the development of a long-term strategy for national agricultural research for development. Given its limited financial and human resources, CARI should rationalize its current activities by transferring some of the activities to other institutions. In the medium term there is a strong need for a fully integrated agricultural research, extension and education system in Liberia.

13. Further actions to enhance the agricultural education system over the medium to long term are needed, including the development of a strong curriculum for both secondary and college agricultural training programmes with flexibility to respond to location factors and industry/employee demands, training of agriculture education instructors at all levels, and development of partnerships between the training institutions that, for example, allow students to take courses at other campuses.

14. Improvement of the marketing system in Liberia requires collaboration between the public and private sectors, including farmers' organizations, to take direct actions such as improving access for distribution through improved transport, especially road and rail networks; improving the market institutions; improving the physical infrastructure of marketplaces; putting in place appropriate market information services; risk mitigation measures after a detailed study of past experiences and lessons learned; more indirect actions such as increasing the supply of produce through increased agricultural production, improving access to credit, etc.

15. Mainstreaming gender: Despite advances on the legislative and public policy front regarding women's rights at the national level, complex community arrangements and longstanding traditions continue to restrict development opportunities for women at the local

level in rural areas. Improving the access of women to land, credit, inputs and extension services, and promoting women's involvement in new economic areas in Liberia will contribute to rural growth. GoL should ensure that any agricultural development strategy includes women at the centre, empowers them and creates an enabling environment so that women can fully contribute to and benefit from rural growth and the poverty reduction strategy (PRS).

16. Information and analysis for improved decision making: 'Evidence-based policy making' is the new mantra, reflecting the fact that the effectiveness of policy and programme decision making is usually no better than the quality of the data and empirical analyses used in the decision-making process. This report highlights (i) the paucity of data for analysis and planning, and (ii) the importance of developing the capability of the GoL, in partnership with others, to analyse, monitor and modify the complex and dynamic interactions between policies, institutional reform, technological change and human capital development.

17. Making the Government budget work for agricultural development: Creating a supportive environment for pro-poor growth and private sector-led agricultural development requires the correct volume and pattern of public expenditure. Liberia is committed to meeting the Maputo goal of allocating 10% of its budget to the agricultural sector. An indicative simulation suggests that meeting the Maputo commitment is within reach and that, with buoyant revenues, this implies substantial scaling up of resources for agriculture. However, given current capacity constraints, questions remain concerning the absorptive capacity to effectively utilize a significant increase in resources. Previous work has emphasized the importance of phasing assistance to match a steady increase in capacity, and it will be important to ensure a coordinated scaling up that matches resources with capacity.

18. Opportunities and guidelines for investment: Fostering sustainable growth in agricultural commodity value chains will require substantial public and private investment in order to improve their productivity and competitiveness in national, regional and international markets. Investment could conceivably come from a combination of domestic savings and external resource inflows. Domestic savings can be generated in the public sector through lower consumption and fiscal discipline and from private individuals and organizations through higher incomes and increased saving. External investment can come from foreign direct investment, return of capital flight and foreign aid. While numerous factors have been identified as important determinants of national and foreign investment, investors' perception of risk and the ability to earn and keep their returns in a given country or zone appears prominently at the top of every list.

19. This Synthesis Report gives an indication of priority short- and medium-term activities that should feature in the planned food and agriculture policy and strategy as well as in the PRS. The detailed sub-sector reports in Volume 2 also contain suggestions for investment projects, which are summarised in the matrix in Annex 2. GoL will need to carefully prioritize the investment programme within the framework of projected available funding for the PRS.

I. INTRODUCTION

A. Background

1. **Liberia is emerging from two decades of conflict and political turmoil.** Under the leadership of President Ellen Johnson-Sirleaf, the Government of Liberia (GoL) seeks to rebuild the shattered economy, restore peace and security and improve the livelihoods of the 3.3 million inhabitants, many of whom were displaced by the conflict.² With the strong support of the international community, including the United Nations Mission in Liberia (UNMIL) as well as multilateral and bilateral partners, GoL is articulating its vision for sustained economic growth and poverty reduction.

2. **Agriculture continues to be at the centre of reconstruction and development efforts.** Agriculture was already recognized as central to peace-building and reconstruction efforts under the National Transitional Government of Liberia (NTGL) established at the cessation of the conflict in October 2003,³ and featured in the Results-Focused Transitional Framework (RFTF).⁴ Immediately after coming to office, President Johnson-Sirleaf's Government declared a '150 day action plan' that sought to deliver a 'democracy dividend' of immediate improvements in people's lives. Concurrently, in early 2006, GoL produced a Statement of Policy Intent for the Agricultural Sector and a short-term action plan for agricultural recovery, with support from the Food and Agriculture Organization (FAO). More recently, the Government produced an interim Poverty Reduction Strategy (iPRS) for the period July 2006– June 2008 (Republic of Liberia, 2006a), which set out a comprehensive strategy for achieving the Millennium Development Goals (MDG).

3. The iPRS was based on four 'pillars' related to: (1) enhancing national security; (2) revitalizing the economy, (3) strengthening governance and the rule of law, and (4) rehabilitating infrastructure and improving delivery of basic services. The second pillar, in particular, focuses on improving the welfare of Liberians by raising incomes and improving food security through pro-poor economic growth that creates employment and provides opportunities for Liberians to participate in remunerative and sustainable livelihoods. This pillar sets out the nation's ambition to improve food security at national, community and household levels, thereby solidifying the important investments made to create a peaceful, secure and stable country.

4. As acknowledged in the iPRS, pillars (1), (3) and (4) are equally important to reducing poverty and hunger: the security focus of the first pillar is important for decreasing uncertainty and risk in communities, critical preconditions for investment; the emphasis on broad-based participation in governance and development is critical to the implementation of a pro-poor growth strategy; and key investments in public goods (infrastructure and services) contribute to the development of an enabling environment and sustainable livelihoods.

² The swearing-in of President Johnson-Sirleaf – Africa's first female President – took place in January 2006. Johnson-Sirleaf's Government replaced the National Transitional Government of Liberia (NTGL) that emerged from the Comprehensive Peace Agreement signed in Accra, Ghana in 2003.

³ The NTGL took power in October 2003 and handed over power in January 2006 upon the swearing-in of President Ellen Sirleaf-Johnson.

⁴ The RFTF emerged from the reconstruction conference held in New York in February 2004 as the mutually agreed framework for assistance in support of the NTGL. It identified nine 'clusters' of immediate priority, including the Restoration of Productive Capacity and Livelihoods (Cluster 7).

5. As a key vehicle through which the country can achieve the growth, equity and security objectives enumerated in the iPRS, GoL has identified, among others, the following overarching objectives for agricultural recovery and development in the country:

- Sustainable resettlement of all vulnerable groups (internally displaced persons, returnees and conflict-affected host communities); creation of employment for youth.
- Enhancement of food security and achievement of self-reliance in main staples, particularly an increased and stable supply and availability of food products, improvement of access to food for the most vulnerable social groups, and enhancement of the nutritional absorption capacity of the population.
- Increasing the income of smallholders through improved production, marketing and value addition, with emphasis on gender issues in agriculture.
- Rejuvenation of the vibrant commercial and plantation sector.
- Restocking of livestock and rehabilitation of the fisheries sector.
- Institutional and policy reforms directed at addressing the main pillars of governance, including decentralization, economic management and food security.
- Increasing investment, both private and public, to jump-start the contribution of the sector to overall economic development.

6. Development partners (DPs) have pledged to support the iPRS and concur with the importance of agriculture and natural resources to continued economic growth and poverty reduction in Liberia. The joint Interim Strategy Note (ISN) of the World Bank⁵ and the African Development Bank commits both agencies to fully support the iPRS with investments to support the development of the agricultural sector.

7. Despite the prominence given to agriculture, GoL and its DPs lack a solid analytical foundation upon which to base sound development strategies and focused interventions. In order fully to appreciate the role and contributions that the agriculture sector could make to meeting urgent and longer term expectations for recovery and development, and to provide the evidence base for policy development, the Ministry of Agriculture (MoA) embarked on a Comprehensive Sector Review. The objective was to enable the Ministry to determine how the sector could respond to meeting the key Government priorities of sustainable resettlement and reintegration, food security and nutrition, employment, incomes and foreign exchange reserves and investment, in order to meet the objectives of the iPRS, to jump-start the recovery of the economy and to enhance food security and development. Recognizing the enormity of the challenge in a country with very limited statistics and contemporary primary research, as well as severe capacity constraints, GoL sought the assistance of DPs in this task.

8. The Comprehensive Assessment of the Agricultural Sector of Liberia (CAAS-Lib) was jointly undertaken by FAO (with Norwegian funding from the Programme Co-operation Agreement with FAO), the World Bank and the International Fund for Agricultural Development (IFAD), to support to MoA and to assist in policy formulation and implementation. This Report is the outcome of that exercise.

⁵ The World Bank's Country Re-engagement Note (CRN – World Bank, 2004a) emphasized five critical drivers of economic recovery, the first two of which relate to natural resource management (NRM): (1) the revival of agriculture and (2) sustainable management of remaining forests.

B. Objectives and Approach

9. **The overall objective of the Comprehensive Assessment is the establishment of an evidence base to enable appropriate strategic policy responses by GoL and DPs** in order to maximize the contribution of the agriculture sector to Government's overarching policy objectives. It is the first comprehensive agriculture sector review since the World Bank report of 1984 (World Bank, 1984). The main purpose of CAAS-Lib⁶ is to assist the Government to:

- Carry out a comprehensive assessment of the agricultural sector and food security situation in the country. The exercise will generate appropriate information on the status, potential and constraints of the sector in order to facilitate decisions on the direction, methodology and scope of actions for the sector to contribute to the national priorities of food security and nutrition, productivity, investment, income and employment.
- Generate information for the formulation of an Agriculture and Food Security Strategy Framework in conjunction with the Poverty Reduction Strategy (PRS).
- Generate information to prepare a Comprehensive Policy for the agriculture sector.
- Determine the nature of and scope available to strengthen the capacities of the MoA at both the central and decentralized levels by conducting participatory diagnosis studies, planning and implementation of agricultural and food security policies and strategies.

10. **The approach adopted by CAAS-Lib involved rigorous qualitative and quantitative analyses combined with broad participation and consultations with stakeholders.** Sub-sector teams that involved local and international experts were tasked with producing individual background analyses (Box 1). This CAAS-Lib Synthesis Report is underpinned by the foundations described in the following paragraphs.

11. **Extensive historical perspective and literature review.** The war resulted in the destruction of all agricultural institutions (including their physical infrastructure as well as knowledge and data collections). However, Liberia had a wealth of agricultural institutions, a dynamic and diverse landscape of stakeholder initiatives and activities and many agricultural projects before the war. Much experience was obtained in these activities and it is essential that any post-war agricultural development and poverty alleviation programmes draw from that experience, avoiding past mistakes and using best practice learned from regional and international development.

12. **Assessment of the current situation.** Each sub-sector team assessed the current situation (strengths and weaknesses) relating to production, food security, and the programmes and activities being implemented. Project documents, activity and progress reports were the main sources of information, although attention was paid also to locally generated, informal community-based information. The objective was to obtain a description of and information base on the assessment by others of all relevant elements identified for assessment in CAAS-Lib, highlighting the main constraints and opportunities.

⁶ CAAS-Lib constitutes an Agricultural Sector Review in World Bank parlance. Forestry is not covered because it has been comprehensively reviewed recently and policies have been formulated as part of the Liberia Forest Initiative.

Box 1: Subsector Teams in the Preparation of CAAS-Lib

| Sub-sector | Responsibility | International Consultants | National Consultants |
|--------------------------|------------------------------|---|----------------------|
| Coordination | Team Leader | Dr Dunstan S.C. Spencer | |
| | National Coordinator | | Dr Othello Brandy |
| Macro-econ & General | Food Security | James Tefft (FAO) Mariam Sow | |
| | Gender | Ms Ruiz Abril | |
| Food Crops Production | Food Crops | Mr Paul Schoen | Mr Franklin Henries |
| | Mechanization & Post Harvest | Mr Lovell Thomas | |
| | Agric Marketing | Mr Chet Aeschliman (FAO) | |
| Livestock Production | | Dr Zakary Rhissa (FAO) | Dr Kpadeh Koikoi |
| Fisheries Production | | Mr Ousman Drammeh | Mr Yevewno Subah |
| Land and Water Resources | Land & Water | Dr Sampson Agodzo | Mr Patrick Farga |
| | Land Tenure | Jon D. Unruh | |
| Tree Crops | Tree Crops | Dr Michael D. Wilcox | |
| Rural Finance | | Mr Chet Aeschliman (FAO) | Mr Alphonso Wesseh |
| Institutions | Govt | Dr Peter Smith | Mr Jallah Kennedy |
| | CBOs & NGOs | | Mr James Kiazulu |
| | Agric Extension | Mr Michael Connolly | Mr Paul Jallah |
| | Agric Research | Dr Ponniah Anandajayasekeram (IFPRI) | Mr Jallah Kennedy |
| | Agric Education | | Dr Othello Brandy |

13. **Gap-filling by participatory rapid rural appraisals (PRRA).** As part of the assessment of the current situation, and in order to collect all the information needed for all the analyses, including value chain and comparative advantage analyses, quantitative and qualitative data were collected from:

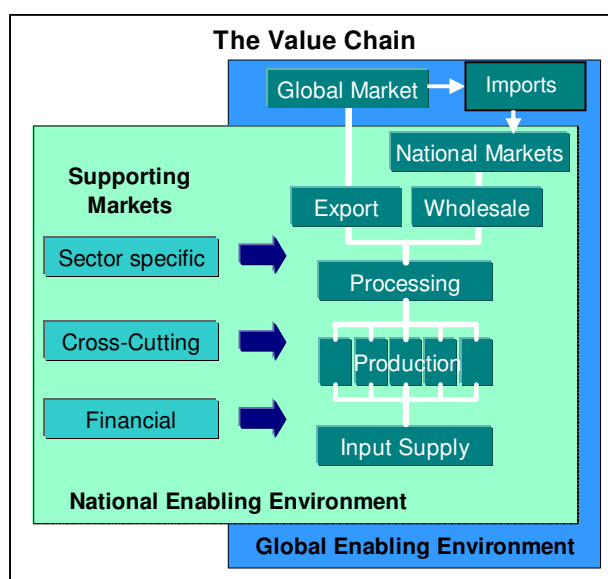
- Key informants: face to face interviews with knowledgeable persons in Monrovia as well as in the different rural locations.
- Focus groups: face to face interviews with carefully selected and representative groups concerned with different agricultural activities, taking into consideration the diverse categories of people engaged in the agro-based and rural sector, with the necessary gender balance and including the most vulnerable.
- Individual respondents: questionnaire interviews with carefully selected and representative individuals.

14. **Value chain and comparative advantage analyses.** A value chain lens (Box 2) was used to analyse targeted sub-sector markets (food crops, plantation crops, livestock, and fisheries). ‘Vertical’ analysis was complemented by a review of ‘horizontal’ aspects (research, extension, infrastructure, and institutional framework, including the role of the public sector and its decentralized performance). The study also estimated the comparative advantage of production of major agricultural commodities in Liberia within the limitations of data and information, in order to identify those products with economic potential.

Box 2: Value Chain Methodology

A value chain is the set of market actors in the flow of a particular product (or service) from the raw material stages through production, processing and distribution and on to an end market. The application of a value chain lens is meant to ascertain the context for the market actors and includes:

- The vertical linkages or relationships between market actors (rural households, private sector processing and marketing firms, etc); how enterprises buy and sell from one another.
- The horizontal linkages or relationships and linkages between market actors engaged in a similar activity (e.g. rice farming, coffee processing, exporting, etc.) and how they collaborate and create partnerships with one another (professional associations, farmer groups, civil society, research, extension, infrastructure, and the institutional and organizational environment, including the role of the public sector, private sector, and decentralized formal and informal stakeholders).
- The process of generation and distribution of Value Added (VA) along the chain and across actors;
- The supporting markets for products or services that benefit members of the value chain (e.g. financial and transportation services and equipment and input suppliers).
- Growth opportunities (domestic and international demand/supply projections and perspectives including improving the competitiveness of domestic supply).
- The enabling environment, which comprises the policy, regulatory and governance environments, and includes existing resources and capacities, that governs all the market actors in the value chain, at the national and/or the international level.



15. **Inception, capacity building and training.** An inception workshop was held in June 2006, presided over by the Honourable Minister of Agriculture with full participation by FAO, the World Bank and all stakeholders, to discuss the objectives, process and expected outputs of CAAS-Lib. A training workshop was held in Monrovia to launch the fieldwork for CAAS-Lib. The Team Leader, the national Coordinator and International Consultants provided theoretical and practical training to national consultants and other sub-sector team members. Topics covered included value chain and comparative advantage analysis and

participatory field data collection techniques, including key informant, focus group and questionnaire surveys. The lead experts provided training in issues specific to each sub-sector. On-the-job training was also provided by the lead experts to each sub-sector team throughout the data collection, analysis and report writing stages of the project.

16. **Priority policy and institutional measures and investment plans.** Using the findings from the sub-sector studies, policy options, policy interventions, institutional change (particularly with respect to the role of the government, and public support for agriculture, decentralization and civil society engagement) and investment were specified. The potential contribution of selected commodities and services to the achievement of sustainable food security and nutrition, income, and employment was assessed. The output was expected to be policy relevant but not policy prescriptive.

17. **Consensus building and ownership.** Throughout the implementation of CAAS-Lib particular attention was paid to consensus building and ownership of the whole process in order to capture the vision of agricultural development held by policy makers, their constituencies at all levels, and the local and international development community. Efforts were made to mobilize institutions, and partnerships were forged at different levels (e.g. State, County, Clan and community) as appropriate and feasible. The aim was to ensure local ownership, to build consensus and to lay the foundation for broad local participation in the decentralized design and implementation of any agricultural development programmes resulting from CAAS-Lib. Policy dialogue, validation workshops and peer reviews were used to enhance consensus building and ownership.

18. **Policy dialogue and strategic direction.** The CAAS-Lib team, especially the Team Leader and National Coordinator, engaged in policy dialogues with all the partners involved in the agricultural sector. Special attention was paid to the private sector and other civil society actors, to inform them of the draft findings and proposals and to determine their expectations and the nature and extent of their likely involvement in implementing the proposed strategy. A Steering Committee, consisting of representatives of major stakeholders in agricultural development in Liberia (see Annex 1) was formed to provide overall policy guidance to CAAS-Lib.⁷

19. **Validation workshops and peer review.** Once the draft findings of sub-sector reviews emerged they were presented and discussed with key stakeholders at two regional validation workshops, held in Ganta, Nimba County on 22–23 February 2007 and in Harper, Maryland County on 26–27 February 2007. Over 120 participants representing farmers' organizations, County Administrations, local and headquarters staff of the Ministry of Agriculture and other Ministries, research organizations, NGOs and donor organizations attended the workshops. Comments received from participants were used to revise sub-sector reports and to guide the preparation of the Synthesis Report. The draft Synthesis Report was presented and discussed at a National Validation Workshop held in Monrovia on 28–29 May 2007. A group of individuals with expertise in agricultural sector reviews and African agricultural development, with broad-based representation from relevant institutions and partners within and outside Africa, were selected jointly by the MoA, FAO and the World

⁷ As provided in the Project document of FAO and approved by the Government. The Steering Committee held its inaugural meeting under the Chairmanship of the Honourable Minister of Agriculture Dr J Chris Toe on Thursday June 15 2006, during which the Terms of Reference (ToR) for the Committee were approved and adopted. ToR for the sub-sector studies and the work plan and draft methodology for CAAS-Lib were also reviewed. Other meetings were held in February 2007.

Bank to review the draft CAAS-Lib Synthesis Report and provide comments to the study team.⁸

20. As one would expect in a country emerging from war, there is generally a dearth of data; in some instances, multiple but inconsistent sources are available. To provide an evidence base for this analysis, preparation of a number of the Background Reports involved primary data collection. In addition, a number of existing statistical sources were utilized, particularly existing household surveys (Box 3). To ensure consistency, a strict order of priority was imposed on competing macroeconomic analyses, with official data as reported by the International Monetary Fund (IMF) as the preferred source (this provided data from the late 1990s). Earlier macroeconomic data were reported in various World Bank reports from the 1970s and early 1980s. There are no data for the periods of intense conflict; however, the GoL did publish some macroeconomic statistics in the late 1980s as reported by UNDP (2001).

Box 3: Household Survey Data used in CAAS-Lib

The Liberia **Comprehensive Food Security and Nutrition Survey** (CFSNS) was conducted in March and April 2006 and collected information at the household, individual and community level. The household questionnaire was based on a two-stage sampling procedure applied at each stratum – in this case each County. Twenty-five communities per County were randomly selected (communities with fewer than 10 or more than 1,500 structures were excluded), with 12–14 households randomly selected within each community. Nationally 5,409 households were surveyed. In the absence of recent census data, the sampling frame took advantage of the village mapping exercise coordinated by the Humanitarian Information Centre in 2005. This was complemented by key informant interviews at the community level, which involved three men and three women.

The **Poverty Profile of Liberia** was conducted by UNDP in 2001 and used data from the 1986 and 1999 Demographic and Health Surveys (DHS) as well as an updated survey instrument. Of the 579 enumeration areas (EAs) that formed the sampling frame of the 1999 DHS, a random sample of 194 was selected. Within each of these selected EAs, a further random sample of DHS respondents was then selected for interview. In total 1,836 households were interviewed – at least 30 in each County.

C. Outline of the Report

21. The findings of CAAS-Lib are contained in two volumes: the Synthesis Report comprises Volume I while the Working Papers prepared for each of the sub-sectors and thematic areas reviewed are contained in Volume II. The Synthesis Report (Volume I) consists of five chapters. Following the Introduction, Chapter Two provides a brief analysis of the state of the Liberian economy indicating the sectoral shares and emphasizing the role of agriculture, the level of poverty, and actions taken by the new government to launch the process of economic recovery. Chapter Three describes the foundations of agriculture; it highlights the status of the natural resource base for agriculture and the production of crops, fish and livestock products, focusing on the constraints on and opportunities provided for agricultural development. The following chapter reviews key institutional issues, including those for input and output marketing and trade, financial intermediation, research, extension and rural education. Finally Chapter Five summarizes the key development challenges,

⁸ The World Bank Concept Note for CAAS-Lib was peer reviewed by a team consisting of Derek Byerlee, Senior Adviser, DECWD, Eduardo L. Leao de Sousa, Senior Economist, AFTS1 (both World Bank) and Michael Marx, Senior Rural Finance Expert, TCIW, Carlos Santana, Senior Policy Officer, TCAS and Mark Smulders, ESA (all FAO).

discusses development options and presents preliminary investment projects for an agricultural development strategy for Liberia.

II. THE LIBERIAN STATE AND ECONOMY

D. Historical Perspective

22. **Africa's oldest independent republic lost its way and descended into civil war.** Liberia, sovereign for over 158 years, is Africa's oldest independent republic. Founded by slaves freed from the Americas in 1822, Liberia declared its independence in 1847. In the years that followed, the initial settlers – Americo-Liberians – came to dominate the political process and the government at the expense of various indigenous groups. Tensions between these 'elite' and indigenous peoples festered, encouraged by the deeply dualistic nature of the economy. In 1980 the government was overthrown by a *coup d'état* by indigenous military leaders led by Samuel Doe. Doe's government became well known for rampant corruption, brutality, and human rights abuses. In response, the National Patriotic Front of Liberia (NPFL), led by Charles Taylor, launched a revolution against President Doe in 1989, which eventually led to the overthrow of the government in 1990. Instead of restoring order, the rebellion by the NPFL ignited a fourteen-year civil war that ended fully only in August 2003, when the international community brokered a comprehensive peace agreement (CPA) with the warring parties. The CPA paved the way towards the establishment of the United Nations Mission in Liberia (UNMIL) and a two-year National Transitional Government (NTGL). Subsequently, presidential and legislative elections held in October and November 2005 led to President Ellen Johnson-Sirleaf becoming Africa's first democratically elected female Head of State.

23. **Liberia developed a dualistic economic structure and stark inequalities between the formal and informal sectors.** The growth rates of the GDP in the 1950s and 1960s averaged 9% per annum (p.a.), but these were driven by the formal economy and particularly the 'enclave sectors' of iron ore, timber and rubber.⁹ By the end of the 1960s, these sub-sectors accounted for 38% of monetized GDP and 90% of exports – estimates of 'non-monetized' GDP amounted to 8% of the national economy.¹⁰ The 70% of Liberians in the 'non-monetized' sector, mainly subsistence farmers, survived on per capita incomes of US\$50, compared with a national average of US\$270.¹¹ Various analyses of the economic prospects of the 1970s and 1980s highlighted the economic benefits that would accrue from a more integrated Liberian economy. The persistence of this dualistic structure has been identified as a major contributing factor to the subsequent conflict.¹²

24. **The impact of the civil war and poor governance has been devastating for Liberia's economic development.** Prior to the war, aggregate economic performance was impressive. Between 1955 and 1965, foreign investment increased from US\$60 million to US\$500 million, three-fifths of which was invested in the mining sector. The 1970s heralded a new era of low growth: by the first half of 1970, annual GDP growth fell to 1% and was

⁹ Various terms have been used to describe that part of the economy associated with informal/subsistence activities. For instance, Dalton *et al* (1965), split the agriculture sector into three categories: large-scale commercial, subsistence and 'peasant money'. The World Bank (1971) differentiates between the monetary and subsistence sectors.

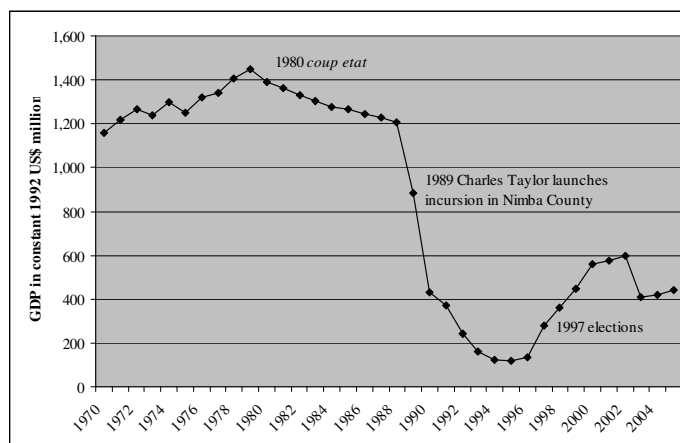
¹⁰ In fact, iron ore dominated, with figures of 32% and 70%, respectively.

¹¹ World Bank (1971).

¹² Richards P. (nd); Richards P, Archibald S, Bruce B, Modad W, Mulbah E, Varpilah T, Vincent J (2004).

negative by mid-decade. The *coup* of 1980 initiated a sustained period of economic decline in which GDP dropped precipitously from over US\$1.14 billion in 1987 to a mere US\$260 million in 1997. Despite a slight recovery early this century, GDP today remains less than half of that in the 1970s (Figure 1).

Figure 1: Trend in Real GDP 1970–2005



Source: World Development Indicators.

25. **With the decline of other economic sectors, agriculture has grown in importance.** The mining sector collapsed from 11% of GDP in 1988 to less than 1% in 2003. Over the same period, the tertiary (service) sector dropped from just under half to about a quarter. The forestry sector peaked during the worst excesses of illegal logging around 2000, but has since declined with the ban on timber exports (now rescinded). Manufacturing currently accounts for around 12% of GDP. Consequently, the agricultural sector currently accounts for over half of GDP, compared with around 10% in the 1970s and early 1980s (Table 1).

Table 1: Sector Composition of GDP (percentages)

| | 1978 | 1979 | 1980 | | 1987 | 1988 | 1989 | | 2003 | 2004 | 2005 |
|-----------------------------|------|------|------|--|------|------|------|--|------|------|------|
| Agriculture and fisheries | 11% | 10% | 11% | | 33% | 28% | 34% | | 46% | 52% | 52% |
| Rubber | 6% | 5% | 6% | | 7% | 5% | 7% | | 11% | 20% | 21% |
| Coffee and cocoa | -/- | -/- | -/- | | 1% | 1% | 1% | | 0% | 0% | 0% |
| Rice | 0% | 0% | 0% | | 10% | 9% | 10% | | 6% | 5% | 6% |
| Cassava | 0% | 0% | 0% | | 5% | 4% | 5% | | 10% | 8% | 8% |
| Other | 5% | 5% | 5% | | 11% | 9% | 11% | | 19% | 18% | 17% |
| Forestry | 6% | 6% | 6% | | 5% | 5% | 5% | | 22% | 12% | 12% |
| Logs and timber | 0% | 0% | 0% | | 3% | 3% | 3% | | 9% | 0% | 0% |
| Charcoal and wood | 0% | 0% | 0% | | 2% | 2% | 2% | | 13% | 12% | 11% |
| Mining and panning | 25% | 26% | 30% | | 11% | 8% | 11% | | 0% | 0% | 0% |
| Manufacturing | 8% | 9% | 7% | | 8% | 8% | 7% | | 7% | 12% | 12% |
| Services | 50% | 49% | 45% | | 46% | 46% | 47% | | 26% | 24% | 24% |
| Transport and communication | 12% | 11% | 10% | | -/- | -/- | -/- | | 7% | 7% | 7% |
| Government services | 10% | 10% | 11% | | -/- | -/- | -/- | | 3% | 3% | 3% |

Source: World Bank (1982), UNDP (2001) and IMF (various years).

26. **The collapse of the domestic economy led to a significant deterioration in the trade balance and the country now faces a significant current account deficit.** Structural dependence on food and machinery imports, compounded by a rapid increase in fuel imports and combined with the collapse of the export sector, turned a positive trade balance of over

US\$100 million in the mid-1970s to a deficit of over US\$160 million in 2004 and 2005 (Table 2). This significant negative trade balance is an important factor in Liberia's unsustainable debt position.

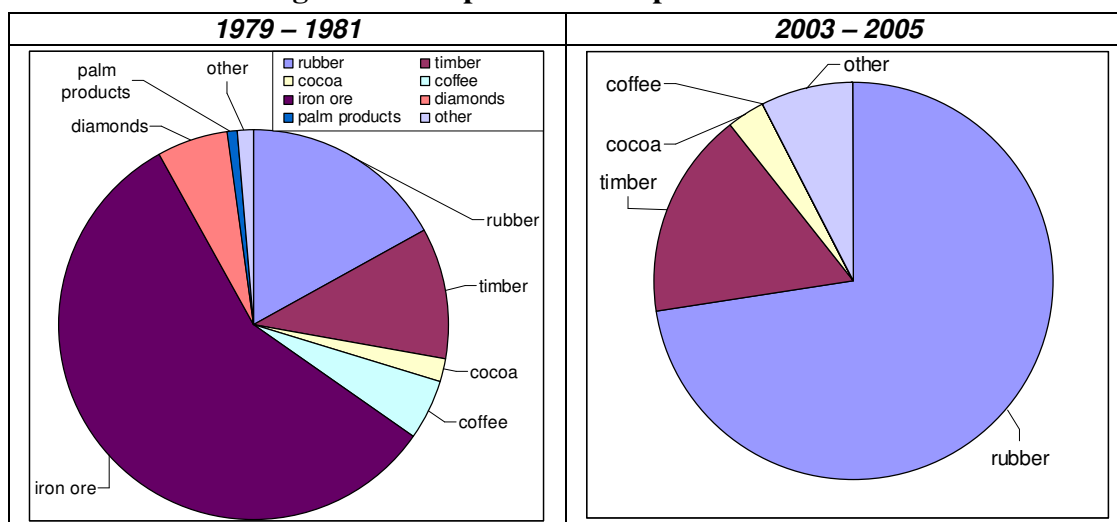
Table 2: Imports and Exports for 1979–2005 (US\$ million)

| | 1979 | 1980 | 1981 | | 1987 | 1988 | 1989 | | 2003 | 2004 | 2005 |
|---------------|-------|-------|-------|--|-------|-------|-------|--|-------|--------|--------|
| Total exports | 526.0 | 574.8 | 521.0 | | 383.3 | 396.3 | 460.7 | | 109.0 | 103.9 | 112.2 |
| Total imports | 506.5 | 533.8 | 478.4 | | 307.6 | 272.3 | 247.8 | | 140.2 | 268.1 | 273.6 |
| Trade balance | 19.5 | 41.0 | 42.6 | | 75.7 | 124.0 | 212.9 | | -31.2 | -164.2 | -161.4 |

Source: World Bank (1982), UNDP (2001) and IMF (various years).

27. **External trade is now dominated by cash crops with the collapse of the other 'enclave' export-oriented industries.** Historically, exports of rubber, timber and gold, and iron-ore and diamond mining, underpinned the Liberian economy. Official trade statistics report current exports at around one-fifth of their levels prior to the political upheaval and a shifting pattern of trade driven by the collapse in the mining sector (Figure 2). According to IMF statistics, rubber now accounts for 90% of exports. Additional foreign exchange is derived from Liberia's shipping registry as well as significant foreign assistance.

Figure 2: Composition of Exports 1979–2005



Source: World Bank (1982) and IMF (various years)

28. **The collapse of government has mirrored the decline in the economy** caused by low domestic revenue collection (because of a depressed revenue base as well as inefficient collection), extremely weak institutional capacity and severe inefficiencies in public financial management – including widespread corruption during the NTGL period. Revenue collection amounted to between one-fifth and one-quarter of national GDP in the 1970s but has fallen to around 13% currently – this ratio underestimates the absolute decline, given that GDP is at one-third of the pre-war level. According to IMF figures, tax revenue amounted to US\$72.6 million in 2005, with the largest shares coming from direct taxes (40%) and taxes on international trade (40%). Receipts from the Liberian International Shipping and Corporate Registry have fallen by half (as a share and in absolute terms) over the last five years and now account for 12% of revenue. Taxes on goods and services remain extremely low at around US\$5 million per year.

29. Commensurate with the collapse in receipts, aggregate public expenditure is extremely limited, with the national budget in 2006 projected at US\$130 million (less than US\$40 per person), a 60% increase over the previous year. At least 15% of expenditure is targeted to pro-poor activities. Historically, however, recurrent expenditure dominates, with around 85-90% of the budget (with wages and salaries taking over half). Capital expenditure has fallen from over US\$30 million in 2000–01 to less than US\$10 million currently (nominal terms) as GoL has sought to improve conditions for civil servants. Expenditure on social services has not exceeded 10% of actual revenue since 1997. The majority of activities in the areas of health, education and water and sanitation are donor funded.

30. **Government financing of agriculture has been traditionally modest, in spite of its important contribution to GDP.** The national budget allocation to MoA over the period 1997–2002 never exceeded 1%. While some expenditures through other ministries and agencies, such as the Ministry of Rural development (MORD) and the Ministry of Internal Affairs (MIA), also contribute to rural development, the portion of the national budget dedicated to agricultural activities by these ministries was insignificant.

31. **The years of mismanagement have left Liberia with a huge external debt burden** (both principal and interest are in arrears), estimated at about US\$3.7 billion as of mid-2005. Ninety percent of the outstanding debt is external, equivalent to an astonishing 800% of GDP and 3,000% of exports. By comparison, the threshold for debt relief under international arrangements is a debt-to-exports ratio of 250%. Domestic debt and non-salary arrears are estimated at about US\$700 million, a significant part of which is owed to the banking system (including the Central Bank of Liberia).

E. Livelihood and Well-being of Liberia's Rural Population

32. **After more than 14 years of civil war and political instability, Liberia faces huge development challenges.** Most Liberians remain poor (see below), but quantifying current needs is made harder by lack of contemporary information on households, communities and the population in general. The last official census was carried out in 1984; based on projections of 2.4% annual growth the current population is around 3.023 million. However, official estimates frequently differ from estimates obtained by other means, such as voter registration for the 2005 elections and national immunization days.

33. **Uncertainty over the aggregate population is exacerbated at the County level because of large-scale displacement during the war years.** Half of Liberia's population lives in and around Monrovia. According to the CFSNS, the average household was displaced twice during the war – only 14% of households report never having been displaced – although this varied across counties according to the intensity of the fighting. By the end of 2003 most households had returned, and in most areas fewer than 8% of households remain displaced.

34. The national average household consists of 5.6 persons, with the largest household sizes in the two most populated counties, Montserrado (6.4 persons per household), and Nimba and Grand Gedeh (6.1 persons per household). Grand Cape Mount and Grand Bassa Counties have the smallest average household sizes (4.6 and 4.8 persons, respectively). The proportion of female-headed households varies from 5% in Bomi to 21% in Lofa (the County that was most continuously and most heavily affected by incursions and looting during the civil conflict) with a national average of 13%. The overall mean age of household heads is

40 years, with 8% of households headed by members 60 years of age or older. Overall, the dependency ratio is 1.4 for all households, ranging from 1.2 in Gbarpolu to 1.6 in Grand Kru, where families in general have more children.

35. The majority of Liberians have always been poor – a product of the dualistic economy, noted above – but their situation has deteriorated since the war. Between 1997 and 2001 the proportion of people living on less than US\$1 a day increased from 55% (UNCCA, 1997/98) to 76% (UNDP, 2001). The level of extreme poverty has increased over the same period from 14% to 52%, with more than 1.4 million people living in abject poverty on less than US\$0.50 per person a day. A typical household spends more than two-thirds of its income on providing food for the family, leaving little for basic investments, education, health care and leisure.

36. Poverty is pervasive, but rural households are worse off. More than half of the people in Liberia (56%) live in rural areas, defined as settlements with fewer than 2,000 inhabitants, and 86.3% of the rural households are poor, with 64% living in severe poverty (UNDP, 2001). Rural areas generally have no electricity or piped water and lack quality housing, toilets and sewerage systems. In concession towns, many of which are now devoid of functional industries (such as Bong Mines and Yekepa), 86% of households fell below the poverty line and 60% lived in severe poverty. Social infrastructure and amenities have collapsed and employment opportunities are scarce. Even in the few remaining functional concessions, such as the Firestone Rubber Plantation and the Liberia Agriculture Company, many people still live on less than US\$1 a day. In County headquarters, whose populations expanded rapidly during the war years, 75% of households remain poor, with 40% in severe poverty. Services, including electricity, sanitation facilities and piped water, have generally ceased to operate. Monrovia is the only functioning city in Liberia in which some social amenities remain after the civil war. Just over half the households surveyed (51%) fell below the poverty line and 22% lived in severe poverty. Monrovia is, therefore, comparatively better off than other Liberians.

37. Liberia is one of few countries in which the poverty rate of female-headed households is lower than male-headed households. According to UNDP (2001), the proportion below the poverty line was 79% for male-headed households compared with 68% for female-headed households (respective figures for severe poverty were 55% and 42%). One reason for this is that female heads of households work in the informal non-farm sector where incomes are relatively high, as well as receiving inheritance from husbands and close relatives, and higher levels of education. It is important to note that these expenditure statistics do not include non-monetary dimensions, and here women tend to fare worse: women are particularly vulnerable as a result of exclusion, marginalization and gender-based violence.

38. Non-economic dimensions of poverty in Liberia are also important and include ‘capacity’ and ‘participation’ poverty (UNDP, 2006). With the total collapse of the education system, most young Liberians lack basic knowledge, skills and resourcefulness. This ‘capacity poverty’ makes it difficult for them to set and achieve goals, budget and use scarce resources for agreed purposes, or think through and manage complex processes and interactions. Capacity poverty also excludes them from taking advantage of the limited domestic and international employment opportunities that are available. As in most African countries, a deficiency in capacity at home co-exists with a large emigrant population who are working in overseas markets due to poor domestic incentive structures and the attraction

of the international employment market. The legacy of a dualistic society lingers in 'participation' poverty, in which the vast majority of the population are unable to realize their rights to be a part of decision-making processes. Their voices are not heard when policy objectives are being established and decisions are being made. Besides the lack of institutional and human capacity to foster participation, poor governance practices have deprived many Liberians from participating in the nation's development process.

39. **Income-generating opportunities are limited as a result of the conflict, a narrow economic base, disruption in local farming and trading systems, loss of personal assets and a breakdown in social capital.** These limitations have contributed substantially to income poverty and impaired human development. It is widely reported that the unemployment rate in Liberia is 85% – of course, this reflects the paucity of employment opportunities in the formal sector. Farming, fishing and other natural-resource (NR) based livelihood strategies are essential to survival and are associated with lower per capita expenditure (Table 3).

Table 3: Livelihood Profiles and the Composition of Income; 2006

| Per capita expenditure US\$/ month | Livelihood profile | | Source of income | | | | | |
|---------------------------------------|-----------------------------------|---------|------------------------------|-----|----------------------|-----|----------------------|----|
| | | % of HH | Main income | % | Second income | % | Third income | % |
| 17.75 | petty trader | 12% | petty trade | 81% | food crop production | 5% | contract work | 4% |
| 17.52 | employee | 5% | salary from employer | 75% | petty trade | 12% | food crop production | 8% |
| 14.68 | contract labourer | 10% | contract work | 79% | petty trade | 6% | food crop production | 5% |
| 14.66 | charcoal producer | 7% | charcoal/firewood production | 72% | food crop production | 8% | petty trade | 5% |
| 14.42 | fisheries worker | 4% | fishing | 79% | petty trade | 6% | food crop production | 8% |
| 13.75 | rubber tapper | 7% | rubber tapping | 75% | petty trade | 6% | food crop production | 5% |
| 13.64 | skilled labourer | 3% | skilled labour | 74% | petty trade | 8% | food crop production | 7% |
| 13.11 | hunter | 5% | hunting/trapping | 73% | food crop production | 8% | processing palm oil | 4% |
| 11.84 | food crop farmer | 15% | food crop production | 74% | petty trade | 6% | fishing | 4% |
| 11.80 | cash and food crop producer | 6% | cash crop production | 62% | food crop production | 22% | processing palm oil | 5% |
| 11.20 | palm oil sellers/producer | 14% | processing palm oil | 84% | contract work | 5% | petty trade | 3% |
| 11.00 | palm oil and food crop processors | 8% | processing palm oil | 49% | food crop production | 26% | cash crop production | 5% |
| | other | 3% | other activity | 82% | petty trade | 6% | food crop production | 2% |

Source: CFSNS (2006).

40. **Food crop production is the most important source of livelihood** (41% of households are engaged in this activity). Other economic practices include processing and sale of palm nuts and oil (31%) as well as petty trade and small-scale business (28%), and contract or casual work (18%). The relative importance of these income sources differs across Liberia: for instance, the contribution of food crop production is particularly high in the south-eastern counties of Sinoe (35%), Maryland (29%) and River Gee (26%). Cash-crop production is predominant in Nimba (15%) and Grand Bassa (10%). Processing and selling of palm nuts is a key source of income and also serves as a coping strategy across Liberia (as evidenced by the low expenditure figures of households that depend on this activity – see Table 3) but is particularly high in Lofa (37%), River Cess (33%) and Bomi (27%).

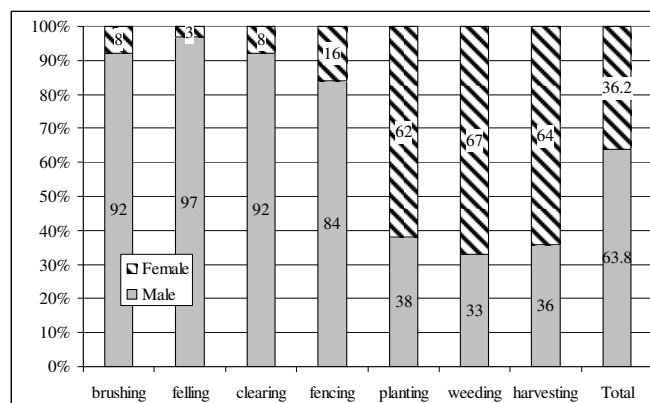
41. **Access to natural resources is important for coastal and forested areas.** Income from fishing contributes to 22% of the household income in Grand Kru and 14% in Grand Cape Mount, while trapping and hunting dominates in Grand Gedeh (25%), River Cess (25%), Gbarpolu (17%) and Sinoe (15%). Those areas with large rubber plantations exhibit a

dependence on tapping: Margibi (22%), Bomi (15%) and Maryland (13%). Selling of charcoal and firewood dominates in Margibi (19%), Bomi (18%) and Montserrado, due to their proximity to urban households that depend on purchased charcoal as fuel. Montserrado also shows the highest contributions from petty trade/small-scale business (23%) and salaries from full-time employment (11%). Finally, contract work is one of the major income sources in Lofa (19%) and Grand Cape Mount (15%).

42. **Men and women have clearly defined economic roles.** CFSNS data show that, on average, 33% of the household income was jointly generated by men and women, 33% by men only and 16% by women only. An additional 5% was generated by women with the support of children, and 10% jointly by all household members. Six percent of food crops are produced only by men compared with 8% produced only by women and 57% produced jointly by women and men. By contrast, 22% of cash-crop income was produced by men only and only 5% by women working alone. Women and men jointly produced 49% of the cash income. Fishing income also shows gender differences, with women dominating inland fishing while men dominate marine fishing. Men were much more likely than women to engage in rubber tapping, pit-sawing, mining, salaried work, skilled labour, handicraft work, contract or casual work, and raising livestock for others. Women more commonly engaged in petty trade and small-scale business, begging, and sales of prepared food. As mentioned above, children alone were not commonly reported to contribute to the household income; however, boys contributed to the 4% of income generated by the selling of firewood and mining, while girls contributed to the 3% of income generated through begging and assistance from relatives and remittances.

43. **As is common in most traditional farming systems in Sub-Saharan Africa (SSA), men and women share the tasks of staple food crop production.** In Liberia, it is estimated that women contribute 36% of the total labour in rice and cassava production and men contribute 64%. Men provide most of the labour for clearing and preparing the land, while women do most of the weeding and harvesting of the crop (Figure 3). The traditional division of labour in agriculture constrains women's access to land: men are responsible for clearing and felling the land at the beginning of the agricultural cycle, tasks which are carried out in groups through communal arrangements (kuu), and the inability of female-headed households to contribute labour to the kuu sometimes restricts their ability to farm. This is sometimes used by community leaders as a reason for not granting such households access to land.

Figure 3: Gender Division of Labour in Food Crop Production



Source: MoA (2001). Data relate to rice and cassava production.

44. **Food security profiles developed by CFSNS showed that most rural households are food insecure.**¹³ Food security exists when all people at all times have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, 2006). Nationally, 80% of the rural population was either moderately vulnerable (41%) or highly vulnerable (40%) to food insecurity, while only 9% of the rural population was food secure, and 11% were food insecure. At the same time, chronic malnutrition rates reached 39% for children under five, only 32% of households had access to improved water sources, and other basic services were also limited. As illustrated in Table 4, different livelihood profiles provide various degrees of food security, with the most food insecure and highly vulnerable groups involved in palm oil production and selling (64%), followed by hunters and contract labourers (respectively 61% and 58%). The more food secure and moderately vulnerable groups are among the cash and food crop producers (37%), the petty traders and the employees (44% each).

Table 4: Vulnerability, Income and Livelihood Profile in Liberia

| Livelihood profile* | % moderately vulnerable and food secure | % highly vulnerable and food insecure | % of income derived from food crop production | % of income derived from cash crop production |
|----------------------------------|---|---------------------------------------|---|---|
| Cash and food crop producers | 63 | 37 | 62 | 22 |
| Petty traders | 56 | 44 | 5 | 0 |
| Employees | 55 | 44 | 4 | 0 |
| Food crop farmers | 53 | 49 | 74 | 0 |
| Charcoal producers | 53 | 47 | 8 | 0 |
| Rubber tapers | 53 | 47 | 5 | 0 |
| Fisher folks | 52 | 48 | 8 | 0 |
| Palm oil and food crop producers | 52 | 48 | 26 | 5 |
| Skilled labourers | 49 | 51 | 7 | 0 |
| Contract labourers | 42 | 58 | 5 | 0 |
| Hunters | 40 | 61 | 8 | 0 |
| Palm oil producer/seller | 36 | 64 | 0 | 0 |

Source: CFSNS (2006). Notes: * definitions consistent with Table 3.

45. **Rates of chronic malnutrition before the war were already as high as in 2006, indicating that this is a long standing problem in Liberia.** This may explain why there is a weak correlation between food security and the malnutrition status of the Liberian population. High food insecurity and an above-average prevalence of stunting are observed in six of the fifteen counties, suggesting that both are consequences of broader deprivation. Other counties with high insecurity exhibit a lower prevalence of stunting: this is hypothesized to be a consequence of internally displaced persons (IDPs) who have returned from relatively better conditions in camps. While the stunting rate may not be deteriorating in the short term, rates of wasting (which are around 6% on average) may worsen if improvements in access to basic services are not achieved in the coming years. The implications of high rates of chronic malnutrition are serious and far-reaching. A significant

¹³ Household food security profiles were developed by combining the results of a two-step analysis: The first involved an assessment of food consumption frequency and dietary diversity as proxies of access and nutritional intake, while the second assessed the household's potential to access sufficient food through purchasing power or their own production.

body of research has shown how malnutrition “prevents poor people from escaping poverty because it diminishes their ability to learn, work and care for themselves and their family members. Hunger sets in motion an array of outcomes that perpetuates malnutrition, reduces the ability of adults to work and give birth to healthy children, and erodes children’s ability to learn and lead productive, healthy and happy lives” (IFPRI 2004). The prevalence of malnutrition has been shown to be higher where households are involved in subsistence farming (IFPRI 2004); this is an additional reason why Liberia needs development of smallholder agriculture.

F. The Government’s Efforts to Support Economic Recovery

46. **The Government of Liberia is cognizant of the fact that peace and stability are decisive conditions for growth and improved livelihoods in Liberia.** The GoL and DPs have invested extensively in actions to preserve peace and promote stability. While security will continue to be a main preoccupation of the Government’s post-conflict efforts to build confidence, particularly in the rural areas, revitalizing the productive sectors, especially agriculture, to improve the availability of food and generate income is critical for the long-term social stability and welfare of the Liberian population.

47. The current Government has worked to regain the trust of Liberians and the international community through sound and transparent macroeconomic management (i.e. the Governance and Economic Management Assistance Programme, GEMAP). These measures have contributed to satisfying the critical preconditions for debt relief and lay the groundwork for restoring investor confidence. Coherent and stable fiscal, monetary and exchange rate policies are critical preconditions to establishing a viable food and agriculture sector, developing sustainable livelihoods and improving food security. This macroeconomic policy framework has an important influence on sector performance through the incentives offered to economic actors and its effect on terms of trade and the competitive position of African economies.

48. **Liberia suffers from significant levels of corruption, a malaise typically associated with natural resource dependence** (an element of the ‘resource curse’) and a cause and effect of past socio-political arrangements. As the iPRS notes, corrupt behaviour is widely expected: “any government official who fails to acquire wealth during his or her tenure is considered foolish” (although this does not imply that corruption is confined to the public sector). Breaking this acceptance is at the forefront of GoL’s prevailing ‘zero tolerance’ approach to tackling corruption, while systems improvements are at the core of the GEMAP programme. A total of 96 major contracts and concessions agreements have been reviewed by the current government and some (notably the Mittal Steel iron ore concession) have been renegotiated on terms more favourable to Liberia. A similar approach is being adopted for agricultural concessions: the Firestone concession, which was renewed under the NTGL, is currently being renegotiated. As the term of the Government Reform Commission comes to an end, the GoL is in the process of establishing *inter alia* an Anti-Corruption Commission to carry forward this agenda.

49. **Reduced scope for and public tolerance of corruption in the agricultural sector requires action on three fronts:** (1) continued improvements in public financial management, and public sector reform (the recent removal of ghost workers is a major step forward in this regard); (2) special efforts to reform agricultural parastatals that have traditionally been a major source of rent-seeking and corruption; (3) transparency in the

management of natural assets, in particular agricultural concessions in the rubber and oil palm sectors, for instance by development of a concession policy and a model concession contract that serves as a template for individual agreements.

50. **Ensuring adequate availability and access to food in the short run remains a priority until households complete their transition from an emergency footing to sustainable livelihoods.** Instruments used to ensure food security during the current recovery period include: the distribution of a variety of food and non-food commodities, food for work, school feeding, training programmes, infrastructure rehabilitation and the provision of seeds and tools to Liberians returning to their communities. Targeted, short-term assistance will be required for acutely malnourished children, young unmarried mothers and the elderly. It is also clear, however, that given the large numbers of vulnerable Liberians, the country needs to focus its attention on – and accelerate investments in – medium-term development. In essence, this implies that short-term aid should not come at the expense of establishing the food system (Pingali *et al.*, 2005).

51. The vision of the Government is the holistic development of agriculture, forestry and fisheries with special focus on the transformation of smallholder agriculture into a sustainable, diversified, income-generating, modernized and competitive sector well integrated into the domestic and international markets (MoA, 2006). The vision also encompasses a vibrant commercial agriculture sector that provides support and incentives to smallholder agriculture.

52. GoL's strategy to achieve its key objectives in the agriculture sector will be governed by the following principles:

- Broad population and geographical coverage of the measures and policies, with special focus on smallholders and areas and populations not previously supported.
- Priority accorded to measures and policies that have immediate impacts on production, food security and local commerce.
- Participatory processes with stakeholder involvement at all stages of the policy decision-making process, as well as in the management of natural resources and taking into account local knowledge.
- Gender- and youth-sensitive development, particularly empowering women and creating incentives for youth (both girls and boys) involvement in agricultural and rural development.
- Decentralizing governance and regulatory supervision.

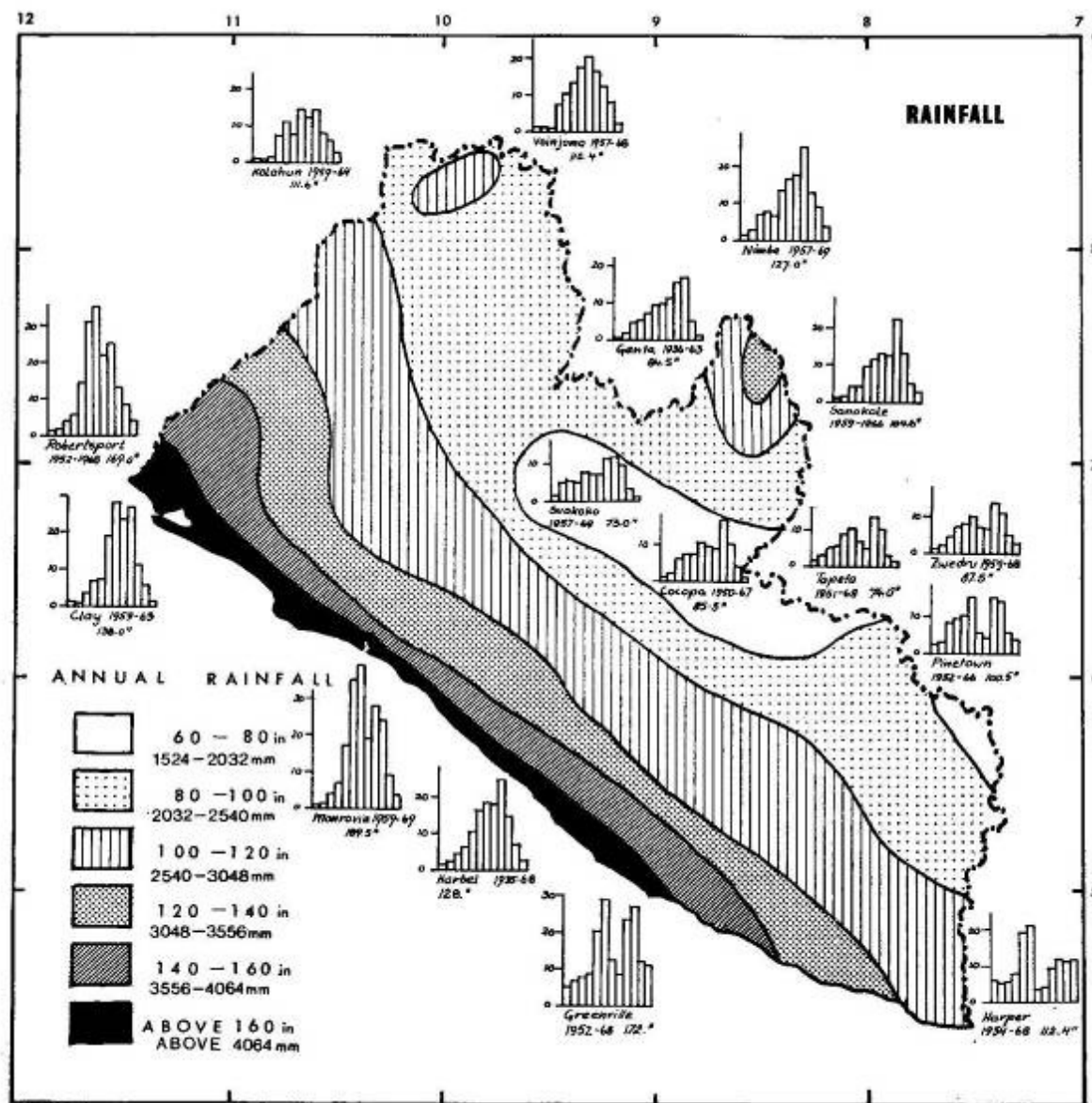
III. THE FOUNDATIONS FOR AGRICULTURAL DEVELOPMENT

G. Climate and Water Resources

53. The **climate** of Liberia can be summarized as follows. Annual rainfall is approximately 1,700 mm in the north and in excess of 4,500 mm in the south (Figure 4); it falls mainly between June and October (80–95% of the total annual level). Although data are scarce, evapotranspiration is estimated to be between 3.0 and 4.5 mm per day, and it is generally accepted that most areas have a water surplus for 5–8 months each year, with November to February being particularly dry months. Average temperatures vary between

24 and 28°C, while relative humidity ranges from 65–80%. Sunshine averages 2–8 hours per day. The wind conditions are described as generally mild. There is some evidence to suggest that rainfall patterns are changing and perhaps diminishing because of the removal of large areas of vegetation due to the farming practice of shifting cultivation.

Figure 4: Rainfall Map of Liberia



Source: GoL, 1983

54. Liberia shares **international water resources** with her neighbours; they comprise the St. John basin (Liberia and Guinea), the St. Paul basin (Liberia and Guinea), the Cestos basin (Liberia and Cote d'Ivoire), the Cavalla basin (Liberia and Cote d'Ivoire), the Moa basin (Liberia, Leone and Guinea) and the Mano basin (Liberia and Sierra Leone). Numerous bilateral treaties have successively governed the delimitation of the frontier of Liberia since 1885 on the Mano River and since 1892 on the Moa River. Some of these treaties have provided for the freedom of navigation and transit fishing and the protection of existing water use rights for the local population.

55. The country has nine **major river systems**, all of which are perennial, and run in a northeast to southwest direction into the Atlantic Ocean. They drain approximately 66% of the country and take their sources from neighbouring Sierra Leone, Guinea or Cote d'Ivoire. There are also short coastal watercourses, which drain about 3% of the country. The important lakes in Liberia are Lake Piso and Lake Shepherd, which have been identified as important wetlands for conservation. The total renewable water resource is estimated at about 232 km³/year, making Liberia one of the African countries with the highest per capita renewable water resources, approximately 71,000 m³/per person per year. Total water withdrawal in the year 2000 was estimated at 106.8 million m³, of which agriculture took 57%, followed by the domestic sector with 28% and industry with 15% (FAO, 2005).

56. There is not much data on **groundwater resources** in Liberia but the country can be divided into three zones according to groundwater occurrence:

- The *soft rock areas*, which consist principally of sedimentary formations, occur mainly in rocks of the Pan African age in the Robert basin along the coast. Unconsolidated sediments are said to be well spread, especially in Bushrod Island, New Georgia, New Kru Town and Virginia. These are fairly extensive aquifers. The quaternary sediments that constitute the younger sedimentary rocks are shallow, up to about 30 m deep, 35-40m thick and are more than 15,000 years old (UNDTCD, 1987).
- The *fractured hard rock areas*, the extent of which is not known. It will be important to perform exploratory investigations to establish the extent of these possible aquifers.
- The *weathered igneous and metamorphic rocks* are soft rocks with appreciable porosity and hydraulic permeability, which are over-burdened rocks, not more than 30 m deep and not extensive. Their hydraulic properties, such as porosity, permeability, transmissivity, holding ability and yield, are not yet known.

57. The irrigation potential is estimated at about 600,000 hectares (ha) but only about 1,000 ha can be described as a surface irrigation facility. The total water-managed area in 1987, including rice swamp control, was estimated at about 20,100 ha (FAO, 2005). These areas include equipped lowlands (2,000 ha) and non-equipped cultivated swamps (18,000 ha). Irrigation infrastructure is virtually non-existent because of abundant water resources in the country. Water control structures for swamp rice production are extensive (although they are likely to be significantly degraded). Areas with good water control and having the possibility of two crops per year are limited. There are also peri-urban irrigation activities around Monrovia but the method of irrigation is predominantly by hand.

58. **There is no shortage of water resources for agricultural development.** Assuming that the water requirement of the staple rice crop is 1,500 mm, considering losses through surface evaporation, drainage etc., the total land area of about 400,000 ha of both upland and swamp rice, which is projected to be required to achieve rice self-sufficiency, will require an annual renewable water supply of approximately 6 billion m³ or 6 km³/year. This is only about 2.6% of the total annual renewable water resource of 232 km³/year.

59. **Achieving the full irrigation potential of the country will require a more integrated land and water approach to address the prevailing constraints.** Liberia does not have a comprehensive policy document that addresses water development of water resources, possessing only dislocated pieces of legislation on land, mining, forestry and water supply that relate to water resources. Basic water management data for crops are not available and research in Liberia does not seem to consider this to be a priority, probably because of the abundance of water resources. Upland water management and water management on

slopes are not considered critical issues in the farming community. The upland soils are generally acidic, with low fertility and low water-holding capacity, and are prone to soil erosion, yet soil and water management is not much of an issue for the farmers. Even though there are limited data to support the claim, current land use practices are deemed to be having an effect on water resources, as suggested by the seasonality of some tributaries that used to be perennial, and changing rainfall patterns. Forest cover is being reduced due to current farming practices, thus posing a threat to soil fertility, biodiversity and the water resources of the nation.

H. Land and Soil Resources

60. Located on the west coast of Africa, Liberia occupies a land area of approximately 111,370 km², of which 96,160 km² (86%) is dry land and the remaining 15,210 km² is covered by water. It shares common borders with Guinea to the north, Cote d'Ivoire to the northeast and east, Sierra Leone to the northwest and the Atlantic Ocean to the south and southwest, with a coastline that is about 520 km long. The topography comprises mainly flat to rolling coastal plains running into some interior plateaus and then mountains in the north-eastern part of the country. The country is made up of four physiographic units: coastal plains (up to 100 m above sea level – masl), interior hills (100–300 masl), interior plateaus (300–600 masl) and mountainous areas (in excess of 600 masl).

61. The geology of Liberia can be classified into three major provinces based on rock age: the Liberian age province (2.7 billion years), the Eburnean age province (2.0 billion years) and the Pan African age province (0.6 billion years). There are three major types of soil in Liberia: laterites (latosols), sand (regosols) and swamp, which cover, respectively, 75%, 20% and 4% of the land surface (Table 5). Alluvial deposits constitute about 2% of the soils in Liberia. Generally, soils in Liberia are characterized by shallow layers of humus, low organic matter, high acidity, and deficiencies in magnesium and calcium, which not only serve as plant nutrients but also neutralize the acid in the soil. The soils range from weakly developed muds and hydromorphic clays along the coast and the inland swamps to shallow soils on the Plateau Mountains and lateritic hills and terraces in the north.

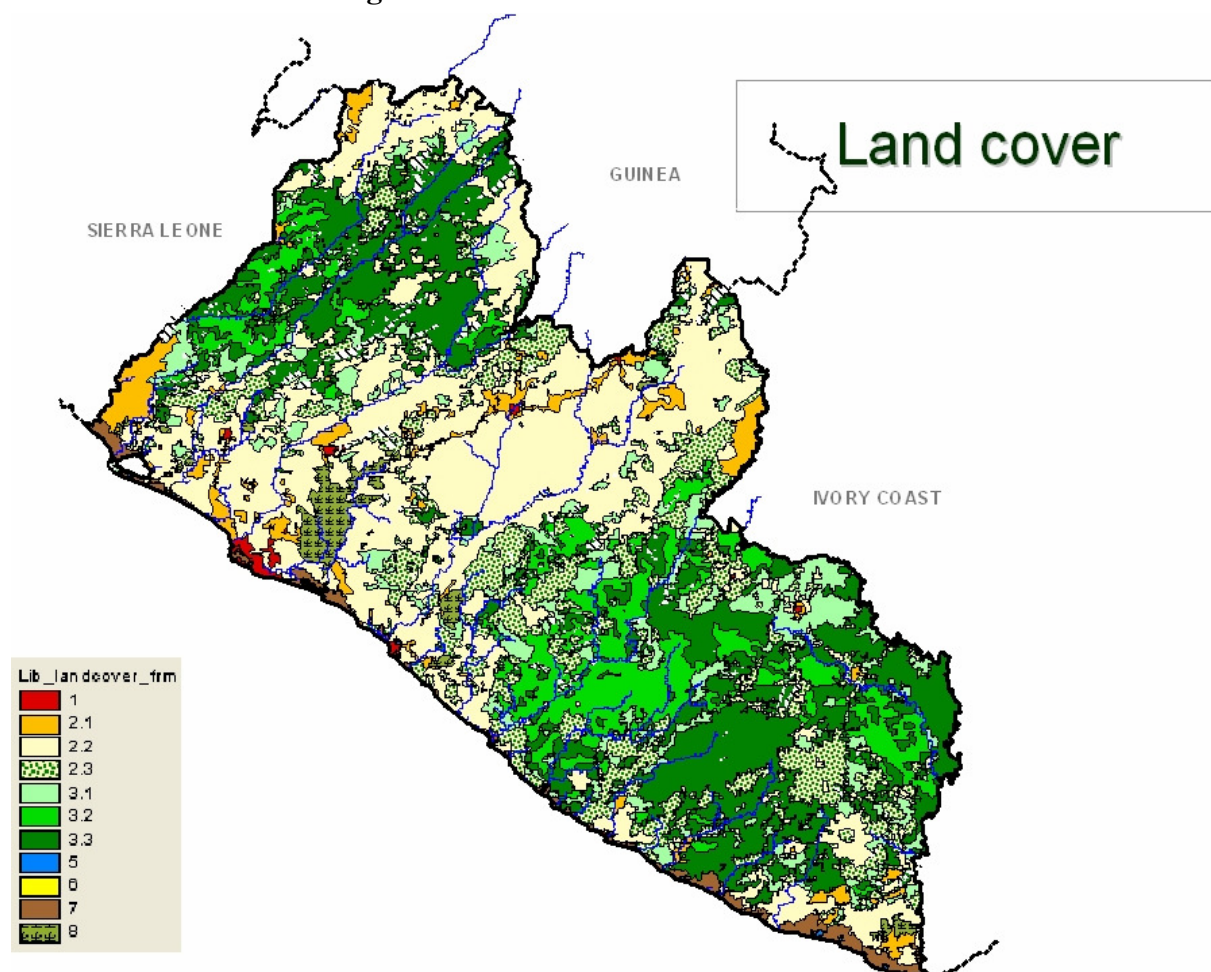
62. The first comprehensive **land use** map of Liberia was prepared in 1956 from aerial photographs taken in 1953. At the time, the map showed extensive forest vegetation in the northwest and southeast with some farmed areas. In 1981, another land use map was prepared from aerial photographs taken in 1979 (Republic of Liberia, 1983). This revealed the depletion of extensive forest cover, largely due to farming activities. The most recent survey, in 2004, has revealed the degree of further loss of forest cover (Figure 5).

Table 5: Soils of Liberia

| Soil type | Liberian classification | % Area | Area* (ha) | Properties |
|---------------------------------|--|--------|---------------|--|
| Lateritic soils or latosols | Kakata, Suakoko and Voinjama Series | 75% | 8,352,750 | Reddish brown, leached 10 cm topsoil, 4–6 % OM, acidic, well-drained, productive agricultural soils |
| Regosols or coastal sandy soils | Claratown, Sinko and Freeport Series | 20% | 2,227,400 | Well-drained, 60% coarse sand, very low water-holding capacity, little humus and few mineral nutrients, not productive agricultural soils |
| Alluvial soils or swamp soils | Gbelle, Ballam, Grayzohn and Cuttington Series | 5% | 556,850 | Waterlogged, grey hydromorphic soils, poorly draining, thick dark layer of loamy-peaty organic material with relatively high humus content |

Source: Republic of Liberia (1983). Notes: * CAAS-Lib estimates

Figure 5: Land Cover in Liberia in 2004



Source: Bayol and Chevalier (2004). Land cover key: 1 = Urban areas; 2.1 = Predominantly rural agricultural domain; 2.2 = Agricultural areas with small forest presence; 2.3 = Mixed agricultural & forest area; 3.1 = Agriculture degraded forest; 3.2 Open dense forests; 3.2 = Closed dense forest; 5 = Free water; 6 = Savannah or bare soil; 7 = Coastal ecosystem complex; 8 = Agro-industrial complex.

63. According to the CFSNS (2006), around 60% of households in Grand Kru and Sinoe Counties report holding more land now than before the war (a similar proportion of households in other counties report a *reduction* in land holding), and these are areas where deforestation has been severe.

64. Apart from the plantations (rubber, cocoa, coffee and oil palm), which are noted for providing surface cover and minimizing soil erosion, the farming system has largely been one of shifting cultivation, with a fallow period of 9–10 years. The farming method includes felling/slashing, burning and planting. For the steep or rolling hills, removal of vegetation cover means increased soil erosion. This has been compounded by charcoal production, which is financially rewarding (see Table 3). Bushmeat is a major source of protein; however, hunting sometimes requires the burning of vegetation, thus further depleting biodiversity and soil fertility. According to the Republic of Liberia (2004), forest cover declined from 4.1 million ha in 1992 to about 3.5 million ha in 2001/02, and the MDG target is to reverse deforestation by at least maintaining the current forest cover levels. It is also expected that the land area protected to maintain biological biodiversity, which stood at 192,000 ha in 2003, will be increased to at least 534,000 ha by 2015. Deforestation is said to be at the rate of 1.5-2% p.a.

65. The land types that are present in Liberia include tidal swamps, coastal beach plains, flood plains, valley swamps, and low and high hills, all of which have different **land use capabilities** (Table 6). For the tidal swamps, high tides could destroy crops, requiring substantial investment in drainage if such lands are used for agricultural production. The coastal beach plains generally have low fertility and low levels of organic matter (OM) and will require some amount of fertilization when cropped. The flood plains also have the problem of potential flooding that can destroy crops, but proper timing and adequate drainage can improve the situation. The valley swamps, which are potential rice fields, are also poorly drained and have low fertility and organic matter. Adequate drainage and fertilization can improve their agricultural capability. The low hills are well drained and can be used for upland rice, vegetables and cassava but also have the problem of low fertility and are prone to soil erosion. Fertilization and long fallow periods can improve the agricultural capability of the soil.

Table 6: Agricultural Land Capability

| Agro-ecology | Drainage | Crop suitability | Constraints | Improvement measures |
|----------------------|--|---|--|---|
| Tidal swamps | Poor | Intensive lowland rice | High tide destroys crop | Adequate drainage |
| Coastal beach plains | Poor to well drained | Unsuitable for most crops except cassava, coconut, oil palm | Low fertility, low organic matter (OM) | Fertility management |
| Flood plains | Poor to well drained | Cocoa, oil palm, upland rice, irrigated rice possible | Potential flooding | Proper timing of cropping activities, adequate drainage |
| Valley swamps | Poor | Lowland rice | Water logging, low nutrients, low OM | Adequate drainage, fertility management |
| Low hills | Well drained; foot slopes poorly drained | Upland rice, vegetables, cassava | Low fertility, erosion | Fertility management, adequate fallow |

Source: GoL (1983)

66. Nearly 5.4% of Liberian land, amounting to approximately 600,000 ha, is said to be cultivated, but 220,000 ha of this is reported to be under permanent crop or plantation, while the rest is arable (FAO, 2005). Broadly, these areas are uplands and lowlands or swamps. Swamps can be classified as mangroves, riverine grassland, flood plains and inland valleys. The degree of suitability of the swamps for agriculture is not known because they have not been characterized, but there is a general notion that the swamps are more productive lands for rice.

67. **Although achieving crop area expansion in a sustainable way will be a major challenge, there is no shortage of available land.** Projections of the annual rice production needed for self-sufficiency by 2015, assuming the per capita consumption of rice to be 124 kg, show that rice area would need to increase from 104,100 ha of traditional uplands, 50,000 ha of traditional swamplands, and 25,000 ha of improved swamplands in 2006, to about 232,300 ha of traditional uplands, 111,500 ha of traditional swamplands and 55,700 ha of improved swamplands in 2015. This constitutes an annual increase of 20–25,000 ha of rice lands. Assuming a minimum fallow requirement of 10 years, the total upland required using the traditional shifting cultivation system is approximately 2.3 million ha – equivalent to

about 20% of the available uplands¹⁴. Only about 10% of the available swamplands will be needed.

I. Land Tenure

68. **In the smallholder sector there are five broad types of land holding, with different levels of tenure security:** *deed holders* (or holders of other documents) with a comparatively high degree of tenure security; *customary occupation* without a deed, which results in relative security within the customary domain; *rental or leasing* of land with lower security; *'strangers' or 'borrowers'* of land who are not from a local area and do not rent, but who are allowed very temporary and insecure access to land, and must supply a token amount of crop produce to the owner to acknowledge that the land is owned by another – in essence acknowledging that the land is being loaned; and *squatters*, who, although they can be evicted at any time if they are discovered by the owner, are also the most aggressive about attempting to claim land by planting tree crops and through forms of adverse possession. While there are differences in tenure security among the different types of holding, all suffer poor tenure security and issues emerge when the different types interact.

69. For *deed holders*, the lack of a registry of land in Liberia means that no systematic records system exists whereby one can determine the true owner of land, the person to whom all or part has been sold, boundary locations, inheritance, the role and validity of historical deeds, and the occurrence of fraud. This puts the legitimate deed holder in a vulnerable position. Thus the fear of counterclaims (based on investments made by tenants or documents held by others) is based on common experience. The lack of a national land registry results in two problems: first, the growth over time of enormous confusion over what has been sold, subdivided, or inherited and by whom – the result of which is an inability to be certain of the owner, area purchased, or existing counterclaims; second, the creation of a situation whereby opportunists are able purposefully to make multiple sales of the same piece of land, with few or no repercussions – in one sense this is a variation of the 'culture of impunity' that exists following a war.

70. Other problems include confusion over different types of deeds, problems with adjudication, including enforcement of decisions, the theft of deeds during the war (particularly from the National Archives), destruction and loss of deeds, misrepresentation involving deeds, and the high degree of ambiguity, low capacity and significant level of confusion in the land and property institutions. This has resulted in the value of a deed as a piece of evidence (argument for claim) being lower relative to other forms of evidence for claims. An additional problem with deeds and documents is the issue of ill-defined boundaries.

71. *Customary tenure* has played a large and positive role in the reintegration and resettlement of displaced persons after the war, and it does not appear that there are pervasive, explosive problems with land allocation. There are, however, several issues of significant concern. Important among these is the profound lack of confidence among smallholders in customary courts and their ability to adjudicate land issues fairly. This has led to an increase in 'trial by ordeal' for many issues, including land conflicts.

¹⁴ In reality, improved more intensive cultivation methods, even on uplands, would mean that less land would be required.

72. For *tenants*, their comparative insecurity allows them only to plant annual crops, with tree crops or other forms of permanent improvement specifically prohibited. Frequently, land is rented for only one cropping season in order to ensure that permanent claims will not be pursued.

73. Those who *borrow holdings* can be people who know the lender, or be strangers to the lender who essentially are ‘begging land’. In this case planting trees is strongly prohibited, and a token amount of the crop yield is provided to the owner, in order to acknowledge that the borrower is not the owner of the land and will not claim the land. This is a highly insecure form of tenancy and the smallest infraction can see the borrower evicted. Also, a very good crop can result in the borrower being evicted so that the owner can take full advantage of the yield.

74. *Squatted holdings* constitute a large problem in both rural and urban areas. In some cases squatters can be seen as the most aggressive in pursuing forms of land claim involving tree planting or other improvements, and in cases of adverse possession. The latter can be pursued after 20 years of occupation with no attempt by the property owner to evict.

75. **Most land holdings lack formal deeds** although the proportion of households with (somewhat) secure title is greater in more intensive agricultural areas. Squatting is common in those areas that received a large number of IDPs, while leasing arrangements are rare (Table 7).

Table 7: Statistics on Land Holdings

| | Mean farm size (acres) | % of HH with: | | | | |
|-----------------------|------------------------|----------------|----------------------------------|-----------------|--------------------------------|--------------------|
| | | access to land | increased holdings since the war | plot with deeds | plot/community land – no deeds | squatter agreement |
| Bomi | 1.8 | 68% | 24% | 33% | 55% | 11% |
| Bong | 3.5 | 66% | 15% | 22% | 62% | 10% |
| Gbarplou | 2.3 | 67% | 34% | 17% | 70% | 13% |
| Grand Bassa | 3.8 | 81% | 24% | 6% | 78% | 14% |
| Grand Cape Mount | 2.8 | 52% | 32% | 60% | 24% | 14% |
| Grand Gedeh | 2.8 | 88% | 22% | 10% | 78% | 9% |
| Grand Kru | 1.9 | 76% | 63% | 0% | 99% | 0% |
| Lofa | 5.4 | 88% | 36% | 0% | 97% | 2% |
| Margibi | 3.0 | 46% | 22% | 52% | 24% | 17% |
| Maryland | 2.8 | 70% | 33% | 5% | 73% | 9% |
| Montserrado | 3.8 | 39% | 47% | 26% | 43% | 25% |
| Nimba | 2.6 | 72% | 27% | 48% | 46% | 5% |
| River Cess | 4.2 | 76% | 21% | 6% | 79% | 15% |
| River Gee | 1.9 | 90% | 23% | 1% | 89% | 9% |
| Sinoe | 2.7 | 83% | 59% | 3% | 91% | 5% |
| | | | | | | |
| <i>Simple Average</i> | <i>3.3</i> | <i>66%</i> | <i>31%</i> | <i>20%</i> | <i>67%</i> | <i>10%</i> |

Source: CFSNS (2006).

76. **As is well documented in the literature, the various types of land holding provide different incentives for undertaking agricultural investments** (Deininger, 2003). For smallholders the prospects of technology adoption, such as planting of tree crops, and

investments such as soil conservation, terraces, or other long-term strategies differ with the different occupancy types noted above. Deed holders face two difficulties in this regard: the issue of multiple transactions over time (including fraud), and the designation of boundaries. In the case of the former, the current surge in cases of land and property dispute in all forms of courts that relate to various problems with deeds¹⁵ means that deed holders who are involved in a dispute, or think that others might in any way have a counterclaim, may be unwilling or less willing to adopt long-term technologies such as tree planting or investments associated with longer term strategies.

77. For customary landholders the poor management of the relationship between formal and customary law, and the resulting historical taking of land for concessions, discrimination in adjudication, and internal custom problems, make some local communities reluctant to pursue such investments. Another problem is that such investments are visible, and if successful in increasing yields, they attract the attention of opportunists able to misuse the instruments of the state to claim such land. Other long-established, less disrupted local communities, however, are more secure and do not experience such problems to the degree that disrupted, recovering, returnee-stressed communities do.

78. For rented/leased and borrowed holdings the strong prohibition against investment in agricultural land is a primary constraint to improvements in yield. Particularly acute in this group is the desire to not appear too successful as a farmer, for fear that the land will be taken back by the owner (along with the standing crop), prior to the agreed time. As a result there is reluctance to pursue strategies actively that involve technology adoption or investments that would attract attention due to their success.

79. **Land issues contributed to the war; land continues to be an emotive issue with high levels of resentment resulting from specific land issues**, particularly in Nimba and Lofa Counties. There is a complex of problems, with concessions for access and exploitation of natural resources. Foremost among the problems is considerable confusion about which rights are included or excluded for concession holders. There is widespread understanding that a concession, while issued for the purpose of exploiting timber, rubber or minerals, or for agriculture, is in reality a very broad issuance of rights to claim and exploit land resources in whatever way suits the concession holder, although this may have little to do with the business proposal that was used to obtain the concession. There are also significant problems with the actual areas granted as concessions, with the total area granted as concessions in some counties adding up to more than the area of the county itself. Also, there seems to be little connection between the area granted or held and the area to be developed or exploited. Frequently the concession areas granted are much larger than the area actually developed.

80. Several issues regarding community and tribal lands have become problematic as a result of the war (and land relations prior to the war) and currently constitute a group of important issues that are in need of attention. It has been noted on a number of occasions that rural people need to have more of a voice on land (and other) questions. The Tribal Reserve Law has not been respected, which compromises the ability of MoA to manage agricultural efforts in the tribal areas. Tribal land is often claimed by outsiders, and the resulting disenfranchisement causes significant problems.

¹⁵ It is reported that between 75% and 90% of all cases in courts in Monrovia are land and property related.

81. The arrangement whereby the government claims to own all the land in the interior of the country, and has issued concessions without consulting local communities, has also created considerable animosity. Exacerbating this animosity is the lingering perspective that only by moving from the rural areas to the city and becoming ‘civilized’ (baptized, married according to statutory law) can one own land privately. The MIA (the primary institution that deals with community and tribal lands), including local government, notes that the perception of people regarding community and tribal lands are quite confused. There is, however, some indication that at the village or community level local arrangements operate in greater clarity. The Mandingo land tenure issue is a particular problem that needs focused attention. The essence of the problem seems to reside in the question of whether the Mandingos are considered to be citizens of Liberia or not, and thereby whether they are able legitimately to claim and occupy land.

82. **There is an increasing incidence of land conflicts along existing ethnographic fissures.** There is some indication that the war and the current land situation have aggravated a Muslim–Christian divide in some parts of the country. Research is needed in order to ascertain the role that institutions, grievances, and entitlement connected to religion (and tribes, and other groups) have in resolving or creating divisiveness with regard to the land situation.

83. Women’s issues come to the fore with regard to the land question, primarily in terms of land access and inheritance, with these two factors being intertwined. In this regard women tend to have fewer rights regarding land under customary law than under statutory law. The CFSNS has found that, currently, only 56% of female-headed households, compared with 68% of male-headed households, have access to land. As a proportion, almost twice as many men as women (33% compared with 16%) have individual access to land.

84. In 2003 a group of female lawyers in Monrovia, the Association of Female Lawyers of Liberia (AFLI), worked to help pass a new law, ‘An Act to Govern the Devolution of Estates and Establish Rights of Inheritance for Spouses of Both Statutory and Customary Marriages’ (MoFA, 2003). Thus, at present, inheritance of land by women is legally the same under statutory and customary law. The impact of the new law and the dissemination work carried out by AFLI on customary law regarding women, inheritance and land appears to be variable, but the law will probably require time and sustained effort for effective implementation. The new inheritance law has received resistance from some rural men (and parliamentarians) who would like to keep the previous inheritance arrangements intact. However, others have accepted the new arrangement. In this regard AFLI has noted that Muslim areas are more open to the new inheritance law than are other areas. A number of respondents noted that a great deal has changed for women in society due to the war, and the presence of a female president is an important factor.

J. Climate Change, Agriculture and the Environment

85. **Traditional farming systems in Liberia have minimal negative effects such as land degradation and loss of biodiversity.** Soil erosion resulting from poor land use practices can be a major cause of land degradation. However, traditional agricultural practices, such as shifting cultivation or slash and burn techniques, result in land degradation only if the fallow period is too short. In addition, improper clearing of vegetation and grass cover can lead to erosion by wind, and torrential rain can result in the removal of fertile topsoil through sheet erosion, or in the formation of deep gullies in the land.

86. Traditional farming with its low technologies dominates the agriculture sector in Liberia and does not pose much of a threat to agricultural biodiversity. The use of chemical inputs such as fertilizers is not widespread. Pastureland, estimated at 182,000 ha, is largely unexploited. The main environmental concern with regard to loss of biodiversity is the loss of valuable tree species (UNDP, 2006). Primary forest areas that contain mature tree species and secondary trees are normally cut and burned. This farming system reduces forest cover and contributes to the build-up of heat on the soil surface, which results in the destruction of soil organisms and other organic materials, as well as physical changes in the soil. Besides the loss of tree species and vegetation cover, wildlife is also affected.

87. Furthermore, the development of rubber and other plantations poses a threat to biodiversity and the environment, especially with the establishment of rubber plantations, which involves clearing and excavation. During the process, many species of flora are destroyed to make way for monoculture. There has also been an outcry about the method of waste disposal from rubber processing facilities (UNDP, 2006).

88. Wetlands in Liberia are threatened with degradation due to pressures from firewood gathering, pollution, unregulated settlements near wetlands, agriculture and industrial expansion. Other marine and coastal ecosystems are under threat from activities such as intensive fishing, shipping, land-based pollution and development, the increasing human population and the introduction of alien aquatic species. However, the most serious threats to the coastline and marine environment are solid waste, beach sand mining and beach erosion, not agriculture. The expansion of savannah found in Lofa County, predominantly in Foya District, is also of concern, bringing with it the threat of desertification in Liberia.

89. Although the current threat from Alien Invasive Species (AIS) in Liberia is low, because of the mainly traditional farming systems in use, measures need to be instituted now for the achievement of Target 10 of the Global Invasive Species Programme, which calls for the development of management plans for AIS.

90. Liberia is a signatory to the Convention on Biological Diversity (CBD) and the Biosafety Protocol, having ratified it on 8 November 2000, while the Cartagena Protocol was acceded to on 15 February 2002. The CBD calls on parties to regulate, manage or control the risks associated with the use and release of Genetically Modified Organisms resulting from modern biotechnology. In fulfilment of its obligations the GoL has pledged to honour the precautionary principle in recognition of the need for environmentally safe management of biotechnology (UNDP, 2006).

91. On a global scale, Liberia's contribution to global warming is negligible but like other African countries it is likely to be disproportionately affected by the impacts of climate change due to limited adaptive capacity and widespread poverty. Key sources of greenhouse gases in Liberia include fuel combustion for power plants and transport, the use of charcoal and fuel wood, the burning of forestry products for agricultural purposes and the burning of solid wastes. There are other minor sources such as industrial fuel combustion and emissions from vehicle and aircraft exhausts. The National Capacity Self-Assessment project identified a number of activities in Liberia that contribute to climate change (UNDP, 2006). These include shifting cultivation with a fallow period of less than 12 years, uncontrolled logging, charcoal production, and improper waste disposal.

92. A rise in sea level and an increased risk of flooding are some of the expected impacts of global warming. It is predicted that global warming will be accompanied by a rise in sea level of as much as 60–100 cm over the present century (EPA, 2005). It is projected that approximately 95 km² of land in the coastal zone of Liberia will be inundated as a result of a rise in sea level of 1 m. About 50% (48 km²) of the total land loss due to inundation will be on the sheltered coast. Parts of the capital city, Monrovia, and its environs, West Point New Kru Town, River Cess, Buchanan and Robertsport, will be lost if protective measures are not taken. Furthermore, the mangrove systems along the coast will be lost (Wiles, 2005).

93. It has been said that global warming could extend the range of disease-causing vectors such as mosquitoes, leading to an increase in diseases such as malaria. Forests and wetlands could be affected by higher temperatures and changes in rainfall. The possibility of forest fires becoming more intensive and frequent will be high. Any significant change in the climate of Liberia will also disrupt the growth of some crops in certain seasons. Farming practices will be expected to change with the change in climate.

94. The vulnerability assessment for evaluating the impacts of potential climate change on fisheries resources follows a weight of evidence approach. Unfortunately, the fish catch potential of Liberian river fisheries cannot be calculated because of insufficient data to allow estimation of the fish stock biomass in and along the rivers.

K. Rural Infrastructure

95. **Rural infrastructure – rural roads, markets, irrigation systems, water supply, health and educational facilities – is essential to the quality of life in rural areas**, as well as being an important engine for economic development. All these elements have a critical role to play in any agricultural development strategy for Africa, with rural roads a particular priority (Commission for Africa, 2004). Research in Asia found that in villages with better roads, fertilizer costs were 14% lower, wages were 12% higher and crop output was 32% higher than in villages with poor roads (Ahmed and Donovan, 1992). In Africa, rural road construction has been found to be associated with increases in agricultural production, especially of non-food export crops, expanded use of agricultural credit, large increases in land values, proliferation of small shops and expansion of rural markets (Anderson *et al.*, 1982).

96. **Little investment, neglect and the conflict mean that transport infrastructure today is in an appalling state.** Roads are the major transport sub-sector within the country; railways constructed to assist the export of ore have been non-operational for over 20 years.¹⁶ There is no domestic aviation service, and shipment between the four ports remains small. Primary roads make up about 1,798 km, of which 561 km is paved, while the entire secondary road network (2,504 km) and feeder roads (1,425 km) are all unpaved (Table 8). Assuming that about half of the other roads are farm to market roads, the rural road network (excluding primary and urban roads) would amount to about 7,830 km, giving a rural road

¹⁶ Before the cessation of iron ore mining in 1990 about 500 km of tracks linking iron mines in Grand Cape Mount, Bong, and Nimba Counties to the ports of Monrovia and Buchanan were in use. During the conflict, the tracks and beds of the railroads were heavily looted. The line between Bong Mines and Monrovia has been reactivated by a private company, which provides a railway service for some passengers and light cargo. The line between Yekepa (Nimba) and Buchanan will be rehabilitated to accommodate the mining activities of Mittal Steel. Apart from the Bong Mines railroad, railways in Liberia have not been important in the transport of agricultural commodities.

density of 0.07 km per square km for Liberia. Although the average is greater than that of the humid and sub-humid Tropics of Africa in general (Spencer, 1996) it is significantly less than the density is required given the population density of the country. To achieve a road density equivalent to that of India at the start of the Green Revolution¹⁷, Liberia needs to have a road density of about 0.160 km/km²; other studies suggest an objective density of 0.186 km/km², (Republic of Liberia, 1978). To construct the additional 10,025 km of rural roads by the year 2015 would require an investment of US\$500 million.

Table 8: Liberia's Road Network

| Road type | Estimated length (km) | | |
|----------------------|-----------------------|---------|--------|
| | Paved | Unpaved | Total |
| Primary | 561 | 1,237 | 1,798 |
| Secondary | | 2,504 | 2,504 |
| Feeder | | 1,425 | 1,425 |
| Urban | 80 | 400 | 480 |
| Other (logging etc.) | | 7,800 | 7,800 |
| Total length | 641 | 13,366 | 14,007 |

Source: World Bank (2004b).

97. As a result of degradation during the last two decades the paved roads are severely pot-holed and the rest of the road network is in a very poor state of repair with many feeder roads having reverted to jungle. Vehicular travel in rural areas is difficult in the dry season and impossible in many areas in the rainy season, with about half of all villages rated as having no vehicular access (Figure 6). The roads in the south-eastern counties are muddy and difficult to navigate even during the dry season. Bridges on the dirt roads are made of logs, or logs and planks; they are particularly hazardous in the coastal south and south-eastern counties.

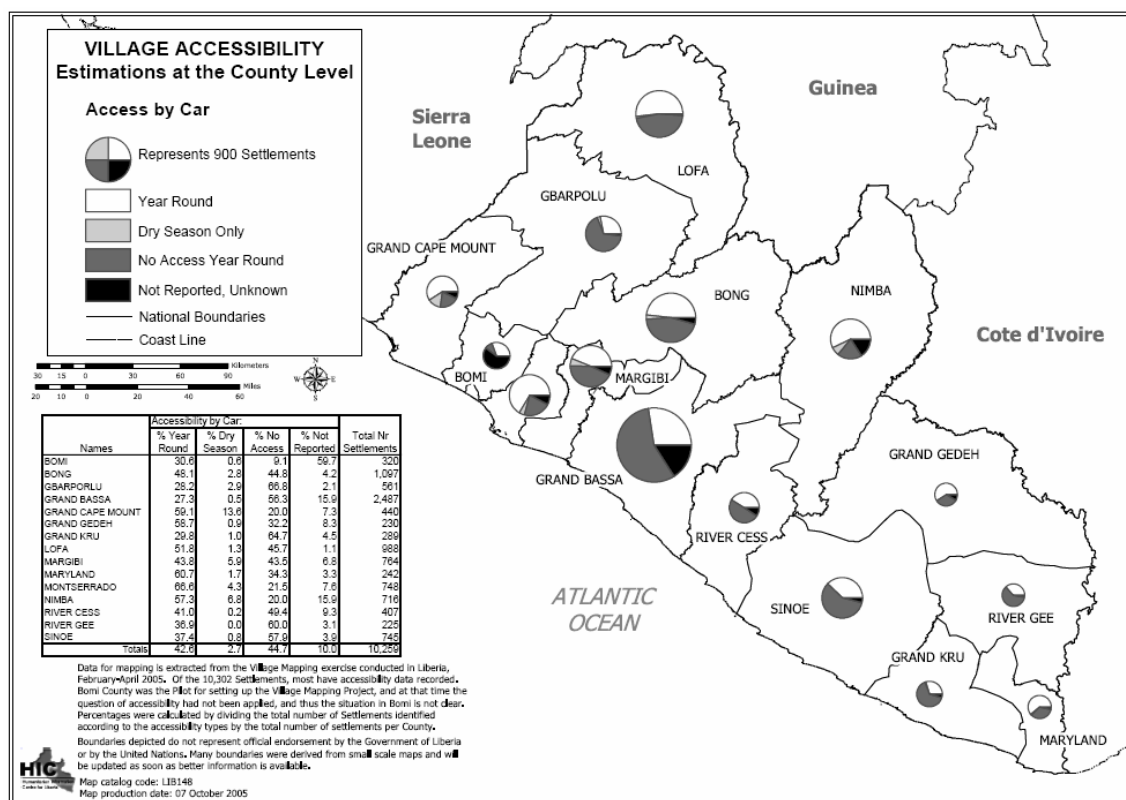
98. **As well as poor roads, there are few trucks to transport goods and a weak market for trucking services.** The Liberian trucking fleet was decimated during the conflict; today there are an estimated 20–30 trucking companies in Monrovia with a total trucking capacity of less than 2000 mt (MoA, 2007). Commercial truck carrying capacity ranges from 5–20 mt per vehicle. Most trucks imported into Liberia are secondhand, with an average age of 8–10 years. During the dry season, commercial transporters operate throughout the country with the exception of River Gee, Maryland and Grand Kru Counties, which are generally served by transporters from Cote d'Ivoire. Foreign registered trucks are allowed to operate in Liberia provided that they have the ECOWAS permit, and there are an increasing number of trucks from Guinea because of the current situation in Cote d'Ivoire.

99. There are four main seaports in Liberia: Harper, Buchanan, Greenville and the Freeport of Monrovia. The Freeport is the most active, and this is where most of the imported commodities arrive. The other three ports, mainly used for exporting logs, have limited

¹⁷ The target density is calculated using the level achieved by India in 1950, when it had a population density roughly equal to that of Nigeria at the end of the last decade. The basic thesis is that countries need to achieve the road density that Asian countries had at the start of the green revolution in the 1950s if they want to use input-dependent green revolution technologies, such as the improved Inland Valley Swamp production system. Based on an assessment of agricultural potential in different Counties and the needs of the Agricultural Development Projects, a 1978 study (Republic of Liberia, 1978) considered a total road density of 0.186 km/km² to be a desirable target for Liberia.

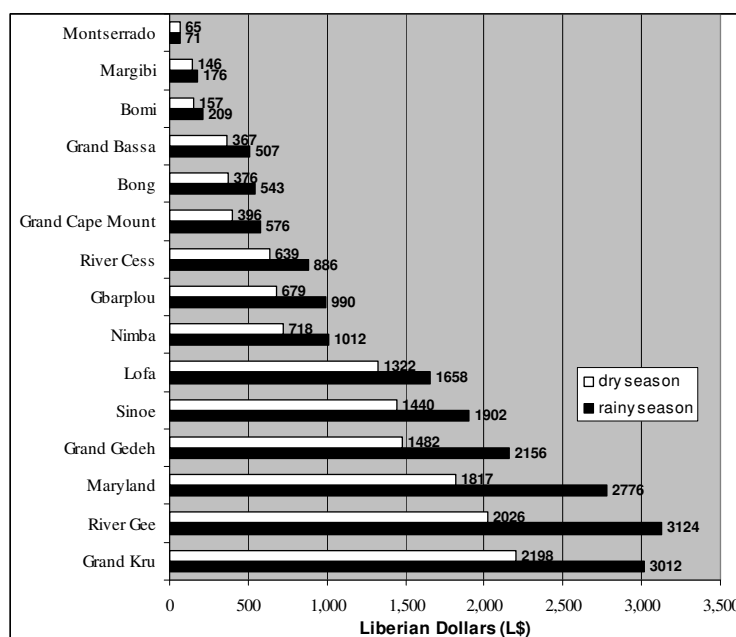
handling capacity, forcing vessels calling at these ports to provide their own handling equipment. Major constraints at the Freeport include channel shrinkage, blockage of berths by capsized vessels, limited and outmoded discharging and handling equipment, and heavy reliance on manual labour.

Figure 6: Village Accessibility; October 2005



Source: HIC, 2005

100. The consequence of poor roads and few transport services is that transport costs are high, particularly during the rainy season and especially on poor-quality roads. On average, transportation costs on paved roads are US\$0.40/mt/km, compared with US\$0.56/mt/km on unpaved roads (MoA, 2007). Costs on the paved roads remain generally the same in both wet and dry seasons. However, they can be more than doubled during the wet season for travel on the unpaved roads (Figure 7). Because of the inadequate coverage and poor state of the existing rural roads network, access to markets in rural areas is poor. Access to markets is crucial for households to purchase as well as to exchange and sell food and other agricultural products, but large parts of Liberia's traditional farming areas are isolated from markets or are costly – both financially and in terms of time – to access. While 81% of households access a weekly market they have to walk long distances to reach it. On average, households in Bong and Montserrado only have to walk for 1.5 hours, while households in Gbarpolu have to walk for nearly 6 hours, in Grand Gedeh up to 9 hours. The average for all households is 2.5 hours (MoA, 2007). Correspondingly, transportation costs are high: while households in Margibi pay less than L\$150 to reach Monrovia (one way), households in Grand Kru pay on average around L\$2,200.

Figure 7: Transport Costs for Passengers to Monrovia

Source: MoA, 2007

L. Liberian Farming Systems

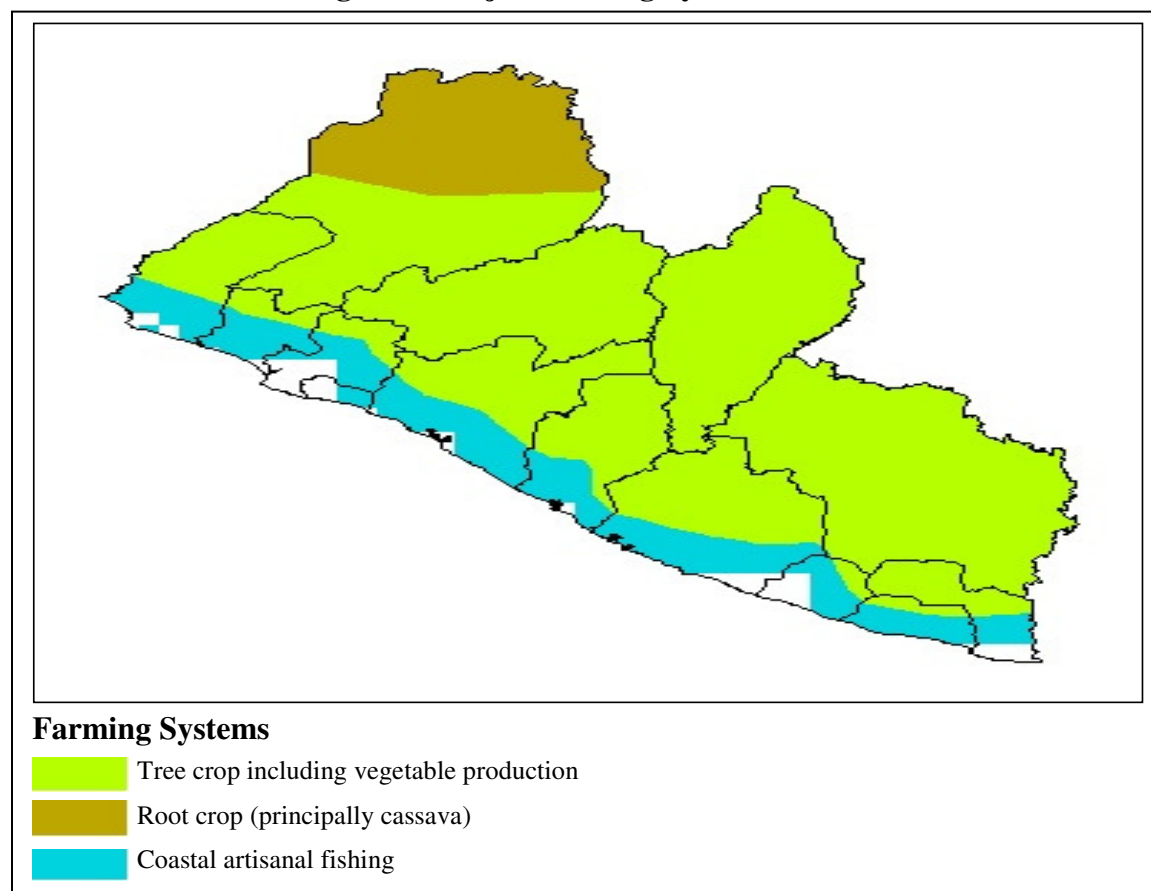
101. **Forest-based farming systems cover the largest proportion of the land area in Liberia.** They consist of tree crop-based systems in which vegetables and other food crops are produced on a minor scale, concentrated in the central belt of the country, and root crop-based systems (with cereals) are concentrated in the northern region of the country. The third major farming system occurs in the coastal belt, with fishing as the major activity, combined with land-based mixed cropping systems (Figure 8).

102. Three main production systems characterize Liberian agriculture and can be differentiated by the scale of production:

- *Large plantations* produce major export crops such as rubber, oil palm and to a lesser degree coffee and cocoa. This system can be sub-divided into the large commercial plantations that are owned and managed by the private sector (found particularly in the rubber and palm oil sectors) and the state-owned plantations run by the Liberian Palm Products Corporation and the Liberian Cocoa and Coffee Corporation. Production in this second group is limited, although they remain in existence.
- Domestically owned, *medium-sized commercial farms* produce industrial crops for export and livestock for the local market (although these farms are extremely small in number).
- *Small household farms* use traditional production techniques with extremely limited use of modern inputs. They make up the majority of all farming and therefore the livelihood

of the rural population. Although data are incomplete, evidence suggests that most rice farms are around 1 ha in size (FAO, 2001).¹⁸

Figure 8: Major Farming Systems in Liberia

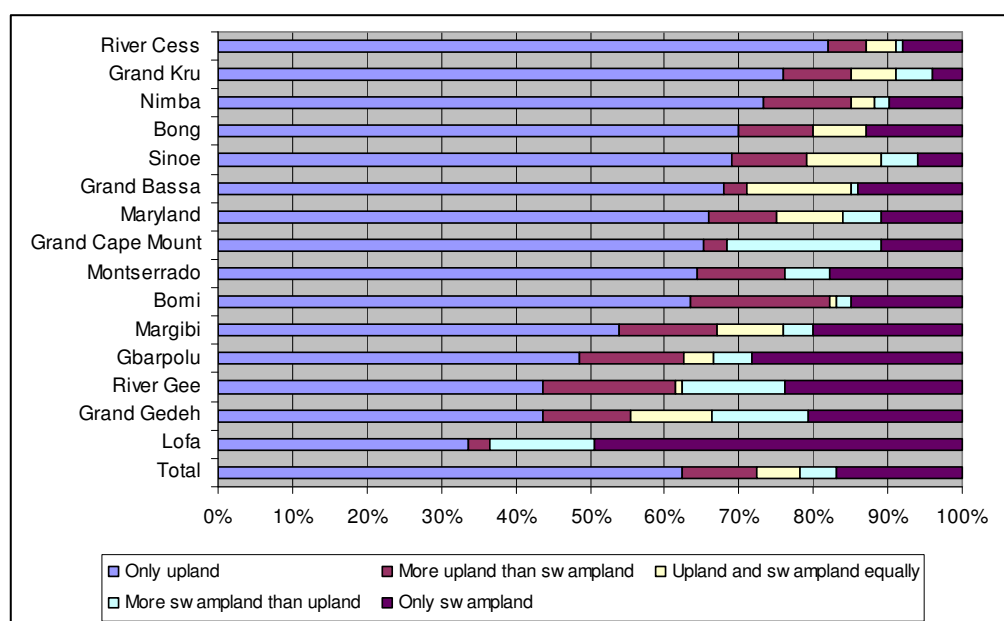


Source: FAO Country Profiles and Mapping Information Services (2006).

103. **Rice is the staple food of the country**, with over half of the households reported to have produced some rice in during 2005 (CFSNS, 2006). There are basically two systems of rice cultivation: upland rice and swamp rice. The former dominates: data from the CFSNS (2006) indicate that 63% of households fully relied on upland rice techniques, while 17% opted for swampland; 21% used a mixture of both, although upland was also more common in this group. Techniques differ across Liberia and reflect local agro-ecological conditions. Upland rice dominates in River Cess, Grand Kru and Nimba, while the majority of households in Lofa grow swampland rice only. Lofa County has the highest concentration of developed swamplands in the country as a result of past investment by donor-funded agricultural development projects (Figure 9).¹⁹

¹⁸ In fact, 53.6% of rice farms are between 0.2 and 1.19ha, with a further one-quarter of rice farms 1.2–1.69 ha in size. For cassava, 70% of farms are less than 0.69 ha in area (CFSNS, 2006).

¹⁹ The extent of upland cultivation may also have been underestimated because the majority of households have only recently returned, and thus missed the agricultural cycle for upland rice production in 2005.

Figure 9: Household Production of Upland and Swampland Rice

Source: CFSNS (2006).

104. **Upland rice cultivation is carried out purely under rain-fed conditions using shifting cultivation**, with the rice planted on farms in the same year that fallow or forest vegetation is cleared. Seed is broadcast. The upland farm is a mixed cropping system that usually includes maize, cassava and banana/plantain as well as local vegetables (e.g. pepper and bitter balls). Typical farming activities include brushing, felling, burning, clearing, broadcasting, ploughing, weeding and harvesting. The productivity of the farm depends on the length of the fallow period, with significant declines in yield if the fallow periods drop below 8–10 years (Finck, 1973). The rice is panicle harvested with a knife and is usually head loaded into a special store, where it is stacked on the panicle and threshed only when it is to be eaten or sold. Farm size averages approximately 1.1 ha, and rice yields are between 0.5 and 1.1 mt/ha.

105. **Swamp rice is traditionally grown in inland valleys that have been cleared, usually using hand labour**. The rice varieties are usually different from those grown on the uplands and the seed is usually transplanted. The swamps are extensively used for the production of rice in the rainy season and vegetables during the dry season. Other crops, such as cassava, are planted on mounds during the dry season. They are uprooted and stem cuttings are transferred and planted out on the uplands at the beginning of the rice growing season, when the mounds face the danger of submergence. Mounds constructed by inversion of soil and burying of stubble/grass help to decompose plant materials and thus to improve soil fertility. The rice is usually panicle harvested and stored in the same way as upland rice. Farm sizes are usually smaller and yields higher than on the uplands. A variant of the traditional swamp rice production system is what is known as ‘recession agriculture’, which is practised largely during the dry season. The farmers take advantage of the residual moisture of the soil in the swamps to grow vegetables.

106. A small number of more modern swamp rice production systems exist on specially developed swampland, where irrigation and drainage systems have been laid out to feed permanently cropped fields. Water control activities include digging and clearing of

canals/drains, bunding, flooding, drainage, ploughing and puddling, and levelling and repair. The varieties of rice grown are usually different from the upland varieties and of shorter duration. A few swamps attempt two rice crops a year and these are mainly the perennial swamps. Drainage is generally poor. Typical lowland rice production activities involve nursery, brushing and clearing, ploughing, puddling and transplanting, weeding, fertilizer application (if needed) and harvesting.²⁰ Fertilizer application rates are low: fertilizer is rarely available and, when it is, costs are high. The rice is usually harvested with a sickle, threshed in the field and stowed and carried in bags from the field. Yields of 1.6-5.5 mt/ha are possible.

107. **Cassava is the second most important food crop** with annual production estimated at 250,000 tons. Its advantages are that it can be planted all year round, the time of harvest is not critical, and it can be stored in the ground. It is therefore very important for food contingency, especially before the rice harvest. It is often planted as a follow-on crop after upland rice is harvested. In addition, cassava leaves are an important vegetable, although harvesting of leaves affects tuber yield (this effect is reduced in the rainy season). Crop area is around 0.5 ha, and yields are estimated to be between 6 and 10 mt/ha on upland farms. Cassava is grown on the flat and is usually intercropped with maize and possibly sweet potato and pepper. Tubers tend to be small and may be broken when harvested, which reduces shelf life.

108. **Other food crops** include vegetables such as pepper and bitter balls (garden eggs), as well as groundnuts, which have a ready local market. Yields of groundnuts range from about 700 kg/ha on uplands, to about 1.2 mt/ha in swamps. The groundnut crop requires a light sandy soil and is particularly attractive in the farming system because of its nitrogen-fixing properties, which enhances the yield of the following crop. Urban and peri-urban vegetable production is also practised on a limited scale, taking advantage of the ready market in the urban centres for vegetable crops produced through such activities. The potential for the use of motorized pumps for irrigation from shallow wells in support of urban and peri-urban agricultural activities also exists, especially in and around Monrovia.

109. **Recent crop production statistics are unreliable** but it is clear that production fell sharply during the civil war and has only recently recovered, while average yields have stagnated (at best). The FAO estimates reported in Table 9 suggest that domestic rice production (currently estimated to be 110,000 mt) is at roughly one-third of the level of the mid-1980s. Similar estimates for cassava production suggest a steady increase over the last 15 years to around 75,000 ha and 490,000 mt.²¹

110. **Previous efforts to introduce mechanical cultivation to address the labour constraints have largely failed.** The application of mechanical cultivation methods was mainly on plots of land measuring up to 2,000 ha for upland rice cultivation, although there was some land clearing for tree crop plantations and lowland rice cultivation. The equipment used was mainly tractors (crawlers and wheel tractors), ploughs, harrows and seeders in the

²⁰ The typical main drain/canal embankment specification is: 75–100 cm crest width, 75–100 cm height, 150–200 cm base width. The field bunds have the following typical specifications: 50–70 cm crest width, 40–60 cm height, 90–150 cm base width. Plot size is approximately 20 m x 20 m.

²¹ It is unclear from the statistics whether this refers to industrial cassava production or simply home grown subsistence production. If the latter this would be understandable during a time of civil war, given food insecurity and the ability to leave cassava in the ground until needed. Such increases may not continue in the future.

uplands, and power tillers and caged-wheeled tractors in the lowlands. Combine harvesters were also used in a few cases. Previous assessments note that some methods have had limited success (e.g. improved felling methods using chainsaws) but mechanized clearing followed by tractor tillage were disastrous, mainly because they did not fit the farming systems used and there was insufficient training and facilities for back-up services (World Bank, 1984a).

Table 9: Rice and Cassava Production; 1990–2004

| Year | Cassava (fresh and dried) | | | Rice | | |
|------|------------------------------|--------------------------|------------------|------------------------------|--------------------------|------------------|
| | Area harvested (1,000 ha) | Production (1,000 mt) | Yield (mt/ha) | Area harvested (1,000 ha) | Production (1,000 mt) | Yield (mt/ha) |
| 1990 | 55.00 | 380.00 | 6.91 | 175.00 | 180.00 | 1.03 |
| 1991 | 42.00 | 270.00 | 6.43 | 110.00 | 100.00 | 0.91 |
| 1992 | 40.00 | 280.00 | 6.67 | 120.00 | 110.00 | 0.92 |
| 1993 | 40.00 | 245.00 | 6.13 | 60.00 | 65.00 | 1.08 |
| 1994 | 29.00 | 250.00 | 6.25 | 45.00 | 50.00 | 1.11 |
| 1995 | 32.81 | 175.00 | 6.03 | 50.00 | 56.20 | 1.12 |
| 1996 | 43.30 | 213.26 | 6.50 | 75.60 | 94.45 | 1.25 |
| 1997 | 47.00 | 282.20 | 6.52 | 135.20 | 168.40 | 1.25 |
| 1998 | 55.50 | 307.00 | 6.53 | 161.90 | 209.40 | 1.29 |
| 1999 | 67.00 | 361.30 | 6.51 | 153.70 | 196.30 | 1.28 |
| 2000 | 72.50 | 440.50 | 6.57 | 143.50 | 183.40 | 1.28 |
| 2001 | 72.50 | 480.00 | 6.62 | 130.00 | 145.00 | 1.12 |
| 2002 | 75.00 | 480.00 | 6.62 | 120.00 | 110.00 | 0.92 |
| 2003 | 75.00 | 490.00 | 6.53 | 120.00 | 100.00 | 0.83 |
| 2004 | 75.00 | 490.00 | 6.53 | 120.01 | 110.00 | 0.92 |

Source: FAOSTAT

111. Although there were attempts to provide service to small farmers by the parastatal organization AGRIMECO, the scheme was short lived because of political interference in management, the offer of services to ‘favoured’ customers, and the economics of mechanization, which basically only suited large farmers who could afford the cost of US\$370–US\$865 per hectare for mechanical clearing of land. This compares with about US\$75–US\$100 per ha for clearing using hired manual labour for under-brushing and chainsaw gangs for felling of large trees. Major constraints to mechanization also included the unavailability or cost of spare parts, resulting in delays in work output and the abandonment and scrapping of relatively new equipment. Although mechanical clearing and cultivation of the uplands using tractors was not affordable by most small farmers, cultivation of the lowlands using power tillers was much more acceptable and affordable to individual medium-scale farmers and groups of small farmers (although the increased labour required to clear the land initially may undermine the benefits). In addition, the use of chainsaws and small-scale milling plants proved to be profitable, and they became visible all over the country.

112. The very few attempts to introduce draught animal cultivation failed due to the difficulties with keeping draft oxen in the forest zone country, and the unavailability of appropriate technology and experience with work oxen. There was also no policy on mechanization and use of agro-machines that addressed such issues as the appropriate types of mechanical equipment and the most appropriate areas or agro ecosystems where mechanical equipment could be used.

M. Food Crop Value Chains

113. As described in Box 2, value chain methodology provides an analytical framework to assess the competitiveness of Liberian agriculture. Value chains were constructed for vegetables, rice and cassava based on the fieldwork conducted and interviews with farmers and market traders. Very little value addition takes place, with the chains being limited, very short and often confined to only two or, at best, three stages along the chain. Previous analysis of value chains in the smallholder tree-crops sector has reached similar conclusions (Parker, 2001). There is little value being added²² in most cases, whilst at best a simple trading relationship seems to take place. Some conversion of cassava into *fufu* or *gari* takes place (to permit marketing over longer distances or time periods without deterioration) but the value increase is marginal – purchases appear to be more for convenience than anything else.

114. **There is very little difference between small-scale farming and subsistence-based farming**, with little surplus available for sale in either case. Differences between trading, production and selling are small and differences in prices between the farm gate and the point of sale to the end consumer in most cases are also low.²³ Given that most rice produced is for subsistence purposes it is not surprising that very little domestic production finds itself on the open market. Of the amount of produce that gets on to the market a substantial amount is lost through wastage.

115. Figure 10–12 present a schematic overview of some of the value added processing that occurs within the food crop sub-sectors. The presence of limited value chains does not mean that these commodities cannot become more important commercially, but investment would need to be made in training, in infrastructure, in setting up factories that convert the products into a higher value commodity, in food quality assurance and food handling, in storage, and in transport and packaging. Because much of the farming activity remains at subsistence level, increasing production and productivity will be difficult. Limited amounts of excess produce were seen in the vegetable and cassava production sub-sectors, but where this takes place wastage and spoilage could be as high as 50%,²⁴ which impacts negatively on availability and the incentive to over-produce.

²² The survey results showed that 80% of all farmers interviewed do not undertake processing of any sort. The remaining 20% of farmers interviewed indicated they might conduct some *gari* preparation, grinding of pepper and okra, milling and par-boiling.

²³ This is also confirmed by the food crops survey undertaken in October–November 2006.

²⁴ Based on mission interviews with farmers and traders.

Figure 10: Vegetable Value Chain

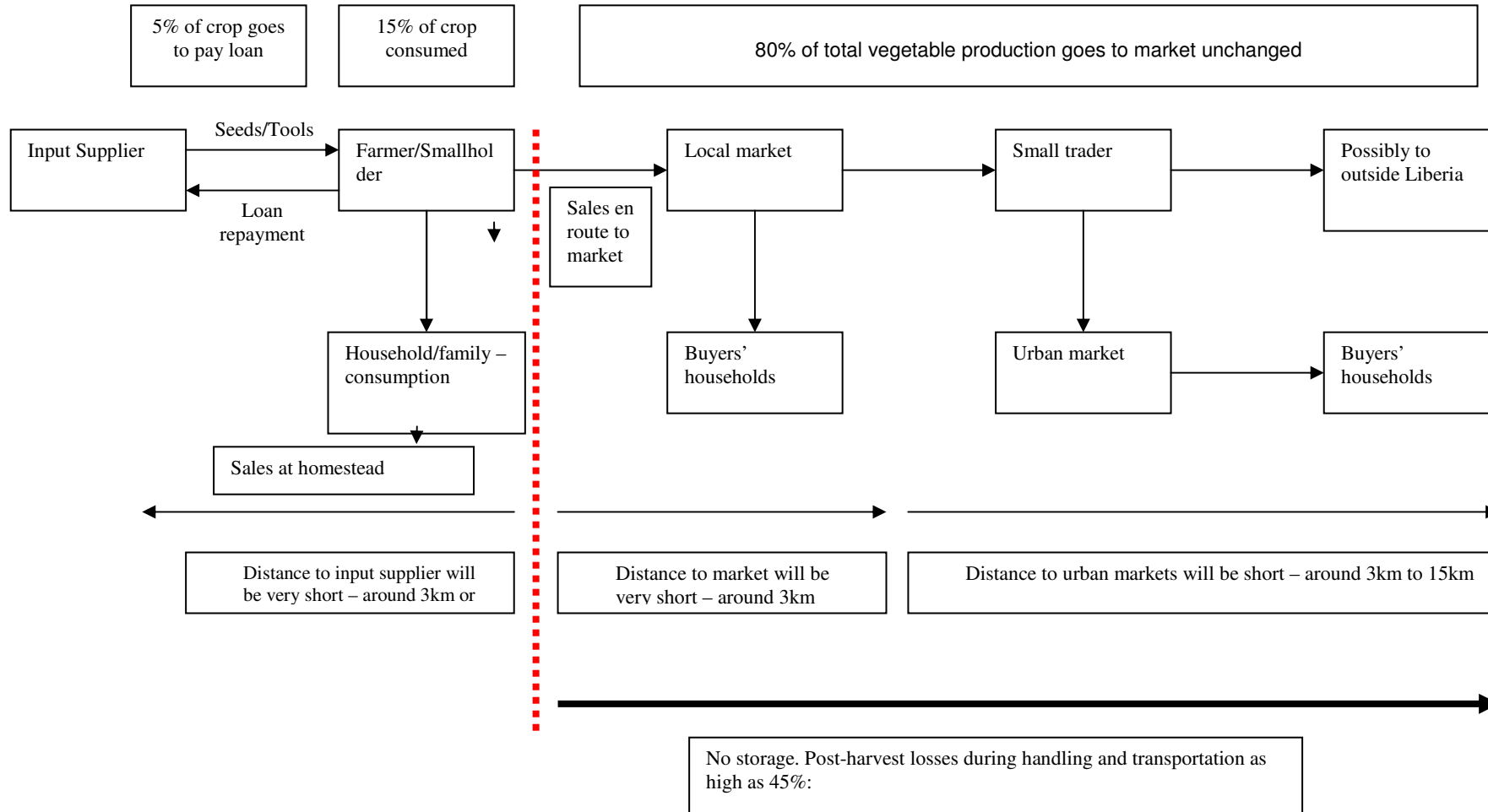


Figure 11: Cassava Value Chain

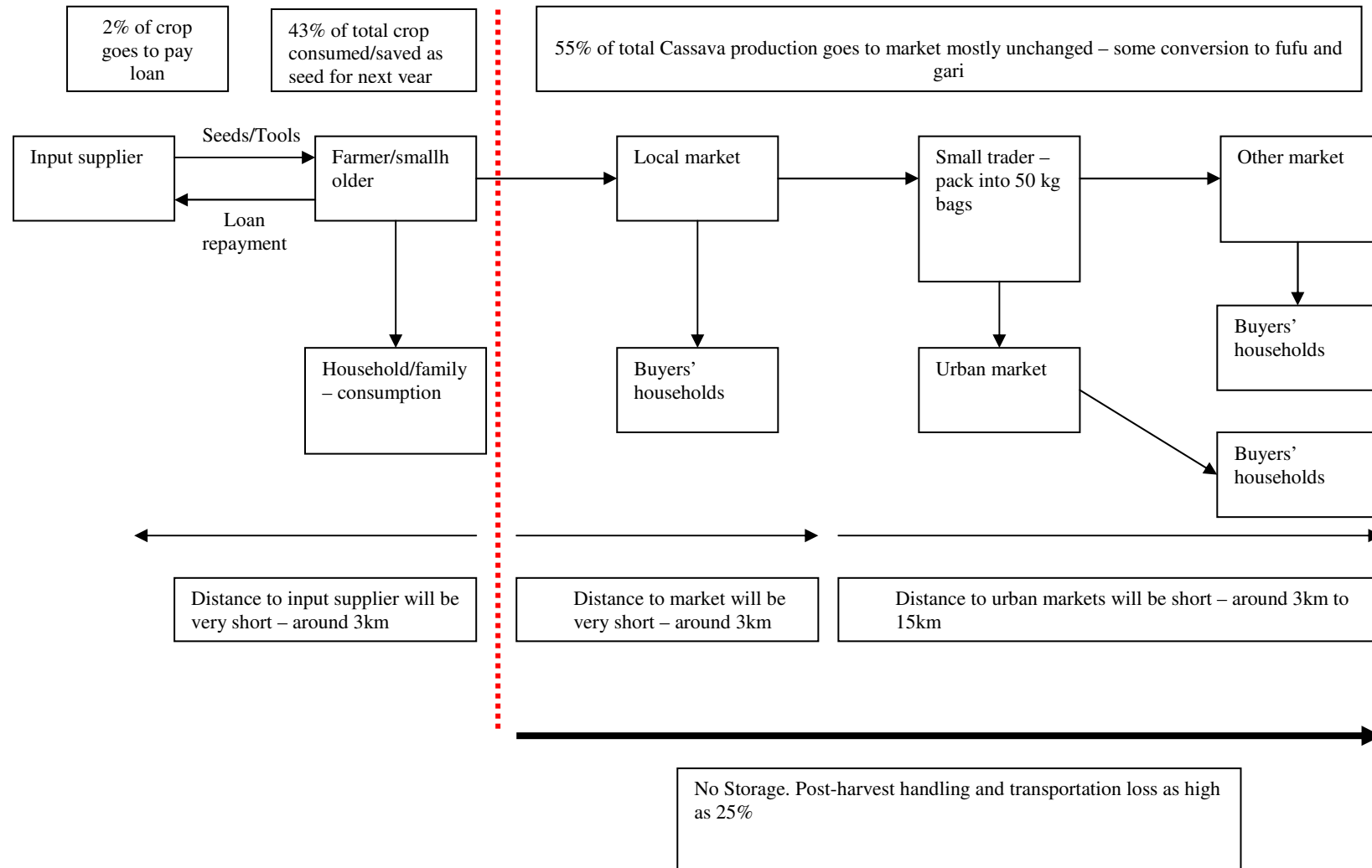
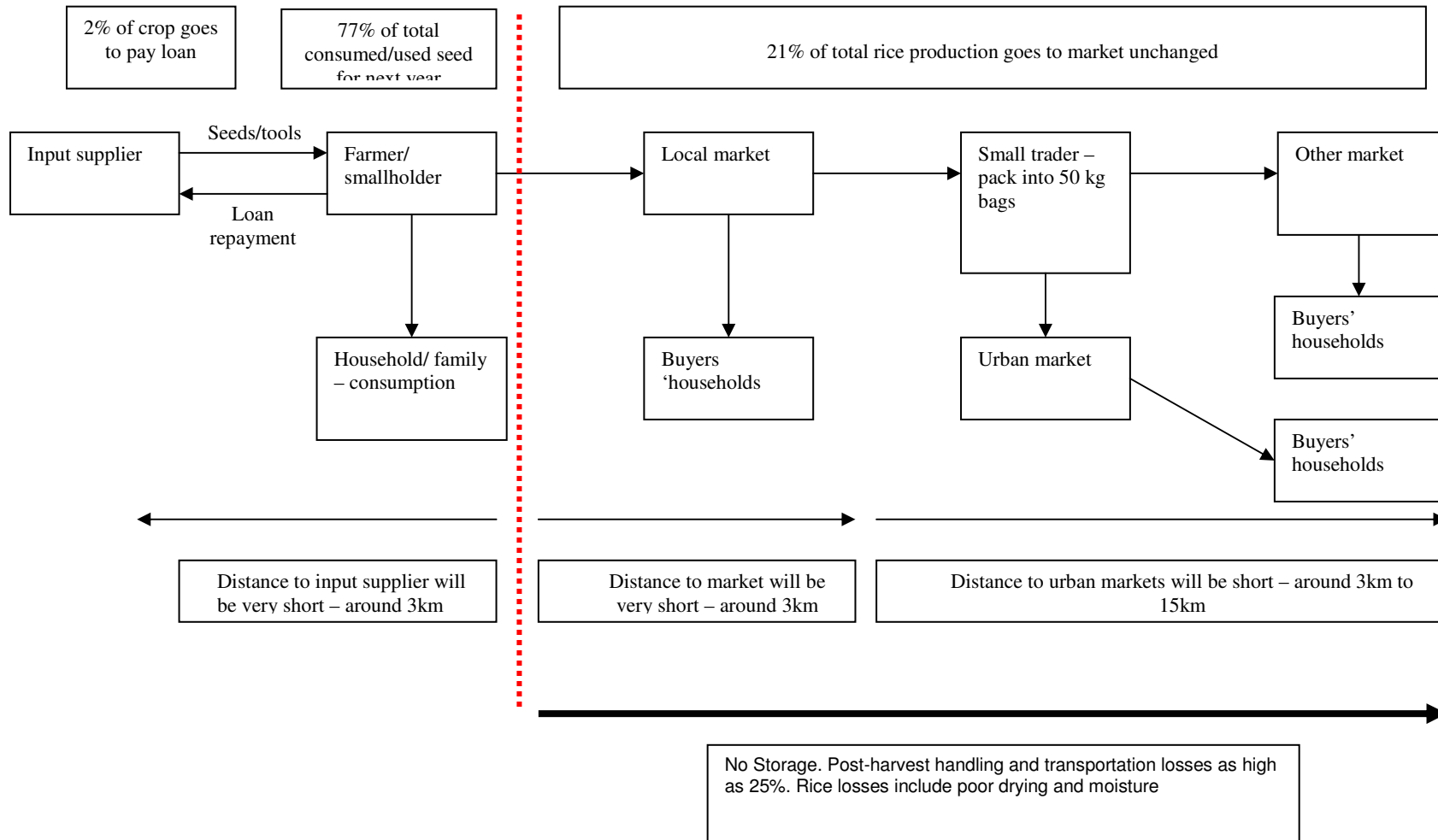


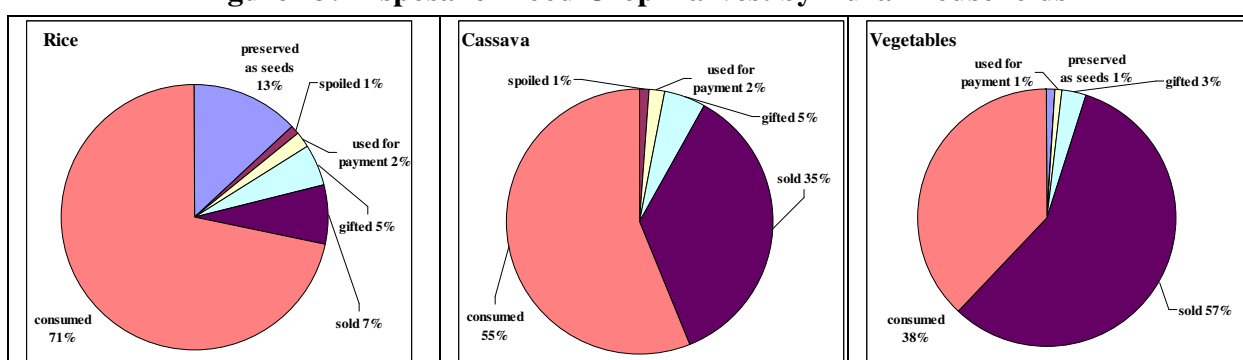
Figure 12: Upland Rice Value Chain



116. **Food markets are small; the majority of rice production is consumed within the household and there is limited market-orientation among farmers.** CFSNS (2006) also provides information on the degree of subsistence production for the major food crops in Liberia. Using participatory rural appraisal tools respondents were requested to divide the total 2005 harvest of the reported crops into sub-groups based on how crops were utilized by the household in order to obtain estimates of how much of the total harvest was consumed, sold, gifted, used as payment, preserved as seeds or spoiled (Figure 13). Across all food crop types, about 5% were given as gifts to other community members or relatives, and around 2% were used as payments. It was reported that only 1% were spoiled due to wrong preservation and storage techniques, although parallel qualitative research indicates that this is significantly under-reported

117. On average, only 7% of the rice produced was sold; however, there were differences across the country, with better connected counties seeing an increased proportion of rice marketed. Households in Nimba, for instance, sold 17% of their production of rice; the figure was 14% in Grand Cape Mount and 11% in Montserrado. Selling of vegetables dominates in Nimba (72%), Grand Bassa (67%) and Montserrado (66%). Cassava was also mainly consumed by the producer (57%), although households were more likely to market cassava than rice (35% versus 7%). Cassava was mainly sold in Grand Cape Mount, Montserrado and River Gee (50% or more) whereas 70% or more of cassava was consumed by the producer in River Cess, Grand Kru, Grand Bassa and Sinoe. At the same time, lack of markets was rarely mentioned as a (priority) constraint by households.²⁵

Figure 13: Disposal of Food Crop Harvest by Rural Households



Source: CFSNS (2006).

118. **The value chain analysis, validated by discussions with stakeholders, illustrates the high degree of wastage along the value chain.** Causes include losses due to poor handling, rot and storage losses. All sub-sectors suffer equally, although some suffer more than others because they comprise perishable foods. Maintaining the quantity and quality of the unprocessed output is a clear priority to be addressed through knowledge (to improve handling techniques) as well as small-scale investments in storage and marketing infrastructure.

119. Farmers themselves have identified a number of constraints on output, of which many relate to the lack and/or cost of inputs as well as losses from pests. Animal pests are a major constraint – ‘groundhog attacks’, referring to various types of bush animals who eat

²⁵ According to CFSNS (2006), on average only 2% of farming households saw this as a constraint. The percentage was higher in more remote Counties such as Cape Mount (6%) and Grand Bassa (4%).

crops standing in the field, were reported by one-third of farming households. More than 55% of households in Sinoe, Grand Kru, and River Gee reported suffering from this problem. Bird attacks were reported by 17% of all farming households. These attacks were more frequently mentioned by households in Margibi (28%) and Gbarpolu (20%). In total, 13% of the households sampled indicated that their household was engaged in activities other than farming, and another 13% mentioned the lack of land both in terms of quality and quantity. The latter was most frequently reported in Montserrado and Margibi, by 42% and 29% of households, respectively. Six per cent of all households reported that they returned too late for the planting season – for obvious reasons this was most commonly reported by households that had land but did not farm in 2005. In Lofa, 24% of households reported this constraint, followed by Bomi with 18%. All other constraints were only mentioned by around 1% of the surveyed households, and showed regional variation: plant disease and insect attacks were most common in Grand Bassa (12%) and Margibi (13%), and more than 25% of households in Bong and Margibi wanted to have better access to pesticides. Loss of harvest due to heavy or early rains was only reported by households in Grand Kru (12%). Across all counties lack of training and marketing opportunities was mentioned by very few households, probably due to the fact that other issues are more pressing.

120. The CFSNS has shown that, currently, constraints on agricultural production varied depending on whether the household was currently farming or not and whether the household had access to land (Table 10). Across all groups, lack of seeds and of tools were the two most frequently mentioned constraints – they were reported by half of the households in the overall sample. The third constraint was a lack of financial capital to purchase agricultural inputs. This was followed by lack of household labour to carry out the labour-intensive work of brushing and clearing, which contributes to the fact that farms in Liberia are relatively small. This reason was more frequently given by households that had land but did not cultivate in 2005, particularly in Lofa and Bomi Counties. A summary of the strengths and weaknesses of various food crops is reported in Table 11.

Table 10: Household-reported Constraints to Agricultural Production

| | Farming HHs | HHs with land but not farming | HHs without land | Total |
|-----------------------------------|--------------------|--------------------------------------|-------------------------|--------------|
| Lack of seeds | 50 | 56 | 46 | 50 |
| Lack of tools | 47 | 52 | 54 | 50 |
| Lack of financial capital | 29 | 39 | 30 | 31 |
| Lack of HH labour | 27 | 37 | 23 | 28 |
| Groundhog attack | 30 | 10 | 7 | 19 |
| Bird attack | 17 | 5 | 5 | 19 |
| HH engaged in other activity | 10 | 12 | 18 | 13 |
| Lack of arable land | 3 | 3 | 34 | 13 |
| Returned late for planting season | 2 | 25 | 3 | 6 |
| Total | 48.5 | 18.0 | 33.5 | 100 |

Source: CFSNS (2006). Note: Figures are the percentage of all households reporting positively.

Table 11: Strengths and Weaknesses and Comparative Advantage of Selected Food Crops

| <i>Value chain for:</i> | <i>Strengths</i> | <i>Weaknesses</i> | <i>Demonstration of comparative advantage to meet domestic household food security, nutrition, incomes, pro-poor growth, as well as for regional and international exports</i> |
|---|---|--|--|
| Cereals (especially rice) | There are two types – upland and lowland. Most farmers cultivate upland. There is a strong farming awareness of rice and some potential for growth in this area. Demand is high as rice is a staple crop of Liberia. | Processing is by hand, production mainly for home consumption and little opportunity for surplus as imports (from China and USA) are readily available (even if expensive). The number of harvests achieved per year is low – currently it is estimated that only one crop per year is achieved when in fact this should be at least doubled. Productivity per hectare is also too low at about 25% that achieved outside Liberia. It is currently about 1 mt/ha. (Based on several interviews with rice/paddy farmers and verified by the national consultant on food crops.) | Production of local rice is not seen as a boost to income but rather to contribute to food security as a staple food source. Currently there is no comparative advantage seen either regionally or internationally for upland rice. Production is to satisfy subsistence needs rather than market needs, and is supplemented by rice imports. No government policies are in place yet to provide an incentive to reverse this. A possible area is organic rice production in the future but this would need substantial investment in infrastructure, food handling and packaging to reach certification stage (very little fertilizer and pesticide application takes place currently). On the other hand, DRC calculations suggest that lowland rice has comparative advantage in supplying urban markets. There is therefore a good prospect for achieving self-sufficiency by investing in the expansion of that system of production. |
| Root crops (the main crop considered is cassava) | As with rice production, cassava growing is popular and meets some food security needs and some cash production needs. Value adding potential exists by converting the commodity, possibly into bio-fuel or other products such as starch. Low technology would be a possibility for meeting local market demand. | Industrialization of cassava production and post-harvest value adding is limited and would require investment in hardware, training and promotion. Production losses are high from pests and plant diseases. | The current production of root crops shows some comparative advantage and the potential exists to industrialize the sub-sector. Further research would need to be conducted into the sub-sector to explore local and industrial demand and to undertake feasibility studies to examine viability. Calculations by the mission suggest good DRC ratios. |

| <i>Value chain for:</i> | <i>Strengths</i> | <i>Weaknesses</i> | <i>Demonstration of comparative advantage to meet domestic household food security, nutrition, incomes, pro-poor growth, as well as for regional and international exports</i> |
|---|---|---|---|
| <i>Vegetables</i> (the main crops possibly are items such as bitter ball and peppers but it is difficult to be sure because of the limited variety in markets) | <p>A market exists for a number of vegetables although items such as tomatoes and cucumbers, for example, were not seen at points of sale. Half of the vegetable production is for sale in markets, whilst the other half is for home consumption. The markets are more likely to be urban centres.</p> <p>There is the potential to focus on vegetable garden and production systems led by women.</p> | Almost no value adding was observed. Some vegetable leaves were cut for the consumer at the point of sale. Generally poor handling, storage and packaging caused large post-harvest loss. | <p>There would seem to be scope for expansion of the vegetable sector by both reducing post harvest loss and increasing production and productivity. Improved transportation and other infrastructure, as well as training and increased access to competitive lines of credit could provide an incentive for an increase in vegetable production, handling and marketing. The production system would need to change substantially and some specialization would have to take place. Currently large volumes of vegetables are coming into Liberia from across the borders with Guinea and Cote d'Ivoire or, as seen in Monrovia, as frozen produce from Europe, USA or the Middle East. DRC calculations show that vegetable production has reasonable comparative advantage. With greater effort and investment it may be possible to bring the DRC down even further.</p> |

121. **Comparative evaluation of costs of production between crops and of domestic production compared with imports helps to illustrate the potential viability of agricultural strategies.** It is important not only for assessing the prospects of overall agricultural development, but also for gauging the prospects for self-sufficiency, which is an important political objective. The reason for this is that farmers decide what to grow based on their own perceptions of potential gains and constraints, while public policies on rural infrastructure, irrigation, water control, technology and prices can influence farmers' decisions about which crops to grow (Ahmed, 2000). Farmers may prefer, for instance, to diversify out of rice production because other crops are more profitable. This will undermine self-sufficiency goals, but may be an optimum strategy from the point of view of the individual households, as well as maximizing aggregate economic growth and attaining poverty reduction goals.

122. Initial estimates of the domestic resource Cost (DRC)²⁶ of domestic production are presented in Table 12, which covers the three food crop sub-sectors: rice, cassava and vegetables. Six models have been developed. This table also includes a set of data on the size of farm examined, showing that they are all very small in scale and generally practice mixed subsistence and commercial farming. These results indicate that upland rice production for the supply of urban markets has no comparative advantage at present, with a DRC ratio of approximately 1.43. Its use of domestic resources is too high and better use could be made of finances to grow other commodities for the market. However, because the private profit is just positive, producers have an incentive to produce domestic rice for home consumption and supply to nearby village markets. Lowland rice production shows a good DRC ratio at 0.30, which suggests that domestic production should be encouraged using this system of production. Furthermore, lowland rice production is labour intensive and could therefore provide employment opportunities for both men and women.

123. Evidence from West Africa suggests that competitiveness in domestic rice production has been increased in recent years in countries with effective support systems. Table 13 shows the changes in DRC during the past three decades for a number of West African countries. In all cases the DRC for rice improved between 1978 and 1996, showing that production systems can change if improved technologies become available and there is policy support to realize the shift.

²⁶ DRC is defined as: "the ratio of domestic factors used to produce one unit of rice (e.g. labour and capital invested in the production) to the added value generated by this unit of rice (i.e. the value of the production minus all the investment costs, e.g. seed, fertilizer, and energy). The DRC is estimated using social prices – that is, prices that would prevail in the absence of government intervention on input and output markets (e.g. subsidies on fertilizer sales price, duty on rice imports) or market failure (monopoly). If the ratio is greater than one, more domestic resources are invested in producing the commodity than the added value generated by the production activity – there is no comparative advantage in producing the commodity and the domestic resources would be more efficiently utilized if allocated to another productive activity. Conversely, if the ratio is below one, the commodity is produced using less domestic resources than the added value generated – rice producers do have a comparative advantage." (WARDA, 2003).

Table 12: Domestic Resource Cost Estimates for Rice, Root Crop and Vegetable Production

| Production system | Size of smallholding and percentage used for commercial production | Private profit (US\$) | Social profit ^a (US\$) | DRC (ratio) | Comparative advantage |
|--|--|-----------------------|-----------------------------------|-------------|-----------------------|
| Model 1: Upland rice (Bong) | 1.4 ha (of which 21% produce is sold) | 7.27 | -16.63 | 1.43 | None |
| Model 2: Lowland rice (Nimba) | 1.6 ha (of which 89% produce is sold) | 17.29 | 340.89 | 0.30 | High |
| Model 3: Root crop – Cassava (Nimba) | 0.6 ha (of which 55% produce is sold) | 99.90 | 168.36 | 0.16 | Very High |
| Model 4: Vegetable production (Grand Cape Mount) | 0.8 ha (of which 80% produce is sold) | 465.48 | 1,160.40 | 0.04 | Very High |
| Model 5: Bitterball–Plantain–Other vegetable (Maryland) | 0.8 ha (of which 40% produce is sold) | 25.79 | 43.93 | 0.19 | Very High |
| Model 6: Bitterball–Plantain (Maryland) | 0.4 ha (of which 50% produce is sold) | 3.43 | 10.07 | 0.47 | High |

Notes: (a) involves using shadow rather than market prices.

Table 13: Comparisons of DRC Calculations for Rice Production in West Africa

| | 1978 | 1993 | 1995 | 1996 |
|---------------|------|------|------|------|
| Cote d'Ivoire | 1.68 | 1.02 | 0.73 | n.a. |
| Mali | 0.69 | n.a. | n.a. | 0.40 |
| Senegal | 1.66 | n.a. | n.a. | 1.12 |
| Sierra Leone | 0.89 | n.a. | 0.55 | n.a. |

Sources : WARDA (2003).

124. The results of the DRC analysis and the comparison between lowland and upland (or swamp) rice are important. Lowland rice production shows higher potential with good management than upland rice production; it offers higher yields and returns to labour, capital investment and general efficiency. Indeed, previous studies have suggested that “the development of the swamp is the key to producing a marketable surplus” (Parker, 2001). Nevertheless, the (overall, negative) experiences of previous agricultural development projects that encouraged swamp rice production provide a number of salutary lessons, and outstanding challenges remain. These are summarized in Box 4.

125. **Vegetable growing is by far the most profitable food crop production activity, with cassava (root crop) production also being relatively profitable.** As is perhaps to be expected, Liberia has high comparative advantage in producing cassava and vegetables for its urban markets, whose reliance on fresh produce is currently only met by domestic production.

Box 4: Lessons from Agricultural Development Projects for Swamp Rice

- Land ownership: Many swamp developments are communally owned and individuals do not have identifiable plots but are allotted plots annually, according to need and past stewardship. This does not encourage the farmer to invest in land improvement.
- Food security: In an effort to be fair, swamps developed with development funds have provided land for the greatest number, resulting in only a few plots per family. The plots allocated to each family are insufficient to meet their food requirements and therefore necessitate their developing an upland farm in addition, to ensure food security.
- Conflict with upland farming calendar. Upland farming takes precedence for many, despite the lower yields. A variety of crops are grown in the upland farm, giving a staggered harvest, which lends itself to food security and food diversity.
- Maintenance: The major work of upland farming is land preparation (the current crop). The major work in swamp rice production is the contribution to maintenance of “communal” structures (i.e. ensuring future crops). The social change from “making your own farm” (working for today) to a communally maintained farm “investing for tomorrow” is extremely difficult and assumes a natural tendency for co-operation that does not usually extend beyond the extended family.
- Timeliness and sensitivity of operations: This is more critical in swamp rice production than upland production. In particular the critical factors are weeding and irrigation.

N. Tree Crop Production

126. **Tree crops (rubber, cocoa and coffee) make a very important contribution to the Liberian economy**, accounting for 22% of GDP in 2005. In addition tree crops are a significant element of export earnings. Rubber currently accounts for almost 90% of total exports because timber exports, which made up 50–60% of the total exports until the early 2000s, have been eliminated due to sanctions. Also, rubber production is a major source of formal employment, with approximately 18,500 workers on commercial rubber farms (MoF, 2006). It is estimated that almost 40,000 households produce cocoa in Liberia (FAO/MoA, 2001). Nimba, Bong and Lofa Counties account for most of the tree crop production.

127. **Tree crops are grown on a range of production systems**, including *smallholder farms* that produce food and export crops (predominantly coffee and cocoa, and more recently rubber), plus oil palm (both for home-consumption and for the market) and to a lesser extent coconut; *commercial farms* including parastatal corporations (LPMC, LCC and LPPC); and *foreign-owned concession* plantations that produce rubber.

128. The Firestone rubber plantation is the largest in Liberia, and it is also the world’s largest contiguous industrial rubber plantation. Five other large plantations have been established (Box 5). Despite the fact that regular replanting was interrupted by civil conflict in many of the industrial plantations the tree stock is still predominantly in the productive phase and consists of improved germplasm. By contrast, fieldwork undertaken as part of this study found that only 10–21% of the rubber stock on small farms is improved. However, over 75% of the smallholder farms were found to be newly planted.

129. While other tree crops (especially rubber) are mostly planted in pure stands, crop diversification is common among cocoa farmers, with cocoa often associated with secondary food crops interspersed among the stand. Germplasm available to farmers is mostly what is available from seeds from harvested cocoa pods or sapling tree shoots and is therefore

unimproved (90–95%). Although improved germplasm arrived in Liberia in the 1970s its use is not common. Cocoa trees of the unimproved variety become viable after six years, and have a productive lifespan of 20–25 years, after which economic productivity decreases. The vast majority of cocoa trees in Liberia are more than 20 years old.

Box 5: History of Rubber Concessions

The Firestone Plantation Company (located in Harbel, Margibi County) was granted a 99-year concession for one million acres (approximately 416,670 ha) in 1926. Originally the company was subject to a land tax of 6 cents per acre, and Liberian corporate income tax (a maximum of 45% of net profits). The Firestone is at present owned by Bridgestone. The National Transitional Government of Liberia (NTGL) renewed the concession agreement in 2005. This agreement was reviewed in 2006.

The Cavalla Plantation in Maryland County was initially part of the Firestone concession, but was passed on to the Doe government in 1981, and the concession was awarded in 1983 to a Belgian company, SIPEF, under which the government maintained a 50% stake in shares of the company. When MODEL rebels occupied the plantation during the civil war, SIPEF withdrew. Since then a number of unsuccessful attempts have been made to manage the plantation. In 2006 an interim management team was installed under the supervision of MoA.

The Cocopa Plantation (Nimba County). The original lease agreement was signed in 1949 for 40 years with the Liberia Company (LIBCO), and renewed for a further 40 years in 1967 from the date of its expiry under the condition that LIBCO had cultivated a certain percentage of the lease area by 1987. In 1996, LIBCO sublet the management of the plantation to a Liberian company owned by the then Minister of Agriculture Roland Massaquoi. In January 2007 the government suspended the agreement citing poor management.

The Sinoe Rubber Corporation. The original concession agreement was concluded in 1953 with the African Fruits Company for a period of 80 years, initially for the planting of bananas and plantains. In 1973, AFC sold out to Ernest Dennis, but another company claims that Ernest Dennis sold the rights and obligations to its subsidiary, Mesurado Plantation Industries. In 1983 Mesurado leased the plantation to the Government-owned Sinoe Rubber Corporation for 20 years. Whilst the ownership of the plantation remained in doubt while under the de facto control of an ex-MODEL rebel leader, it has been reported that UNMIL has since secured the plantation.

B.F. Goodrich, now popularly known as the Guthrie Rubber Plantation, is located in Bomi County. It was established in 1954 and production commenced in 1963. Goodrich was granted tax exemption up to 1973, and then paid corporate tax at a rate of 25% of net profits for the next 10 years, after which the company paid the then normal corporate tax rate. In 1981 the plantation was taken over by the Government following the military coup, and the Guthrie Rubber Company of Malaysia negotiated a management contract with the Government. Guthrie withdrew when LURD rebel forces occupied the plantation. Although the transitional government entered into a 45-year management agreement with Agro Resources Corporation Liberia Ltd in 2005, the plantation is currently under interim management.

The Salala Rubber Corporation in Bong County (40,000 ha) was established in 1959 by the Liberian Agriculture Corporation (LAC). The 70-year lease for 125,000 ha in Grand Bassa County was signed in 1959, originally by a construction company to whom the Government was indebted, and then sold to Uniroyal. The second largest plantation, a processing plant for producing latex for export, was installed in 1968. The plantation was ransacked in 1989. In 1998 a Luxemburg company, Socfinco, bought the leasehold rights to LAC and Weala.

130. Oil palm is a ubiquitous tree crop for smallholders. The products from wild (natural) groves are primarily used for home consumption, but also as a cash crop (cooking oil, soap) together with palm wine. Smallholder oil palm plantations are popular with Liberian farmers and most of the current tree stock was planted during the civil war years – over 60% of the farms surveyed during this study were newly planted using improved germplasm (42–62% improved). There are estimated to be about 27,000 ha of industrial plantations owned by parastatals (LPMC, LPPC and DOPC) and the private sector. Owing to uncertainties over the exact areas planted, and their age and current condition, there is an ongoing photo-satellite survey of all state-owned plantations. The majority of this area is at least 20–25 years of age, and the crops are over-mature and difficult to harvest. Most milling facilities are either destroyed or derelict.

O. Fisheries

131. Liberia's fisheries sector – which includes an established marine fishery involving industrial and artisanal fishing activities (Box 6), an inland fishery, which is exclusively artisanal, and aquaculture practised in rural areas through fishpond culture – provides about 3% of GDP. However, it is locally important for communities with access to fisheries resources, providing employment for about 37,000 fishers and processors, and also has an important nutritional contribution in terms of protein intake. Liberia's coastline (of 570 km) and extensive continental shelf (averaging about 34 km in width and extending 200 nautical miles offshore) provide about 20,000 km² of fishing grounds. These hold considerable maritime fish resources,²⁷ including the main oceanic pelagic resources such as tuna and tuna-like species, for example bonito and marlin. Crustaceans such as shrimps and lobsters are less abundant but are of much higher value than finfish species.

132. The pre-war estimated maximum sustainable yield (MSY) of the continental shelf area was 180,000 mt/year. Liberia also has approximately 1810 km of rivers that traverse the country, and countless perennial swamps and inland water bodies with enormous potential for increased production from inland fisheries and aquaculture. The estimated MSY for the inland fishery is 40,000 mt/year.

133. **Despite difficult operating conditions, seven fishing companies managed to survive the civil war**, catching an average of 222 mt/year of shrimps and 4,500 mt/year of demersal fish between 1996 and 1999. At that time, most of the industrial fishing companies had adequate processing facilities and were exporting frozen crustaceans (shrimps) and small quantities of frozen demersal fish species to Belgium, Greece, the UK and the USA. Fish distribution and marketing from the coastal area to the interior of the country was performed through a system of depots and agents, but this activity ceased because of civil strife and the poor condition of the roads.

²⁷ The most abundant species are *Engraulis encrasicolus*, *Sardinella aurita*, *Decapterus spp.*, *Caranx sp.* and *Ethmalosa fimbriata*.

Box 6: History of Liberia's Marine Fishing Industry

The first attempt at commercial fishing in Liberia was in 1848 when the then President of the country, Joseph Jenkins Roberts, converted his yacht into a fishing boat. The first fishing trawler to operate in Liberian coastal waters belonged to Woerman Company, a German company that operated in the country between 1938 and 1939. In 1952 the Government of Liberia asked FAO and the United States Government to help develop its fisheries sub-sector, starting with an assessment of the fisheries potential of the country, which determined that a medium-scale fishing industry could be established in the country.

Industrial fishery began soon thereafter, targeting mainly the shrimp resources within the Sherbro fishing grounds, which extend into Sierra Leone. The Mesurado Group of Companies became operational in the early 1960s and developed into the most dominant force in Liberian fisheries. At its peak in the 1970s the company owned and operated more than 25 vessels, including shrimpers and double rigged trawlers, as well as its own harbour and processing facilities with 3,000 mt of freezing capacity. Shrimp was the company's major export, with a monthly shipment of about 60 mt to Europe and Asia. The Company's decline started after the *coup d'état* in 1980, which targeted its owners the Tolbert family. With further destruction during the civil war, its facilities are now in complete ruins, with all the cold rooms completely looted and vandalized.

The initial success of the Mesurado Group of Companies led other companies to establish shore-based infrastructure including a cold storage facility of 2,000 tons, an 18 mt per day blast freezer, and a dry dock and associated repair and maintenance facilities at the fishing pier in Monrovia harbour.

134. Of the fourteen fishing companies operating legally in Liberia six are currently solely engaged in the importation of frozen fish while eight are engaged in industrial fishing. The eight industrial fishing companies operate 27 fishing vessels with a combined gross registered tonnage (GRT) of 4,123. They range in size from 91 GRT Chinese pair trawlers (ice carriers), to 251 GRT fishing trawlers with onboard freezing, processing and storage facilities. These vessels land their catches at the fishing pier in the Free Port of Monrovia. The industry currently employs about 4,200 persons, 75% of whom are Liberians, making up about 11% of the total employment in the fisheries sub-sector.

135. **It is believed that the catch is grossly under-reported, and there is strong suspicion that a number of industrial fishing vessels are engaged in illegal transshipments on the high seas.** Illegal, Unreported and Unregulated (IUU) fishing is estimated at about US\$12 m annually (MRAG, 2005). Official statistics reported fish landed by all trawlers at 1503 mt and 2807 mt in 2004 and 2005, respectively (BNF, 2006). Fish imports were substantially higher, amounting to 4,738 mt in 2004 and 11,072 mt in 2005.

136. **Artisanal fishery is estimated to provide a means of livelihood for about 33,120 full-time fishers and processors in both marine and inland waters,** about 61% of whom are Liberians and 60% are female. The Liberians are mainly Kru and the foreigners are mainly Fanti and Popoe fishers who migrated to Liberia from Benin, Ghana and Cote d'Ivoire, with recent additions of Gambian and Senegalese fishermen in Cape Mount County. Malian and Fulani fishers operate in inland areas. Artisanal fish landings were estimated to be 7,700 mt in 2004 at ten sites, making up about 75% of the total fish landings.

137. Grand Kru County with 35 landing sites and Sinoe County with 30 have the largest number of landing sites and are dominated by indigenous fishers, but they land substantially fewer fish annually than Grand Cape Mount County with 14 sites and Grand Bassa County with 18 sites, a reflection of the smaller boats used by indigenous fishers. According to the

Bureau of National Fisheries (BNF), there are 3,473 canoes operating in the inland and marine fisheries, only 8% of which are motorized. Canoe sizes range from the one to three man Kru canoes, 5–7 m long, which are hand-paddled with a few powered by 15- or 25-horsepower outboard engines, to the fifteen to eighteen man (10–15 m long) fishing canoes that are powered by 45-horsepower outboard engines. The newly arrived Senegalese and Gambian fishers operating in Grand Cape Mount County are using much larger fishing canoes (more than 20 m long). The average catch per canoe/annum was 2.2 tons and 1.16 tons in 2004 and 2005, respectively (BNF, 2006). The major species exploited are the *Sardinella*, *Barracudas*, *Croakers*, *Sharks* and *Ilisha africana*.

138. Aquaculture developed in the 1970s with technical support from donor projects but has reverted to a subsistence activity, with production estimated at 38.81 mt in 2004. In the mid 1970s, small-scale aquaculture began with the construction of fishponds at Suakoko village in Bong County to conduct research on *Tilapia nilotica*. Aquaculture development moved fairly quickly into Lofa County in the early 1970s through the initiatives of the American Peace Corps. By the late 1970s, small-scale aquaculture development had gained momentum and spread into Nimba County with support from the German Technical Cooperation through the Nimba County Rural Development Project (NCRDP), and from the World Bank through the Lofa and Bong County Agricultural Development Projects (LCADP and BCADP). It has, however, remained mainly a subsistence activity with no major fish multiplication and distribution taking place. Not much research has been done on developing local species for culture, as imported exotic species of *Tilapia* and *Carp* are mainly used. The major species cultured in Liberia are *Oreochromis niloticus* and other local species of *Tilapia*, and catfish, including *Heterobranchus longifilis* and *Clarias* spp.

139. At its peak in the 1980s there were about 3,600 fish farmers nationwide using 450 ponds of various sizes with a total area of about 17.5 ha, distributed in 159 communities around the country. However, because of the civil war, most of the ponds have not been in use since the early 1990s. Some are now being rehabilitated, and BNF have estimated that the rehabilitation works are providing employment for about 700 women and youths. The production method is extensive and very simple technology is used to develop earthen ponds, which are supplied with water from natural creeks or springs by gravity. Most fish farmers cannot afford to feed their fish adequately due to competition for feed ingredients with the households.

140. Value chains for fish and fish products remain largely limited to freezing for industrial fishing, and smoking, salting and fermentation for artisanal and aquaculture methods. There are reportedly 52 cold storage facilities in major cities and towns around the country with a total storage capacity of 19,332 mt. The largest number (62%) and most of the capacity (97%) are located in Monrovia. There are no reported fish exports. Ice or refrigeration is not used for artisanal catches: metal drums are most commonly used for smoking in all coastal communities. There are, however, some improved “Chokor” smoking ovens built of clay in use, particularly in Margibi and Grand Bassa Counties. Inland artisanal communities (especially the Fanti and Kru communities) use traditional smoking kilns made of sticks or wire meshes. Salting and fermentation is also used to process fish into what is locally known as “*moin-moin*”. Dried fish products are bought from the fish landing sites of Monrovia, Robertsport, Marshall and Buchanan and are taken by road to the major rural markets, from where they are purchased and distributed to inland towns and villages by women, usually travelling on foot. Value chains estimates indicate the high costs of transport: the margin for smoke drying of fish is about US\$0.17/kg, but the mark up for distribution to

inland locations is substantial, with smoke dry fish (herring) selling for an average of US\$0.60/kg at beach sites, US\$0.78/kg in urban markets, US\$0.95/kg in rural markets and US\$1.12/kg in small villages. Freshwater species are often smoke dried and transported to urban markets for higher market value. Fish from farms are usually sold live or fresh from pond sites during harvest for direct consumption. Because of high demand around Monrovia, pond fish are sold for US\$3.00/kg, but prices also vary according to species, with the air-breathing catfish, *Heterobranchus* spp., more highly priced at US\$6.00/kg.

141. There are substantial opportunities to increase fisheries production and processing, both for domestic consumption and export. The current production of 10,000-15,000 mt is far below the estimated MSY from inland and coastal resources of 220,000 mt, and estimates suggest that the remaining cold storage capacity is adequate to process this quantity.²⁸ However, the absence of a fisheries harbour to facilitate the discharge of cargo, the supply of essential commodities (which also face a high import tariff), refuelling, trans-shipment and dry-docking is a major constraint to the development of industrial fisheries. Fishing vessels are currently obliged to buy fuel and essential supplies from other ships and carriers operating in international waters. Landing dues, inspection dues and other charges are high.

142. Domestic and regional markets have more immediate potential because artisanal methods will continue to dominate. The lack of infrastructure is likely to continue to inhibit the development of a large commercial industrial fleet, and poor sanitary conditions will prohibit access to the markets of developed countries. The supply of safe, hygienic fresh fish products for the local market will require improved fish-processing facilities, proper drainage systems and adequate potable water supply. Ice and cold storage facilities are absent from some factories. Factory workers do not have proper clothing and work in the factories is haphazard and without proper flow of products. None of the factories is implementing a Quality Management Programme.

143. There is potential for adding value to fisheries production, handling, processing, distribution and marketing, particularly for industrial fisheries. It is quite possible to produce value-added fish products, such as cocktails, fillets, marinated products, fish fingers, peeled/boiled products, coloured products and eco-labelled goods. However, this can only be done when technical and hygiene standards in fish factories are improved. The factories must also implement quality control (QC) programmes and good manufacturing practices to ensure that fish product safety and quality meet international standards and requirements. This will require institutional strengthening and capacity building at the fish processing factories. Value adding will significantly increase the profitability of the fisheries sub-sector. Fish quality and safety should be addressed across the entire value chain. It is also important that the relevant Government institutions have the requisite human, financial and technical resources to ensure compliance with the agreed international standards and requirements and are capable of offering technical support to the fishing industry in the form of training programmes on fish handling, processing, quality assurance and inspection.

144. Boosting artisanal fishing is likely to have the most immediate impact and, based on evidence from elsewhere in West Africa, will benefit the largest number of Liberians, particularly women, who dominate fish marketing. Incomes are undermined by high operational costs including fishing inputs (fishing nets, related equipment and materials,

²⁸ If Liberia landed its MSY of 220,000 mt/year it would need to turn over the stock roughly once a month using the present cold-room capacity of 19,330 mt.

outboard motors, premixed fuel), in part because of high import duties on these items. In addition, improved coordination between fishers can help to secure economies of scale.²⁹ The provision and utilization of basic fisheries infrastructures, such as fish handling and processing areas, storage facilities for processed products, potable water supply, ice and cold storage facilities, is lacking. Hygiene is poor with frequent microbial contamination.

145. Efforts will be needed to ensure that the natural resource base is not over-exploited. For marine fishing, this will require the GoL to address the absence of a maritime control and surveillance system to control and regulate fishing activities (both Liberian and foreign) in Liberian waters. For artisanal fishing, mesh sizes are very small and trap many juvenile fish, thus threatening resource sustainability. Artisanal fishers frequently face disruption (including the loss of equipment) through encroachment by industrial fishing vessels. An improved fisheries sector will improve the situation for other natural resources. For instance, increased availability of fish-based protein is known to reduce the (illegal) hunting and consumption of bushmeat. Second, better cold storage and other processing facilities can reduce the dominance of smoking for preservation, thereby reducing the use of charcoal and the subsequent pressure on timber resources.

146. Based on the estimated irrigation potential, aquaculture can recover and there are potentially important synergies with irrigation for farming. The irrigation potential is estimated as 600,000 ha, with a renewable water potential of 235 km³/year. The development of proper irrigation and water control structures is vital for sustaining continuous aquaculture production. Production is often hampered either by flooding of production facilities during the heavy rains, or by the lack of water during the dry season. The existing infrastructure requires rehabilitation and there is an absence of tools and other materials for pond development, a lack of quality fish fingerlings for stocking and a shortage of improved fish feed. The quality of the fingerlings produced is low because of poor brood stock quality and hatchery management, and transporting live fingerlings is extremely costly and leads to high morbidity. Successful investment in aquaculture requires access to credit as well as trained knowledgeable farmers. Culture methods are too narrow when the increasing demand for lowlands for irrigated rice production is considered, and need to be diversified to include cage, pen and tank culture methods. There is no aquaculture policy at present.

P. Livestock Production

147. Liberia has an estimated 2 million hectares of pastureland yet the livestock sector accounts for only an estimated 14% of agricultural GDP – far below its potential. Reliable data are not available although FAO estimates suggest that there is slow growth in aggregate livestock numbers (Table 14). The major livestock product chains are the cattle meat industry, the poultry industry, the swine industry, and the animal health industry. Traditional livestock farmers dominate, as was the case before the war. According to data reported by Smith (2002), traditional systems accounted for 100% of the holdings of cattle, goats and sheep, 58% of pigs, and 100% of guinea fowl. A few modern semi-intensive and intensive peri-urban livestock farmers produced rabbits and guinea pigs in particular (accounting for 100% of such holdings) almost all poultry (99.5%) and the majority of ducks (61%).

²⁹ Most continue to operate as individual family units, although there is a history of cooperative societies and migrant fishers tend to be better organized and able to cooperate better with the fisheries administration.

Table 14: Estimate of Livestock Production (1,000 head)

| | 1980 | 1990 | 2000 | 2002 | 2005 | Annual growth rates | | |
|--------------|-------|-------|-------|-------|-------|---------------------|---------|---------|
| | | | | | | 1980–90 | 1990–00 | 2002–05 |
| Cattle | 39 | 38 | 36 | 36 | 25 | -0.3 | -0.5 | -11.2 |
| Sheep/goats | 400 | 450 | 430 | 430 | 435 | 1.2 | 0.5 | 0.4 |
| Pigs | 103 | 120 | 130 | 130 | 131 | 1.5 | 0.8 | 0.5 |
| Poultry | 2,620 | 4,030 | 4,200 | 5,200 | 5,428 | 4.4 | 0.4 | 1.4 |
| Total (LUs)* | 106 | 128 | 129 | 139 | 136 | 1.9 | 0.1 | -0.5 |

Sources: FAO (2005). Notes: * LUs = Livestock units converted on the basis of cattle = 0.50; sheep and goats = 0.10; pigs = 0.20 and chickens = 0.01.

148. **Historically, traditional farmers use local, less productive animal breeds and basic techniques, with access to few inputs, and receive very few or no government support services.** The native Liberian breeds of cattle are the *N'dama* and *Muturu* races, and are all trypano-tolerant, as are the *Djallonke* breeds of small ruminants. These breeds are well adapted to local conditions. Livestock (as few as 2–3 head per proprietor) are left to roam free, scavenging for food. *Ndama* cattle account for 41% of all local cattle but are of low productivity: their average carcass weight is 95 kg; the age of first calving ranges from 30–35 months; the weight of the calves is typically less than 18 kg; the fertility rate rarely exceeds 82%; the mortality rate during the first few years of life is estimated at 27%. Dairy production is essentially nil. Sheep and goats of the *Djallonke* breed are also of low productivity: average carcass weights are 11 and 9 kg, respectively (Hoste, 1984).

149. There is little information on the incidence and importance of animal diseases in Liberia and few resources to support animal health. Standards in the meat processing sector are extremely low, and there is no capacity to ensure sanitary standards of imports. The major diseases usually cited by observers include trypanosomiasis (*Trypanosoma congolense*, *T. vivax* and *T. brucei*), other parasitic diseases, brucellosis, bovine contagious pleuropneumonia (believed to be introduced by imported live animals), foot and mouth disease, anthrax, pasteurellosis, haemorrhagic septicaemia, piroplasmosis, anaplasmosis, babesiosis and theileriosis. According to data from the Ministry of Commerce and Industry (MCI), imports of meat and meat products in 2005/06 amounted to US\$6 million (Table 15). In addition, an estimated 26,000 head of live cattle and 15,000–16,000 head of live sheep and goats were imported from neighbouring countries (estimated to equate to 3,000 and 312 mt, respectively).

150. **Spare capacity and existing demand would suggest the potential for expanding domestic production, although cost structures would have to be contained to compete with imports.** First, the existing low animal density (0.1 head/km² for cattle, 2.2 sheep/km² and 2.1 goats/km²) indicates that existing pastureland could sustain a higher density of livestock. Seven ranches, covering in total more than 2,025 ha, were constructed in the past to help breed increased numbers of trypano-tolerant livestock.³⁰ These ranches still exist, but they are in a state of neglect. Their rehabilitation would realise a considerable potential resource and warrants the highest priority in the framework of optimal utilization of all

³⁰ They are: Foya Cattle Ranch (1,000 ha for 500 head); Todee Cattle Ranch (100 ha for 100 head), Panama Cattle Ranch (25 ha for 25 head); CARI Cattle Ranch (300 ha for 100 head); Kpain Cattle Ranch (50 ha for 50 head); Parta Cattle Ranch (500 ha for 500 head); and Sanghai Cattle Ranch (50 ha for 50 head).

existing pastoral areas. Experience from one large-scale domestic producer suggests that there is scope to be competitive.³¹

Table 15: Import of Meat Products – Year 2005/06

| | Quantity (mt) | Value (US\$) |
|---------------------|---------------|------------------|
| Frozen buffalo meat | 56 | 47,600 |
| Frozen beef | 66 | 95,960 |
| Frozen turkey wings | 148 | 221,449 |
| Frozen pig meat | 690 | 524,886 |
| Frozen chickens | 1,893 | 1,464,135 |
| Pigs' feet | 8,082 | 378,339 |
| Fresh eggs | 10,834 | 3,173,883 |
| <i>Total</i> | <i>21,769</i> | <i>5,906,252</i> |

Source: MCI.

151. Second, the livestock service of MoA does not have sufficient trained officers to perform its assigned duties and there are practically no technical officers located outside Monrovia (even the Monrovia offices are scanty and barely useable). Consequently, frozen or live imports are rarely inspected, and when inspected do not undergo rigorous examination. Existing legislation is outdated and unfamiliar to officials. The livestock service does not have a veterinary laboratory for diagnosis of disease and control of the quality of animal products.

152. Third, domestic production is disadvantaged relative to foreign imports of frozen produce. While the main livestock producing areas are closer to the primary consumers in the largest urban centres of Liberia, in practice the costs of marketing in Monrovia are high. Roads are poor and there are no livestock passages or corridors by which live animals can be brought in. Importers of livestock products, especially importers of live animals from neighbouring countries, face numerous administrative bottlenecks and harassments, including illicit taxes. An average of 137 trucks per week transport live animals from neighbouring countries. Interviews of executives of the Butchers Association of Liberia indicate that the estimated rental cost is US\$1,000 per truck; trips from the Liberian border to Monrovia last an average of 10 days and each trip costs between US\$15 and US\$300 in illicit taxes. This constitutes unfair competition with imported meat, for which relatively low taxes are paid. Similarly, the domestic supply chain cannot support quality standards. The slaughterhouse in Monrovia is in a deplorable state. There are virtually no slaughterhouses outside Monrovia and the slaughter slabs provided for use by the general public do not meet elementary hygiene requirements.

IV. THE INSTITUTIONAL FRAMEWORK IN AGRICULTURE

Q. Agricultural Input and Output Marketing

153. The livelihood and access to food of a household depend on a range of markets. Consequently getting markets to work better is an essential step in reducing poverty and improving livelihoods. However, getting markets to work properly is often the most

³¹ The Georges Haddad Farm is producing more than 26,000 eggs per day at a cost of 2.6L\$ compared to the retail price of eggs in Monrovia is 5L\$.

important challenge for poor countries such as Liberia as they attempt to develop their agriculture sectors (Figure 14). It is widely accepted that efforts should focus on creating effective markets through encouraging private sector participation by:

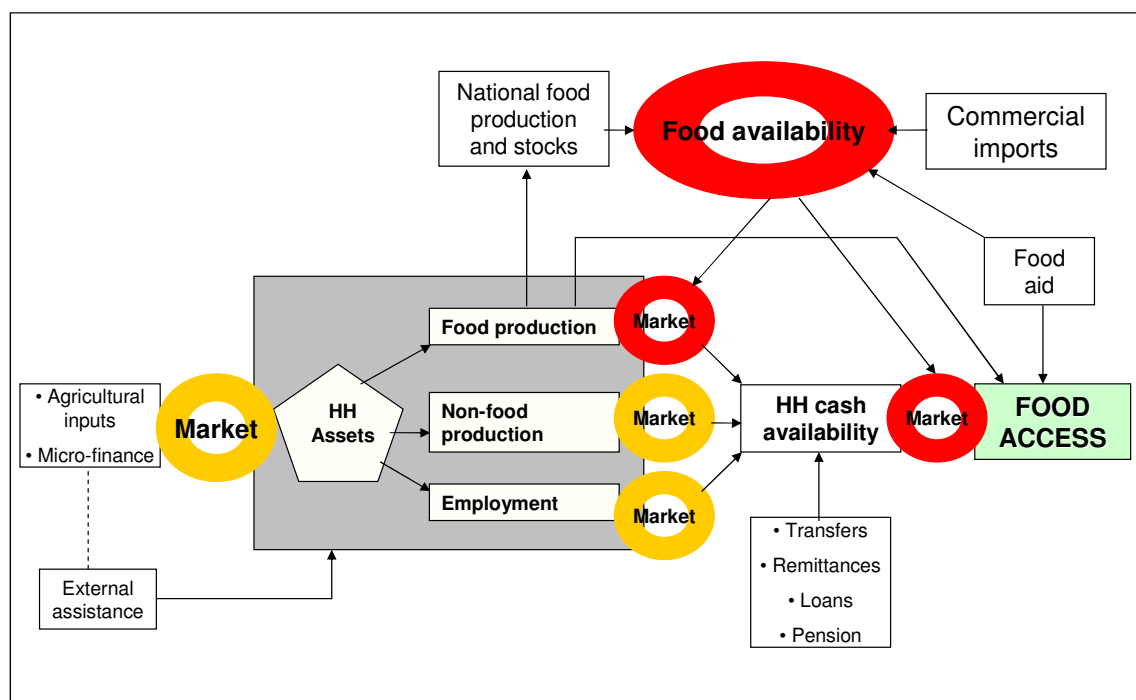
- Improving physical access to markets through investments in infrastructure, using different combinations of public and private funds.
- Improving access to market information, using established means such as radio and new information technologies such as mobile phones.
- Improving the access of traders and producers to finance and insurance markets, for example by setting up systems to lessen price risk.
- Supporting the development of approaches and policies to reduce the volatility of prices in important product markets. This could include support to develop commercially based storage, such as warehouse receipt systems, to help smooth out price variations (Coulter and Onumah, 2002).
- Helping to link small producers to established markets, with the involvement of agricultural extension services, NGOs and farmer associations (Shepherd, 2007), as is happening elsewhere in Africa.
- Removing restrictions and controls on the sale, movement and purchase of agricultural products.
- Putting in place effective standards for quantifying and grading products, and gearing these standards to the needs of small farmers.

154. These concepts are of varying relevance to Liberia. For example, consideration of insurance markets would be very ambitious at this stage of recovery and, in any event, would normally be relevant only to cash crops. Warehouse receipt systems are theoretically a good idea, but have had major problems of implementation in other African countries with far fewer institutional and infrastructural problems than those presently faced by Liberia; it may be difficult to put effective standards in place for the domestic market. However, for countries in the earliest stages of development, such as Liberia, the critical importance of overcoming market failure provides some justification for the state to play a more direct role in building and creating markets. These actions demand levels of state capacity and effective governance that have in the past been lacking. This is possibly the most contentious area in the agricultural policy debate – but one that must be tackled.

155. **Prior to the war, the state engaged in agricultural marketing in both input and output markets.** Intervention in output markets was particularly invasive, with a number of parastatal organizations mandated as the monopoly marketing agencies, and a Cooperative Development Authority was established to coordinate smallholders (Box 7). These were justified on the grounds of market imperfections and failures of coordination that plague the smallholder sector. However, they performed poorly, were a major source of rent-seeking, and taxed producers (sometimes failing to pay anything for their output), as well as deterring the evolution of private sector input and output markets. In addition, a number of spatially focused agricultural development projects (ADPs) were supported by the World Bank in Lofa County (LCADP) and Bong County (BCADP), and were supplemented by the Nimba County Rural Development Project (NCRDP). These projects (funded by the World Bank for a ten-year period) aimed to boost the production of cocoa, coffee and rice, with small farmers as

the main beneficiaries. To a large extent the projects only partially succeeded, in the face of a difficult macroeconomic environment, institutional problems and a lack of counterpart funding.

Figure 14: The Contribution of Markets to Livelihoods



Source: DFID (1998)

Box 7: State Marketing Organizations

The **Liberia Produce Marketing Corporation (LPMC)** was mandated to procure farm produce from farmers' cooperatives and farmers in general, and package it for subsequent export to buyers. It was also charged with the responsibility of providing a farm advisory service at all levels. However, it went beyond its mandate by involving itself in production, to the disadvantage of the small farmers. Along the way, it failed to reimburse farmers for their products to the tune of an estimated US\$3.5m.

The **Liberia Cocoa and Coffee Corporation (LCCC)** was set up to build the capacity of cocoa and coffee growers with the provision of farm advisory services such as nursery development, farm layout, and planting operations.

The **National Palm Corporation (NPC)** was charged with the responsibility of overseeing and managing Government-owned oil palm holdings. The NPC failed to survive not only because of the civil crisis, but primarily due to poor management.

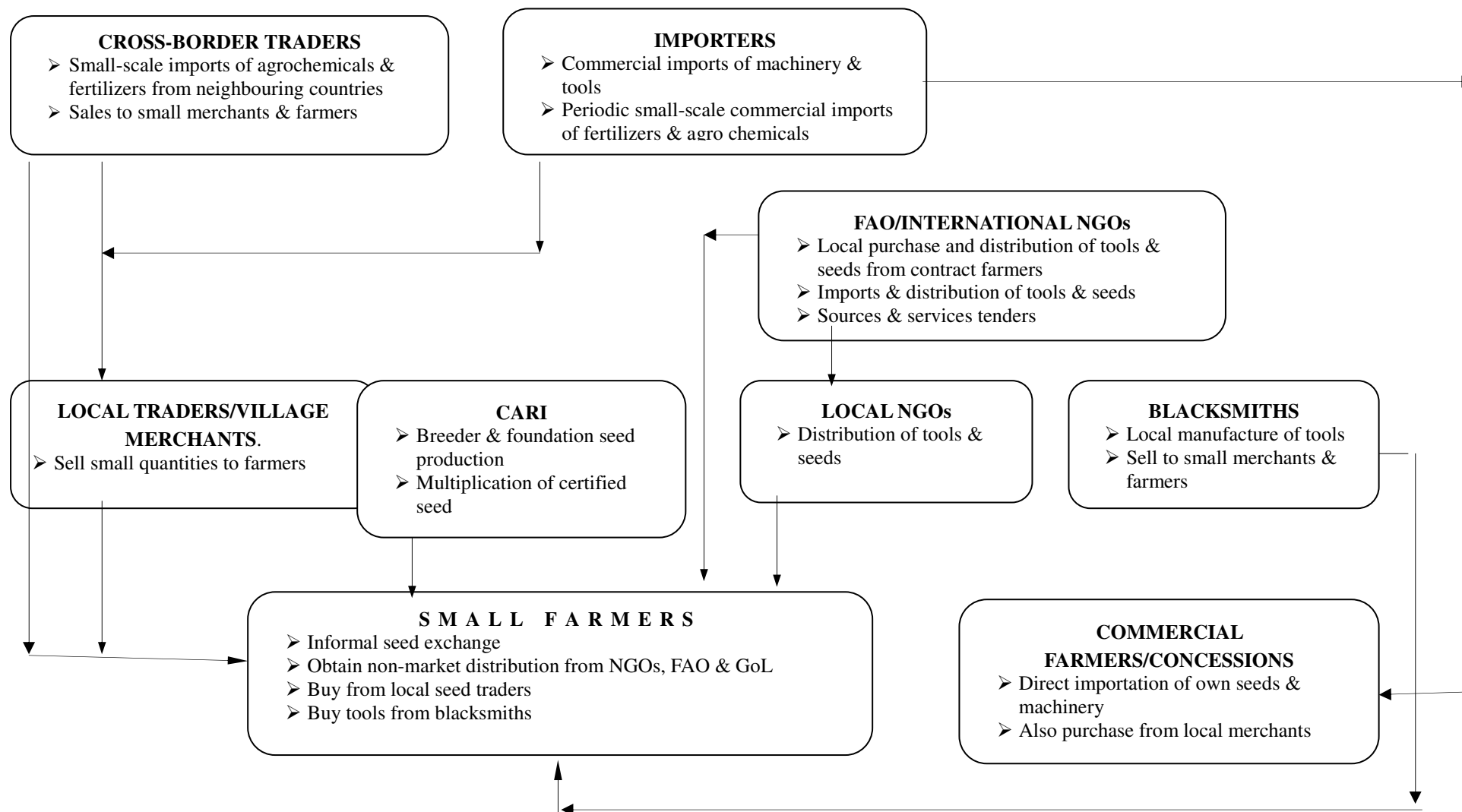
The **Liberia Rubber Development Authority (LRDA)**, formerly the Liberia Rubber Development Unit (LRDU), was established to build the capacity of smallholder rubber producers with farm sizes within the range of 2–5 acres by providing improved seedlings, extension services and marketing.

The **Co-operative Development Authority (CDA)** was set up to build awareness of the cooperative movement and its benefits to the economy, assist in the organization and development of cooperatives, registering and certificating cooperatives and advocating on their behalf.

156. Input markets previously involved these parastatal institutions as well as private suppliers, but international donors and NGOs now play an important role. Machinery, hand tools, and seeds were imported commercially by merchants based in Monrovia who sold to smaller village merchants, from whom small farmers and occasionally commercial farmers purchased their requirements. Village blacksmiths manufactured local tools, which were sold directly to farmers and occasionally to village merchants for resale to small farmers. During the civil war a large humanitarian aid network established a parallel system through which hand tools and seeds were provided to small farmers. These were imported by donors and INGOs and distributed through a network of service providers, mainly local NGOs and the MoA. In 2005 this concerted effort distributed about 507,000 pieces of equipment and 3,100 mt of seed rice to approximately 164,000 recipients. In 2006, quantities declined to about 402,000 pieces of equipment and 2,235 mt of seed rice to approximately 91,000 recipients. The current supply chain involves input provision from a myriad of sources (Figure 15). With the continued withdrawal of post-conflict NGOs and a shift from relief to development assistance markets will become increasingly important for sourcing essential farm inputs.

157. Apart from seeds (most of which are produced by the farmers themselves in normal years) and hand tools, very few other inputs are used by smallholders. Currently the only fertilizers available on the market are the compound fertilizers 15-15-15 (most commonly used), urea and super-phosphate. All of these are imported from neighbouring countries by petty (i.e. cross-border) traders. There are very few agriculture supply stores that import fertilizers. Import duties on most agricultural tools range from 2.5–5%, with agricultural machinery such as tractors being subject to higher duties of 10–25%. Some implements, such as hammers and wheelbarrows, are taxed as building materials at 5–7%.

Figure 15: Agricultural Input Distribution Channels

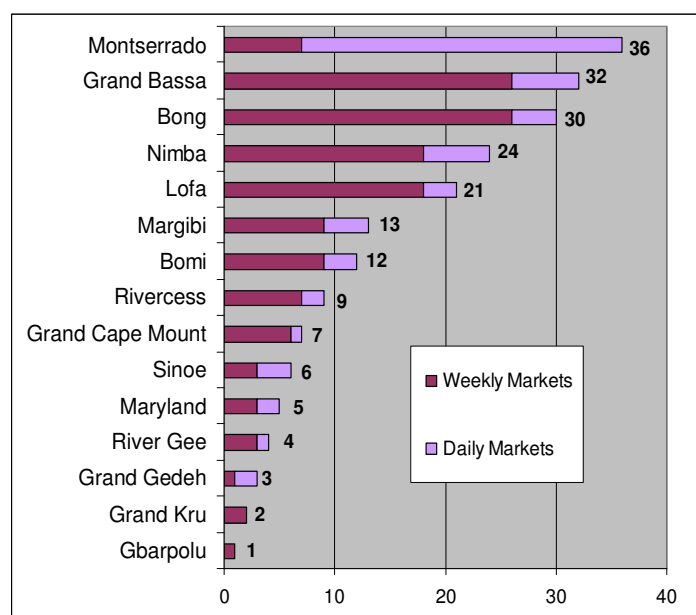


158. **Previous studies have suggested that the low level of use of fertilizers and other inputs is due in part to the fragmentation of end users and the high costs of distribution** (World Bank, 1984), a typical constraint of smallholder-based farming systems. Households reported lack of seeds as the primary constraint to agricultural production in seven of thirteen counties and lack of tools in a remaining six counties (CFSNS, 2006). However this is probably compounded by a lack of effective demand: farmers do not perceive a commercial advantage in the use of purchased inputs. This is evidenced by the fact that, in a recent review of 205 markets across Liberia, seed rice was only available for sale in three markets (equivalent to 1.5% of locations), in Lofa, Grand Gedeh and Montserrado Counties. The availability of vegetable seeds was somewhat better; they were found in 75% of the markets (MoA, 2007). The contrast between seed rice – from which farmers have the opportunity to use retained seed – and vegetables suggests that where there is a demand, markets will supply. Efforts to encourage adoption, including the strengthening of cooperatives and linking input provision to credit facilities, have enjoyed limited success.

159. Agricultural output marketing involves a number of actors – state, cooperatives and private sector – and often differs for particular crops. Large private sector operatives have generally dominated the export crop marketing sector, particularly for rubber. Other tree crops (coffee and cocoa) have ‘benefited’ from interventions from various parastatal organizations. On the other hand, private sector firms, mainly small operators, and individuals dominate the food crops marketing system. The Liberia Markets Review (LMR) (MoA, 2007) identified 205 marketplaces currently operating in the fifteen counties of Liberia (Figure 16). Approximately one-third are daily markets, while two-thirds are periodic or weekly. More than a third of the markets are located in the central belt of Liberia that runs from Montserrado to Nimba County. Daily markets are concentrated in Greater Monrovia, which has nearly three times the number recorded in the early 1970s (Handwerker, 1972). In Gbarpolu, with its extremely limited road network, only one market, Bopolu, was identified.³²

160. Weekly markets include both wholesale and retail markets. Producers bring their produce for sale, most often to wholesalers (or bulking intermediaries). Full-time itinerant traders sell dry goods, primarily to the producers. Usually the wholesalers, often from Monrovia, buy from the producers outside the marketplace. The daily markets found in the larger urban centres of rural Liberia and the neighbourhoods of Monrovia function primarily as retail markets, selling produce to a non-food producing population. However, the Red Light and the Duala markets in Monrovia are both wholesale and retail and are the destination of most of the produce coming into Monrovia from rural Liberia or Guinea. Finally, there are several other types of retail markets, including the small ‘cluster’ markets around urban centres, the ‘doorstep’ or porch markets of single traders, and the street vendors or hawkers (Figure 16).

³² Data are not available on the size of the individual markets, nor on their dates of establishment.

Figure 16: Location of Markets by County

Source: MoA, 2007

161. **Most staple food items are widely available across Liberia.** The LMR found that, on average, 30 food commodities were found in the markets; the number varied from 14 in Grand Kru to 37 in Montserrado. On average, 12 non-food commodities were found, ranging from 5 in Sinoe and Grand Kru to 16 in Lofa. Imported rice was found in 90% of the markets surveyed, while domestic or ‘country’ rice was found in 80% of the markets. Dried fish and dried pepper were found in all markets, fresh fish in 85% and bushmeat in 60%. Palm oil was available in all markets except in Fishtown (River Gee) and Barclayville.

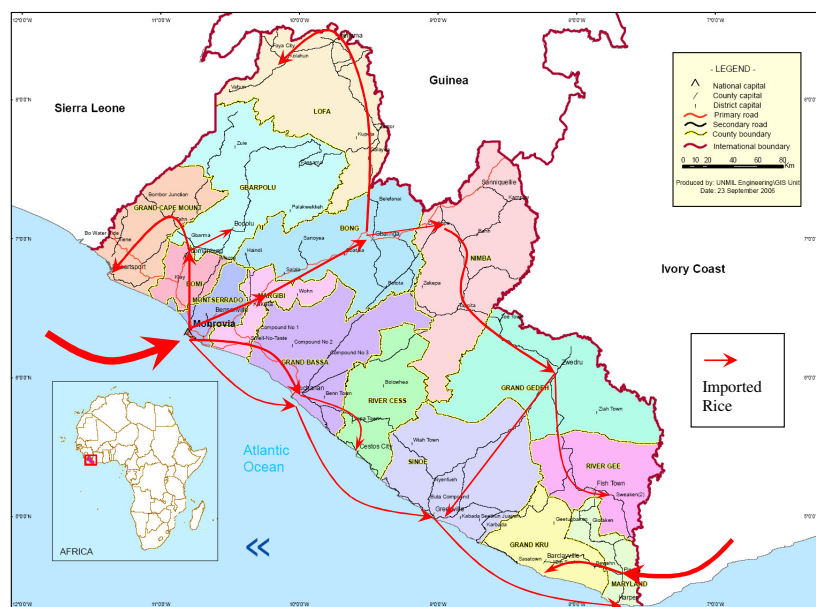
162. **With the exception of imported rice, fish and dried beans, domestic production dominates and most produce is marketed in close proximity to production areas, suggesting weakly integrated markets.** The origin of most of the imported rice found in the markets is Monrovia, the entry point into the country. However, Maryland and Grand Kru Counties in the southeast receive supplies from Cote d’Ivoire. Most of the parboiled rice sold in Margibi and Grand Bassa is imported by the Firestone Rubber Plantation at Harbel, where employee compensation includes a monthly allocation of imported rice. Domestic rice is typically obtained within the same county, although rice from Lofa County is found in Montserrado, Margibi, Bong and Bomi. This is an indication that Lofa County, originally the ‘bread basket’ of Liberia, which was heavily affected by the most recent civil strife and displacements, is starting to recover. Cassava is mainly sourced within the same county, with the exception of Margibi, where some originates from neighbouring Grand Bassa and Montserrado. A similar pattern was observed for eddoe (taro). Plantains are also sourced within the same county, except in Margibi and Montserrado where imports from Grand Bassa and Nimba are observed. Plantains found in Sinoe market came from Grand Kru; no plantains were found in the markets of Grand Kru.

163. In half the counties, dried fish originated from within the county, while in the remainder, fish came from another county, which had a coastline. Fish in Bomi and Bong originated from Grand Cape Mount, dried fish in Grand Gedeh and Nimba from Sinoe, and

fish in River Gee from Maryland. Imported fish from Guinea were found on markets in Lofa and Nimba. Bushmeat mainly originates from the highly forested counties in the interior. Bushmeat found in Bomi came from Lofa and Gbarpolu; bushmeat from Lofa was also found in Bong County. Grand Bassa provides bushmeat to Margibi and Montserrado. The biggest supplier is Grand Gede, which supplies markets in Nimba, Montserrado, Grand Bassa and Margibi. All dried beans are imported from Guinea (overland, or occasionally via Monrovia), although availability is intermittent except for flows into Maryland, which originate in Cote d'Ivoire. The same pattern was observed for dried pepper. Palm oil is mostly produced within the same county.

164. Liberia is dependent on rice imports and regular, secure and cheap access to rice is a major political issues. The distribution of imported rice follows the strategic road network (Figure 17).

Figure 17: Distribution Channels of Imported Rice



Source: MoA, 2007

165. **The physical condition of marketplaces is poor with few facilities for storage and low hygiene standards.** Marketing takes place either within structures or in open spaces. Some market structures are roofed buildings with concrete floors, with or without walls. These structures may have tables that are concrete and permanent or wooden and movable. Sellers in markets without walls must store commodities elsewhere at night. Most of the daily markets have external extensions that include roofed structures or tables. These are used most often by those selling dry goods that cannot be appropriately displayed on the tables inside the market structure, or where there is not sufficient space within the market. On those days when the rural daily markets have a simultaneous weekly market, the site will also include sellers on mats on the open ground. Open-air markets – usually weekly – have no shelters and sellers provide their own mats or sell from the ground. Alternatively, they construct structures or shelters themselves and are regarded as ‘owning’ them.

166. Storage facilities are rare: of twenty-one markets visited during the LMR only nine had ‘storage’ facilities (referred to as warehouses – basically large rooms owned and operated

by private individuals where commodities of all kinds are stored overnight). They lack ventilation and pallets for raising produce off the ground. Storage costs depend on the quantity of commodities stored but on the average are L\$5 per bag per night. The land on which marketplaces are located is usually privately owned, although there are some located on government-owned land. The ownership of the land does not appear to be a major factor in the operation of marketplaces in Liberia. Few markets have systematic waste disposal, potable water or toilet facilities, which poses risks for food hygiene.

167. **The Liberia Market Association (LMA) was established as a semi-autonomous government institution with the mandate to manage markets, but generally fails to meet its obligations despite extracting fees from traders.**³³ Registration fees range from L\$150-L\$250. A single market ticket is L\$5. Tickets in the daily markets are purchased from 2–6 times per week. The LMA is currently under an interim management team with limited operational capacity (of the 21 surveyed markets, 18 are supervised by LMA). The marketers report that services such as waste disposal, toilet facilities, roof repairs, storage and day-care facilities are usually not provided by LMA. They point out that they derive no benefits from the fees paid to LMA; moreover they have to pay additional fees to private individuals for the use of toilet and storage facilities.

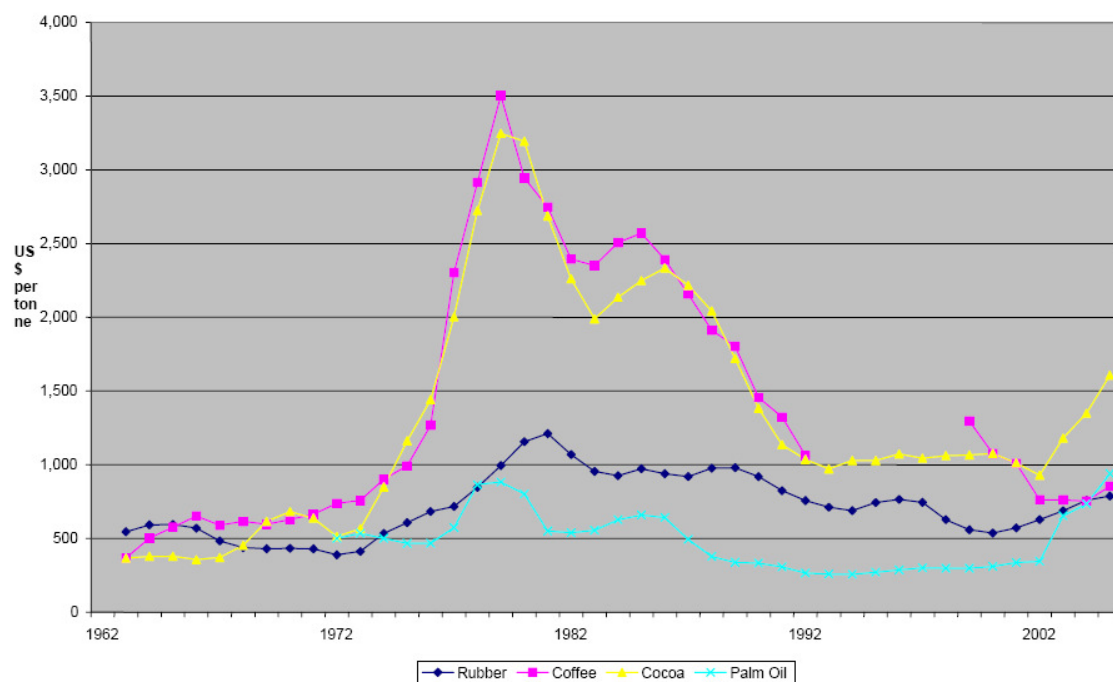
R. Export (Tree) Crop Marketing

168. Liberian tree crop producers have experienced a roller-coaster ride in terms of export prices (Figure 18). After significant increases in the 1970s, all prices have declined, with the greatest declines occurring in coffee and cocoa prices. Nominal prices for rubber, palm oil and cocoa have increased recently but long-term price prospects are not very favourable. However, emerging markets for biofuels and recent sharp rises in international prices present Liberia with an attractive export market for refined palm oil.

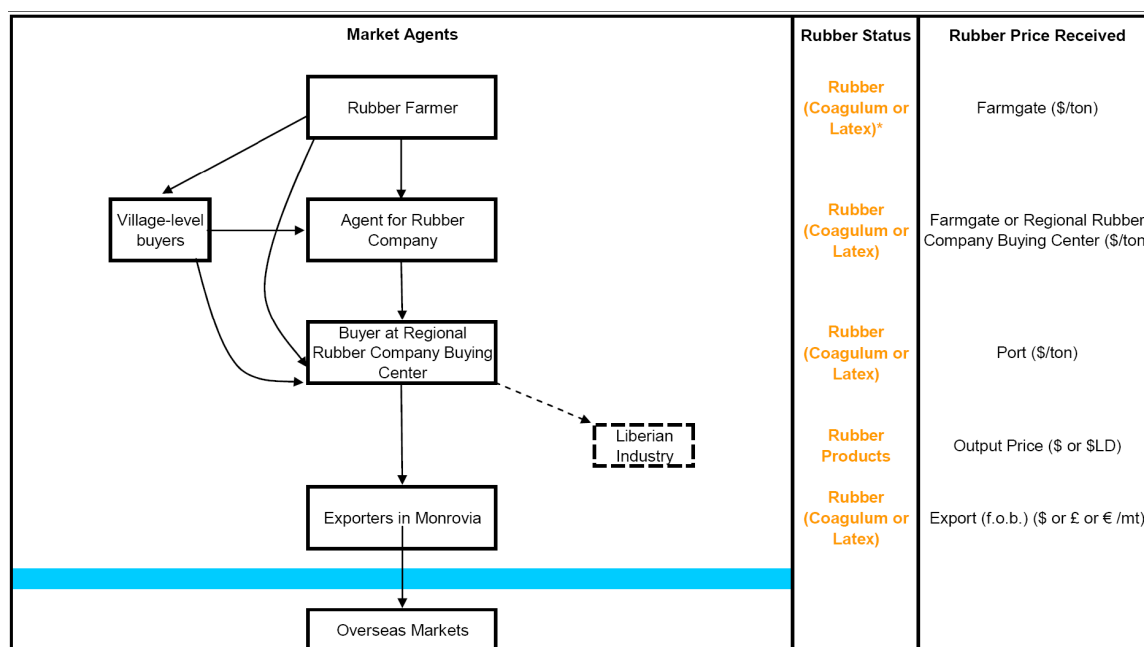
169. **Rubber** is the agricultural commodity or natural resource whose marketing chain was least affected by the years of civil unrest in Liberia. Important exports such as diamonds, timber, cocoa, coffee and palm oil sought other outlets, primarily through cross-border trade and illegal smuggling. In contrast, rubber was exported by multinational concession owners, primarily Firestone, virtually throughout the conflicts.

170. The domestic Liberian rubber market has always been dominated by Firestone (Figure 19). The other concessions largely follow its lead in pricing. Liberian farmers have three outlets for their produce, two of which are directly tied to the multinational exporters. Smallholders facing extreme cash flow constraints may sell to fellow smallholders or to village level entrepreneurs who have the capacity to pay cash for the rubber at the farm gate. Alternatively, they can sell to the multinationals either through their mobile agents who roam the countryside collecting rubber or directly through one of their buying stations located in many of the larger towns throughout the ‘rubber belt’ of Liberia.

³³ The LMA was founded in 1963 to seek President Tubman’s assistance in providing better marketplaces in Monrovia. During Tolbert’s presidency (1973–1980), it was formally established by Legislative Act.

Figure 18: Liberia Nominal Export Prices, 1962–2005

Source: FAOSTAT

Figure 19: General Schematic of Current Liberian Smallholder Rubber Marketing Chain

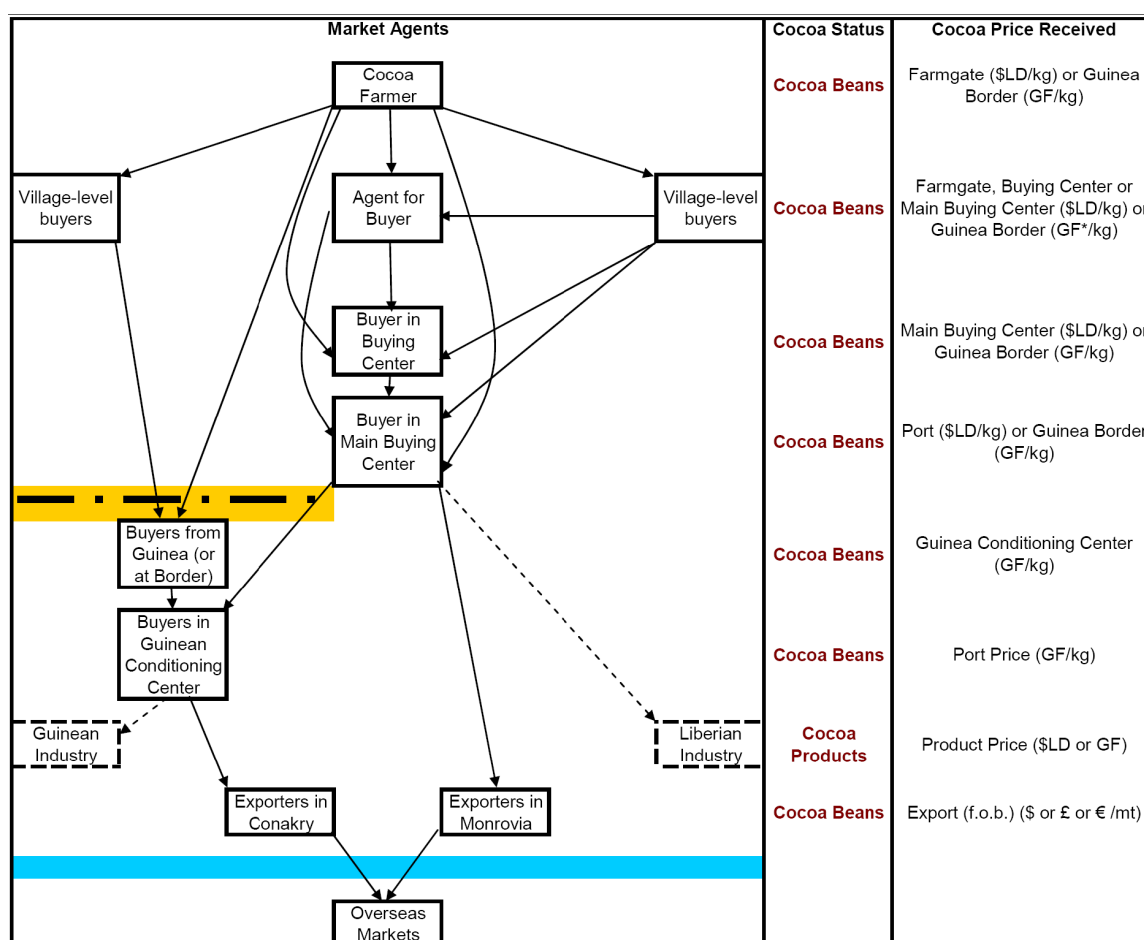
171. New markets for rubber tree products have emerged. Firestone has commissioned a rubber wood sawmill and furniture-making facilities, whilst another international investor may seek to purchase rubber chips from other growers as feedstock for biodiesel exports.

Both developments should speed up the replanting of over-mature and under-productive rubber plantation areas.

172. **For Cocoa**, and for all other tree crops except rubber, LPMC had a marketing and export monopoly before the civil war and used a pan-territorial pricing strategy. However, when LPMC resumed operation in 1997/98 it could not operate through its established channels, i.e. through cooperatives to farmers (Pay-Bayee, 2005). Additionally, in the face of deterioration of its own facilities – storage, burners, graders, etc. – as well as extreme financial difficulties, it was forced to confine its activities to ‘regulatory’ ones. With the near demise of LPMC, five foreign private sector cocoa exporters have stepped in, each with several agents/buyers and subagents (Figure 20).

173. Despite a narrow regional farmgate price differential in Liberia compared with those of other West African countries, the point of sale and level in the marketing chain will affect the actual price received by farmers. There is evidence that farmers may be receiving better prices across the Guinean border than in Liberian buying centres. It is estimated that up to 75% of the cocoa purchased by buyers in Liberia is exported through Guinea, with price differentials of L\$15–L\$25/kg relative to the Monrovia port price.

Figure 20: General Schematic of Current Liberian Smallholder Cocoa Marketing Chain



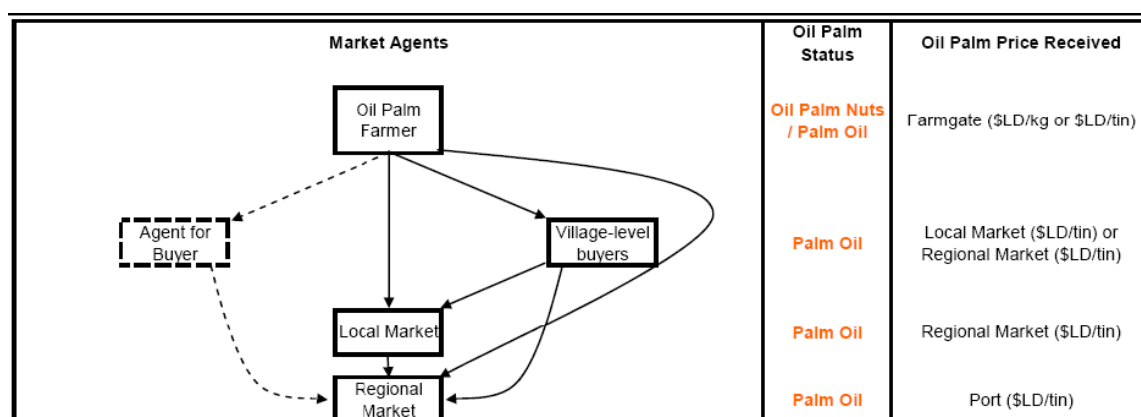
174. Quality is a problem in Liberian cocoa production and there is apparently no incentive to improve the quality. Farmers interviewed indicated that good quality cocoa is of less

importance than quantity when selling either to Liberian buyers or directly in Guinea. Buyers are even reputed to purchase quantities that are wet (and reportedly sometimes even mouldy) with minor quantity discounts.

175. **The coffee** marketing system is identical to the marketing system for cocoa, except that coffee can be stored longer if it has been properly dried, thus extending its on-farm shelf life.

176. **Oil palm** marketing channels are less complicated than for the other tree crops and are largely domestic (Figure 21). The majority of palm oil produced by smallholders is consumed at home. Any surplus oil is often sold and consumed at the village level. Oil palm growers with substantial marketable surplus sell either to itinerant buyers or at regional markets. Currently, it appears that, informal cross-border trade with neighbouring countries notwithstanding, Liberia is not a significant exporter of palm oil.

Figure 21: General Schematic of Current Liberian Smallholder Oil Palm Marketing Chain



S. Rural Financial Intermediation

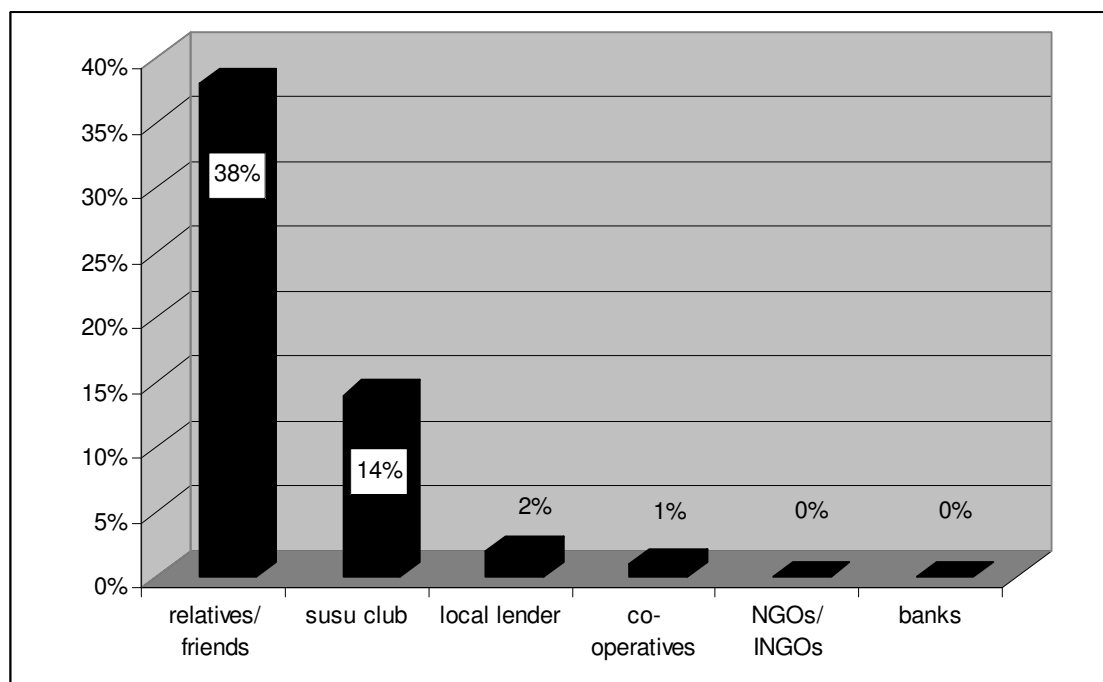
177. **There is very little credit channelled to the rural economy and the agricultural sector;** most are recipients dependent on informal mechanisms. According to the CFSNS (2006), 53% of all rural households reported obtaining credit in the two weeks before they were interviewed, mainly from friends or relatives (38% of all households) or one of three types of *susu* clubs, with formal institutions and NGOs providing virtually no credit (Figure 22).

178. **With the demise of the Agricultural Cooperative Development Bank (ACDB), the remaining formal financial institutions are private sector banks with extremely limited rural reach.** The ACDB was created with the objective of assuring that small farmers could effectively and profitably market their produce through agricultural cooperatives and farmers' associations. However, after only three years of trading³⁴ (in 1981) it had accumulated losses of over US\$1 million – roughly one-third of its equity. Recovery rates of around 70% undermined the capital base. Lending procedures were cumbersome. Rather than providing loans to needy (small) farmers, it targeted 'high level' farmers who failed to repay loans. The Government's own indebtedness to the bank (estimated to be

³⁴ ADCB was established in 1976 and became operational in 1978.

US\$3million) paralysed the normal functions of the bank. Internal governance structures were poor.³⁵ Consequently the bank is no longer functioning, and institutional credit is generally unavailable throughout the country's rural areas, either for individual farmers or for cooperatives, farmers' associations and other rural enterprises that operate individually or collectively.

Figure 22: Sources of Credit to Rural Households



Source: UNDP (2006)

179. There are five commercial banks,³⁶ but only two have any presence outside Monrovia. The Liberian Bank for Development and Investment (LBDI) has a branch in Margibi County at Harbel (home of Firestone) with a second branch in Ganta (Nimba County) nearing completion. LBDI plans to open branches in Buchanan (Grand Bassa) and Voinjama (Lofa) in 2007 and in other counties in succeeding years. Ecobank is opening branches in Nimba and Grand Bassa Counties in 2007 and also has longer term expansion plans. Heavily liquid, these commercial banks could theoretically lend a considerable percentage of their total loan portfolio to the agricultural sector, particularly to well-run farmer cooperatives and associations. Lending to such entities would decrease the risk to lenders in comparison with loans to individual small farmers. Efforts will be required to encourage lending to farmers' organizations (cooperatives and associations) to at least partially fill the vacuum created by the collapse of the ACDB, although this should not undermine the bank's financial health.

180. **Two well-established micro-finance institutions (MFIs) exist and others are springing up, although an overall institutional framework to foster MFIs seems to be absent.** The Liberia Enterprise Assistance Programme (LEAP) and Liberty Finance are the

³⁵ For instance, the Board of Directors included senior officials of the LPMC and cooperative institutions – potential beneficiaries of the bank.

³⁶ These are: the Liberian Bank for Development and Investment (LBDI), Ecobank, Global Bank (Liberia) Limited, International Bank (Liberia) Limited, and First International Bank (Liberia) Limited.

two most significant MFIs currently operating in Liberia, although other fledgling MFIs are springing up around the country, mostly through the initiatives of NGOs. Liberty Finance is an outgrowth of the American Refugee Committee (ARC) credit programmes with IDPs in Liberia and neighbouring countries (according to ARC policy, returning refugees that repaid their loans when in Guinea, Sierra Leone or Côte d'Ivoire are almost automatically granted new loans upon their return home). Outside greater Monrovia, these two MFIs currently have branches in Bomi, Margibi, and Bong Counties only. There are also other fledgling MFIs (including credit unions and others) being organized by the national NGO Grassroots Democracy Inc. in Nimba County. UNDP, as part of its Community Base Recovery Programme, has started to promote credit unions in two counties, also. Although apparently several dozen young rural credit unions now exist, the apex body, the Liberia Credit Union National Association (LCUNA) is unaware of them and continues to work exclusively with a dozen older and larger urban member credit unions, all of which survived the war in various states of health. At present, therefore, LCUNA is of little relevance to rural finance.

181. **There is an acute shortage of credit to support agricultural production.** Essentially, most rural areas are not served by either formal or informal financial institutions, other than the *Susu* revolving savings and credit societies. There are three kinds of *susu* (Box 8). Even the ubiquitous *Sususes*, though, are inappropriate for agricultural finance, which requires working capital on an annual basis. *Sususes* are revolving funds and individual farmers must wait their turn (frequently a number of months) before being able to access funds. *Sususes* operate from retained earnings (i.e. savings) and are an effective method of financing the purchase of farm tools or other equipment for those farmers with spare income.

Box 8: Different *Susu* Arrangements

Rotational *Susu* clubs involve businessmen and women agreeing to pay a certain amount of money monthly to a member of the club. This process continues until all members of the club receive payment. Any member who fails to pay risks forfeiting the amount due. The *Susu* chairperson receives remuneration from each member.

Yearly *Susu*/savings clubs involve groups of business people and other interested investors organizing themselves to contribute and save money monthly. The sum is given out as loans to members and non-members. At every meeting, payments are received and loans are given out. Every member of the savings club is expected to borrow a certain amount and/or support a potential borrower. The interest on the loan runs up to 20% for members and 25% for non-members. At the end of the year, the revenues are divided according to shares owned and interest income generated.

Daily *Susu* clubs are normally 'one man' schemes. Usually, a well-known business person organizes a daily *Susu* and people entrust their savings to him/her. On every business day, the daily *Susu* broker collects the daily savings from customers. The saver decides how much each person is to save daily.

Source: UNDP 2006.

182. **There is a worldwide consensus that formal financial markets are not meeting the needs of small farmers and rural residents while informal financial markets continue to operate successfully in many rural areas.** If rural residents are to be provided with instruments that give them a command over resources, a blend of the modus operandi of both the formal and informal markets should be instituted. Four aspects need to be addressed in order to achieve these goals:

183. *Accessibility:* Providing accessibility for the rural disadvantaged is usually an important criterion by which a credit programme can be judged. Where banking outlets are situated far away from the clientele, it becomes difficult to forge an effective relationship with them (Abebe, 1994; 1995). Several alternatives are available to increase accessibility of Rural Banks (RBs) to rural residents. One is to permit RBs to employ private lenders to act as their agents. Other alternatives for achieving greater accessibility involve mobile banking and flexible hours. The most relevant alternatives should be determined on the basis of local custom and culture.

184. *Self-sufficiency:* Self-sufficiency in resources is important to a credit institution. To achieve this, three main actions, reduction in default rates, mobilizing savings and guarding against inflation, are necessary. Institutions that combine deposit mobilization and lending become more familiar with their clients' cash flow, savings habits and wealth (Padmanbhan, 1988). In this regard, the operations of the *Susu* in Liberia epitomize the methods utilized in mobilizing savings of *Susu* members, especially of market women. The *Sususes* could also be linked with Community Banks (CBs) through the provision of attractive savings options, as is done in South Africa and Ghana (Burman and Lembete, 1995).

185. Rural banking policy should also consider linking credit to input supply and output marketing. Inter-linkage enhances repayment performance because the lender is in a position to deduct repayment at source from transactions in another market (Floro and Yotopoulos, 1991). Private entrepreneurs can be encouraged to set up input/output marketing outfits. However, this calls for a high degree of coordination between financing institutions and the input/output market outlets. Procedures relating to this should be made less cumbersome and clearer to the borrowers.

186. *Self-sustainability:* The RBs of most African countries in the past have been highly subsidy-dependent and, therefore, not viable in the sense of being self-sustainable. To remedy the situation four main aspects need to be addressed. These are lending rates, borrowing rates, loan turnover and transaction costs. Lending rates should be sufficiently high to cover administrative costs and bad debts and to make a reasonable profit. They should also be positive in order to protect the institution's equity capital and maintain its efficiency in allocating scarce resources. In addition, lending rates should be differentiated and progressive to reflect short-term loans, as well as both small and large long-term loans.

187. To increase turnover, 'saturation-lending' may be useful. This involves accommodating a large number of clients in all categories, such as small, medium and large, as well as those involved in non-farm activities. The RBs are unlikely to be viable and sustainable unless they can raise the bulk of their resources through deposit mobilization on competitive terms.

188. *The Need for a Conducive Environment:* The macro-economic environment exerts a major influence on both a country's economic performance and on its financial system.

Financial institutions find it hard to operate in an unfavourable economic environment. In particular, the Government should regard the rural financial market as an instrument for allocating scarce resources by instituting suitable macro-economic policies, and the production of viable technologies through research should be encouraged. An appropriate legal framework is also required to protect the resources of the financial institutions and to recover outstanding loans.

189. *Learning from the Informal Sector:* To achieve the above objectives, a detailed review of rural financial services, including those provided by the informal sector, should be undertaken as part of the country's financial sector reform. It is central to the arguments above that a better understanding of the informal financial system can provide insights into how to develop suitable formal financial services in rural areas. In this regard, Pattern and Rosengard (1992) have suggested that: "Emulation instead of elimination of the informal financial system, and complementing instead of supplementing should be the strategy for policy makers in efforts to develop the formal financial sector".

190. **There will continue to be an important role for public policy to increase access to rural finance in the coming years.** The infancy of rural micro-finance and the absence of bank branches outside Monrovia mean that for the foreseeable future rural financial services are unlikely to be available to the vast majority of creditworthy farmers. This is not unique to Liberia: many countries in a stronger position still face problems with rural financial services. That said there are strong examples from the region that suggest possible approaches (e.g. Ghana). Both LBDI and Ecobank have indicated an interest in collaborating with donors in financing farm and off-farm rural enterprises.³⁷

T. The Ministry of Agriculture

191. **Public support for the agriculture sector has long been recognized to be ineffective,** and previous technical reviews had made recommendations to improve matters. Indeed, the 'Blue Book' (Liberia's Agricultural Development: Policy and Organizational Structure) set out institutional reforms in the early 1980s (MoA, 1981). A volume of the 1984 Agriculture Sector Review explicitly reviewed the institutional framework and made recommendations to the GoL for reforms.

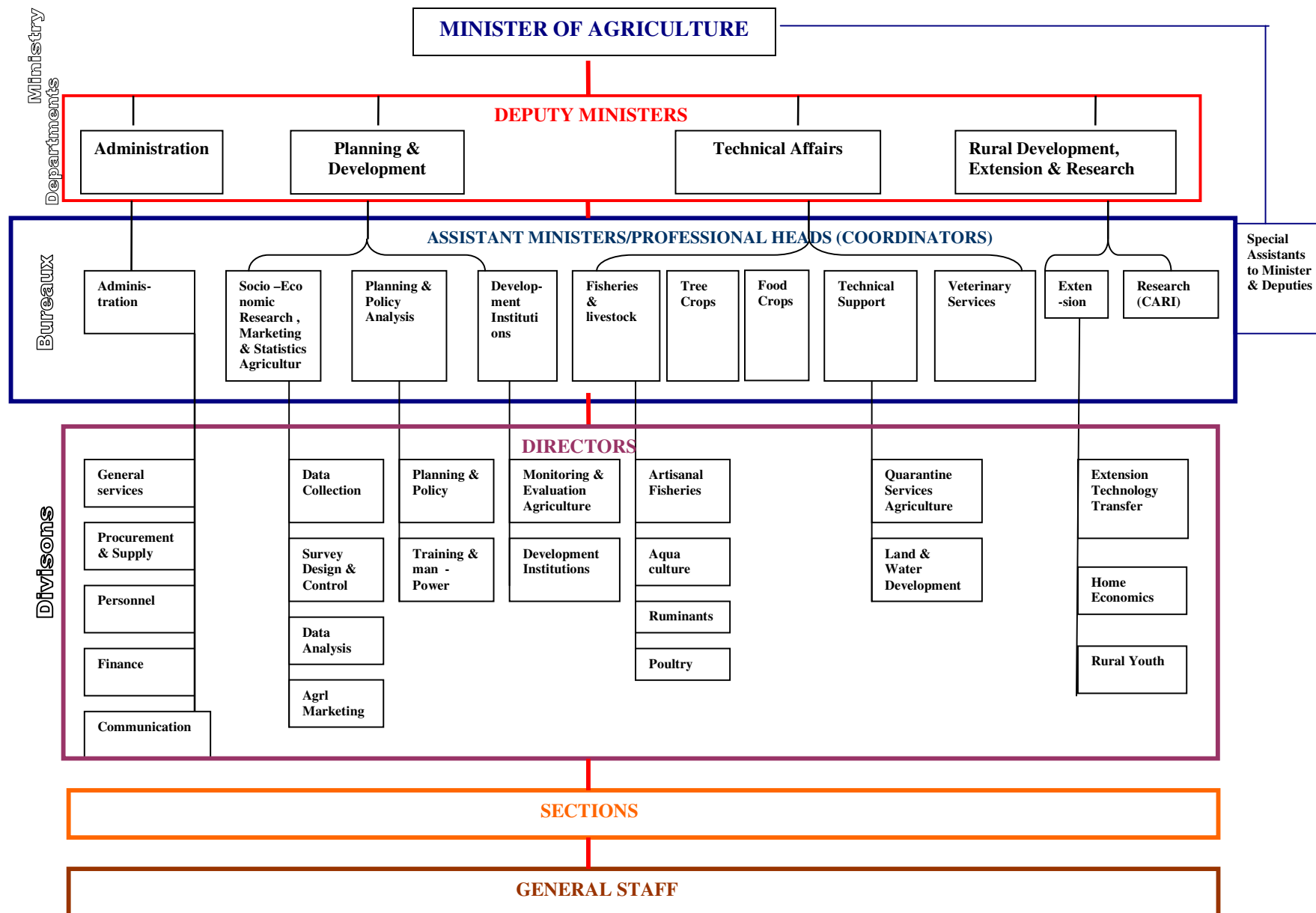
192. However, at the end of the war, MoA emerged with its old structure still largely intact (Figure 23)³⁸. This structure consisted of four departments: Planning, Technical Services, Administration and Extension. A Deputy Minister, supported by an Assistant Minister, heads each department.

- The Planning Department includes three divisions, each headed by a Director: (1) Planning and Policy Analysis; (2) Socio-economics; (3) Development Institutions (which includes monitoring and evaluation). The Planning and Policy Analysis division takes the lead in policy formulation and in liaison and planning with national stakeholders on sector-wide development.

³⁷ In discussions with managers, LBDI and Ecobank articulated somewhat different approaches: LBDI insists on performing its own 'due diligence' study of each prospective borrower, while Ecobank indicated a preference for lending to donor-determined recipients on the condition that donors cover any loss. The former is typically more sustainable and does not undermine fledgling financial markets.

³⁸ UNMIL (2004); Sesay (2006)

Figure 23: Organizational Structure of the Ministry of Agriculture



- *Technical Services* comprises five divisions: Fisheries & Livestock (actually these operate as separate bureaus or divisions), Tree Crops, Food Crops, Technical Support (agricultural engineering), and Veterinary (including quarantine). Technical Services is responsible for a number of activities that are somewhat distinct from field agriculture, such as aquaculture, fuel and tree crops, land and water resources, and animal resources. Each of these divisions is currently headed by a Director.
- *Administration* includes human resource management, financial management, information management services and asset management.
- The *Rural Development, Extension and Research Department* has two divisions: extension and research. The Central Agricultural Research Institute (CARY) currently falls under Research; the other division is the Bureau of Extension.

193. **The Department of Rural Development, Extension and Research has the responsibility for coordinating the activities of agriculture-related research and extension institutions and the dissemination of information developed within such bodies to farmers.** It is the most visibly decentralized department at the field level, although it has only 20 of its 134 staff members deployed outside Monrovia – four in each of its five regions.³⁹ Each region is headed by a Coordinator who assists the Deputy Minister in monitoring and supervising all aspects of extension in the field. Each County is headed by an Agricultural Officer who serves as a member of the Superintendent's Council and sits on the County Development Committee.

194. **The extension system faces a major challenge in shifting from a top-down to a participatory approach.** Liberia's extension system was characterized by the 'transfer of technology' approach in which clan-based extension agents provided field training for farmers in the then-prevailing hierarchical 'expert teaching mode'. That paradigm is reflected in the defined functions of the agencies at various levels (Box 9) and was predominantly technical, with little emphasis on empowering or participatory approaches to planning and development with rural communities.

³⁹ The five regional headquarters are in Buchanan, Grand Bassa County; Tubmanburg, Bomi County; Gbanga, Bong County; Zwedru, Grand Gedeh County; and Harper, Maryland County.

Box 9: Objectives and Functions of the Extension Department

The Department of Regional Development, Extension and Research is responsible for:

- Dissemination and demonstration of research findings and results to farmers and other stakeholders.
- Forming a link or liaison between research scientists and farmers by taking farmers' problems to research and research feedback to farmers.
- Transfer and extension of improved technologies to the farming population.
- Training farmers in improved agronomic practices and guiding them to field schools and tours.
- Guiding farmers to identify constraints and help resolve them.

The **Bureau of Extension** within the Department has the following functions:

- Maintaining constant contact with the farming population.
- Liaising with the research institution and farmers in disseminating research results.
- Carrying out on- site training and persuading farmers to accept the information.
- Helping farmers to change their old farming practices to improved ones.
- Using the basic approach of out-of-school educational services.
- Teaching agriculture using both theoretical and practical approaches.
- Teaching housewives and girls within communities appropriate methods of home-making, food preservation and nutrition.

The stated functions of the **County Agricultural Office** are:

- Planning, executing, administering, managing and supervising the County agricultural programme with extension as its major component.
- Management of personnel resources in accordance with all rules and regulations and sound personnel management practices.
- Sound management of all the Ministry's physical and material resources and financial assets.

195. Throughout the 1970s and 1980s, extension systems essentially focused on the transfer of technology model that conveyed technical messages and packages to farmers, either individually or in groups. It tended to be a highly structured, top-down, prescriptive approach to extension. The paradigm was centred on the belief that outside experts (planners, extension agents, and researchers) knew the priority problems encountered by farmers and communities and were able to prescribe the appropriate solutions. Building on the wealth of indigenous knowledge and experience of farmers and blending this with 'modern' technology received little, if any, serious consideration. Moreover, the old supply-driven system paid little attention to the capacity empowerment of communities – their capacity, and the confidence to decide upon their own development priorities was neglected. As a result, farming communities often did not influence or participate in, much less take ownership of, the technology development and dissemination process. In the mid-1980s, however, a pioneering GHZ-funded rural development project in Nimbi and Bong Counties brought together all ministries and key Non-State Rural Actors in a combined and integrated planning process at district and county levels. The benefits and impacts of these approaches are still remembered by senior MoA personnel, national agricultural consultants and representatives of farming organizations.

196. Senior staff in MoA report a significant amount of inter-departmental conflict arising from unclear or overlapping roles/areas of jurisdiction, and the resultant competition for resources. The most important task is to clarify roles, responsibilities and relationships

through renewed job descriptions across the divisions and to have flexible programme approaches in the five areas of field service provision within the divisions.

197. The Commission for Government Reform (CGR) is currently engaged in a process of revising the mandates of all GoL Ministries, Departments and Agencies (MDAs). The Ministry's core general areas of responsibility should continue to focus on agriculture – both smallholder and commercial, recognizing that the type of support for each will differ – plantation crops, fisheries (in partnership with the BNF) and on-farm woodlands. Indeed, MoA is already formulating a number of proposals in this regard. For example, the Department of Extension and Community Empowerment is a proposed title to replace the Department of Rural Development, Extension and Research, although any changes require legislative approval, which takes time. Other reforms include the proposal that the Technical Services Directorate should be headed by a Technical Coordinator.

198. The Statement of Policy Intent (MoA, 2006) sets out five principles of MoA policy and programmes that provide important underpinnings to future institutional reform:

- That the Ministry's policies and measures, while focusing on smallholders and previously neglected areas, should have a wide geographical coverage, in the interests of equity, justice and national cohesion.
- Priority should be given to policies and measures that would have an 'immediate' impact on food production, household food security, and local business development. The urgent need to achieve 'quick wins' in these areas is increasingly accepted and supported by the donor community.
- Policy and decision-making processes should be participatory and mobilize local knowledge.
- The formulation of policy and strategy should be sensitive to the need to empower women, and to provide incentives and training for youth to pursue careers in agricultural and rural development.
- Governance, including regulatory supervision, should be decentralized.

199. **The MoA remains highly centralized:** out of a total of 327 staff, only 84 are stationed outside the capital, with 243 based in HO in Monrovia. Under decentralization, this ratio probably needs to be reversed to one where three out of four staff are deployed in counties or districts. MoA envisages an eventual total staff complement of about 250 – about a quarter of the estimated total of 1,000 that MoA had before the war. MoA is currently conducting a systematic exercise to re-assess all staff on its books to remove ghost workers and poor performers and to provide renewed opportunities for those with relevant skills and potential.

200. While the MoA has remained centralized, a plethora of non-government organizations (NGOs) has emerged. A major challenge is the integration, harmonization and coordination of the activities of the estimated 600 NSAs/NGOs⁴⁰ involved in food security and/or rural development into the mainstream national agricultural development plans, and how to ensure that resources are not concentrated in the Monrovia Headquarters, consistent with the need to decentralize among both state and non-state actors. To do this effectively, MoA will need to

⁴⁰ UNDP estimates.

conduct a services analysis exercise, with the Department of Extension and Community Empowerment, to obtain the knowledge and insights necessary to fulfil its role in the provision of supervision and guidance in planning of services and training for farmers.

201. The array of challenges confronting MoA and its partners becomes even more formidable in a national context. The tradition and legacy of government in Liberia, even under the conditions prevailing in pre-war decades, have been highly centralized in cultures of predominant hierarchy, autocracy and weak participation in development processes by rural communities and wider civil society. Understanding the evolution and nature of Liberian government administration and structures over recent decades, especially at local government level, is therefore essential when considering and proposing institutional development approaches based on decentralization and emancipated participation of rural civil society in local planning and development.

202. Similarly, the MoA will need to break with the past and lead new partnerships with a range of national stakeholders and non-state actors through continual processes of dialogue on national development priorities and subsequent joint planning and programme development at national and county levels. Such pluralistic partnerships are crucial to ensure harmonization of planning and implementation strategies and optimal deployment and utilization of scarce expertise and limited financial resources in support of renewed development of mostly impoverished rural communities.

203. **MoA is cognizant that returning to the pre-war situation is not feasible and is seeking to rebuild capacity in a way that ensures that it is fit for purpose.** MoA needs to evolve with an appropriate centre/district distribution of responsibilities and an appropriate skills mix for contemporary challenges. It needs to regain its role as the lead public sector actor in agricultural and rural development – albeit with a different business model. Moreover it faces the immediate challenge of transition from a post-conflict relief posture to one supporting longer-term development. It is struggling to balance responsiveness to the acute short-term demands and needs of rural communities that are emerging from poverty with the clear long-term need to develop enduring capacities for policy, planning, coordination and supervision, together with implementation of programmes and projects. The NGOs and INGOs also have to respond to this changing context, with relief and emergency agencies needing to reorientate their activities or be replaced by others that are more orientated towards long-term development processes and programmes.

204. GoL has created a Provisional Joint Board (PJB), chaired by the Minister of Agriculture and consisting of a senior representative of MoPEA and directors of the parastatals, as well as representatives of the private sector, to review the role and function of the existing parastatal institutions. The key issue in determining the future of these state institutions is the extent to which the private sector is likely to provide the same goods and services comparatively better in terms of quality and cost and in line with strategic long-term national goals for economic and social development of rural areas and communities. At the same time, MoA is currently considering legislation to rationalize some of the functions and structures of these entities, including options to create a new Liberian Agri-Export Development Board (to replace the LPMC and LRDA). Also under consideration is a comprehensive assessment of rural and micro-finance needs for agricultural and agri-enterprise development, including a review of the potential roles of existing commercial banks (Ecobank and LBDI in particular) and the merits of a renewed entity for strategic long-term finance of agricultural and rural development to replace the ACDB.

U. Public Expenditure and Agriculture

205. **The public financial management (PFM) system of the MoA suffers from GoL-wide fragmentation and institutional inefficiencies, and is in need of substantial reforms as part of a broader PFM programme.** Currently the Ministry of Finance (MoF) has responsibility for revenues, treasury functions and, since late 2005, implementation of the cash management system.⁴¹ The Bureau of Budget (BoB) is independent of the MoF and has the responsibility for the recurrent budget. The Ministry of Planning and Economic Affairs (MoPEA) has responsibility for the development budget, which includes donor funded projects. This fragmentation makes it impossible to budget and plan effectively and introduces dislocations within budgeting systems: recurrent and capital expenditures are separate, capital expenditures funded by general revenues are separated from capital expenditures financed by donors, and there is no mechanism for monitoring and coordinating donor projects and programmes. Legislative weaknesses allow Parliament to increase appropriations in excess of those proposed by the Executive, and budget implementation is inefficient with frequent mid-year reallocations undermining fiscal planning.

206. Budget guidelines are provided by MoPEA and include standards for budgetary practice, such as (i) consistency between declared policy and budget; (ii) individual budget initiatives should be clearly focused and time-bound; (iii) each proposal must specify content, objectives, strategy, and implementation modalities. Each ministry develops a budget proposal for submission to BoB and subsequently defends its proposals at MoF. MoF and BoB will rule on the level of the total budget and it is then left to the individual ministries to allocate the revised – more often than not reduced – amount. For example, in FY05/06, MoA requested US\$6 million but actually received US\$3.06 million. While this is the highest allocation in 9 years (during the war it was less than US\$0.5 million) it remains far short of the NEPAD commitment to allocate 10% of expenditure to agriculture.⁴²

207. The GoL is embarking on an ambitious programme of PFM support, with the backing of a number of development partners. A detailed diagnostic exercise will provide the analytical foundation for subsequent reforms. Of particular concern to agricultural issues are: (i) the timing of the budget submission and the need for timely agreement on projects and programmes in order that counterpart financing can be secured; (ii) project performance reports are too input-focused and focus only on disbursement profiles; (iii) more guidance needs to be provided on the appropriate scheduling of development initiatives; and (iv) there should be provision for expenditure to run beyond the financial year.

V. The Agricultural Research System

208. **Liberia's agricultural research system, formerly dominated by the public sector, is now in ruins.** The main institution, the Central Agricultural Research Institute (CARI), is a semi-autonomous organ of the MoA, having evolved (in 1980) from the Central Agricultural Experimental Station (CAES). It developed rapidly into a reputable centre of excellence in

⁴¹ The Cash Management Committee (CMC) is a cornerstone of the efforts being made under the GEMAP to bringing discipline into the public financial system. CMC includes representatives of the MoF, BoB and the President's Office. All expenditure vouchers from ministries, departments and agencies (MDAs) must be submitted to CMC for verification and CMC will only authorize expenditures if there are sufficient funds in the Government's accounts in the Central Bank.

⁴² During the Second Ordinary Session of the African Union, held in Maputo in July 2003, the Heads of State and Governments pledged themselves to "...allocating 10 percent of national budgetary resources for the implementation of CAADP, and sound policies for agricultural and rural development within five years".

applied and adaptive research in West Africa. However, the civil war devastated CARI. The physical infrastructure was destroyed through the looting of offices, laboratories, residences and research stations. The entire germplasm collection was lost and most of the research staff moved to other organizations. Presently, most of the buildings and other infrastructure of the institute are occupied by UN military personnel.

209. Public sector research includes other agencies beyond CARI, including the Forest Development Authority (FDA), Liberia Rubber Research Institute (LRRI), and the Department of Fisheries. These agencies have had little interaction in the past. There is a need for greater collaboration, cooperation and coordination between the agencies, CARI, the universities, extension systems, private and civil society sector actors, and the users of research results. This would build on the synergies and complementarities that exist among them.

210. The biggest challenge facing CARI is how to revitalize itself to achieve its mission and mandate, rebuild important previous partnerships with the University of Liberia (UoL), CGIAR centres such as WARDA and IITA, regional agricultural networks such as CORAF, FARA and NEPAD, the international agricultural research centres (IARCs)⁴³ and other centres.⁴⁴ The IARCs can play important roles in restocking germplasm assets, training technicians and research staff, engaging in collaborative research projects, developing and implementing an R&D strategy, results-based planning, monitoring and evaluation.

211. A newly reconstituted CARI placed at the centre of Liberia's research effort will have to face the changing paradigms in agricultural research management and organization. First, CARI is only one among many other actors that can play a crucial role in national agricultural development. Second, research organization and management needs to be efficient and cost effective – this was not the case in the past (Box 10). There are no clear organizational frameworks or institutional mechanisms (e.g. competitive grant systems) to encourage inter-agency partnerships. For instance, beyond events surrounding World Food Day, there is no formal mechanism for bringing together researchers, extension agents, producers, processors, policy makers and the private sector. Locating some extension staff in CARI offices, and joint planning, implementation, monitoring and evaluation of programmes and projects are some of the measures that can be taken in the short term to address this situation. It is also necessary to coordinate research at Cuttington University (CU) with that performed at CARI.

212. **There are no clearly defined and well thought out programmes for agricultural research at some of Liberia's well-known agricultural education institutions.** There are no post-graduate courses. Previously, teaching staff maintained their technical skills by collaborating with international agricultural research centres such as the IRRI, WARDA and IITA, but this has ceased. Cuttington University has recently launched a research project in aquaculture (tilapia breeding) and adaptive trials for New Rice for Africa (NERICA), whilst the Booker Washington Institute (BWI) is currently engaged in adaptive trials of rice varieties. Another major problem facing university research is the lack of qualified and experienced staff, due in part to inadequate remuneration and the lack of favourable incentives.

⁴³ These include IRRI, IITA, ARVDC, CIMMYT, CIAT, IRAT, ICRAF and ILRI.

⁴⁴ The International Foundation for Sciences (IFS) of Sweden and the International Development Research Center (IDRC) of Canada.

Box 10: Organizational Structure of CARI

The Minister of Agriculture was responsible for overall coordination of the national agricultural research programme as Chairman of the Agricultural Research Committee (ARC). The ARC was the independent committee that decided on and approved policies for applied and adaptive research in agriculture.

The Technical Committee, chaired by the Deputy Minister for Technical Affairs, provided broad direction for the research programme at the Institute level. The chairman acted as the link between the ARC and CARI. This committee examined the various proposals for research in agriculture. An Advisory Committee provided advisory services to the Research Committee.

Within CARI, research was organized in seven technical departments under the research coordinator: Crop Sciences and Propagation, Land and Water Resources Management, Animal Science and Production, Plant Protection, Food Technology, Engineering and Appropriate Technology, and Fisheries.

Despite this elaborate organizational structure, the system did not function efficiently. The ARC seldom met. On the few occasions that the Technical Committee met, technical matters were hardly discussed and members showed little interest in research matters. In the absence of a functioning ARC, the technical committee had assumed its role, but only in administrative and peripheral matters at the expense of the technical issues of planning and formulating meaningful research programmes. As a consequence, research policy formulation, which normally should be at three levels, existed only at the institute level. This prohibited response, strategic research agenda or a properly administered allocation of funds for

213. A reinvigorated research system will depend upon deeper collaboration between institutions of higher learning and CARI. Possible mechanisms for collaboration include:

- Collaborative agreements, such as memoranda of understanding (MOU), to undertake research and extension.
- Joint staff appointments.
- Staff secondment (e.g. between research and extension, universities and research).
- Joint research projects.
- Innovative sharing – or joint use – of existing physical facilities.
- Competitive research grant systems that put a premium on inter-organizational collaboration or partnerships.

214. **The NGOs have some potential but do not currently contribute to the research effort.** The New African Research and Development Agency (NARDA) is a consortium of Liberian NGOs formed in 1987. Prior to 1990, there were only four major international NGOs operating in Liberia (Partners for Productivity, Plan International, SOS Children Village and Experiment in International Living). Currently there are more than 34 local NGOs in the country, working (with line ministries) in four sectors: agriculture and food production, business development, and education and sanitation. NARDA coordinates the activities of NGOs, which operate through county networks. Research-related activities of NGOs in the recent past have included socio-economic research such as developing vulnerability assessment maps (VAM), conducting food security assessment studies, and adoption of participatory forestry management methodologies.

215. **Women's issues must be addressed.** A revitalized research and extension system must take into account the technology, information and learning needs of female farmers, especially given their critical role in food security and natural resource management. Liberia has had some interesting experiences with indigenous farming strategies (communal farming) based on traditional forms of organization (*kuus* and *susu*). Women play a critical role in this system, indeed it was women and the indigenous farming system that provided the bedrock of the agricultural research system during the war.

W. Agricultural Education

216. **Liberia has an established history of agriculture-related education, although there are currently few trained personnel in the sector** (Box 11). Although hundreds of graduates were produced by the various courses at UoL, CU and BWI, most fled abroad during the war and the remaining endowment of trained personnel is limited. The long-term capacity of Liberia – both within the public sector agriculture-related agencies and in the private sector – that will drive agricultural growth depends on improved human capital in the sector. In this regard, it is encouraging to note the rapid increase in students that has occurred now that the College of Agriculture and Forestry (CAF) at UoL and the College of Agriculture, Rural Development and Sociology (CARS) at CU have resumed courses. The class size at CARS has increased from 10 students in the 1998/99 academic year to 264 in 2006/2007, while at CAF 71 students were enrolled in 2005/2006.

217. **In addition to undergraduate courses, vocational agricultural training programmes and secondary school classes are available.** The vocational training currently being offered at secondary level can be placed into two categories: (1) four-year secondary programmes, and (2) accelerated vocational agricultural training programmes. These training programmes provide training for a range of agriculturists, vocational agricultural teachers, students who will matriculate and receive college degrees in agriculture, extension workers and service providers, and farmers. Vocational agricultural training is also carried out by a number of NGOs, aimed at providing practical skills training in specific areas. These programmes are classified as 'Accelerated Training Programmes' and are not more than 9 months in duration. Generally they are designed to meet the specific needs of NGOs, who usually conduct their own training. Participants in these programmes include NGO field staff and members or clients of community-based organizations (CBOs).

218. Agricultural education also occurs at high school level, although according to the Ministry of Education (MoE) there is no national curriculum for vocational education. Each school is expected to develop its own curriculum. The MoE is studying the situation to determine the type of institution and the required level of instruction in order to develop a national curriculum with flexibility for location factors and industry/employee demands. MoE has recently introduced both types of programmes – one in conventional high schools for grades 10 through 12 and the second in multilateral high schools, which runs over four years in Tubman High School in Monrovia and Zwedru Multilateral School in Grand Gedeh. The MoE plans to expand the programme to Voinjama Multilateral School in Lofa and Greenville in Sinoe. The programmes offer classroom instruction and practical fieldwork in food and cash crop production, and in livestock (poultry, pig, goat and sheep) production.

Box 11: A Brief History of Agricultural Education

University-level agricultural education and training programmes were first introduced into Liberia in the late 1950s and early 1960s, with the establishment of the School of Forestry at the University of Liberia. Around this time an agriculture programme was also started at the Cuttington College, now Cuttington University (CU), in Suakoko, Bong County. The School of Forestry, which had been had been established earlier with assistance from FAO, produced its first graduates in 1959. In the same year the school was elevated to the status of a College and offered a four-year Bachelor of Science degree programme in General Forestry. Subsequent to the establishment of the School of Forestry, the United Nations Special Fund (UNSF) and FAO assisted in establishing a College of Agriculture as an integral part of the University of Liberia. The College was formally inaugurated in 1962 and a four-year curriculum in general agriculture was developed, producing its first four graduates in 1965. Both colleges were merged in 1967 into the College of Agriculture and Forestry (CAF).

The agriculture programme started at Cuttington College in the late 1950s offered a four-year degree in General Agriculture. This programme was, however, discontinued shortly thereafter. During the late 1970s the Rural Development Institute (RDI) was established at Cuttington University College (now CU) offering Associate of Arts degrees in Agriculture. This programme, which lasted for about a decade, was established in response to the need for trained agriculturists to work in the extension service and throughout the sector, but was discontinued due to lack of funding. While the RDI programme did produce scores of graduates, many of them were subsequently lost or have relocated abroad. Cuttington University restarted its agriculture programme with the establishment of the College of Agriculture, Rural Development and Sociology in 1998, offering BS degrees in General Agriculture and in Rural Development and Rural Science.

A four-year secondary vocational agriculture programme offered by the Booker Washington Institute (BWI) began in 1929 with assistance from Tuskegee University; graduates were awarded Diplomas in General Agriculture. For many years this was the only such vocational agricultural training programme in the country; it produced hundreds of high school graduates over the years, and provided much of the trained labour for the agricultural sector. The current curriculum provides instruction in the areas of food crops, tree crops, livestock (pig, poultry, cattle, goats and sheep), extension, and agricultural mechanization. Instruction is also provided in soil science, and fisheries and farm management, and involves practical field training.

An Agricultural Education programme was introduced into the Teachers College at the UoL in 1980, aimed at preparing vocational agricultural instructors for secondary schools. This programme offers a Bachelor of Science in Agricultural Education, which involves an initial two years of instruction at the CAF. Only a small number of graduates (25) with a BS in Agricultural Education have been produced.

Prior to the 1990 conflict all public secondary schools were mandated by the Ministry of Education (MoE) to have agricultural programmes. These programmes were first introduced in the 1970s, with mixed results, and according to the MoE were intended to provide a broad introduction to agriculture in the hope that students' interest would be kindled, eventually resulting in positive choices of future vocation and careers in agriculture. Two types of programme were offered in secondary schools: one was in conventional high schools and ran over three years in the 10th through 12th grades. While these programmes were not compulsory, indications are that enrollment in them was comparable to other vocational programs. The programs did not achieve their objectives and are no longer offered. The second high school program was in Multilateral High Schools over four years. The aim was to provide rural students job skills as well as life skills.

219. **Agricultural education receives a low priority at present** despite the fact that it underpins any effective sustainable agriculture development strategy, and produces the human capital required for agricultural development. Such programmes provide education and training of agricultural professionals in a wide range of areas at different instructional levels, using various pedagogies, and adopting best practices as appropriate. Unfortunately it has not been seen as essential to sustained agricultural development but instead has been seen

as a complementary activity, and therefore very few resources have been invested in Agriculture Education and Training (AET) programmes. Secondary- and college-level programmes developed prior to the civil conflict offered a limited range of instructional areas, and lacked the necessary coordination with agricultural research (at CAF and CARI), local knowledge and information centres, and educational agencies responsible for developing national curricula and for regulating and administering educational programmes. The current situation is broadly the same.

220. Curricula for vocational agricultural training programmes and short-term agricultural training programmes are developed independently by each school, NGO or agency carrying out the training, with no input from MoE, MoA, CAF or CARI. Clearly there is a need to set up a process of collaboration between the aforementioned institutions, through which minimum content standards are developed and the proper mechanisms put into place to provide supervision of the development of all vocational agricultural training curricula and of the administration of vocational agricultural training programmes.

221. **The consequence of this absence of basic agricultural training is a serious shortfall in the quality and range of specialization of human resources in agriculture.** Currently there are insufficient numbers of agricultural professionals, and their range of specialization is too narrow, especially in research, teaching, and extension. The current agriculture curricula at CAF and CU provide for only a limited number of areas of specialization at the Bachelor of Science level, and no advanced or graduate level training. Curricula at both CAF and CU must be revised to allow an increase in the number of instructional programme areas offering Bachelors degrees in agriculture (and related areas). A real commitment must be made to introduce, in the medium term, graduate degree programmes in agriculture. This will ensure that a stock of trained agricultural professionals and specialists is available that can augment and/or replenish agricultural human capital. In the case of advanced graduate level training, the cost would be far lower than that of equivalent overseas graduate training.

222. The curricula of existing AET programmes need to be reviewed and revised at three levels: (i) college level education offered at the CAF/UL and CU; (ii) vocational agricultural training currently being provided by BWI, Tubman High School and Zwedru Multilateral High School; (iii) short-term training programmes that cover specific topics, or targeted areas of intervention, carried out mainly by NGOs and some government agencies. Agricultural education programmes require the full commitment and financial support of GoL and of the donor community. Financial and technical resources need to be provided for strengthening and expanding both the instructional and research capacities of the agricultural colleges (CAF/UL & CU), and for strengthening the programmes offered by other institutions.

223. Finally, there is a need to encourage coordination among training programmes. Coordination is critical to minimizing unnecessary programme duplication, maintaining programme standards, and providing supervision, which ensures that the range of training needs within the sector is provided for. Currently there is a lack of coordination between the relevant parties, including MoA, MoE, CARS, CAF, vocational agricultural training institutes, INGOs and NGOs, all of whom are involved in developing and delivering primary, secondary and higher-level agricultural education and vocational agricultural training. Along with the critical training needs within the agriculture sector, the MoA itself has a range of training needs with regard to its requirements to build organizational and institutional capacity within the context of its new organizational arrangements. High priority should be

given to strengthening the capacity of the human resource development and training unit of the MoA to enable it to assess, monitor and evaluate its internal personnel requirements and to provide that same coordination of training activities for agricultural programmes sector-wide.

X. NGOs and Community Based Organizations

224. The Ministry of Planning is responsible for the registration and monitoring of the activities of all NGOs and CBOs in Liberia, which is a statutory requirement. However, it appears to have delegated the responsibility to sector ministries, having prepared guidelines that they should use for that purpose.

225. Data in the FAO database, which was constructed to support its emergency operations in Liberia, show that there are 44 International NGOs and about 113 local NGOs operating in the country⁴⁵. However, only 78 were registered with MoA in 2004/2005, and only 17 during 2007. This clearly shows that there is widespread non-compliance with the statutory requirement.

226. Amongst the 17 registered NGOs five have no funded programmes in 2007, while the others have from one to four programmes funded. The NGOs that have programme funding are spread throughout 14 of the 15 counties of Liberia. They claim to serve about 234,000 beneficiaries but this cannot be verified.

227. As is to be expected, most NGO programmes in agriculture have concentrated in the past on emergency and relief activities, mainly the distribution of farm tools and inputs. As the period of emergency has drawn to a close they have tended to direct more of their activities towards more broad-based agricultural development activities such as provision of extension services, credit, marketing, advocacy, policy dialogue, etc.

228. Because the funding of GoL extension activities has been grossly inadequate in the past NGOs have tried to fill the gap. However their activities have tended to focus more on the supply than on the demand side. The situation is worsened by the multiplicity of NGOs, whose extension activities are not properly coordinated and are fragmented and duplicative.

229. All International NGOs have a well defined organizational structure and relatively reliable sources of funding from donors such as USAID, OFDA, the EU, EC, ECHO-Aid, DANIDA, UNDP, FAO, Irish AID and the Swiss Development Corporation. Most local NGOs are implementing partners of INGOs, hence they have secured the bulk of their funding from these sources.

230. There is a limited amount of capacity building of local NGOs by their partner INGOs in such areas as assistance to secure offices, opening of bank accounts, provision of minimal office equipment and supply of project vehicles where necessary.

231. To enhance coordination among NGOs, donor agencies and GoL, MoA has set up the Agricultural Coordination Committee (ACC), which comprises all stakeholders that are involved in agricultural activities in the country. The ACC holds monthly meetings in

⁴⁵ Fieldwork during CAAS-Lib, during which NGOs not listed in the FAO database were encountered, indicated that the listing is incomplete.

Monrovia at headquarters level and also at county level, where all NGOs report their activities, share experiences and discuss issues relating to the sector. The ACC has an Agricultural Policy Committee whose membership consists of heads of NGOs as well as the Minister of Agriculture. However, this experience-sharing activity appears to have little if any effect on policy making and programme development by either the MoA or the NGOs.

232. The ACC also has a Technical Working Group (TWG) that is charged with responsibility for the monitoring and evaluation of all the activities of stakeholders in the agriculture sector. The TWG appears to be as ineffective as the other organs of the ACC.

V. MOVING TO SUSTAINABLE DEVELOPMENT – POLICY CHALLENGES AND OPPORTUNITIES

Y. Contemporary Evidence of Agricultural Growth and the Poor

233. **Evidence consistently shows that agricultural growth is highly effective in promoting economic growth and reducing poverty.** Not only are the growth ‘multipliers’ stronger in the agricultural sector than in any other, the growth-elasticity of poverty – i.e. how much poverty is reduced for a given percentage of economic growth in the sector – is higher for agricultural growth (Box 12). The impact of economic growth on poverty depends on the pattern of growth and the degree to which groups and households are able to participate in remunerative activities that result in higher incomes. This is not just a question of growth in absolute income levels but the manner in which it is distributed among the population and the relative gains in income achieved by the poorest segments of society (Eastwood and Lipton, 2001). In other words, distribution and equity issues are strongly influenced by the pattern of growth, which concerns the extent to which the poorer segments of the population participate in, contribute to and benefit from growth (OECD, 2006).

234. **Given the strong relationship between growth in agricultural productivity and poverty reduction, future efforts need to focus on productivity-enhancing measures with a pro-poor focus that increase incomes.** Growth based on extensification using traditional technologies is generally not profitable and sustainable and has damaging implications for the environment. Experience has shown that increasing productivity both at the farm level and throughout the various stages of the value chains is not necessarily easy. It is through a mix of effective policies, well-structured institutions and appropriate technology that productivity has improved, value chains have become more competitive and incomes have risen. In contrast, a weak incentive environment, lack of access to credit and affordable high quality inputs, and minimal intensification of production are among the factors that have prevented yields from increasing and have constrained income growth. As described earlier, existing value chains are weak: profitable value chains, on the other hand, generate higher incomes and can contribute to capital accumulation and the productive reinvestment needed to foster growth in the Liberian economy. Assuring that value chains can be resurrected in Liberia will strongly depend on improved productivity that allows them to remain competitive.

Box 12: The Empirical Evidence on the Role of Agriculture in Growth and Poverty Reduction

Gallup *et al.* (1997) reported that every 1% increase in per capita agricultural output leads to a 1.61% increase in the incomes of the poorest 20% of the population. Depending on the model and data set used, a 10% increase in crop yields leads to a 7–8% decrease in the percentage of those living on less than US\$1 per day (Thirtle *et al.*, 2001; von Braun *et al.*, 2004).

Many studies have shown the strength of the growth linkages or ‘multipliers’ between agriculture and the wider economy. Estimates show that on average, in Asia, every US\$1 of additional farm income creates a further US\$0.80 in non-farm income (Bell *et al.*, 1982; Hazell and Ramaswamy, 1991). Estimates from Africa show that every additional US\$1 of farm income leads to a further income elsewhere in the economy of between US\$0.96 in Niger and US\$1.88 in Burkina Faso (Delgado *et al.*, 1998). Models of the Kenyan economy show that these ‘multipliers’ from agricultural growth are three times as large as those for non-agricultural growth (Block and Timmer, 1994). In Zambia, estimates suggest that every US\$1 of additional farm income creates a further US\$1.50 of income outside agriculture (Hazell and Hojjati, 1995).

As stated in the World Bank World Development Report for 2008 (in press), focusing on relative poverty, Valdés and Foster (2005), based on estimates by Bravo-Ortega and Lederman (2005), find that an aggregate increase in GDP coming from agricultural labour productivity is on average 2.9 times more effective in raising the incomes of the poorest quintiles in developing countries, and 2.5 times more effective in countries in Latin America, than an equivalent increase in GDP coming from non-agricultural labour productivity. Focusing on absolute poverty, and based on observations from 80 countries during 1980–2001, Christiaensen and Demery (2007) estimated that one percentage point aggregate growth in agriculture reduces the incidence of US\$1 a day poverty on average 2.3 times more than an equivalent amount of growth originating in non-agricultural production.

235. In situations where the poor have few assets other than labour, as in Liberia, some argue that increased employment will result in the bulk of poverty reduction. Greater employment increases the income of the poor by increasing the amount of time they use bringing in income, and, as increased employment tightens the labour market, by raising wages in real terms. While the Liberian conflict has clearly left the majority of households with minimal assets besides their own labour, simply generating employment opportunities (e.g. in extractive industries) may not result in the higher incomes required to improve food security and reduce absolute poverty levels. It needs to be combined with programmes that help the poor increase their asset base in the near future. In fact, many analysts point to the

high levels of absolute poverty and minimal opportunities for the majority of Liberian households to improve their asset base and welfare that occurred before the war as one of the underlying structural factors that contributed to the conflict.

236. Given the low level of assets of most Liberians, future efforts need to address the question of access to assets (i.e. land, knowledge, inputs) in addition to the provision of opportunities and an enabling environment. The latter issue may require systematic efforts to improve the terms on which the poor participate in input and output markets, in addition to considering the risk-reduction behaviour of vulnerable households that may inhibit them from taking advantage of new opportunities. Mechanisms will also need to be established to ensure accountability to the poor.

Z. Operationalizing a pro-poor approach: Transformation – not just Recovery – of the Agricultural Sector

237. Having achieved some notion of stability at the national and macroeconomic levels, Liberia needs to begin to make more concerted efforts to preserve and solidify stability by focusing on food security and poverty alleviation interventions at the community and household levels. Improving access to food and generating sustainable, remunerative activities and employment are crucial to this process. As explicitly recognized in the iPRS, future development actions need to be designed and implemented through a conflict-sensitive lens to ensure that they address the root structural causes of the conflict. An inclusive, pro-poor strategy relates to the establishment of an enabling environment that provides incentives and opportunities for improving the welfare of all segments of the population (communities and households). Ensuring the existence of these conditions and the participation of vulnerable groups requires that this objective becomes a public priority. This objective strongly influences the likelihood of increasing incomes and assets, and subsequently the capitalization of households and the rural economy. The iPRS underlines the importance of moving from an emergency footing to relief, recovery and rehabilitation efforts and thereafter to longer-term development needs. ‘Recovery’ is inadequate for dealing with the root structural causes of the conflict: viewed from a historical, conflict-sensitive lens, Liberia needs to go beyond simple recovery to transform its agricultural economy.

238. There remains a risk that Liberia could fall back into old patterns of growth and development based on natural resource extraction industries and heavily concentrated on the plantation and commercial agricultural sector. GoL policies clearly indicate that this is not the government’s strategy and that smallholders are integral to Liberia’s economic recovery. At the same time, however, the need for foreign exchange and fiscal revenues could lead to a *de facto* preference for more immediate benefits centred on rubber and palm oil plantations, extraction of iron ore, diamonds and timber and revenue generation from ship licensing and import tariffs.

239. GoL and donors will need long-term sustained engagement to realize the transformation of Liberian agriculture for the benefit of smallholders. ‘Transformation’ in this sense means the conversion of a system characterized by an economically concentrated commercial plantation sector coexisting with large numbers of poor, subsistence farm households involved in low input/low output (shifting) cultivation to one in which there is broad-based farmer participation in integrated, productivity-driven cash crop/food crop systems (Tefft, 2005). The achievement of this transformation depends on the creation of

opportunities for former subsistence farmers to participate in and benefit from diversified farm and non-farm activities.

240. Transformation of this nature does not imply the neglect of food crops and the exclusive pursuance of cash-crop agriculture. With abundant natural resources and local knowledge domestic food production and competitiveness can be increased by provision of effective support systems, as evidenced in some West African countries. The potential for diversification into vegetable and fruit production, which will improve incomes and nutrition, is considerable, as revealed in the foregoing analysis. Food security research has also highlighted the strong positive interactions between cash-crop and food-crop activities. Higher value cash crops produced for international, regional or national markets provide access to credit, equipment and inputs that may not be feasible with food crops. They contribute to higher rates of food production, generate higher incomes and lead to greater capitalization at the farm level. Higher rates of capital accumulation and productive reinvestment by farmers have contributed to improved productivity and welfare and have spurred growth linkages in the non-farm sector in producing regions. Transformation, in general, and more diversified farming systems (including both cash and food crops), in particular, result in the development of more sustainable livelihoods. This leads to improved household welfare and assets, and, through upstream and downstream growth linkages with the farm and non-farm sectors, drives broad-based, poverty-reducing, socio-economic development in rural areas.

241. Operationalizing this pro-poor approach will require strategic direction, systematic processes and greater participation from a wide cross-section of Liberian and regional actors in order to move from specific policy and programme pronouncements to a set of concrete group and geographically specific actions and investments. Systematization is important. Too often initiatives are launched to be soon forgotten or supplanted by yet newer initiatives. Breaking this pattern depends largely on accountability. This implies moving from a technocratic agricultural approach to one that incorporates the social, cultural and political elements needed to develop social capital. The challenge, therefore, is to implement agricultural policy in harmony with social policies to meet the country's food security and poverty alleviation goals (Flores *et al.*, 2005). Experiences from other countries emerging from crisis situations have shown that sustainable economic growth must be socially inclusive if it is to break the cycle of violence and conflict (Obidegwu, 2004). Given the political commitment of GoL to these goals, as espoused in the iPRS, the country is well positioned to move forward on this agenda.

242. Taking account of the goals of economic growth and concerns regarding social inclusion, the recommendations in this report, the dearth of empirical analytical information, and the low government capacity and weak incentive system to attract and retain qualified personnel, the MoA should work to build an operational strategy by establishing dialogue and processes with three key sets of actors:

- Agricultural value chain stakeholder boards representing actors at all levels of the sub-sector.
- Producer organizations and other types of community-based organization (farmer associations, cooperatives, etc.) involved in collective action in the agricultural sector.
- Decentralized government bodies and elected officials.

243. By working closely with these structures as primary interlocutors for sector development, the MoA can keep actors' needs and desires at the centre of the strategies and action plans that are needed to develop livelihoods based on economically feasible opportunities. This focus will result in an agricultural growth and investment policy that is market-driven, socially sensitive and inclusive of the most vulnerable groups, with responsibility shared by key actors.

244. Reducing the real cost of food depends on multiple factors, which may include: increasing the productivity and supply of domestic food production; improving the competitiveness and efficiency of the marketing system; coherent import and fiscal policies that balance domestic production with national consumption interests; accessing and disseminating a stream of productivity-enhancing technologies for rice- and cassava-led farming systems (including integrated systems and intercropping), whether through research or partnership; strengthened economic governance mechanisms to reduce transactions and reduce illicit payments in the food system. The use of intercropping in Liberia and opportunities for expanded integration in tree crop systems presents opportunities for increasing food crop production while providing income-earning opportunities through cash crop production.

AA. Private and Public Sector Roles in the Provision of Agricultural Services

245. **The transformation of the agricultural sector described above has profound implications for the roles of the public and private sectors in the provision of agricultural services in the years ahead.** The government's provision of public goods is arguably more important in countries emerging from conflict, such as Liberia, as it sets the stage for how actors will behave and invest in the future. At the same time a strict adherence to arguments regarding public good provisioning may undermine the essential ingredients of economic recovery. The decision of GoL to retract public institutions from direct involvement in implementation represents a major change from the pre-war period, when direct intervention in production and marketing was common. Nevertheless, experience across Africa in the last two decades has underscored the importance of critical public functions to the support of value chain development and performance: these include strategic direction, coordination, supervision, regulation, monitoring and accountability. Simply withdrawing and assuming that the private sector will enter has been shown not to work (OECD, 2006; WDR, 2007)

246. **Determining the type of public goods to provide in an effective and sustainable manner is a difficult and important task for GoL,** and is made more so given its limited financial and human resources relative to the task of recovery and development of small and subsistence farm households. GoL ideally should provide a facilitating environment through improvements in roads, utilities and other rural infrastructure, as well as regulatory frameworks, while allowing the private sector to engage in production and marketing activities. There is an emerging consensus among policy makers that the core functions of GoL in agriculture development could cover:

- Development and promotion of appropriate policies for the growth of agricultural output and incomes, reduction of poverty, and improvement in accessibility of the population to adequate supplies of nutritious food.

- In collaboration with other relevant institutions (e.g. the Bureau of Statistics), to collect, process and publish statistics and data on agricultural production and trade in a timely manner, including data for early warning systems (such as disease incidence).
- Coordinate, monitor and evaluate public and private agricultural development programmes and projects.
- Develop, maintain and support a decentralized community-based extension service for small-scale farmers, staffed with appropriate subject matter specialists, including provision of veterinary, pest control and land use planning services. The aim should be to assist rural communities to develop greater self-reliance and to take responsibility for their own basic needs by providing them with appropriate skills to acquire and manage post-harvest and other rural economic infrastructure facilities to sustain a higher quality of production and to achieve better living standards. Special attention should be given to participatory approaches in identifying critical needs and to providing and sustaining them individually or in groups.
- Supervise and support research designed to develop appropriate sustainable crops and livestock, forestry and fish, technologies, prices and policies.
- Collaborate with other agencies to ensure the supply of food to vulnerable groups, and to implement appropriate safety-net schemes, including facilitating livelihood and income-enhancing programmes for small and subsistence farmers through investments.
- In collaboration with other institutions to draw up appropriate standards for food quality, veterinary medicines, agrochemicals, and other agricultural, forestry and fish products, issue licenses and monitor the application of the standards.
- Stimulate private sector participation in all agricultural production and trade activities, including promotion of increased domestic use and export of non-traditional commodities, adequate input supply (including credit), and marketing systems.
- Public investments and collaboration with other institutions to improve rural infrastructure, such as feeder roads, irrigation and drainage schemes, and post-harvest systems.
- Institutional and human capacity building both by formal agricultural education and by in-service training of staff.
- Natural resource management relating to water, land and soil health through monitoring of land use, water use efficiency, and soil degradation data.
- Collaboration with other stakeholders to develop capacities in MoA to analyse and present the best trade options for Liberian agriculture in regional and international forums.

BB. Making the Government Budget Work for Agricultural Development

247. Creating a supportive environment for pro-poor growth and private sector-led agricultural development means getting the right volume and pattern of public expenditure. Past evidence shows that strategic public spending in agriculture can be highly effective in increasing agricultural productivity and reducing poverty. Work undertaken by the IFPRI shows the critical impact that public spending (**including that on specific**

subsidies) has made on accelerating agricultural growth and on reducing poverty. It also reveals the important ways in which the impact of different types of public spending on agricultural growth and poverty changes over time (Fan and Hazell, 2001a; 2001b).

248. However, as indicated earlier in this report, public expenditure on agriculture in Liberia has been miniscule and has not promoted growth. Public spending should be carefully targeted and effectively coordinated between ministries. Priority should be given to spending on public goods that support private investment, and that maximize the impact on productivity growth and benefit the poor. GoL needs to avoid the mistakes of the past when areas with high and proven returns, such as agricultural research, were starved of funds and crowded out by spending on politically popular items such as mechanization schemes. A public expenditure review can help to identify improvements in public expenditure management that support growth priorities, and can suggest ways of redirecting public spending to where its impact on poverty will be greatest, as well as measures to improve the efficiency with which public funds are spent. These considerations highlight the strong need for strengthened capacity in the MoA for analysis, evidenced-based prioritization and planning, which apparently was negligible in previous years in the Ministry.

249. **Liberia is committed to meeting the Maputo commitment to allocate ten percent of the budget to the agricultural sector.**⁴⁶ Following the establishment of the current Government, initial steps for the implementation of this commitment were taken, as demonstrated by the preparation of the National Medium Term Implementation Programme (NMTIP), which is meant to underpin GoL agricultural policies and investments within the framework of the Maputo Declaration. An indicative simulation suggests that meeting the Maputo commitment is within reach and that, with buoyant revenues, this implies substantial scaling up of resources for agriculture. Assuming that revenues continue to grow by 10%, 15%, 20% and 25% in years 2007/08 and 2010/2011, respectively, the total budget would amount to approximately US\$189.8 million. If GoL allocation to agriculture is increased by 1% p.a. during the same period, the annual agricultural budget would more than triple, reaching about US\$17.0 million, which is equivalent to 9% of the total budget, and is close to the figure agreed upon in Maputo (Table 16).

Table 16: Closing the NEPAD Financing Gap

| Item | Unit | Fiscal year | | | | |
|---------------------------------------|------------|-------------|---------|---------|-----------|-----------|
| | | 2006/07 | 2007/08 | 2008/09 | 2009/2010 | 2010/2011 |
| Total national budget | US\$(000) | 100,000 | 110,000 | 126,500 | 151,800 | 189,750 |
| Expected national budget increase | % | NA | 10 | 15 | 20 | 25 |
| Share of agricultural budget | % | 5 | 6 | 7 | 8 | 9 |
| Expected national agricultural budget | US\$ (000) | 5,000 | 6,600 | 8,855 | 12,144 | 17,077.5 |
| Financing gap | % | 5 | 4 | 3 | 2 | 1 |
| | US\$ (000) | 5,000 | 4,400 | 3,795 | 3,036 | 1,897.5 |

Source: NEPAD, 2006

250. However, given current capacity constraints, questions remain concerning the absorptive capacity to utilize this significant increase in resources effectively. Previous work has emphasized the importance of phasing assistance to match the steady increase in capacity,

⁴⁶ See footnote 42.

and it will be important to ensure a coordinated scaling up that matches resources with capacity.

CC. Food Production, Food Security, Safety Nets and Nutrition

251. Because the majority of Liberians are net buyers of food – i.e. they do not produce enough of their own food to meet their households' consumption needs – reducing the real cost of food should be a major food security objective. Typically, access to food is assured by diverse means, of which market purchases represent a major source. With high population growth rates and increasing urbanization, this demand will continue to grow. Liberia, like many other countries, is familiar with the political importance of low food prices (e.g. rice) as a wage good for urban and rural consumers. The MoA, in collaboration with civil society and other MDAs (in particular, MoCIS) needs to participate in monitoring key indicators in input and output markets to ensure that the government's equity objectives are not compromised (e.g. by terms of trade that may discourage participation and reduce the profit of households and small-scale economic actors). Similarly, the MoA and civil society will need to determine national interest in a rights-based approach to food as a possible framework or tool for achieving national food security objectives.

252. Use of improved technology to raise yields is central if real incomes are to increase for both net food buyers and net food producers. Good quality planting material is a prerequisite for good crop yields. High expectations have been placed on the recently developed New Rice for Africa, NERICA, rice⁴⁷ varieties due to their higher yield potential (2–2.5 mt/ha) and taller size, which makes harvesting easier. These varieties also show improved weed suppression ability due to droopy leaves, and a shorter duration of development (approximately 90–100 days, compared with 120–150 days for typical upland varieties), which allows time for a second crop during the rainy season. In addition, NERICA rice varieties display resistance to local stresses (drought, pests and diseases). NERICA has brought closer the possibility of offering farmers improved rice varieties that are adapted to local conditions. The situation regarding improved varieties for the other food crops in Liberia (maize, sweet potatoes, cassava) is unclear. However, improved varieties of all these crops have been tested and released in Sierra Leone for similar ecosystems to those found in Liberia. Short-term actions to improve the productivity of the crops can be based on procurement, importation and distribution of the materials in Liberia.

253. Experience from countries within the region that have similar agro-ecological conditions to Liberia shows that improved husbandry techniques can improve yields, and these practices need to be transferred to Liberian farmers. Crop and soil management practices, such as the optimum timing of planting, weeding and appropriate pest management strategies, can improve production and these are available to Liberia. Experience of upland soils indicates that the cropping cycle can be made more productive by good weed control and judicious use of inorganic and organic inputs. The latter include the use of composts on small vegetable plots, green manuring, crop residue restitution and use of cattle manure, which is available in the northern parts of the country. Thus, although technologies for continuous cropping of uplands have not yet been developed for Liberia, some information on the intensification of cropping exists that can be useful to farmers.

⁴⁷ Obtained by the West Africa Rice Development Association (WARDA) by crossing two strains, *Oryza sativa* of Asian origin and *Oryza glaberrima* of African origin, using embryo rescue techniques.

254. As indicated earlier, development of inland valley swamps for irrigated rice production, a technology in which Liberia has a comparative advantage for supplying its major domestic markets, has encountered many problems, including serious technical constraints, as in neighbouring countries. Lessons have been learned from such failures and Liberia should continue to promote the widespread adoption of the technology.

255. **Large-scale mechanization has failed in Liberia, as elsewhere, and is unlikely to be successful in the present context.** That said there is clearly a need for small-scale mechanization for particular activities. The government should provide clear guidelines for use of mechanical cultivation or processing in the agriculture sector. Such guidelines should include:

- Information on the priority and importance of mechanization for land preparation and processing for different value chains.
- Demarcation of areas and land in the country that are suitable for mechanical cultivation.
- Clear indication of the roles and responsibilities of the public and private sectors in providing mechanization services.
- Investment opportunities in the Investment Code of the country to encourage the emergence of a private leasing and rental market.
- Guidelines for participatory approaches in the planning and management of mechanization schemes.
- Information from research on the types of tractors and other equipment that are suitable for use in different areas and agro ecosystems in the country, the projected costs of using the equipment, and sources of supply of spare parts. Emphasis at this stage should be on small-scale land preparation equipment such as power tillers, in view of the emphasis on and priority of swamp cultivation for rice and other short-cycle crops;
- Mechanisms for strengthening the production and distribution of small farm tools and equipment that would enhance value addition, given the restricted capital base of smallholders.

256. MoA would benefit from a small Mechanization Unit staffed by at least two qualified agricultural engineers and agronomists to advise the government and stakeholders on appropriate actions, including sensitization of stakeholders to appropriate mechanization approaches, co-ordination of activities in the sub-sector, and monitoring of the performance and impact of mechanization schemes.

257. **A variety of different safety net programmes (e.g. food for work) have been used during the recovery process in Liberia to tackle specific needs; these need to be transformed to reflect the transition from relief to development.** These programmes will undoubtedly evolve as assistance and resettlement of returnees to communities winds down. Developing future programmes will hinge on the existence of a regular source of detailed information on vulnerable groups that may need some type of social protection. Critical issues in the future will be the mechanism by which safety net programmes will combine with the aforementioned pro-poor strategy, and what constitutes a vulnerable group in need of a safety net rather than access to opportunities and support for developing their livelihood.

258. For example, the CFSNS has indicated that elderly people with minimal access to traditional support systems, which had broken down during the conflict period, represent a vulnerable group that may require regular assistance. Young mothers and victims of sexual-based violence are also highly vulnerable. It remains unclear at present whether unskilled labourers in the plantation sector represent a vulnerable group whose livelihood limits their opportunities for improving their welfare. While some type of safety net could potentially respond to some of their needs, it may also be useful to consider how they could benefit from new opportunities presented by a future pro-poor growth strategy.

259. **Tackling vulnerability will require a combination of traditional safety nets and investments to develop a smallholder sector.** For example, many rural households will probably need financial help to increase food crop production, as well as to invest in tree crops as part of a smallholder development programme. This type of investment support programme could be complemented by more short-term centred investment programmes to restore livestock populations to households and communities and to expand artisanal fisheries.

260. **In the medium term, malnutrition is likely to remain endemic in Liberia – indeed, rates were as high in the 1970s and this is not just a conflict-related problem – and calls for a specific nutrition strategy.** Immediate efforts must centre on monitoring and responding to the problem of acute malnutrition, particularly in central and south-eastern countries, where the prevalence of wasting exceeds 10%. Liberia needs a special nutrition strategy and plan of action to complement its pro-poor, food security approach. The risk of the malnutrition problem slipping through the cracks is too great. Ongoing efforts to develop a multi-sectoral nutrition programme that will direct nutrition-focused interventions are a positive development. However, improved nutrition also depends on a number of additional interventions, for which the context is well known. Liberia has already begun to lay the foundation for dealing with nutrition in the iPRS, such as investment in health centres, bore wells and income growth, especially for the primary caregiver. More systematic efforts emanating from the national nutrition action plan will need to address the underlying factors that affect health status and dietary intake through interventions at multiple levels (national, county, community).

DD. Maximizing the Contributions of Tree Crops to Economic Development

261. It is generally accepted that the development of the tree crop sector (rubber, oil palm, cocoa and coffee) will be critical for the overall economic development of Liberia in the medium to long term. It already makes a very important contribution, but the modalities of its expansion have not yet been charted. It is important that the ownership pattern of plantations is inclusive, with significant smallholder participation in production and marketing, and adequate attention must be given to environmental issues.

262. The longer-term price outlook for Liberian tree crop exports is not very encouraging, with the possible exception of oil palm. The country will continue to be a price-taker and will need to improve on its ability to meet the quality standards required for international trade. In order to achieve this, the country will need to secure foreign investment, as the Liberian private sector is currently limited and under-resourced. It must also seek access to export markets, as the growth in demand in domestic markets for agricultural commodities will be insufficient to sustain the high growth rates needed to reduce poverty.

263. The policy objectives for the sub-sector should be to raise rural incomes and employment, and increase export earnings and public revenues through the promotion of production and marketing. The strategy should aim to strengthen policies, institutions and practices that increase pro-poor private sector development, including the strengthening of farmers' organizations and agricultural competitiveness in both traditional and new tree crop markets.

264. For the existing tree crop (rubber and oil palm) plantation estates the first step will be to review all concession agreements and audit all parastatal holdings and estates in order to establish a roadmap for the renegotiation of concessions as necessary, and for the competitive tendering of concessions and other plantation estates. The objectives should be to bring existing and new agreements into line with accepted international practice, and to ensure that the procedure used in awarding any new concessions follows the recommendations of the Contracts and Monopolies Commission (CMC) and the Public Procurement Law (2006).

265. The above process should lead to the formulation of a 'model contract', which would provide a level playing field with respect to: (a) labour, social and environmental, and wider community obligations; (b) fiscal policy (the definition of taxable income – including non-resident dividend income and the removal of individual plantation blanket duty exemptions); (c) a formula and mechanism for negotiating and reviewing prices based on international prices and grades, both for those paid at the factory gate (whether a concession or an independent processor) to private, contract and out-grower farmers, and for purposes of payment of export taxes; (d) contracts for out-growers, including cultivation rights, inheritance rights and management standards, and a mechanism for third-party monitoring of compliance.

266. For smallholder and commercial tree crop farmers the challenge is to make output markets work, and to provide public goods and services to rehabilitate and promote sustainable production, and to improve household livelihoods. The immediate priorities should be to: (a) resolve the status of the LPMC (in terms of its role, debts and assets); (b) explore the institutional options for regulating the marketing of tree crops. International markets have changed, and to ensure that farmers receive a fair price requires a greater emphasis on regulators to work with the private sector to improve quality performance through the mandatory certification of instruments used for quality and quantity assessment in the field (scales, hygrometers, etc.). It is also necessary to ensure that all produce meets appropriate international/industry grading, sanitary and phytosanitary standards. There should also be provision of market information that is timely, objective and disseminated using technology that is appropriate for the rural areas in which tree crop farmers live and work. There must be agreement on a mechanism for the licensing and monitoring of buyers/exporters; (c) discuss funding options for the private provision of public services, including support of common initiative groups, such as farmer associations and marketing groups, and grant funding for the continuation and expansion of capacity building among farmers using such mechanisms as Farmer Field Schools.

267. Previously, commercial tree crop plantations in Liberia were characterized by poor pay and working conditions, which gave rural people no stake in the asset or its productivity. There is consensus that any expansion of the commercial tree crop plantation sector should be accompanied by more equitable access to income earning and asset development opportunities for small growers. It is unlikely that this can be achieved by smallholders alone in the absence of a dynamic commercial/estate sector that could provide the necessary

platform for establishing export markets in terms of market signals (access, delivery, quality and access to the necessary inputs, finance and technical advice).

268. Outgrower-company partnership schemes have been used extensively in agriculture and forestry resource production arrangements throughout Africa. They build significantly on the asset base (natural, social, human and physical) of rural livelihoods. Furthermore, they provide a bridge between large-scale estates with processing facilities and small- and medium-sized growers that is conducive to the vertical integration of the value chain. This not only provides access to complex processing facilities for small farmers but also a conduit for much-needed improved genetic material – both of which are challenges to the development of exporting industries.

269. However, outgrower schemes also suffer from a number of inherent defects. Companies tend to control the most profitable sector – the processing and marketing of the commodities – and outgrower farmers are rarely able to negotiate the terms of contract (loan sizes, produce prices) because they are seldom collectively organized. From a corporate viewpoint, outgrowers may renege on their contracts and ‘side-sell’, the risk of which mitigates against company investment.

270. Currently, there is momentum in Liberia towards the inclusion of significant elements of outgrower participation in the negotiation of leases for tree crop concessions, most obviously in oil palm and rubber. Besides the basic contract farmer model, enhancements have been tried and tested elsewhere, which partially overcomes some of the drawbacks of the basic model. It would be prudent for Liberia to consider some of these (Box 13).

271. The alternatives discussed above emphasize the need for public–private dialogue to chart the way forward for the tree crops sector. MoA should play a stewardship role in line with its focus on policy and regulatory functions. The dialogue should cover, for example, options for regulatory policies (pricing policy, improving marketing), legal reform (labour law, investment code), fiscal reform (concession policies, corporate and other taxes, investment incentives, funding for replanting) and research. Trade finance and micro-finance programmes should be facilitated by public entities and financed through private means or via public/private partnerships.

Box 13: Small Grower–Company Options

Contract Farmer Model: Growers are provided with inputs (physical inputs, loans and extension) for the establishment and maintenance of their crops. In return, outgrowers are obliged to sell their harvests to the company, from which any loan capital and interest is recoverable.

Growers' Cooperative Model: Growers sell through their cooperative, which negotiates favourably with processing plants, seeking the highest prices for its members. Growers receive preferential allocations and loyalty premiums, but are not locked in. They may also have representative rights at shareholder meetings and receive distributed profits.

Integrated Cooperative Model: Growers not only benefit through their growers' cooperative, but also enjoy membership of a Processing Cooperative. This arrangement enables growers to receive distributed profits from both growing and processing, and thus addresses the perception of unfairness in the value chain.

Equity Sharing: Rather than build their own productive asset base, local people and/or communities can be offered equity shares in companies.

272. Particular government focus will be required on how to maximize the impact of the tree crops sub-sector on rural poverty. It should actively encourage investors to create of rural jobs above the subsistence level if significant gains are to be made in alleviating poverty and driving regional growth. Moreover, these investments need to offer equity sharing for local people through smallholder and other grower schemes. Model concession contracts could be used as part of the regulatory framework to enshrine the mechanisms to be used in small grower–company partnerships in the tree crops sub-sector in Liberia.

EE. Increasing Fisheries Production and Revenues

273. **There has never been a Government fisheries policy, and it is now imperative that GoL should formulate a national fisheries and aquaculture policy and strategy and strengthen the country's maritime and fisheries laws and regulations.** The policy should address the development of the requisite infrastructures for industrial and artisanal fisheries and aquaculture, improvements in monitoring, control and surveillance, capacity building and labour development, including community capacity building and co-management, and the conduct of scientific research including relevant data collection and analyses. It should also promote sub-regional, regional and international cooperation in fisheries management.

274. GoL should offer incentives to local and foreign enterprises for investments in fisheries and aquaculture by reviewing the investment code and putting into place appropriate provisions. The Code of Conduct for Responsible Fisheries should guide the national policy, and relevant sections and provisions of the Code should be incorporated into new national fisheries legislation to replace the Natural Resources Law of 1956, including the strengthening of national capacity for monitoring, control and surveillance (MCS). Liberia should accede to all relevant international fisheries agreements, conventions and protocols as an essential foundation for partnership and sub-regional and regional cooperation in sustainable fisheries management.

275. **Illegal, unreported and unregulated (IUU) fishing in the country's Exclusive Economic Zone (EEZ) is a serious concern that the GoL cannot address at present.**

MRAG (2005) estimate that elimination of IUU would lead to about a 4–5% increase in Liberian GNP and allow a 4–6% increase in per capita fish consumption, resulting in increased food security and nutritional status. As a short-term measure GoL should request UNMIL once again to provide support to MCS activities. Although UNMIL's mandate is on territorial surveillance and security, UNMIL appears to be willing to lend support to fisheries surveillance activities by conducting aerial surveillance in support of maritime surveillance. As a longer-term and more permanent solution GoL should prepare and submit a funding request to friendly governments for the supply of patrol boats and other surveillance equipment. A sustainable solution should be developed that combines private sector as well as GoL interventions, as has been achieved in other African countries.

276. Maritime patrols should not exclusively target unlicensed (poaching) fishing vessels but should include regular boarding of licensed fishing vessels to inspect fishing gear and ensure that it conforms to specifications. In parallel GoL should liaise closely with importers of fishing gear to ensure that only fishing nets of approved mesh sizes are imported. Co-management between GoL and fishers would ensure that all restrictions are observed at the community level by artisanal fishers.

277. **Without the requisite manpower and resources, the Bureau of National Fisheries (BNF) will not be able to meet its mandate and, therefore, it needs to build its capacity.** Currently, human resources and enforcement capacity are almost non-existent. There is an acute shortage of trained personnel in key disciplines (biology, statistics, management, economics, fishing technology, aquaculture, extension, etc). The BNF has been ruined by war and is currently ill equipped and lacks the capacity to monitor the fisheries resources. It should be strengthened as a matter of priority, and a capacity building programme should be elaborated and implemented for staff of the BNF. Also, MoA should advocate the introduction of Fisheries Science into the curricula of the UoL and CU so that Liberians can study fisheries science and related disciplines in the country. This would reduce the cost of training personnel of the BNF in institutions outside Liberia. Capacity building programmes should also be implemented for private sector operators in industrial and artisanal fisheries and in aquaculture. Training programmes on improved fishing, fish handling and fish processing technologies, and modern aquaculture techniques, should be designed and implemented through the extension service.

278. **GoL should seek collaboration at sub-regional, regional and international levels for scientific research,** especially on the sustainable management of shared fisheries resources. This should be designed to provide useful data and information on fisheries, natural resources, environments and ecosystems in Liberia, as a country within the Guinean Current Large Marine Ecosystem (GCLME) region. The current cooperation with the Nansen Programme on acoustic surveys is very useful to the country as it provides accurate data and information on the status of pelagic fish resources on a regular (annual) basis. GoL should seek to expand its cooperation with the Nansen Programme to include periodic surveys of the demersal fisheries resource. In addition, GoL should seek collaboration and technical support from the IRD (Institute for Research and Development) of France, to allow the performance of studies on the fisheries resource of the river systems of Liberia. Similar to the Nansen Programme, the assistance requested from IRD should be on a continuous basis and should include capacity building and institutional strengthening. CARI needs to resume applied aquaculture research and the institution should be the main source of expertise and technical knowledge to assist GoL in the sustainable development of aquaculture. The production of

fingerlings and brood stocks to supply fish farms should also be an important activity of CARI.

279. The BNF should start compiling useful data on fisheries and aquaculture and establish a fisheries data bank. Baseline studies that should be undertaken include annual Frame Surveys on the artisanal fishery to determine the distribution of fishing effort and the structural aspects of the artisanal fishery, such as the total number of fishers and fisher assistants by nationality; the types and sizes of fishing canoes e.g. motorized/non-motorized; number of crew per canoe; fishing gear employed per canoe; fishing status of fishers: full-time/part-time, other occupation; fishing habits: migratory or sedentary; fish landing sites with development potential, etc. In collaboration with farmer cooperatives, and local and international NGOs, staff of the BNF should commence systematic collection of data on aquaculture production. Socio-economic studies of fishing communities (community/household profiles, poverty profiles, vulnerability assessments, etc.) should also be sponsored by BNF, possibly by outsourcing to private sector consulting firms and university research institutes. Such studies will be important inputs into the planning of fisheries development by BNF.

280. **A special programme is needed to realize the enormous potential of artisanal fishery to contribute to national socio-economic development** through employment generation and poverty alleviation, national food security and improved nutrition, and revenue and foreign exchange earnings for the country. Currently, the artisanal fisheries (marine and inland) generate employment for more than 33,000 people in the production, processing, distribution and marketing chains and account for more than 60% of total fish production, all of which is consumed locally. However, artisanal fishery is basically underdeveloped; production methods and systems are outdated and processing technology is still rudimentary and unhygienic; distribution and marketing systems are not well established, and post-harvest losses are very high. The widely dispersed nature of artisanal fish landing sites and the age-old tradition of fishers working in isolated family groupings make improvement of artisanal fishery management a very difficult undertaking.

281. **GoL should support the establishment of a number of Community Fisheries Centres (CFCs)** with the required infrastructure, including ice plants, chill and cold storage facilities, fish boxes, fish processing areas, storage facilities for processed products, workshops, boat building areas, individual lockers for safe keeping of fishing equipment, and insulated/refrigerated vehicles for fish distribution and marketing. The establishment of CFCs should be initiated along the coastal areas, targeting the bigger fish landing sites/communities, and gradually move to the major sites/communities in the inland areas. International donor assistance and support should be sought. CFCs should focus attention on building and strengthening the human resource capacities of the different fisheries economic operators (fishers, fish processors and fish dealers) through training on issues relating to fishing, fish hygiene, fish processing and quality control in the artisanal fisheries. This would have the objective of improving fishing methods and techniques, fish handling, processing and quality control standards and reducing post-harvest losses. An essential component of CFC activities should be the encouragement of private sector and other financial institutions to make investment credit available to artisanal fishers, particularly indigenous fishers, and especially women.

282. **GoL should take active steps to help fishers, fish handlers and processors in Liberia implement quality control (QC) programmes and good manufacturing practices**

to ensure the safety and quality of fish products that meet the international standards. Fish quality and safety should be addressed across the entire value chain. With support of development partners including INFOPECHE in Abidjan, Cote d'Ivoire, and the Common Fund for Commodities in Amsterdam, the Netherlands, GoL should implement capacity building programmes in industrial fisheries, and particularly in fish factories. GoL should fully support the proposal to build a Regional Training Centre for Fish Quality Assurance in Monrovia. The proposed Centre will be a component of the EU-funded Post Harvest Project on Strengthening Fishery Products Health Conditions in ACP/OCT countries. In the long term, GoL should introduce an eco-labelling scheme for fish and fishery products as an instrument for the integration of environmental requirements into the management of fisheries. Eco-labelling would be an economic incentive for the fisheries sub-sector to act in a more sustainable way, contribute to the sustainability of fisheries resources and provide for an adequate level of protection of the ecosystem.

FF. Increasing the Contribution of the Livestock Sector

283. The livestock sector is an area about which very little is known and the obstacles to development are not well understood. The tentative analysis presented earlier suggests that livestock constitute an important opportunity. However, because of the paucity of data on the sub-sector, it is essential to collect information and conduct some basic analyses before further action is taken. Specifically:

- Utilizing rapid appraisal in a sample of villages in the country, data should be collected relating to types of livestock producers, livestock population, animal production systems, major livestock constraints, assistance needs, cost and returns in livestock production, major value chains, prices of different livestock products, and the real needs of actors in the sector. Other useful information throughout the value chain should also be collected.
- The comparative advantage and potential environmental impact of livestock production systems (including the bushmeat system) should be assessed, given the forest ecosystem nature of the country, and the competition from imported livestock produce from neighbouring countries and the EU. The possibility of establishing a fund for livestock development in the country should also be assessed.
- Studies of the characteristics of the internal demand for animal products and their evolution in time and space (characterization of demand) should be conducted, and the mechanisms of improving distribution channels and support to consumer organizations established.

284. In the meantime, consideration should be given to strategic orientations and priority programmes based on the following five priority areas:

- Review the existing legislation pertaining to veterinary sanitary regulations, and propose revisions to bring them in line with modern standards.
- Expand the existing programme of NGOs and other stakeholders to re-stock the national herd with a focus on short-cycle ruminants.
- To make livestock a pillar in the fight against poverty, food insecurity and unemployment, initiate micro-projects to establish a number of pilot animal production centres in selected villages, which will train local entrepreneurs in modern livestock

production techniques and businesses (milk production, sheep and goat husbandry, poultry and pig raising, guinea fowl and grass cutter production, etc.).

- Within the context of the MoA's Change Management Programme, improve the institutional environment and infrastructure for livestock and strengthen livestock inspection to improve the health standards of livestock products, including strengthening veterinary services and support for research into livestock diseases.
- Preserve, improve and exploit the pastoral common property resources of the country through a programme of assistance for the rehabilitation of pastoral areas, prevention of the degradation of natural resources and the promotion of sound range management.

GG. Policy on Agricultural Imports and Exports

285. GoL should continue to maintain a liberal policy towards food imports and exports, with careful attention paid to the effects such a policy has on the incentive system for domestic food production. Liberian governments have consistently maintained a liberal policy towards food imports and exports and the situation remains the same. Late in 2006 there was concern that importers had been holding off on a large consignment of rice in order to speculate for higher prices. GoL intervened by charging the importer with 'economic piracy' and placing him under arrest. Although this charge was subsequently dropped it demonstrates the importance the current GoL places on rice as a staple food for consumers. It did not, however, lead to the introduction of any law or policy to protect the country from this happening again, but demonstrated the vulnerability of Liberia to forces of commercial interest and possible speculation. Engaging in dialogue with importers would be an important step in the right direction to develop an enabling environment and to improve productivity to allow greater access to food.

286. Whilst GoL remains concerned with the volume of rice imports and views the commodity strategically, it maintains a zero monetary and fiscal policy towards it. This policy encourages private sector participation in the industry and reduces the potential burden on the State Treasury. GoL should commission an independent assessment of its rice trade and price policy.

287. Moving towards ECOWAS Common Tariffs. Imports of machinery and other goods are subject to tariff duties, ranging between 2.5 and 25%, which constitute a major source of government revenue. Import duties are specific (based on weight, for example) for some commodities and *ad valorem* (based on cost, insurance, and freight value) for others, which may hinder the application of technology due to the high cost. Specific duties apply to foodstuffs (rice, though, is a special case and is exempt), beverages, petroleum products, and certain rubber and textile products. All exports and some imports require licences. Customs duties are 25% on luxury items such as alcoholic beverages, apparel, cosmetics, electronics and jewellery. It is possible that there might be a temporary decline in government revenues when ECOWAS common tariffs are adopted. However, as experience elsewhere has shown, the long-term benefits from the stimulation of inter-regional trade are likely to outweigh any short-term losses.

HH. Institutional Reforms

288. Democratization, decentralization and empowering of local authorities require two critical steps: (i) restructuring the state system to give the people greater authority to

manage their own affairs at the local level; (ii) making local authorities and other institutions of local self-governance more representative, participatory, accountable to the local population, and more autonomous from the central government. The Governance Reform Commission (GRC) has recommended a decentralization policy framework. It is proposed that “decentralization, in as far as it puts emphasis on community organization and participation at the lowest level, will provide the political and administrative framework and structures to meet the challenges of post-war reconstruction and development of the country [and will] provide the rural communities with the autonomy, flexibility and opportunity for popular participation in the process of planning and implementation of development programmes”. The proposed next steps are summarized in Box 14. Ongoing support for the GRC will help to establish an appropriate policy and legislative environment.

Box 14: Steps and Principles for Developing a Decentralization Policy Framework

The steps include:

- (1) Defining the forms of decentralization, basic principles, pillars, systems, institutional roles and responsibilities of actors;
- (2) Obtaining consensus and ownership of policy initiatives by stakeholders;
- (3) Formulating a GoL decentralization policy framework that is based on the principles of devolution, popular participation, partnership, non-subordination and subsidiarity.

Source: Wagaba Francis (2005).

289. County Support Teams (CSTs) have been established to ensure a coherent and consolidated approach among UN agencies (and across DPs and NGOs) to addressing county challenges, providing support to GoL through the County Superintendents, and building the capacity of local government institutions as they assume increased responsibility for security, reconstruction and development. Capacity development by CSTs is focused on enhancing the skills and performance of local government officials (Superintendents, Mayors, Development Superintendents, Project Planning Staff, County Officials, District Commissioners, Chiefs and Traditional Leaders) and providing training in support of the Millennium Development Goals (MDGs), notably in HIV/AIDS awareness raising and training. Currently the focus is on cluster approaches in areas such as human rights, food security, early recovery and the rule of law. The CSTs are seeking to facilitate transition from emergency conditions to recovery and more normative development processes, and as such are providing interim orientation in the transition towards the participatory planning and local level decision-making processes that would eventually characterize decentralization of line ministries and their local service provision functions to county levels.

290. The District Development Committee (DDC) approach (Box 15) was first launched in 2004 and re-launched in July 2005, and is now operational in most of the 73 districts. Although the approach is still at a fledgling stage, it has the potential to improve the involvement and engagement of local communities in local economic development and, in turn, in shaping their own development. Furthermore, it provides a link between local communities and various development agents that operate at the local, regional and national levels. DDCs are being supported⁴⁸ to encourage community participation in planning and

⁴⁸ Currently the UNDP Community Based Recovery Program (2004–2007) is providing support (US\$9 million). Chairpersons of DDCs are currently receiving basic orientation and training in participatory approaches to community level planning and development; the New African Research and Development Agency (NARDA), a local NGO, is providing this initial training for UNDP.

programme development of local rehabilitation projects in water and sanitation, education, and rural roads and bridges. Problem areas that need to be addressed as the decentralization processes continue include the lack of clarity on roles and responsibilities of key actors, such as County Superintendents and their Assistants, appointed by MIA, centralized budgeting and financial administration, and poor functional linkages between County Assistant Superintendents for Development on the one hand, and MoA and MoH county-level management and staff on the other, who still report centrally to their Head Offices in Monrovia.

Box 15: District Development Committees

A DDC is a fourteen-member elected institution composed of a District Commissioner/Superintendent (ex-officio), Chairperson, representatives of chiefs, representatives of all women's groups, representatives of youth groups (2 persons: 1 male, 1 female), representatives of elders (2 persons: 1 male, 1 female), representatives of CBOs (2 persons: 1 male, 1 female) and representatives of sectors, namely agriculture, education, health, water and sanitation (4 persons: minimum 2 females). The DDCs are local development and coordinating bodies in the districts. They provide an entry point to Local Economic Development (LED). Overall, the DDCs will take on planning, coordination and monitoring roles. Specifically, their Terms of Reference include sensitizing and mobilizing communities and using participatory approaches in designing projects, and evaluating and formulating development strategies in collaboration with NGOs and UN agencies.

291. **It is widely recognized that in rebuilding its capacity, MoA needs to be transformed and modernized relative to its pre-war role and function.** MoA aims to become an effective and efficient organization that focuses its energy on its most important or core function – to develop and maintain an enabling institutional framework that promotes economic development and civil society. Functions that contribute directly to this are core functions, whereas services that could be commercialized or privatized are non-core functions. It is recognized that core and non-core functions will change over time as the Liberian economy develops and, for instance, other service providers become established, allowing government to withdraw from direct service provision. It will be critical to avoid establishing rigid structures within MoA that impede its ability to evolve and to reallocate effort in response to changing contexts.

292. **MoA needs to embark on a ministry-wide change management programme (CMP).** Recent experience from other African countries (e.g. Ghana, Malawi, South Africa and Zambia) indicates that a comprehensive approach is required and this must be specifically designed for facilitation across all levels of staff in the Ministry. The programme would initially be of medium-term duration (2–3 years) with staff devoting approximately 20% of their time to its activities in the inception phase over the first 18 months. This would allow the programme to be implemented concurrently, and without disruption, with the ongoing work plans and commitments of management and staff. The programme should be based on the principles and practices of Organization Development to assure openness to new thinking, learning and self-development, individual and group accountability for performance, and institutional ownership in the process through which the department grows progressively into its new or revised functions and roles. The proposed focal areas for a CMP for MoA are outlined in Box 16.

Box 16: Proposed Focal Areas for a Change Management Programme

- Study/learning tours by MoA, farmers and non-state-actor partners to other African countries to gain knowledge and insights from experiences and case studies in the reform and renewal of extension systems.
- National multi-stakeholder workshop for initial orientation of key sector actors; formation and orientation of National Change Team and DECE-led Task/Change Teams to lead major thrusts and exercises outlined below.
- Service analysis exercise to assess relevance, quality, capabilities and costs of existing service provision to various smallholder farmer categories at county level.
- Core functional analysis (CFA) exercise followed by a national stakeholder workshop to agree core functions of MoA and its relationships with key partners.
- Visioning, planning and reorganization of MoA, including organizational structure, guidelines for multi-annual and decentralized budgetary allocations, disciplinary specializations, and staffing from HQ to county/clan levels.
- A skills audit followed by revision of departmental job descriptions at divisional, specialist and county levels; subsequent review and adoption by MoA, and staffing reduction/recruitment under a competitive remuneration system.
- Training needs assessments followed by management training and mentoring programmes in agri-services planning and coordination for divisional managers, technical staff and county coordinators.
- Preparation and implementation of new training programmes for county trainers/staff in participatory extension approaches, agribusiness/farm enterprise management, farmer group and organizational development, etc.
- Design and facilitation of pilot programmes at county level involving new approaches to local services coordination and delivery under pluralistic and decentralized arrangements with robust stakeholder involvement processes.
- Continual evaluation of learning and progress in accomplishing expected outputs by change teams with the support of external facilitation/expertise as required.

293. **The central focus for renewal of the extension system should be on building a pluralistic and participatory agricultural advisory and extension service.** This will require the facilitation of processes that will elaborate a vision, strategy and know-how to give practical effect to the desired ends of national policy intent for the provision of agricultural extension services to farmers. It will involve a flexible and iterative ‘learning by doing approach’ to ensure that change management in rural institutions and in approaches to local development is grounded in the specific contexts and needs of Liberian communities. The guiding value is ‘learning and growth in collective and participatory local ownership’ by Liberian actors across the agri-service system, with farmers, their organized groups and allied stakeholders at the centre of demand-led agendas for responsive service provision and continuing capacity development at central and local levels.

294. **The extension system needs to transform from the current transfer of technology model to a pluralistic extension system involving participatory extension approaches (PEA)** that aim to develop demand-driven services by engaging in a paradigm that involves listening to farmers and other stakeholders through interactive dialogue with farm families and their communities. In this system the members of the community define their problems, needs and priorities and participate fully in the search for solutions. This will result in a true sense of community and individual ‘ownership’ of development initiatives and thereby greater commitment and interest by participating beneficiaries. Past experience clearly shows that importing standardized models of extension to a new context is not a promising strategy, even when the imported models are viewed as ‘best practice’. What is important is to build capacity among policy planners and extension managers to identify modes of providing and

financing extension that best fit the specific conditions and development priorities of their country (IFPRI 2006). The involvement of non-public as well as public actors is central to the success of pluralistic, participatory systems.

295. As part of the CMP, the development of policy and guiding principles of a pluralistic extension service should commence with acceptance and engagement with the Neuchatel Principles (Box 17) and be further developed and gradually adapted and refined based on experiential learning in MoA and at local service development and delivery levels. With the focus on the county level, there will be a need to put in place processes that will assure robust local stakeholder involvement and well-planned and coordinated provision of advisory and training services to farmers. Services need to respond to local conditions (agro-climatic and other). Based on experiences in other countries, local agri-services planning can be improved through: (1) facilitating multi-stakeholder forums with specific inclusion of marginalized and vulnerable farming groups, and (2) leading substantive county coordination teams/units for services development, planning and coordination. To be effective, such units will need to conduct analysis of services and to develop capability profiles for all major service providers in each county to inform and facilitate appropriate and optimal deployment of actors and to assure quality of delivery in county extension plans and strategies. In designing new programmes for service provision, MoA has to ensure that issues of gender equity and equality, and HIV/AIDS are analysed and incorporated in the design of extension service programmes.

Box 17: The Neuchatel Initiative for Agricultural Service Systems

The commitment to change and renewal in agricultural services provision in Africa occurs in a context where international donors and development agencies have come together under the Neuchatel Initiative (NI) to engage in clearer and more strategic dialogue with national partners to develop a common and shared vision for the future role, delivery arrangements and funding of extension services in rural development. The NI Common Framework for Extension (1999) advanced some key principles to guide and inform transformation processes. Those principles include:

- The importance of *sound agricultural policy* to provide a conducive and enabling environment for rural sector development;
- *Pluralism* i.e. various state and non-state actors providing a diverse range of services under coordinated arrangements;
- The importance of the *market* and *demand-led impetus* in the supply of goods and services;
- *Facilitation and problem-solving approaches* for more heterogeneous and resource-poor communities;
- *Decentralized provision of services* in processes of continuous dialogue with local stakeholders.

Extension service providers are, therefore, increasingly challenged to open up to new demands in more businesslike ways and, through broadening their horizons and approaches, to renew their roles as more active and effective players in assuring food security, improving rural livelihoods and supporting smallholder farmers and organizations with potentials for commercialization.

296. The old-style research–extension linkages have not worked very well over the past 20 years in most African countries. In the emerging paradigm, both research and extension programmes need to demonstrate more relevance to the demands of farmers. Farmer-centred collaboration, which involves both research and extension services working closely with farmers, is emerging as the most appropriate way of assuring improved relevance and accountability in their combined efforts to ensure viable food production and nutrition

programmes for poor households. The link to knowledge management rests in the quality of learning during such processes and the sharing and documentation of specific experiences with colleagues. Institutional memory, in the form of case studies and lessons, must be used to guide ongoing programme and project design and planning. Some reasons why pilot learning and innovation are necessary in the transformation of an extension system are given in Box 18.

Box 18: The Importance of Pilot Learning and Innovation in Transforming an Agricultural Extension Service System

- Changes to county systems of extension service provision on the scale and depth proposed under decentralized arrangements have not been introduced before in Liberia.
- The agendas for change are complex and cut across many aspects of existing institutional mandates, functions and service responsibilities. County personnel will have to ‘grow into’ their emerging roles and engage actively with the challenges.
- As no comprehensive cases studies of good or best practice yet exist for such a system in Liberia, there is a need to explore and test a range of concepts and strategies at local levels (*in situ*) initially in a ‘learning by doing together’ approach.
- There is a need to build the competencies of individuals and capabilities of teams, organizations and institutions gradually across the system in order to learn and gain the confidence needed to bring the change agendas into effect.
- There is a need to foster high-quality learning from experiential practice strategies or practices nationally in a discrete number of districts initially, before seeking to out-scale or mainstream.
- To seek to introduce such a new system without pilot learning would risk disruption to the entire existing system of service delivery, without the crucial lessons and insights to implement the alternative arrangements with the competencies and demonstrated ‘know-how’ necessary to succeed.

297. For testing and local adaptation of new approaches to extensions such as PEA (e.g. Farmer Field Schools), MoA and partners should conduct initial pilot learning exercises in about three counties, with comprehensive documentation of programmes, and local stakeholder evaluation of impacts, training costs and viability before out-scaling to further counties or national level. In the context of decentralized extension systems that involve increased commitment to group development and farmer-to-farmer knowledge exchange, it is vital to ensure that new approaches are demonstrably relevant, that trainer capabilities are proven, and that outcomes are viable and enduring for smallholder farmers under their particular local circumstances. In this respect, farmers have to be increasingly involved, initially through robust participation in local stakeholder forums, in assessing the effectiveness and impact of extension services and field personnel.

298. **Rebuilding Liberia’s agricultural research and development (R&D) programme presents an opportunity to adapt to the major paradigm shifts seen in developing countries in recent decades.** Increasingly, agricultural R&D in many developing countries is guided by one or more of the following perspectives: innovation systems, value chains, research for development, and impact orientation. The national agricultural research system must explicitly consider these perspectives in designing its R&D strategies. Subsequently, the proposed strategies should inform the organizational structures, management models and

resource endowment (human, financial and infrastructure) needed to achieve the strategic objectives of the research system. Given the magnitude of the crisis facing the system, a two-stage plan of action for revitalizing the R&D system is proposed – a short-term programme and a medium- to long-term programme.

299. Short-term priorities should concentrate on ‘quick win’ measures that need to be undertaken immediately in order to re-launch and rationalize the national research system. The focus should be on re-initiating adaptive and applied research; capacity building activities (human and physical); formation of strategic alliances and partnerships with key stakeholders; resource mobilization and the development of a long-term strategy for the development of national agricultural research. Given its limited financial and human resources, CARI should rationalize its current activities. Some of the activities related to export crops could be transferred to the other relevant stakeholders. For example, the research capacity of the Forest Development Authority (FDA) could be strengthened and the mandate and responsibility for forestry research transferred to it. In such a case the Director General of CARI should be a member of the board of FDA and a technical advisory committee should be created to guide research in FDA. Similar arrangements could be considered for rubber (with Firestone). In the case of cocoa and coffee, substantial research has been conducted in Ghana and Nigeria (cocoa) and Cote d’Ivoire (coffee). Liberia could benefit from the progress already made by these countries through innovative cooperative or collaborative research agreements or partnerships. CORAF could play a role in designing mechanisms and incentives for facilitating such arrangements. This would free up resources for CARI to focus on food crops, other cash crops, and livestock and aquaculture.

300. Medium- and long-term priorities should be guided by experience of the short-term action plan. The priority activities could include:

- Development and implementation of an appropriate research strategy for the short and medium term based on the priorities identified and a rationalized mandate for CARI, including both strategic and applied research.
- Development of sub-stations to enable decentralization of activities to appropriate agro-ecological locations.
- Launching of an aggressive recruitment and long-term training programme (MS and PhD) for CARI and other public sector agencies.
- Sustainable enhancement of human resources through in-service group training on key topics, e.g. research project planning, management and monitoring; impact assessment; scientific writing; data collection/management and analysis.
- Rehabilitation and construction of facilities for germplasm conservation.
- Development of diversified and sustainable funding mechanisms.
- Enhancement of public–private–civil society partnerships, including collaboration with farmer organizations.
- Development of policy and socio-economic research capacity within CARI.
- Improvement of mechanisms for documenting and disseminating research results and impacts of research.

- Implementation of measures for institutionalization of systems thinking, innovation system perspectives, and agricultural value chain approaches, etc.

301. **The uptake of research output and the relevance of that output depend on well functioning extension (and farmer learning) systems and relevant, high quality agricultural education programmes.** There is therefore a strong need for a fully integrated agricultural research, extension and education system in Liberia. The major institutions responsible for development and delivery of agricultural education programmes in Liberia – MoE, CAF, CARS and BWI – are planning and in some cases already undertaking a number of interventions aimed at enhancing agricultural education and training.

302. Further actions to enhance the agricultural education system over the medium to long term include the following:

- Efforts should be made seek assistance through the World Bank’s ‘Africa Agriculture Education Training (AET) plan’, which has been proposed in order to strengthen AET programmes in Africa over a 30-year timeframe.
- Clear political commitment is needed at the highest level to strengthen AET, particularly at the college level, which translates into increased state financial support for AET.
- Efforts should be made to develop strong curricula for both secondary and college agricultural training programmes, with flexibility for location factors and industry/employee demands.
- Training of agricultural education instructors at all levels should be given the highest priority. Curricula for these programmes should be upgraded and standardized.
- Partnership should be developed between CAF and CARS, which will allow students from both programmes to take courses at each other’s campuses within the context of their overall graduation requirements. This will expand the total number of available areas of specialization.
- Training and accelerated internship programmes should be developed to provide training in special areas of need and in the use of equipment and technology that has been provided by NGOs to rural communities that remains either unused, due to lack of trained personnel, or under-utilized, due to inadequate training.
- A full assessment should be made of the infrastructure requirements and other material needs at CAF in light of the existing pressing needs and to allow for future expansion.

II. Making Markets Work

Improving the functioning of agricultural markets for both inputs and outputs is a critical aspect of developing the agricultural economy, driving growth and reducing poverty. As indicated earlier, getting markets to work effectively is often the most important challenge for countries like Liberia as they attempt to develop their agricultural sectors. Improved productivity can be sustained only if both input and output marketing function well. Markets in Liberia are sparse, and exhibit significant inefficiencies as well as market failures in important aspects. To improve the marketing system in Liberia requires collaboration between the public and private sectors, including farmers’ organizations, to take direct actions such as: (a) improving access for distribution through improved transport,

especially road and rail networks, (b) improving the market institutions, (c) improving the physical infrastructure of marketplaces, and (d) putting in place appropriate market information services, as well as more indirect actions such as increasing the supply of produce through increased agricultural production and improving access to credit, and (e) implementing risk mitigation measures derived from detailed study of past experiences and lessons learned.

303. Improving physical access to markets requires major rehabilitation and expansion of the road network, including farm to market roads as well as the rehabilitation of the Yekepa–Buchanan railroad for commercial purposes. Major efforts towards the former are ongoing and will need to be continued and scaled up in the future. Priority rural roads should be selected on the grounds of their likely economic impact and the location of markets to maximize the economic impact of improved connectivity. Furthermore, the infrastructure development programme in Liberia needs to ensure the linkage of the key production centres, to facilitate movement of agricultural produce from areas of surplus to the rapidly growing urban areas and the rest of the country.

304. Improving the functioning of physical markets requires improved management of those markets. Experience suggests that management of markets is best left to the traders themselves through associations, rather than an outside body. In this regard LMA could provide critical services to marketers if properly organized and managed. The leadership of LMA, at both the national and local level, should be democratically elected by the marketers, and the operations and functions should be decentralized to empower the local membership and leadership to make decisions regarding management and development initiatives at the county/district level. The collection and use of market fees should be made transparent to all, and external support should be provided to LMA to train and build management capacity and skills at both the national and local levels.

305. In addition, market hall construction should focus on accommodating marketers during the rainy season and providing shelter from the sun. Market halls should have zinc roofs and concrete floors, but will not normally require walls. Concrete tables, with water supply, should be provided for fresh meat and fish traders. Movable tables can be provided for other sellers. Potable water and toilet facilities should be available in all markets, as well as suitable storage facilities. Experience with the Liberia Agency for Community Development (LACE) shows that such structures can be constructed under community management for relatively minimal investments (around US\$50,000) thereby maximizing the likelihood of their upkeep.

306. Ease of access and good facilities only benefit farmers if they are able to make informed choices about where and when to sell their produce. Some countries have experimented with establishing a Market Information System (MIS) using appropriate electronic information technology. These services collect and disseminate key indicators on a regular basis (monthly, weekly, etc.), including the availability of staple food commodities, availability of seeds (particularly rice) and tools, commodities traded across borders, wholesale and retail prices of key food commodities, and availability and cost of transportation. However, it should be noted that many African countries have experienced significant difficulties in sustaining such services: they can be costly and require sustained quality input data. Innovative methods facilitated by modern communication powered by information technology (IT) can be used. A proposed Liberian MIS should therefore start on a small scale, perhaps collecting price information from one or two markets in Monrovia on a

weekly basis. If successful, it could be integrated eventually into a region-wide arrangement.⁴⁹

307. **Risk is a major problem** – many agents perceive risks to be so high and the rewards so low that expected profits from market-based activity are insufficient (in comparison with inputs) to encourage their participation. Possible measures to alleviate this problem include the provision of guarantees or subsidies by the state to traders and suppliers that are aimed at overcoming perceptions of risk or the high costs of working in small and weakly developed markets. Also, given the volatility of commodity markets for food and cash crops, incentives for productivity improvement and risk taking by small and medium holders will depend on some degree of price stability and facilities for storage and processing facilities. Price volatility impedes planting decisions, the ability to purchase inputs and the ability to obtain credit. For countries like Liberia the critical importance of overcoming market failure provides some justification for the state to play a more direct role in building and creating markets. State interventions can be introduced in relatively market-friendly ways, for instance through vouchers for subsidies or partial guarantees to encourage banks to take risks. However, these must be seen as temporary measures focused on removing the barriers to the participation of the private sector in markets. The indiscriminate or prolonged use of subsidies may add to rather than reduce the underlying problem.

308. **Finance remains a real obstacle for many poor farmers.** Their income comes only after harvest, and many do not have sufficient access to credit, savings or remittances to finance the costs of inputs such as seed and fertilizer. The previous generation of state-operated activities, such as targeted agricultural finance schemes and input schemes operated by parastatal marketing organizations, has not worked effectively. Much has been learned about effective micro-finance and promising models for improving the access of poor people to financial services are beginning to emerge (DFID, 2005).

309. To address the constraints identified in the rural finance sector, DPs should assist MFIs and commercial banks to expand into rural areas as fast as possible. This could include access to a guarantee fund, but it must be recognized that attaining significant outreach in rural areas will take many years. Efforts should also be directed towards setting up a network of Rural and Community Banks in the country. On the demand side, development agencies need to assist the banks and MFIs to accurately identify and groom creditworthy clients. The focus should be on working with the more cohesive and successful farmer groups, cooperatives and associations. Development of cooperative and association business plans to assist in acquiring bank financing would be a priority. Such a project would also require substantial short- and long-term technical assistance.

310. **An effectively functioning land market adapted to the conditions in Liberia is essential for agricultural development.** The existence of both statutory and customary land tenure systems in Liberia can be seen in a number of ways, including in the context of leading to problems. However, most countries in Africa have this duality, as do a number of developed countries. Such duality *per se* is not problematic, but the way it is handled may be. In Liberia there needs to be increased mutual recognition and connection between the two systems. The purposeful separation of the two systems historically has led to their

⁴⁹ If successfully developed, an MIS in Liberia could be integrated into the IFDC-managed and Internet-based MISTOWA sub-regional market information system, which aims to provide information primarily to facilitate cross-border trade, as well as into the ECOWAS SIGOA-TOPS system, so that Liberian producers and their organizations can be better integrated into the sub-regional economy.

non-integration, to discrimination when they do come into contact, and has prevented the evolution of positive and mutually beneficial ways of interacting.

311. To overcome the backlog of land-related cases clogging up the courts, GoL needs to consider adopting something akin to a ‘components approach’. Such an approach would entail outlining the suite of relevant components in existence (and needed) for the broad complement of services, policies, and laws regarding land tenure, and then working with the GRC to coordinate these and assist in funding and building capacity with the ‘weak links’. Capacity is extremely low within the different institutions that will need to play various roles and functions within the land and property domain. Capacity building and retention in this regard is greatly needed.

312. There are longstanding concerns over the existing approach to concessions, and a review of existing concession agreements as well as the legislative foundations for the issuing of concessions is an urgent priority. The continued claim of very large areas under rubber concessions, while only a small fraction of the total area has ever been developed, presents significant problems for local communities, food security and, potentially, stability. The precedent set by the FDA in reviewing all forestry concessions sets an important example for the same in all other sectors. Such a review might hold as a priority the reduction in size of the area claimed to more appropriately reflect actual or potentially realistic development. Second, the legal construct of ‘concession’ in Liberia needs thoughtful review. A common use of concessions is for a specific right of use for a specific business proposition. Such an issuance comes with penalties, including forfeiture of the concession if the business plan is not realized in due course, or if violations in use occur. Concessions have historically been issued for certain purposes – rubber, timber, mineral, etc. – but in reality the concession holder can exploit the concession area for virtually any use, with no effective review of the proposed business plan nor consequences for non-compliance with the plan. In addition, there appears to be (at least in practice) the notion that concessions include the right to exclude others, and this has caused considerable animosity among local communities that are then either evicted or subjected to conditions in order to remain. As it stands, many concessions operate as a form of private property.

313. In addition, the options of leasing, licensing and other forms of conveyance should be explored, to allow the pursuit of commercial exploitation of land resources while not relieving local communities of their lands, use rights, and livelihood. Forms of leasing and license are much easier to provide to foreign and other investors in a secure way than is private property, which for rural areas includes the right to exclude other from large acreages. The non-cooperation that the latter would provoke tends to affect the security of the holding for the investor. The land and property sector is in need of a comprehensive document retrieval effort, in order to copy and archive the laws, deeds, titles, registries and other forms of land and property related documents that exist.

314. The ambiguity issue leads to significant problems, delays and, most importantly, tenure insecurity. Research would show the degree to which such ambiguity is a reality in the rural tenure sector, and whether local leadership and the reworked social relations with regard to land have resolved many of the ‘who owns what land’ issues. In other words, is the rural tenure situation primarily ambiguous from the perspective of Monrovia, while from a more local perspective claims, disputes, norms and institutions are becoming resolved, or is there real ambiguity and confusion that is ‘stuck’ in its present state, with local actors unable to

move forward on resolving local land tenure issues? There is some evidence that the former is the case.

315. **Mainstreaming gender:** Despite advances on the legislative and public policy front regarding women's rights at the national level, complex community arrangements and longstanding traditions continue to restrict women's development opportunities at the local level in rural areas. Social customs limit women's mobility, constrain their participation in decision making and determine their involvement in productive activities. Liberia is in the process of rebuilding its social fabric following the war through the creation of new institutions and the recreation of old ones. During this process of reworking norms and rules that govern community life, it will be crucial to avoid pre-existing arrangements that discriminated against women and young males in rural society in many aspects of life, including their access to assets, labour – including their own – and decision making.

316. Improving women's access to land, credit, inputs and extension services in Liberia will contribute to rural growth. Similarly, addressing social and cultural biases that confine women to narrowly defined social and economic roles will help women to participate in profitable activities such as cash crop production or forestry, and will improve rural livelihoods. Improved participation in decision making will contribute to more effective and efficient programmes and policies, by allowing them to be adjusted to the often overseen needs of female farmers, which will in turn contribute to improving women's productivity. Studies in Burkina Faso, Cameroon and Kenya show that more equal control of inputs and farm income by women and men can raise farm yields by as much as a fifth of current output (World Bank, 2001).

317. GoL should ensure that any agricultural strategy includes women at the centre, and should empower women and create an enabling environment so that women can fully contribute to and benefit from rural growth and poverty reduction. The strategy should focus on five areas:

- *Supporting women's role as agricultural producers:* Land reform deserves special attention as, despite the achievements of the new inheritance law, there are still gender issues to be addressed to ensure equal access to land by men and women. Also, a well functioning extension service is an important component of the reform of the agriculture sector in Liberia, and a crucial aspect of the strategy to support and expand women's role in agriculture.
- *Improving women's participation in the creation of rural value chains:* The GoL needs to support women in their role as processors of food, rural entrepreneurs and marketers of agriculture produce. First, the government should facilitate women's access to processing technologies for agribusiness. Second, access to markets, business support, marketing training, market information and other key services needed to start and run a business in rural areas should be provided. Ensuring women's effective participation in Farmers' Field Schools (FFS), and guaranteeing their access to these and other services should be a priority. Third, the government should ensure that women can access credit under any new systems. Fourth, in addition to women's participation in FFS, the government needs to promote the establishment of associations of rural women. The move from isolated small-scale production to integrated market production will be enhanced by the creation of networks of women's groups. Fifth, integrated packages for rural women, e.g. Ethiopia's Women's Empowerment Initiative, should be studied and piloted in Liberia.

Sixth, agribusiness interventions that organize and target female farmers, with high potential to offer rapid results and lessons (Results Based Initiatives), like the one currently under design by the MoA and the Ministry of Gender and Development with the support of the World Bank and UNIFEM, could be used to inform the ongoing design and redesign of sector strategies to support female farmers in agribusiness.

- *Promoting women's participation in new economic areas:* Women should be encouraged to enter economic areas where they are not yet present, and for which growth prospects are high. The recommendation of the Liberia Gender Needs Assessment that there should be a greater involvement of women in the natural resource sector is endorsed. Cash crop production and processing, including rubber tapping, coffee, cocoa and palm oil production, are natural candidates, as women already play an 'invisible' role in them and have the necessary skills to participate in the sector. The reform of the plantation sector and the rehabilitation of tree crops are opportunities for increased female employment that should not be missed. In addition, according to MoA, great potential also exists for the development of other crops for export, such as sunflower, sesame and other vegetables, oil seeds, maize, commercial quantities of coconuts, bananas, pineapples, cashew nuts, cola nuts, avocados, spices, and fruit. However, the strategy should go further, opening the doors of male-dominated sectors such as fisheries and aquaculture and the logging industry to women, including furniture making. To achieve this goal training programmes for women, including apprenticeships and vocational training, should be put in place to provide women with skills that allow them to enter these new activities.
- *Strengthening the institutional framework to address gender issues in rural policies and programmes:* Policy dialogue on gender and agriculture should be conducted at the highest possible level, and the capacity of MoA for strategic planning and implementation in the area of gender should be increased.
- *Addressing social barriers that limit the contribution and participation of men and women in social and economic life in rural areas:* Farmers Field Schools could be a vehicle to address social and cultural gender discriminating practices of the past and could become the cornerstone of a new rural social contract based on the values of participation, ownership, inclusion and non-discrimination.

318. **Promoting Youth Employment.** It is estimated that about 80% of the young people in Liberia are not gainfully employed. Unemployed young people who could be the target of youth employment programmes include those that did not leave their rural communities during the civil conflict but were seriously affected by the war, returnees to their rural communities, refugees and internally displaced persons, and ex-combatants located in rural as well as urban areas, particularly Monrovia.

319. A recent report (FAO/ILO/MOA, 2007) shows that rice production (both swamp and upland) would generate the greatest employment (2.6 and 1.8 persons per ha per year), followed by the raising of tree crop seedlings, vegetables and some livestock enterprises (poultry), with the vegetable and livestock enterprises showing higher economic efficiency (returns per day of labour invested).

320. It is recommended that youth employment activities in agriculture should focus on peri-urban agriculture (vegetable and livestock), vegetable production in other areas, particularly for

export markets, production of seedlings for the rehabilitation of crops, such as those in Nimba and Bong, and swamp rice production using improved practices.

321. Any youth employment programme would need to address issues of:

- Land acquisition.
- Registration of young people based on their community/county of origin.
- Organization of consultative/sensitisation workshops and assessment of the training needs of young people.
- Provision of infrastructure facilities and other incentives.
- Provision of agricultural extension support and veterinary services in target communities.
- Training to update knowledge and skills in agriculture.

322. **Information and analysis for improved decision making:** Evidence-based policy' is the new mantra, reflecting the fact that the effectiveness of policy and programme decision making is usually no better than the quality of data and the empirical analysis used in the decision-making process. This report highlights: (i) the paucity of data for analysis and planning, and (ii) the importance of developing the capability of the GoL, in partnership with others, to analyse, monitor and modify the complex and dynamic interactions between policies and institutional reform, technological change and human capital development. As experiences in other countries have shown, transforming the agricultural sector and re-establishing commodity value chains is a dynamic, iterative process (rather than a one-time event) that often proceeds by trial and error and requires continuous monitoring and revision.

323. The iPRS highlights the creation of a socio-economic and demographic database as a national priority, while recognizing that this is not just an issue of improving statistical systems but also involves the ability to analyse and establish the empirical underpinnings of policies and programmes. National and decentralized needs are extensive. The iPRS calls for robust monitoring and evaluation; analytical inputs are required for evidence-based decision making that is related to the design, targeting and monitoring and evaluation of policies and programmes.

324. A pro-poor development approach will require that Liberia creates a decentralized system to collect and analyse information that feeds into targeting and programming. Decentralized systems need to be driven by the local context, specificities and priorities in order to replace assumptions and generalities with empirically derived facts. Development of local capacity also increases the likelihood of obtaining information about dynamic situations. Finally, it will maintain a focus on understanding the details of what works and what doesn't work and on identifying the criteria for success. The development of proxy indicators related to income, consumption and nutrition could be useful for local teams involved in monitoring the National Programme for Food Security. Given the complex socio-political, cultural, economic, technical and institutional issues at play during this transition process, it is important that systems are nimble and flexible and can evolve and adapt to the current situation and needs.

325. The MoA is already committed to strengthening its policy development and monitoring and evaluation capacities with the support of a number of DPs. MoA staff within the Planning Department need to deepen their links with academia and think-tanks (insofar as they exist) as well as with other actors to obtain qualitative and quantitative information. Of

particular importance is the collection of evidence on the performance of projects and programmes, including the need to link together monitoring indicators to serve as progress indicators within the context of monitoring systems.

JJ. Opportunities and Guidelines for Investment

326. **Fostering sustainable growth in agricultural commodity value chains will require substantial public and private investment** in order to improve their productivity and competitiveness in national, regional and international markets. Investment could conceivably come from a combination of domestic savings and external resource inflows. Domestic savings can be generated both in the public sector, through lower consumption and fiscal discipline, and from private individuals and organizations, through higher incomes and increased savings. External investment can come from foreign direct investment, return of capital flight and foreign aid. While numerous factors have been identified as important determinants of national and foreign investment, private investors' perception of risk and the ability to earn and keep their returns in a given country or zone appear prominently at the top of every list.

327. The outcome of value chain stakeholder meetings should be detailed guidance for investment in the value chain. Determining and implementing a value chain investment plan is a major challenge. The manner in which the government and stakeholders address the problem of risk will go a long way towards determining the level of investment in the value chain. Financial risk reduction mechanisms will need to be considered throughout the value chain, including the production level, as well within the financial sector. Future studies may need to consider the relevance and feasibility of options such as cost or equity sharing, the use of leasing companies to reduce the cost of capital, training programmes and portfolio management, better business and financial plans to account for risk and risk sharing, and venture capital funds.

328. At the farm level, a major question relates to the influence of land tenure on investment in and adoption of new technologies, as well as intensification of production practices for tree crops. The government will need to consider how the value chain will deal with investments required by smallholders, given that many have few assets or experience. In the present situation, farmers have little income from farm and non-farm activities to use for productive investment.

329. From a food security perspective, investment in tree crops, which does not generate a return for several years (3–5 years for cocoa and 15 years for rubber), may need to be combined with investment in activities with shorter-term pay-offs. For many investments (e.g. in swamp rice), more detailed feasibility studies will be required that consider the relative returns and technical merits of alternatives. For example, in many cash crop producing regions, years of neglect of tree crops has resulted in plantations being overgrown by bush. In this context, is it more prudent, feasible and remunerative to establish new plantations or to use labour to rehabilitate existing ones?

330. Other smaller-scale investments, e.g. fish smoking technology or tools for aquaculture pond development, outside of a value chain may need to be proposed by producer organizations or included in county/district development plans in order to be systematically considered and funded.

331. **There is need to prioritize investments.** GoL will need to carefully prioritize its investment programme within the framework of the PRS. The following criteria should form basic components of the screening procedures for all proposals, whether they are to be donor funded or included in the Ministry's own budget. Screening and prioritization of this kind is a core part of public financial management reform.

332. The major project selection criterion should be the government's overall priorities for rural development and poverty alleviation. Together with donor interests, this should be used in selecting the proposed investment project. The following additional criteria may be used:

- **Technical feasibility and sustainability.** This is the crucial test of whether the proposal makes technical sense and can be seen as sustainable in terms of resource utilization. Examples of previous projects, or projects in similar areas, that have proved their technical viability are useful indicators in this respect. This criterion also covers the likely effects upon the environment. Proposals indicating the scope for synergy between various interventions should receive favourable consideration.
- **Financial and economic feasibility.** At the early stage of project identification, it is difficult to obtain more than a vague idea of the financial and economic viability of a project, but enough information should be included to justify continuation of the project preparation process. Indicative crop budgets can suggest whether a particular technical process is financially viable in the current pricing and marketing context. A rough idea of irrigation investment costs per ha in comparison with returns from the crop(s) likely to be grown will give an indication of the financial viability. Wherever possible, a preliminary comparison of the benefits with the costs of the project should be made, possibly using a simple financial cost/benefit ratio.
- **Absorptive capacity.** In the light of depleted government services and inadequate rural infrastructure, this is an important criterion in the context of Liberia. It is a difficult factor to judge, especially at a time of change and reorganization. However, a subjective judgment may be made in the context of the experience of the particular department or institution(s) concerned with the proposed technology or approach, and their manpower capacity.
- **Ease of implementation.** Experience indicates that projects with complicated implementation mechanisms have difficulty in attaining their objectives in a timely fashion. For this reason, priority should be given to projects with well designed implementation mechanisms, suited to the proposed activities, with clear demarcation of responsibilities.
- **Existing projects and plans.** There are a number of existing projects that partially cover some of the activities proposed above, and a number of donors have indicated an interest in formulating projects in some areas. These should be taken into consideration in order to avoid duplication of effort, and to increase the probability of donor follow-up.

333. As CAAS-Lib draws to a close, follow-up actions have already been initiated by MoA and its partners to prepare a new food and agriculture policy and strategy and to draft the agricultural section of the proposed PRS. Other ongoing initiatives of GoL include the work by IFC on palm oil, the granting of a new oil palm concession for production of biofuels, and

the Diagnostic Trade Investment Study (DTIS) on value addition for export of agro-forestry, forestry and fisheries products, which focuses on trade policy and institutions, the investment climate and priority export sectors. It is planned that during these activities a prioritized investment programme that fits within the expected funding envelope and absorptive capacity of the country will be agreed on by all stakeholders. In the rest of this section an indicative list of priorities is presented.

334. Short-term priorities:

- ***Improving food security and increasing food production.*** A set of important activities involves the *recapitalisation of smallholder agriculture*, which requires the restoration of the productive capital of a large number of smallholder producers that was lost or destroyed during the war, and the rehabilitation of returnees and ex-combatants. The GoL and NGO free distribution schemes for seeds, tools and small livestock should be continued until most of the lost capital has been restored. However, such schemes should have well developed mechanisms for phasing out that would encourage the development of private sector input supply markets. During the transition period efforts should be focused essentially on supporting through matching grants (i) small-scale productive investments identified by rural producer groups that have a clear collective good component, and/or (ii) provision of externalities (small-scale irrigation, watershed management, soil and water conservation, community forestry, cereal banks, inputs, etc.). This should be linked to the development of community savings and loans associations. Vegetable production has potential for improving income and for creating employment for young people and women in the short term. Immediate public investment in basic improvement of rural roads and marketing infrastructure is essential to provide the needed incentives for improving production. First it is necessary to conduct studies and analyses to fill knowledge gaps in critical areas. To complement all the above studies should be performed of: crop production (e.g. the impact of concessional and commercial food imports on the local economy, PAM studies of different food sectors); baseline livestock parameters (rapid rural appraisal of livestock systems, characteristics of internal demand, comparative advantage and potential environmental impact of alternative production systems), fisheries (annual frame surveys), input supply markets, etc.
- ***Rehabilitating the tree crop sector.*** Public-private dialogue should be immediately initiated on critical issues that impinge on development of tree crops, such as land tenure, the role of plantation out-growers, etc.). The GoL should lead this dialogue with a clearly stated intent that it will focus subsequently mainly on its policy and regulatory functions, with the responsibility of strengthening the voice and bargaining power of smallholders, improving welfare of plantation labourers and arbitrating disputes as an honest broker if necessary. Other programmes should include: (a) establishment of GoL and NGO grants programmes for under-brushing, cleaning and plant protection measures for existing and viable smallholder plantations, (b) encouragement and support of smallholder cooperatives for production and marketing, (c) keeping in view the necessity to have a more inclusive approach to the plantation sector, and to develop a model concessions contract to encourage foreign investment in the plantation sector through transparent incentives that encourage out-grower schemes and support improved governance of natural resources, and (d) divesting ownership of existing parastatal plantations through a transparent process once the rules of the game for the management of the sector are agreed upon.

- ***Making agricultural markets work better.*** In the short term this involves removing existing impediments to the evolution of the tree crop export markets, such as the threat of a resurgent LPMC, avoiding too much government intervention in the sub-sector, which is likely to result in predatory behaviour, and avoiding an excessive concentration of private sector exporters by encouraging competition. Additionally it is essential to improve the management of existing retail markets by pressing for reform of LMA. Experience suggests that management of markets is best left to the traders themselves, while Government support should be provided through provision of public goods and needed regulations on hygiene, fair practices, etc. In this regard LMA could provide critical services to marketers if properly organized and managed. Farmers' organizations and cooperatives can also play an important role in marketing and need to be strengthened.
- ***Building Institutions.*** Here there is a need to assess the role and function of MoA and to restructure the Ministry in accordance with its new mandate (Core Functions Analysis etc.). CARI should rationalize its operations by devolving some of its functions, e.g. tree crops research, to other institutions and focus on re-initiating adaptive and applied research, capacity building activities (human and physical), the formation of strategic alliances and partnerships with key stakeholders, resource mobilization, and the development of a long-term strategy for national agricultural research for development.

335. Medium- to long-term priorities

- ***Improving food security and increasing food production.*** This requires: continued promotion of the development and adoption of improved food crop production technologies; diversification to vegetable and fruit crops; improved land and water management practices; improvement of input supply through appropriate planning and by facilitating private sector participation; developing a regulatory and institutional framework for plant and animal health issues; continuing efforts to promote access to land through reform measures; stimulation of artisanal fisheries and aquaculture by establishment of community fisheries centres; promotion of livestock production by establishment of pilot animal production centres; ensuring the availability of credit through micro-finance and commercial and land development banks;
- ***Promoting the smallholder tree crop sector.*** GoL should promote widespread adoption of improved techniques in smallholder cocoa and coffee, drawing on experience in neighbouring Cote d'Ivoire where it is clear that cocoa and coffee under a liberalized environment are naturally 'smallholder crops' and not estate crops. These crops do not require complex processing and their marketing appears to be fairly competitive under the prevailing land abundant environment. In the case of industrial rubber and oil palm (for which the prospects are good for expansion into biofuels), where there is also a critical need for improved genetic material and complex processing is required, GoL should draw on the experience of countries such as Cote d'Ivoire, Indonesia and Malaysia by promoting a nucleus estate-cum-smallholder strategy that permits tight vertical integration of activities along the value chain. Experience from Malaysia and India shows that rubber or oil palm can also be very effective smallholder crops provided that primary processing facilities exist close to holdings. Farmers' cooperatives could be an effective way of providing such processing facilities.

- ***Building Institutions.*** GoL should strengthen the moves to decentralize government services, including the development of significant capacity building activities at all levels. Agricultural financial intermediation should be expanded by supporting the development and expansion of private sector agricultural credit institutions (commercial, rural, community and cooperative banks) using such instruments as equity participation and guarantee funds.)
- ***Infrastructure.*** The rehabilitation of the rural transport and marketing infrastructure should be the highest priority in order to link major producing areas to markets. The second priority is to promote efficient private sector-led marketing systems with public support as necessary. The rate at which producers will respond to market opportunities will depend on the efficiency of the marketing and communication systems. Dissemination of market information through rural radios and other media will be important. Government initiative will be required in this regard. The rehabilitation of the most important value chains, at all levels, is critical and should be performed through several instruments (infrastructure development, CDD operations and private sector development programmes) that will need to be tightly coordinated.

REFERENCES

- Addison, Tony.** 2003. Africa's Recovery from Conflict: Making Peace Work for the Poor, UNU Wider.
- Ahmed, R., and C. Donovan.** 1992. Issues of Infrastructural Development: A synthesis of the Literature. IFPRI, Washington, DC.
- Anderson, G.W., C.G. Vandervoort, C.M. Suggs, and C. Clapp-Wincek.** 1982. Rural Roads Evaluation Summary Report. A.I.D. Programme Evaluation Report 5, USAID, Washington, DC.
- Barrett, Christopher B., Thomas Reardon, and Patrick Webb.** 2001. Nonfarm Income Diversification and Household Livelihood Strategies in Rural Africa: Concepts, Dynamics, and Policy Implications. IFPRI, Washington DC.
- Bayol, N., and J-P Chevalier.** 2004. State of forest cover in Liberia – Forest information critical to decision making.
- Bell, C., P. Hazell, and R. Slade.** 1982. Project Evaluation in Regional Perspective. Johns Hopkins University Press, Baltimore, MD.
- Block, S., and P. Timmer.** 1994. Agriculture and Economic Growth: Conceptual Issues and the Kenyan Experience. Harvard Institute for International Development, Cambridge, MA.
- Bravo-Ortega, Claudio, and Daniel Lederman.** 2005. Agriculture and National Welfare around the World: Causality and International Heterogeneity since 1960. Washington, DC., World Bank Policy Research Working Paper Series 3499.
- Christiaensen, Luc, and Lionel Demery.** 2007. Down to Earth: Agriculture and Poverty Reduction in Africa, Directions in Development. World Bank. Washington, DC.
- Collier, Paul.** 2003. From War to Wealth: Ending Africa's Conflicts. Public Presentation and debate at Royal African Society, London, UK.
- Coulter, J.P., and G.E. Onumah.** 2002. The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa. *Food Policy*, 27(4): 319–337.
- Delgado, Christopher L., Jane Hopkins, and Valerie A. Kelly with Peter Hazell, Anna A. McKenna, Peter Gruhn, Behjat Hojjati, Jayashree Sil, and Claude Courbois.** 1998. Agricultural Growth Linkages in Sub-Saharan Africa. IFPRI, Washington, DC.
- Department for International Development (DFID).** 2005. Growth and poverty reduction: the role of agriculture. A DFID policy paper, London, UK.
- Eastwood, R., and M. Lipton.** 2001. Demographic Transition and Poverty: Effects via Economic Growth, Distribution and Conversion. Ch. 9 in: *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*, edited by N. Birdsall, A. C. Kelley, and S. W. Sinding. 2001. Oxford University Press, Oxford, UK.
- Fan, Shenggen, Peter Hazell, and Sukhadeo Thorat.** 1999. Linkages between Government Spending, Growth, and Poverty in Rural India. IFPRI, Washington, DC.
- Fan, S., and P. Hazell.** 2002a. Returns to public investments in the less-favoured areas of India and China. *American Journal of Agricultural Economics* 83(5): 1217–1222.
- Fan, S. and P. Hazell.** 2000b. Are returns to public investment lower in less-favored rural areas? An empirical analysis of India. *Economic and Political Weekly* (April 22, 2000): 1455–1463.
- FAO/ILO/Ministry of Agriculture (MoA).** 2007. Comparative Study of the Job-Creating Capacity and Efficiency of Crops and Related Activities in Liberia. Report Submitted by ITTAS Consultancy Ltd, Accra, Ghana.

- FAO.** 2005. Irrigation in Africa in figures, AQUASTAT Survey. FAO, Rome, Italy.
- FAO.** 2005. Liberia Livestock Sector Brief. FAO/AGA, Monrovia, Liberia.
- Flores, Margarita, Yasmeen Khwaja, and Philip White.** 2005. Food security in protracted crises: building more effective policy frameworks. *The Journal of Disaster Studies, Policy and Management*, 29(Supplement 1).
- Finck, A.** 1973. The fertility of tropical soils under the influence of agricultural land use. Applied Sciences and Development, Vol. 1, Institute of Scientific Cooperation, Federal Republic of Germany.
- Government of Ghana, Ministry of Food and Agriculture.** 2003. An Act to Govern the Devolution of Estates and Establish Rights of Inheritance for Spouses of Both Statutory and Customary Marriages, Accra, Ghana.
- Hazell, P., and C. Ramasamy.** 1991. The Green Revolution Reconsidered: The Impact of High-Yielding Rice Varieties in South India. Johns Hopkins University Press, Baltimore and London.
- Hazell, P. and B. Hojjati.** 1995. Farm/Nonfarm Linkages in Zambia. *Journal of African Economies*, 4(3): 406–435.
- Hazell, P., and L. Haddad.** 2000. CGIAR Research and Poverty Reduction. IFPRI, Washington, DC.
- Humanitarian Information Centre (HIC) for Liberia.** 2005. Village Accessibility estimates at County Level, Map LIB148, October 7, 2005.
- International Food Policy Research Institute (IFPRI).** 2006. Best Practice to Best fit –A Frame work for Designing and Analysing Pluralistic Agricultural and Advisory Services. IFPRI, Washington, DC
- Johnson Sirleaf, Ellen.** 2007. Annual Message, Delivered to the 52nd Legislature of the Republic of Liberia by Her Excellency, President of the Republic of Liberia, 29th January 2007.
- Marine Resources Assessment Group (MRAG) Ltd.** 2005. Review of Impacts of Illegal, Unreported and Unregulated (IUU) Fishing on Developing Countries. Synthesis Report, London, UK.
- Ministry of Agriculture (MoA).** 2002. Results of Baseline Survey (2001). Monrovia, Liberia.
- Ministry of Agriculture (MoA).** 2007. Framework Document for a National Food Security and Nutrition Strategy for Liberia. Prepared by IFPRI, Washington, DC.
- Ministry of Agriculture (MoA), FAO, WFP and the University of Liberia.** 2007. Liberia Market Review. Draft Report, Monrovia, Liberia.
- Ministry of Health and Social Welfare.** 1978. Liberia National Nutrition Survey. Monrovia, Liberia.
- Munive, Jairo, George Wisner II, and Carina Lakovits.** 2006. Employment Opportunities and Working Conditions of Rural and Peri-Urban Youth in Liberia. Prepared for ILO and UNDP, Monrovia, Liberia.
- New Partnership for African Development (NEPAD).** 2006. Comprehensive Africa Agriculture Development Programme, Liberia National Medium-Term Investment Programme (NMTIP). Draft, Monrovia, Liberia.
- Obidegwu, Chukwuma.** 2004. Post-conflict Peace-Building in Africa: The Challenges of Socio-Economic Recovery and Development. World Bank Africa Region Working Paper Series No. 73, Washington, DC.
- Organisation of Economic Cooperation and Development (OECD).** 2006. Promoting Pro-Poor Growth Policy Statement. DAC High Level Meeting 5.

- Parker, D.** 2001. Farm Management Survey of Liberian Smallholder Tree and Food Crops. Monrovia, Liberia.
- Pingali, Prabhu, Luca Alinovi, and Jacky Sutton.** 2005. Food security in complex emergencies: enhancing food system resilience. *The Journal of Disaster Studies, Policy and Management*, 29(Supplement 1, June 2005):.
- Republic of Liberia** 1978. National Feeder Road Study, Vol. 1, Main Report. Monrovia, Liberia.
- Republic of Liberia.** 1983. Planning and development Atlas of Liberia. Ministry of Planning and Economic Affairs (MPEA)/GTZ, Monrovia, Liberia.
- Republic of Liberia.** 2004. National Transitional Government, RFTF Progress Review Report. Monrovia, Liberia.
- Republic of Liberia.** 2004. Millennium Development Goals Report. MPEA/UN, Monrovia
- Republic of Liberia.** 2006a. Interim Poverty Reduction Strategy - Breaking with the Past: from Conflict to Development. Monrovia, Liberia.
- Republic of Liberia.** 2006b. Comprehensive Food Security and Nutrition Survey (CFSNS). Monrovia, Liberia.
- Richards, P.** (nd) To fight or to farm? Agrarian dimensions of the Mano River conflicts (Liberia and Sierra Leone). *African Affairs*, 104:571.
- Richards, P, Archibald, S, Bruce, B, Modad, W, Mulbah, E, Varpilah, T, and Vincent, J.** 2004. Community cohesion in Liberia: a post-conflict rapid social assessment. African Knowledge Associates, Monrovia.
- Sesay, J. S.** 2006. Institutional Arrangements for Agricultural Administration and Management in Liberia. Paper presented to MOA/FAO Agricultural Policy and Strategy Workshop, Monrovia, June 9–10.
- Shepherd, A. W.** 2007. Linking Farmers to Markets – Lessons from Experiences to Date. AGSF Occasional Paper 13, FAO, Rome, 2007.
- Smith, G.** 2002. Assessment of the small scale livestock sub-sector in Liberia. Consultant's Report, FAO, Monrovia, Liberia.
- Spencer, D. S. C.** 1996. Infrastructure and Technology Constraints to Agricultural Development in the Humid and Sub-humid Tropics of Africa. *African Development Review*, 8(2): 68–93. African Development Bank, Abidjan, Cote d'Ivoire.
- Tefft, James, John Staatz, Josué Dioné, and Valerie Kelly.** 1998. Food Security and Agricultural Subsectors in West Africa, Future Prospects and Key Issues Four Years after the Devaluation of the CFA Franc, Cotton Subsector. INSAH/CILSS.
- Tefft, James, Mbaye Yade, Valerie Kelly, Chris Penders, and John M. Staatz.** 2000. Agriculture and Related Sectors in the CILSS Countries: Past Performance and Strategic Choices for the Future. MSU Staff paper no. 00-37.
- Tefft, James.** 2005. Agricultural Policy and Food Security in Liberia. ESA Working Paper No. 05-11.
- Thirtle, C., X. Irz, L. Lin, V. McKenzie-Hill, and S. Wiggins.** 2001. Relationship between Changes in Agricultural Productivity and the Incidence of Poverty in Developing Countries. Report commissioned by Department for International Development, London, UK.
- Tontisirin, K., and Gillespie, S.** 1999. Linking Community-based Programmes and Service Delivery for Improving Maternal and Child Nutrition. *Asian Development Review* 17(1,2): 33–65.
- United Nations Department of Technical Cooperation for Development (UNDTCD).** 1987. Water resources policy, management and legislation, Project # DP/UN/LIR-77-004. UNDP, New York.

- United Nations Development Programme (UNDP).** 2006. State of the Environment Report for Liberia. UNDP, Monrovia, Liberia.
- United Nations Development Programme (UNDP).** 2006. Mobilizing Capacity for Reconstruction and Development. Liberia Human Development Report, Monrovia, Liberia.
- United Nations Development Programme (UNDP).** 2001. Liberia Poverty Profile. UNDP, Monrovia, Liberia.
- United Nations Mission in Liberia (UNMIL).** 2004. A Profile of the Ministry of Agriculture; Civil Affairs Division. Monrovia, Liberia.
- Valdés, Alberto, and William Foster.** 2005. Reflections on the Role of Agriculture in Pro-poor Growth. Paper presented at the Future of Small Farms Research Workshop, Wye, UK.
- von Braun, Joachim, M. S. Swaminathan, and Mark W. Rosegrant.** 2004. Agriculture, Food Security, Nutrition and the Millennium Development Goals - an Essay. IFPRI, Washington, DC.
- Wilcox, Michael D., and MacArthur M. Pay-Bayee.** 2006. Outcomes from the Liberian Cocoa Sector Roundtable. Ministry of Agriculture, IITA, University of Tennessee.
- Wiles, D. L.** 2005. Coastal Zone Vulnerability and Adaptation to Climate Change in Liberia. Paper presented at the Training Workshop on Adaptation and Vulnerability to Climate Change, Maputo, Mozambique.
- World Bank.** 1984. Liberia Agricultural Sector Review, Volume 1: Main Report. Washington, DC.
- World Bank.** 2004a. Country Re-engagement Note. Washington DC.
- World Bank.** 2004b. Project appraisal document on a trust fund for Liberia. Washington DC.

ANNEX 1: COMPOSITION OF CAAS-LIB STEERING COMMITTEE

| Institution | Name |
|---|--------------------------|
| ACDB | Mr Kpedee Woiwor |
| CARI | Dr Joseph Subah |
| CRS | Mr Peter f. Briggs |
| FAO | Dr Winfred Hammond |
| German Agro Action | Mr Galah Toto |
| House of Representatives | Hon Thomas P. Fallah |
| LINNK | Mr Jonathan Jukon |
| LPMC | Mr William M. Sheriff |
| Ministry of Agriculture (Chairman) | Hon Christopher Toe |
| Ministry of Planning & Economic Affairs | Mr Stephen A. Kaiser |
| Ministry of Youth & Sports | Hon Sneh Johnson |
| Senate Committee on Agriculture | Sen. Isaac M. Johnson |
| UNDP | Mr William A. Reeves |
| UNMIL | Dr Joseph Sam Sesay |
| World Bank | Mr Jonathan Davies |
| World Vision International | Dr James Kiazulu |
| CAAS-Lib Team Leader | Dr Dunstan S. C. Spencer |
| CAAS-Lib National Coordinator (Secretary) | Dr Othello Brandy |

ANNEX 2: MATRIX OF PROPOSED INVESTMENT PROJECTS

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|---|--|--|-----------------------|------------------|
| 1 | Land and Water Sector Institutional Capacity Building | To build the capacity of the land and water sector institutions for the strategic planning and management of the land and water resources to support agricultural and other sectoral developments. | <ul style="list-style-type: none"> Land use assessment of Liberia. Detailed study of the water sector. Development of a comprehensive national water policy. Establishment of water resources commission. Improvement in the meteorological and hydrological networks. Staff training in the management of the hydrological and meteorological networks. | July 2007 – July 2012 | 2,500 |
| 2 | Community Watershed Management (1–5 years) | To build the capacity of the land and water sector institutions for the strategic planning and management of the land and water resources to support agricultural and other sectoral developments. | <ul style="list-style-type: none"> Assessing past and current land use practices at the community levels. Assessing the extent of degradation in the various river basins using GIS and other appropriate tools. Detailed hydrological studies of all river basins, including the development of hydrological maps for all river basins in Liberia. Development of detailed land use maps. Development of detailed soil and soil suitability maps for agricultural planning. Undertaking community needs assessment in environmental conservation programmes. Designing and implementing community-based watershed management projects. | July 2007 – July 2012 | 7,500 |
| 2 | Land and Water Development for Swamp Rice Production (2–10 years) | To increase rice production through the reclamation of swamps lost during the war and expansion of new ones with the aim of improving household food security, nutrition and income. | <ul style="list-style-type: none"> Assessment of the potential of swamps and inland valleys and their characterization for agricultural development. Expansion of community involvement and participation in restoration of priority swamps by initiating small farmer field schools in land and water management in swamp rice production and equipping farmers to sustain production. Expansion of new swamp areas for improved water control at 5,000 ha/annum. | July 2007 – July 2017 | 22,100 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|---|---|---|----------------------------|------------------|
| | | | <ul style="list-style-type: none"> Expansion of new swamp areas for traditional water control at 5,000 ha/annum. Capacity building in the construction and management of water control structures. Research trials in swamp rice production. | | |
| 3 | Land and Water Development for Upland Rice Production (2–5 years) | To increase rice yields on the uplands through sound field management practices with the aim of conserving soils and maintaining soil fertility on slopes and to identify suitable technical options for intensification, and increased efficiency of upland rice development and management, allowing for intercropping, as well as for soil conservation. | <ul style="list-style-type: none"> Providing support services in terms of credit, farm tools, seeds and agrochemicals to approximately 500 women farmers and 300 youth in 50 groups, potentially involved in subsistence production activities. Capacity building in soil and water conservation strategies on uplands for LWRDD staff. Support for expansion of new upland farms at 10,000 ha/annum. Research trials in upland rice intercropped with other staples. | July 2007 – July 2012 | 3,000 |
| 4 | Crop production Studies, Sector Analysis and Monitoring | Fill in gaps in the knowledge of key areas and act as inputs to decision-making and resource allocation. | <p><i>Suggested studies and reviews:</i></p> <ul style="list-style-type: none"> The impact of the WFP programme in Liberia on the local economies. A study of transport and haulage of agricultural produce and commodities. A study of infrastructure including markets, communication, and input supply. A detailed study of the impact of Government's agricultural policy with respect to imports (in particular rice from overseas). The study of micro-businesses and SMEs in Liberia. A number of PAM studies could be undertaken of various sub-sector operators in the food crops sector, e.g. juicing or processing. A number of sub-sector studies, e.g. for rice and vegetables. A number of case studies need to be undertaken for illustrative purposes (some will be undertaken in the | Immediate Term (1–2 years) | 1,000 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|--|--|---|--------------------------|------------------|
| | | | <p>follow-up section below) including cooperative arrangements, or following the transport of certain food crops from producer to final market and end consumer.</p> <ul style="list-style-type: none"> • A review of the seed sector should be undertaken. • Putting in a place a monitoring system for market information (e.g. prices, quantities, production and output and input usage) – could be undertaken by FAO marketing section. | | |
| 5 | Short Term: Crop Production Investment Project | To raise the level of understanding of agriculturalists, increasing production, productivity and output. | <ul style="list-style-type: none"> • Education and targeted training. • Appropriate technology. • Basic services. • Data collection and statistical services. | Short Term (2–5 years) | 5,000 |
| 6 | Medium-Term: Crop Production Investment Project | To dramatically improve the handling, processing and value adding of commodities grown in Liberia. | <ul style="list-style-type: none"> • Processing and packaging: value adding activities such as juicing. Small scale juicing plants and cleaning houses are envisaged, which would allow local juices to substitute for expensive imports. • Infrastructure: initially this could be in the form of small-scale markets with water services included. If individuals/communities can appoint market ‘masters’ to manage the markets as an enterprise this may lead to sustainable continuation of the project. • Micro-Projects Programme (MPP) and Micro-Credit System. An MPP can be used as a means to support numerous small-scale projects where the need is highest. In some cases these can be community driven or, if credit related, privately targeted. | Medium Term (5–10 years) | 24,000 |
| 7 | Urban and Peri-urban Agriculture for Women and Youth Groups (3 years): | To build the capacity for urban and peri-urban agriculture for women and youth groups with the aim of providing jobs and incomes and meeting the urban market demand for fresh vegetables. | <ul style="list-style-type: none"> • Assessing the potentials and benefits of urban and peri-urban agriculture. • Capacity building in urban/peri-urban production and post-harvest activities for LWRDD staff, women and young people. • Providing support services in terms of credit, farm tools, seeds and agrochemicals to approximately 1,000 women farmers and 600 young farmers in 50 groups, potentially involved in market orientated production, input supply | July 2007 – July 2012 | 4,500 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|---------------------------------------|--|--|------------|------------------|
| | | | <ul style="list-style-type: none"> and post-harvest activities. Constructing and equipping shallow wells with motorized pumps for irrigation of the urban/peri-urban farms. | | |
| 8 | Promoting use of Small-scale Machines | Promoting use of small-scale machines and equipment for sustainable productivity of lowlands. | <ul style="list-style-type: none"> Secure support from development partners, particularly the Chinese Government and indigenous private sector. Establish clear policy guidelines. Identification of suitable lowlands and farmer groups/communities and cooperatives to be involved in the project, confirm their needs, requirements and inputs for the implementation of the project. Establish special unit in MoA and community support services in the regions/counties. | 5–10 years | 4,500 |
| 9 | Strengthening Blacksmith Capacities | Strengthening blacksmith capacities to produce appropriate tools for increased agricultural production and productivity of smallholders. | <ul style="list-style-type: none"> Four Regional Blacksmith Centres will be rehabilitated for production of agricultural tools and equipment, training, and product development. Identification, selection and recruitment of experienced blacksmiths and engineers to manage the Centres and carry out their activities. Assisting the organization of networks of Blacksmiths, other support services (particularly distributors; sensitizing and training them). Establishing linkages between the project beneficiaries and financial services, particularly savings and credit schemes. | 3–5 years | 4,600 |
| 10 | Promoting Mechanized Farming | Promoting mechanization to improve specific segments of the value chain of selected crops and directed at small to medium scale producers. | <ul style="list-style-type: none"> Strengthening the capacities of selected existing commercial agricultural enterprises as nucleus entities in promoting mechanized farming involving small producers. Provision of assistance to selected agricultural groups/cooperatives as out-growers to practise sustainable mechanized farming. Establishment of groups of small to medium scale farmers' groups/cooperatives to be fully engaged in mechanized farming activities in various parts of the country. | 5–10 years | 4,500 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|--|--|--|-------------------------------|------------------|
| 11 | Vegetable Oils and Cassava Processing | Promotion of widespread mechanized extraction of vegetable oils and processing of cassava. | <ul style="list-style-type: none"> Assist small to medium scale farmers' groups and cooperatives to manage activities of mechanized processing of oils and cassava, including complying with quality control measures; marketing and distribution outlets. Strengthen MoA and other institutions for advice, quality control, training in management of enterprises and monitoring of activities. Assist beneficiaries to establish linkages with other support sources. | 5–8 years | 2,600 |
| 12 | Development of Artisanal Fisheries. | To develop artisanal fisheries so as to enhance the sustainable utilization of the fisheries resources of the country for increased fish production and improved livelihoods in artisanal fishing communities. | The project will be implemented in Maryland, Grand Kru, Sinoe, Rivercess, Grand Bassa and Cape Mount Counties and will include the provision of fishing inputs and training of about 3,600 fishers, fishmongers and fish processors. | January 2008 – December 2010. | 2,050 |
| 13 | Small-Scale Aquaculture Development | To increase fish production levels in small-scale aquaculture. | The project will be implemented in the Counties of Lofa, Grand Gedeh and River Gee. The project will bring into aquaculture production 50 ha of swamps through the provision of tools, materials, fingerlings and training. These include 10.3 ha of ponds to be rehabilitated and 39.7 ha of new ponds to be developed. Three (3) hatcheries and 1 research facility will be rehabilitated. | January 2008 – December 2010 | 1,100 |
| 14 | Post-harvest Loss Reduction in Fisheries | Reduction of post-harvest losses of fish and improvement of quality through handling and processing technologies. | <ul style="list-style-type: none"> Identify participating groups, especially women, and training them in new improved technologies and support services for spoilage reduction, handling, preservation, packaging, and marketing of fish products. Assess capacities and provide appropriate support to strengthen the fisheries subunit in MoA and other support institutions (NGOs etc) for advice, training, monitoring, quality control and regulation. Establish guidelines and regulations for post-catch handling and marketing of fish. | 5 years | 3,530 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|---|--|--|------------------------------|------------------|
| | | | <ul style="list-style-type: none"> Establish linkages between the beneficiary groups of the project and support sources including financial services (credit and savings), packaging agents exporters, etc. | | |
| 15 | Enhancing National Capacity for Sustainable Fishery Sector Management | Improve the institutional capacity of the Bureau of National Fisheries (BNF) and the legal environments to enable it effectively to monitor and manage the fisheries resources on a sustainable basis, and to introduce and consolidate a co-management arrangement between the Government and the private sector. | <ul style="list-style-type: none"> Rehabilitation of the BNF Headquarters and Fisheries Research Facilities. Personnel of the BNF will be selected for training in such areas as fish biology, fisheries statistics and management, fish health and quality, monitoring, fisheries economics, etc. A new fisheries monitoring and regulatory law will be drafted and enacted to strengthen the management capability of the BNF. A Monitoring, Control and Regulatory System will be set up, using local fishers to monitor and report industrial fishing vessels intruding into artisanal fishing areas. | January 2008 – December 2010 | 3,200 |
| 16 | Livestock Promotion | Make livestock one of the pillars of the fight against poverty, food insecurity and unemployment. | <ul style="list-style-type: none"> Establishment of livestock production centres or micro-projects in selected counties for demonstration of improved practices and training of livestock farmers. Improvement of the coverage of livestock sanitary services and reinforcement of veterinary services by capacity building and equipment of veterinary laboratories. Rehabilitation of existing slaughterhouse in Liberia, construction and equipping of four provincial slaughterhouses. Preserve, improve and better exploit the pastoral resources. Rehabilitation, restocking and re-equipment of seven livestock ranches. | | 9,000 |
| 17 | Institutional Renewal and Capacity Development for Ministry of Agriculture (MoA) and Stakeholder Partners | Renew and develop MoA systems and capacities for improved performance in sectoral policy and strategy formulation, programme development, | <ul style="list-style-type: none"> Refocus and reorganize MoA functions and organizational systems and structures in line with the new paradigm for public sector roles in agricultural development, stakeholder involvement and decentralized services coordination and provision to farmers. | 2008 – 2012 | 6,000 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|--|--|--|-------------|------------------|
| | | implementation and evaluation in a decentralized paradigm for rural development. | <ul style="list-style-type: none"> • Reorientation and training of management and staff in their emerging roles and responsibilities. • Strengthen MoA supervision and coordination capabilities in sector-wide planning and coordination of agricultural programmes and service provision. • Develop an updated financial management and administration system in conjunction with the modernization processes of MoF. • Strengthen MoA capacities in knowledge management to inform policy, programme and services development across departments, including system-wide programme/project evaluation and staff performance management. • Operationalize decentralization of MoA personnel, planning processes, programme budgeting and financial administration to counties. | | |
| 18 | Rehabilitation and Revitalization of the Central Agricultural Research Institute (CARI), Liberia | To rehabilitate and renew CARI as the lead national research institution in developing innovations in support of a revitalized agricultural sector, contributing to improved household food security and smallholder commercialization for export markets. | <ul style="list-style-type: none"> • Rebuild and refurbish research buildings and facilities at CARI HQ in Suakoko. • Recruit, establish and train/retrain a critical mass of research expertise and support staff. • Revitalize field research programmes for co-knowledge development with farmers and extension personnel. • Renew and develop a decentralized agricultural knowledge system in collaboration with MoA Departments of Extension, and Planning and Policy. • Design, commission, equip and staff three new decentralized sub-stations in the coastal, derived savannah and forest ecologies. | 2008 –2015 | 10,000 |
| 19 | Agricultural Services Development and Management Programme for DECE and Stakeholder Partners | Renew and develop DECE capacities for improved performance in facilitating agricultural services development, coordination, management, provision and evaluation in a decentralized system for | <ul style="list-style-type: none"> • Renew and reorganize DECE functions, organizational systems and capabilities in line with the new paradigm for pluralism in agricultural services provision. • Direct investment in improving the facilities, equipment and mobility of DECE management and staff. • Strengthen DECE coordination capabilities in county and district-level planning and coordination of agricultural programmes and service provision, | 2008 – 2012 | 8,000 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|---|---|---|---------------------------------------|------------------|
| | | rural community development. | <p>including stakeholder involvement processes.</p> <ul style="list-style-type: none"> Facilitate training of DECE/CBO facilitators for county and district level provision of participatory training programmes in household food security and farmer organization development. Strengthen DECE capacities in knowledge management on agri-enterprise development and impact evaluation of extension programmes. Facilitate and consolidate decentralization of MoA services to counties/districts, including evaluation processes. | | |
| 20 | Rehabilitation and Renewal of Agricultural Education Institutions in Liberia | To rehabilitate and renew education and training capacities of the Vocational Agricultural and Training Institutes (Booker Washington Institute, Tubman High School, Zwedru Multilateral High School), College of Agriculture, Rural Development and Sociology, Cuttington University (CARS). | <ul style="list-style-type: none"> To rehabilitate buildings and teaching facilities, principally at the CAF and vocational training centres. Provide higher education and training opportunities for existing and newly recruited teaching and support staff at colleges and training institutes. Revise and update curricula for undergraduate and vocational training in line with current regional and global developments and practices in agricultural and related sciences. Facilitate and support internship programmes for undergraduates in national institutes such as CARI. Develop partnerships for national capacity development (including twinning and bilateral arrangements) with higher education institutes in Africa, USA and Europe. Conduct studies on ongoing national priorities and programmes in higher education in conjunction with MOE and MoA. | 2008 – 2022 | 30,000 |
| 21 | Expansion of Financial Services to Liberian Farmers and Other Rural Entrepreneurs | To substantially expand financial services to Liberia's rural dwellers, both farmers and other creditworthy rural entrepreneurs. | <ul style="list-style-type: none"> Development of appropriate financial products, services and techniques in collaboration with other providers of rural financial services (credit unions, MFIs, NGOs, etc.) in close collaboration with participating commercial banks, and training staff at all branches with rural clients in their use. Identification of the most creditworthy farmers and rural entrepreneurs. | Four years: mid-2007 through mid-2011 | 4,250 |

| No. | Name of Project | Aim(s) | Description | Duration | Cost (1000 US\$) |
|-----|-----------------|--------|---|----------|------------------|
| | | | <ul style="list-style-type: none"> • Resurrection, re-equipping and provision of management training to the country's formerly significant agricultural cooperatives and other rural associations. • Set-up and operation of a rural credit guarantee fund. • Institute confidence-building measures and develop linkages between participating commercial banks, agricultural cooperatives and other FBOs and MFIs (linkage banking). | | |
| | TOTAL | | | | 162,930 |