

Staff Paper

**MOZAMBIQUE: AN ANALYSIS OF
THE IMPLEMENTATION OF
THE EXTENSION MASTER PLAN**

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**MOZAMBIQUE: AN ANALYSIS OF THE IMPLEMENTATION OF THE EXTENSION
MASTER PLAN ***

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* Report prepared for the National Directorate of Rural Extension, Ministry of Agriculture and Rural Development, Maputo, Mozambique.

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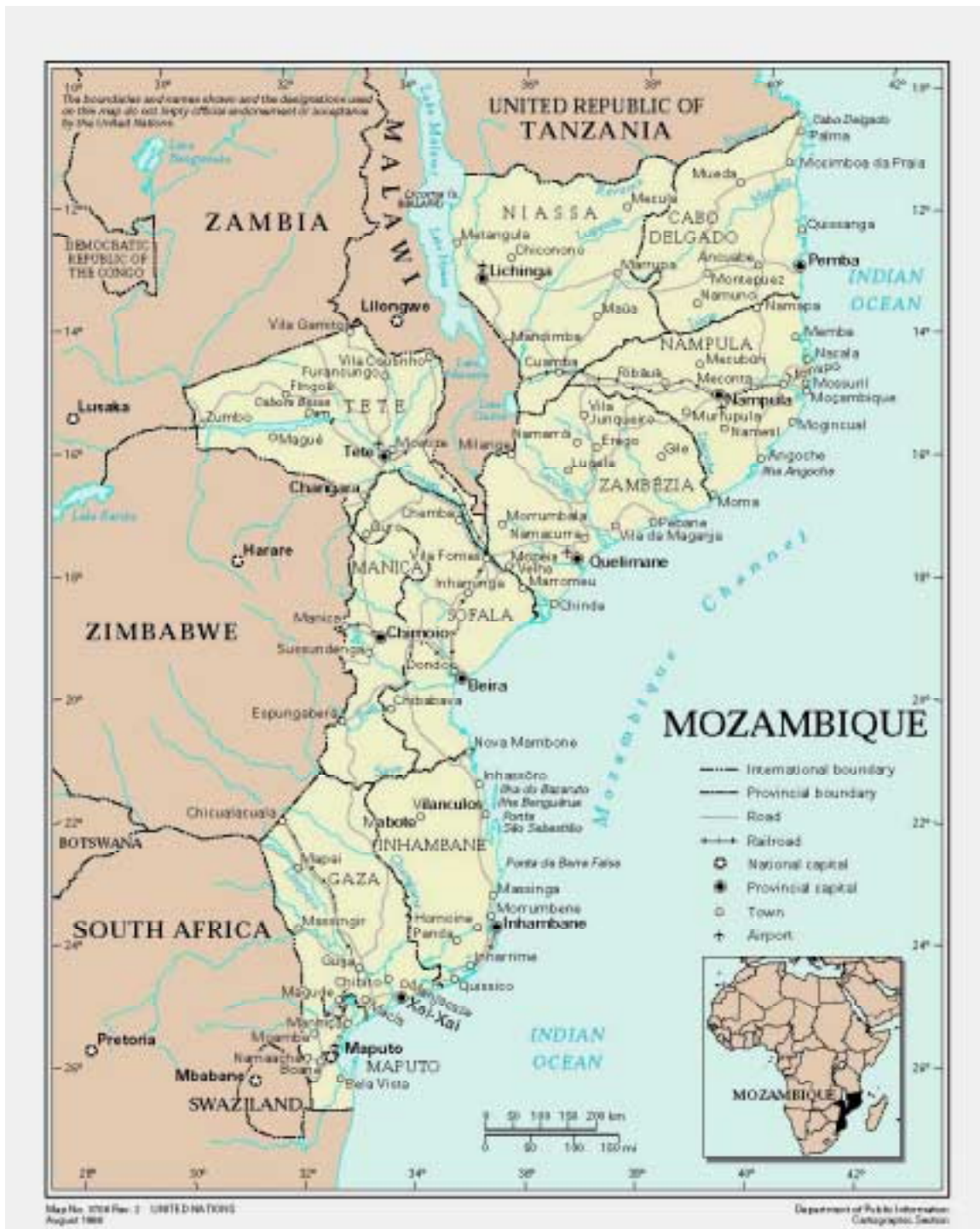
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LIST OF ABBREVIATIONS

ARC	Agricultural Research Council (South Africa)
AGRITEX	Department of Agricultural and Technical Extension Services (Zimbabwe)
ASSP	Agricultural Sector Support Program
BMZ	German Ministry for Development Cooperation
CFFM	Common Flow of Funds Mechanism
CGIAR	Consultative Group on International Agricultural Research
CLUSA	Cooperative League of the USA
CTIA	Technical Council for Agricultural Research
Danida	Danish International Development Agency
DAP	Policy Analysis Department, Directorate of Economics
DDADR	District Directorate of Agriculture and Rural Development
DE	Directorate of Economics
DFID	Department for International Development (United Kingdom)
DPA	Provincial Directorate for Agriculture and Rural Development
DR&SS	Department of Research and Specialists Services (Zimbabwe)
DNER	National Directorate for Rural Extension
ELC	Extension Learning Center
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FARA	Forum for Agricultural Research in Africa
FFS	Farmer Field Schools
GOM	Government of Mozambique
GTZ	German Bilateral Agency for Development Co-operation
IFAD	International Fund for Agricultural Development
INIA	National Institute for Agricultural Research
INIVE	National Institute for Veterinary Research
IPA	Animal Production Institute
MADER	Ministry of Agriculture and Rural Development

MAP	Ministry of Agriculture and Fisheries
MPF	Ministry of Planning and Finance
NEPAD	New Partnership for Africa's Development
NGO	Non Governmental Organisation
PROAGRI	Agricultural Sector Public Expenditure Program
SG 2000	Sasakawa Global 2000
SPAAR	Special Program for African Agricultural Research
SPER	Provincial Extension Service
SUE	Unified Extension Service
SIDA	Swedish International Development Agency
T&V	Training and Visit Extension Model
UEM	Eduardo Mondlane University
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WVI	World Vision International

Map of Mozambique



MOZAMBIQUE: AN ANALYSIS OF THE IMPLEMENTATION OF THE EXTENSION MASTER PLAN

CARL K. EICHER

I have been working as a front-line extension worker on a contract for 15 years. Last year I heard the President of my country praise the importance of agricultural extension on television. I was so proud.

- *Front Line Extension Worker in Mozambique*

A major lesson is that an agricultural extension or advisory services takes a long time to be built...If a country is unwilling to invest in this time-demanding, learning and evolutionary process, it is unlikely that it can be eventually put in place an efficient and effective agricultural advisory service for small scale farmers

- *Berdegue and Marchant 2002*

1. INTRODUCTION

“Getting agriculture moving” is the acid test for The New Partnership for Africa’s Development (NEPAD) because agriculture and rural nonfarm activities employ around 70 percent of the labor force in Africa. To address these issues, NEPAD highlights the need to increase agricultural productivity (para 132), reduce climatic risk through irrigation (para 132) and increase domestic and donor support for agricultural services, especially extension and research (para 136-37). However, one of the biggest challenges facing Ministries of Agriculture and Finance in Africa is how to address the institutional puzzles surrounding the near collapse of the core research & extension institutions in the 1990s that provided services to small scale family farms. Unfortunately, neither donors nor academic specialists have “credible” answers on how to resolve these institutional puzzles (Eicher 1999). Today a growing number of African nations are pursuing a pragmatic process of crafting a system of agricultural service institutions that takes into account their history, agrarian structure, culture, and ideology. (Rukuni, Blackie and Eicher1998).

Although Mozambique became independent in 1975, public extension was only institutionalized as a separate Directorate within the Ministry of Agriculture in 1987. However, because of the civil war, the National Directorate of Rural Extension (DNER) did not become fully operational until peace was declared in 1992. Currently the DNER is pursuing a learning by doing approach to building Mozambican models of agricultural extension. Mozambique has one of the newest public extension services in the world and herein lies some of its hidden advantages. Instead of being bogged down with 12,000 extension workers like Kenya or saddled with Zimbabwe’s recently merged research and extension system, DNER is a relatively lean organization with a total of 639 public extension workers (Table 1). DNER has the freedom and resources to carry out

pilot studies of outsourcing and experiments with farmer field schools and other participatory types of farmer-to-farmer extension models.

With this background in mind, I now turn to the terms of reference for this study of agricultural extension in Mozambique that has been prepared for the National Directorate of Rural Extension (DNER). In 1997, DNER prepared an Extension Master Plan (DNER 1997) that was subsequently incorporated into PROAGRI (Agricultural Sector Public Expenditure Program) (PROAGRI, 1998). Before PROAGRI was launched, donors helped finance 42 separate projects in 1997 totaling US\$ 43 million for Mozambique's Ministry of Agriculture and Fisheries which was subsequently renamed the Ministry of Agriculture and Rural Development (MADER) (World Bank, 1999). Currently, there are 18 cooperating partners and 10 participating partners (Simons 2002). The participating partners are contributing funds to a Common Flow of Funds Mechanism to finance eight components of PROAGRI, including DNER (PROAGRI 2002). The participating partners (donors) have agreed to finance about US \$33 million of PROAGRI's 2003 budget of around US \$40 million. PROAGRI is a shining example of an innovative sectoral approach to the coordination and financing of institution building.

Since the Extension Master Plan is nearing completion of its first five years of operation, the Director of DNER – the public rural extension service - invited the author of this report to review the implementation of the Extension Master Plan and make recommendations for the improvement of extension during the next phase of the Master Plan from 2003 to 2008. The terms of reference for this review are as follows:

Analyze critically the Extension Master Plan together with all the supporting documents and determine its relevance and appropriateness in relation to current reality and developments.

Make field visits to selected provinces and districts and assess the overall working conditions within the public extension service and other service providers.

Assess the current linkages and their effectiveness between public extension and research as well as with other relevant institutions

Suggest improvement mechanisms in order to strengthen the effective linkages between public and non-public extension.

Suggest improvement measures of the MP of public extension as service provider, coordinator and contracting (outsourcing) institution (Gemo 2002).

Table1. Mozambique: Public Extension Service, Staffing by Province, 2002

Province	Extensionists	Supervisors		SPER Provincial Level	Total
		Team	Network		
Maputo	36	4		4	44
Gaza	57	7	3	6	73
Inhambane	28	4	2	4	38
Sofala	24	0	4	7	35
Manica	52	3	5	7	67
Tete	43	6		4	53
Zambézia	27	4	0	5	36
Nampula	95	10	10	9	124
Niassa	43	6		6	55
C.Delgado	78	7	4	7	96
Sub Total	483	51	28	59	621
Maputo Staff					18
Total DNER					639

Source: DNER, October 2002.

This review is based on one month study in Mozambique (May 9 to June 5) and a return visit in October 2002 to review the draft report. In May visits were made to three of the ten Provinces: (Manica, Niassa and Nampula), six districts and five research stations. The balance of the time was spent in Maputo interviewing officials in Ministries, representatives of donor agencies and NGOs and University researchers (Appendix).

In principal, the geographical coverage of the extension system includes the entire country. The coverage is supplied in part by the public extension service in selected areas, NGOs,¹ and other private organizations, and by a mass media communications program. The Provincial Rural Extension Services (SPERs) operate in all ten provinces, but with varying degrees of coverage. Public sector extension agents are deployed according to a number of criteria such as agricultural potential, thus explaining why there is a high concentration of public extension agents in the northern part of Mozambique. The 1997 Extension Master Plan reported that public extension agents will be concentrated in 52 of 128 districts over the 1998-2003 period, but there are currently DNER agents in 55 districts. "In districts without DNER agents, DNER will give the necessary guidance to Provincial Extension Services on to how to promote extension activities and implement mass media programs for maximum coverage" (DNER, 1997, p. 20).

¹ Forty two NGOs, mostly foreign, were delivering extension services when the Extension Master Plan was completed in 1997.

2. AFRICA'S EXPERIENCE IN BUILDING PRODUCTIVE AND FINANCIALLY SUSTAINABLE RURAL INSTITUTIONS

Without question, rural institutions are in considerable disarray in Eastern and Southern Africa. Since Mozambique's experience with public extension is relatively brief (1987-2002), it has much to learn from Africa's painful lessons in institution building starting with the first wave of independence in the early sixties (Eicher 1989). Mozambique also has much to learn from the global experience of the past forty years. For example, after forty years of accretionary (step by step) institution building, Malaysia, Thailand and Brazil have each developed a world-class agricultural science base and have become powerhouses in global agricultural trade. Can Mozambique build a strong system of agricultural service organizations in 20 to 30 years, a feat that has taken 40 years in Brazil? Much depends on the ability of Mozambique to mobilize political, farmer and donor support and stay the course for a number of decades.

THE CRISIS IN RURAL INSTITUTIONS

The following examples illustrate the crisis in rural institutions in Eastern and Southern Africa.

Kenya is one of many African countries where public agricultural extension is nearly immobilized. Kenya currently has around 12,000 extension workers as a result of the absorption of extension workers in crops, livestock, fisheries, and cooperatives into the portfolio of the Ministry of Agriculture and Rural Development. But Kenya's extension service has nearly collapsed due to the lack of financial sustainability of the T&V (Training & Visit) extension model.² Although there is government agreement on downsizing Kenya's extension service, there are inadequate funds and political support to carry this out. By contrast, Mozambique's public agricultural extension service is 15 years old and it has a total of 639 staff members as of October 10, 2002. Currently public extension agents are posted in 55 of 128 districts in the country. Nevertheless, even though there are 12,000 public extension workers in Kenya and 639 in Mozambique, the managers of both of the national extension services must answer a common question: how can public investments in extension be justified when many public extension systems in Africa are ineffective and financially unsustainable (Nielson and Bazeley 2000)?

Human capital degradation arising from HIV/AIDS and the steady migration of extension officers and researchers to NGOs and the private sector are undercutting the buildup of a stable cadre of public agricultural extension and research officers in Southern Africa. In Zambia, for example, 20 agricultural researchers were recently sent overseas for postgraduate study. Although 19 of the 20 returned home, only 4 of the 19 are currently employed by the public

² The Training and Visit (T&V) agricultural extension model was pioneered by Daniel Benor in the 1970s. It is a "top down" extension model designed to improve the management of public extension systems (Benor and Harrison 1977). It was introduced in Turkey in the seventies and later in India. The World Bank promoted the T&V model in Africa in the 1980s and by 1990 twenty two African nations were implementing the T&V extension model. However, by the late nineties, many African nations found themselves unable to finance the model. For a critique of T&V extension performance in Kenya, see Gautam & Anderson, 1999.

research service in Zambia. The other 15 have left for higher salaries with NGOs and the private sector. Although the World Bank has recommended to NEPAD that African nations should collectively increase the number of agricultural scientists by 50 percent over a ten year period (from 8,000 to 12,000), the Bank does not address the revolving door question of how to stop the outflow of scientists to better paying jobs with NGOs and the private sector (World Bank 2002a). Human capital degradation is a severe constraint on building an agricultural science base and efficient and sustainable delivery systems for a modern agriculture in Southern Africa. Few African Ministries of Agriculture have a coherent human resources strategy for the medium term over the next 10 to 15 years.

South Africa's new agricultural strategy reports that "support services to farmers in the former homeland areas have all but collapsed" (Department of Agriculture 2001,p.9). Moreover, South Africa's Agricultural Research Council (ARC) is experiencing a meltdown in its scientific base. For example, forty five scientists with PhDs have left the ARC over the past 24 months. The main reason is the sharp cutback in the Parliamentary allocation to the ARC over the past four years (Agricultural Research Council 2000/2001).³ The government has also mandated that 50 percent of ARC's future budget should come from contract research, a requirement that will undermine the ability of the ARC to carry out public goods research to assist smallholder farmers.

The Faculties and Universities of Agriculture in Southern Africa are being challenged to reexamine their *raison d'être* in an era of biotechnology, information and communications technology (ICT) and globalization. Increasingly, the following question is being posed: are African Faculties and Universities of Agriculture becoming obsolete in an era of biotechnology which requires knowledge from specialists throughout the university such as molecular biologists in Faculties of Science, experts on bio-safety and patents from Faculties of Law and guidance from Faculties of Commerce (Business Administration) on how to mobilize venture capital?⁴ These issues should be addressed by Mozambique's Ministry of Agriculture and Rural Development as it prepares its new human resources strategy.

Many African nations have spontaneously changed institution-building strategies and, in the process, they have unwittingly wiped out decades of hard-fought gains in capacity building. Zimbabwe, for example, recently merged its public research (DR&SS) and extension service (AGRITEX) with the goal of reducing administrative costs, but after two years of implementation, the merger remains problematic. Also Tanzania abruptly abolished its Ministry of Cooperatives and Ministry of Local Government in the 1970s and then reintroduced cooperatives in the 1980s. Tanzania recently transferred its national extension service from the Ministry of Agriculture to the Ministry of Local Government but it did not set up an

³ The South African Parliamentary allocation is not sufficient to cover ARC salaries, retirement and infrastructure.

⁴ See Byerlee & Fischer (2002) for a guide to building agricultural biotechnology capacity in developing countries.

Extension Secretariat in Dar es Salaam to provide overall direction and monitoring and evaluation. These unilateral and ad hoc shifts in institutional arrangements have been extremely debilitating. Instead of pursuing ad hoc reforms similar to those in Zimbabwe and Tanzania, the government of Uganda has been praised because it is pursuing a measured, comprehensive and long term restructuring of its agricultural institutions, including a restructuring of extension, research and Makerere University (Crowder and Anderson 2002).

PAINFUL LESSONS

What can Mozambique learn from these painful lessons of building and/or reforming rural institutions? Five insights emerge from the Pan African and global experience that are relevant to the institutional restructuring of MADER and DNER:

Political Leadership for the Long Pull

The most important insight is the strategic importance of political leadership in promoting and sustaining institutional reform over a period of decades. Political leadership in the State House coupled with demand side pressure from clientele groups played a critical role in building a productive system of agricultural service institutions in Malaysia, Taiwan, India, Brazil, Uruguay, and Chile. Moreover, these clientele pressures are central to the reforms of rural institutions that are currently underway in Uganda and Mali. But many donors have underestimated the complexity and cost of helping 48 nations in Africa develop sustainable agricultural institutions. Many donors cut their support in the 1990s to the three core institutions in the agricultural knowledge triangle: research, extension and agricultural higher education. Today, many donors seem to be assuming that competitive grants and private research organizations will be able to meet the research needs of 50- 60 million smallholder farms in Africa. However there is a danger that Africa's political leadership will follow donors and reduce their support for the three pillars of the agricultural knowledge triangle. African political leaders should stay the course because improved technology and efficient agricultural delivery services are prerequisites for alleviating rural poverty.

Crafting a National System of Rural Institutions.

Without question, there has been a widespread failure of imported models of rural institutions in Africa. Well known examples include the T&V extension model, the land grant model of education⁵ and the Asian Green Revolution model of increasing food production. Although these failures are painful, they represent valuable learning experiences for Mozambique. Instead of relying on imported institutions, Mozambique should devote primary attention to crafting a system of rural institutions that is compatible with its own history, culture, agrarian structure and political ideology. The challenge for

⁵ The Land-Grant model of higher education was enacted by congress in the United States in 1862 in order to meet the needs of an agrarian nation. The model allocated federal land to each state in order to provide a financial base (the land could be sold or rented) to underwrite the construction of one land grant college (later university) per state. Each college incorporated the triple functions of teaching, research and extension. The model is generally regarded as a failure in developing nations because of conflicts with well established research and extension services in Ministries of Agriculture. Therefore, in many developing countries land grant type of universities are basically teaching institutions.

DNER is to build a Mozambican extension system that is pluralistic, efficient and financially sustainable.

What is meant by a system of rural institutions? Basically it is an informal coalition of policy makers, public and private scientists and extension workers who communicate, cooperate and interact to achieve a common goal of “increasing human welfare through greater agricultural productivity” (Bonnen 1998). What does this mean in practical terms? It means designing a system of public and private institutions to assist farmers in increasing agricultural productivity to drive down the real price of food and improve household and national food security.

But rising agricultural productivity can do more than increase food production and help meet food security needs. If we focus only on food production, we are selling agriculture short. Agriculture can make four strategic contributions to overall economic development: food for a growing population, earning foreign exchange, capital formation, and serving as a market for the industrial sector. PROAGRI should devote attention to thinking through the human capital and institution building agenda for the medium term of 10 to 15 years and how to craft a national system of rural (public and private) institutions to help agriculture fulfill its multiple roles at this early stage of Mozambique’s economic history.

It is well known that the payoff to public and private investments in extension is critically dependent upon the performance of complementary institutions such as agricultural research, quality of rural infrastructure and access to credit and markets. Since agricultural extension is one component of a system of rural institutions, this study of the implementation of the Extension Master Plan will analyze how extension workers are linked, formally and informally, with their counterparts in research, other delivery services and with producer organizations. The bottom line is that the performance of a successful system of agricultural institutions adds up to more than the sum of its individual components.

Building a System of Institutions: Projects vs. Sectoral Approach

The use of donor-financed projects to strengthen agricultural institutions is fraught with coordination problems, high transaction costs and frequent donor meddling into local, provincial and national affairs (Morss 1984). The transactions costs of coordinating, reporting and evaluating an assortment of donor projects have proven to be extremely high. The Chief Economist of the World Bank’s Africa Department, reported that in 1999 donors sent missions to Tanzania at the rate of 1,000 per year and the government was producing 2,400 quarterly reports annually to meet the requirements of donors (World Bank, 2002a). Although numerous African countries have tried to persuade donors to co-finance comprehensive sectoral approaches to institution building, it has been difficult to get donors to pool funds and stay the course for a long period of institution building.⁶

⁶ In 1988/89, the Special Program for African Agricultural Research (SPAAR) identified Tanzania & Mali as the first concentration countries for donor coordination of agricultural research. SPAAR recommended a common funding mechanism (CFM) and encouraged donors to pool their funds in support of agricultural research in both countries. However, there was no mechanism for SPAAR to receive money from donors. Therefore, SPAAR encouraged the government of Tanzania to prepare a Research Master Plan and urged

Time & Continuity

Time and continuity are critical but underplayed components of building human capital and a productive and sustainable system of agricultural development institutions. It has taken many developing countries four to five decades of concentrated and dogged effort to build a strong agricultural science base and efficient public and private delivery services.⁷ But most donors use a short-term time frame and support institution building for five to ten years. The experience of India illustrates the critical importance of national political leadership and staying the course, year after year and decade after decade.⁸

Sequencing of Investments in Institution Building.

The crafting of a productive and financially sustainable system of agricultural institutions in Mozambique requires some hard decisions on the sequencing of investments in human capital, roads, credit, research, extension, and decisions on how to expand extension activities in some of the 73 districts not currently served by DNER agents. In my judgment, DNER, like India of the 1960s, has made a wise decision to concentrate its front line extension workers in 55 high potential agricultural districts of the 128 districts in the country.⁹ But there is a lack of profitable technology on the shelf for the family sector in many of these districts. Mozambique's public agricultural research system is being reorganized. However, it may take a decade before it acquires the capacity to deliver a steady stream of profitable technologies to extension providers and farmers. In the interim, Mozambique should intensify borrowing technology from neighboring countries and the global research system. An excellent example of "smart" borrowing is Mozambique's recent importation of the vitamin A enriched sweet potato from the CGIAR system. The tough questions surrounding the sequencing of public investments in human capital, research, extension and rural roads should be studied by PROAGRI.

donors to pool funds and contribute to the CFM. Donors however, had divergent interests and decided not to pool their funds.

⁷ It took Michigan State University 70 years (1855 – 1925) to develop the capacity to introduce its first PhD program.

⁸ See Lele and Goldsmith study of India's experience in building an efficient agricultural science base and agricultural service institutions (1989).

⁹ Mellor (1976) reports that India concentrated on building roads and irrigation infrastructure and deployed extension agents in 17 "high potential" districts where the output response was assumed to be the highest.

3. EVOLUTION OF AGRICULTURAL EXTENSION IN MOZAMBIQUE

T.W. Schultz, Nobel Laureate in Economics, once quipped that smallholder farmers can “turn sand into gold” if they have access to land, public and private agricultural services, favorable economic incentives, and access to markets. One of the critical “ifs” is the extension delivery system. This leads us to an analysis of the evolution of Mozambique’s extension system. The main target group for extension providers is the “family sector” (smallholders), which consists of roughly 3 million farms with an average size of 1.1 hectares per farm. The family sector occupies a total farming area of about 3.5 million hectares. The percent of arable land under cultivation is unclear.¹⁰

Mozambique was a latecomer in establishing a national public extension system in 1987. Mozambique’s 15 year history of public extension can be divided into four phases.¹¹ The first phase of extension from 1987-92 can be described as a “tepid launch” of public extension under difficult wartime conditions. For example, the civil war constrained the development of extension networks and kept extension workers near the provincial capitals or in zones with some degree of safety (Gemo and Rivera 2002). A large number of international NGOs also contributed to the public extension service during this initial start-up stage. For example, IBIS a Danish NGO, was fully integrated into public extension in Zambezia province.¹² Likewise the GTZ provided yeoman service in Manica Province. In addition, IFAD has provided valuable and on-going assistance to public extension programs.

DNER adopted the T&V extension model in 1988 and modified it in 1992 in light of the shortcomings uncovered under local conditions. The modified T&V model now in use is participatory rather than top down, uses the farming system as a point of intervention and schedules meetings with groups of farmers on a flexible basis rather than meeting fortnightly Mucavele (2002).

Peace was declared in 1992 and it ushered in the second phase of the national extension system from 1992 to 1997. During this period of rehabilitation, extension workers helped refugees return to their villages, resume farming and rebuild livestock herds. The rehabilitation effort was aided by massive international assistance that financed an array of NGO rehabilitation projects and macroeconomic and agricultural sectoral policy reforms. After considerable progress had been made on policy reforms, the Ministry of Agriculture decided to shift gears and undertake the badly needed institutional reforms to complement the policy reforms. To address free-wheeling donor behavior during the rehabilitation period, the government rationalized all UNDP projects under the Ministry of Agriculture in 1993 and used UNDP support to begin the preparation of capacity building for a sectoral approach to agricultural decision making.

¹⁰ The year 2000 Census of Agriculture reports that only 10 percent of the arable land is under cultivation. Others report that 40 percent is under cultivation. The actual figure probably lies between 10 and 40 percent.

¹¹ Gemo & Rivera (2002) divided the 15 year period into three Phases: Phase I, 1987-92 Launch period; Phase II, PROAGRI, and Phase III, Outsourcing.

¹² See Alberts et al. 1999

The third phase of extension development can be described as the PROAGRI phase starting in 1998 and covering the 1998-2003 period. After elections in 1995, the Ministry of Agriculture prepared PROAGRI (The National Program for Agricultural Development) under the leadership of the Vice Minister of Agriculture and ten technical working groups. PROAGRI consists of eight components, including agricultural extension. The agricultural extension component was based on the Extension Master Plan (DNER 1997). PROAGRI was launched because the Ministry of Agriculture found itself in a position throughout the nineties where its programs were being supported by “a confusing and an uncoordinated array of donor initiatives” (World Bank 1999). The government summarized its mixed experience with donor projects as follows:

“The MAP (Ministry of Agriculture & Fisheries) has been carrying out investments using external funds made available through projects in which the Government contribution stood below 10 percent of the global amounts. The projects are very often designed and implemented by donors, while the Government stands by as a mere observer or as a passive recipient within the chain of decisions regarding those projects. This situation has led to the lack of continuity of the projects and the weakening of the MAP itself, as the best staff have been attracted to work for the projects which offer better incentives and working conditions” (PROAGRI 1998).

In 1998, donors reviewed the PROAGRI (sector investment program) and endorsed its three major sub programs:

- Institutional development to improve the structure of the Ministry of Agriculture, strengthen the operations of the Ministry at both central and provincial levels and develop policy analysis capability;
- Strengthen agricultural support services – research, extension, increasing farmer participation and developing a more pluralistic extension service; and
- Improve natural resource management.

The fourth phase can be described as the outsourcing stage that was intensified starting in 2002.¹³ Gemo and Rivera (2002) report that the pillars of the Extension Master Plan are: institutional pluralism of extension providers, integrated National Extension System (SISNE) and multiple financial and delivery arrangements. DNER has adopted a learning by doing philosophy to find answers to three questions:

- How to nurture and develop an array of public and private extension providers.
- How to empower farmers and farmer organizations to enable them to inject strong doses of local knowledge into priority setting and farmers voice in the hiring and firing of local extension workers?
- How can extension be financed over time?

¹³ NGOs have outsourced extension from donors for more than a decade. DNER and the EC have made a concerted effort to pursue outsourcing starting in 2002.

4. APPRAISAL OF THE IMPLEMENTATION OF THE EXTENSION MASTER PLAN: 1998-2002

The terms of reference for this report call for a “critical analysis of the Extension Master Plan from 1998 to 2002 to determine its relevance and appropriateness in relation to current reality and developments”. The goal of the Master Plan is to develop a pluralistic extension service of public, NGO and private providers that is guided by strong demand pressure from empowered farmers and producer organizations. The Plan further states that the public sector will require a “minimum core competency” to disseminate “public good” technology to the family sector, develop human resource for the overall system and coordinate and disseminate successful experiences among extension providers.

The Extension Master Plan is a thoughtful, imaginative and valuable road map. The Plan is supported by a number of appendices, that are germane to the preparation of the second phase of the Extension Master Plan for 2003 to 2008.¹⁴

The Extension Master Plan identifies three limiting factors that require attention:

1. Weakness in technical messages (eg. planting in line, spacing)
2. Insufficient training¹⁵
3. Inadequate management, including weaknesses in implementation, supervision and financial disbursements.

I agree that these are some of the core weaknesses of the extension system. However, I think the alleged lack of technical messages is basically caused by a lack of profitable technology on the shelf for smallholders. Both the technology and insufficient training problems are system-wide problems requiring action by the Human Resources Directorate and by the four research institutions: agronomy, forestry, animal health and animal production.

The Extension Master Plan is vague on the total size of the public, private and NGO extension system. The Plan reports that the size of the public extension service will remain at 700 from 1998 to 2003 and then increase to a maximum of 800 (p.23) and decline because other providers are assumed to take over. But the 1997 Plan did not disclose the total number of NGO and private extension workers by district and province in Mozambique. DNER still lacks this information today. DNER should quickly carry out an extension density survey to acquire this information because it will be useful in preparing the 2003 – 2008 Extension Master Plan. For example, World Vision

¹⁴ These Appendices cover the role of subject matter specialists, modalities for housing and means of transportation, role of subject matter specialists and the placement of extension workers within an institutional framework. See DNER 1997a, 1997b and 1997c.

¹⁵ Seventy six percent of the 700 public extension agents in 1996 had less than the minimum medium level of education (13 years of formal schooling.)

International (WVI),¹⁶ has 300 agricultural extension staff members in Mozambique. CARE has 72 extension workers in Nampula Province and another 13 in Inhambane Province. (Wentling 2002) The current number of extension workers in Nampula Province a high potential area, is as follows: DNER 126; CARE 72; WVI 40 for a total of 238 extension workers.¹⁷

The Extension Master Plan is also vague on the total number of public, NGO & private extension workers in Mozambique that will be needed in the future. The Extension Master Plan calls for maintaining 700 public extensionists from 1998 to 2003, presumably because there is “a satisfactory number of extensionist’s at the district level with specific training and professional experience in extension” (p12). But the Master Plan notes that at the end of five years (2003), the extension service will only be serving about 25 percent of the 3 million farm families.¹⁸ What about the other 2.25 million farmers who will not be served by extension in 2003? The Master Plan does not justify why “the permanent human resources of the public extension service should be limited to a critical core of around 200 civil servants” (p5). There is no discussion of increasing the number of extension agents from 1998 to 2003 to serve some of the 2.25 million farmers who are not served by extension. More information is needed on the size of the national extension system, the number of farmers reached by extension and the justification for employing 200 public extension workers on civil service terms and the balance on annual contracts.

The Master Plan is ambiguous on whether profitable technology is available to the family sector. The Plan reports that technology is on the shelf and the problem is only one of “deriving appropriate technical messages.” For example, the Plan states that “there is a backlog of technological options and experience (either from other farmers, the research system or extension activities in the other parts of the country) that can be taken advantage of” (DNER 1997, p12-13). However, a number of recent studies decry the lack of technology on the shelf for the family sector (Danida 2002, 2002a; DNER 2002,). In our May 2002 field visits to six districts, we found there was a lack of cost of production studies of present and improved technology for the family sector and a general lack of connectivity between research stations and extension programs. We also noted that a number of research stations were inactive because of disbursement delays, lack of qualified staff and inadequate computer and support services.

The Master Plan discusses the parallel NGO extension system and the economic differential between public and NGO extension systems. The international NGOs are undermining the human capital base of DNER by offering salaries and benefits to extension workers that are at least double or triple those offered by DNER. This is a

¹⁶ Sally Henderson, World Vision International, Maputo, reports that the breakdown for the 300 is 200 extension technicians in the Field, 34 extension specialists with a BS and above degrees and 62 people in support positions (Henderson 2002).

¹⁷ The 238 figure is substantially higher than the 137 extensionists who were reported to be in Nampula Province in 2000 (World Bank 2001).

¹⁸ The Extension Master Plan assumes that each public extension worker will assist 225 farm families directly and about 775 farm families indirectly or roughly 1000 families per extension worker. Therefore it is assumed that the 700 public extension workers would reach roughly 700,000 farm families or about 25 percent of the 3 million farm families in Mozambique. (Teclerariam 2002).

serious problem and it is affecting the morale, turnover and performance of DNER staff in headquarters and in the field. The lack of motorcycles and housing for front line extension agents is also affecting the performance and morale of the extensionists. In addition, the failure to address the contract problem (400 of the 639 public agents are on annual contracts) encourages productive agents on annual contracts to seek jobs with NGOs and the private sector. The lack of transparent career advancement pathways was called to our attention during our meetings with front line extension agents in May 2002. Until MADER develops a Human Resources Strategy to solve some of these problems, DNER will continue to be undermined by staff turnover.

The Master Plan underestimated the time required to prepare the documentation and methodology to carry out pilot studies of outsourcing. DNER originally planned to launch pilot studies of outsourcing in 1990 but these were delayed until October, 2002 because of the time required to prepare the methodology, terms of reference and finalize contracts for the firms carrying out the outsourcing studies (DNER 2001, 2001a). Pilot studies of outsourcing were introduced in Nampula and Zambezia provinces in October 2002. Even though several observers have criticized this delay, it should be kept in mind that Chile rushed into outsourcing overnight in 1978 and issued prepaid vouchers to enable farmers to purchase extension assistance from private providers. But Chile abandoned vouchers six years later in 1984 because of hasty planning, corruption and market failure. Since learning by doing is an integral part of institution building, "one of the objectives of outsourcing is to prepare DNER to coordinate, oversee and regulate private sector providers (of extension) and to learn from the experiences of others" (Gemo and Rivera 2002, p. 151).

When the Extension Master Plan was prepared in 1997, there was understandably little debate on global issues and the need for agriculture in developing countries to become globally competitive. There is now an urgent need to develop a new cadre of research officers with knowledge and expertise in biotechnology, bio-safety, supply chain management, trade, marketing, and agribusiness.¹⁹ The family sector also needs increased extension assistance in helping farmers generate new income streams from value-added commodities, processing, marketing and enhanced global competitiveness.²⁰ DNER should develop a plan to hire four value-added extension specialists and post one on each of the four zonal research centers.

My overall assessment is that the thrust of the Extension Master Plan is sound and on target after four years of implementation. However, there are some internal and system-wide problems constraining the performance of DNER. The future performance of DNER is critically dependent on correcting the incentive structure for extensionists, the lack of profitable technology for the family sector and the lack of demand pressure from clientele groups. But DNER cannot by itself solve system-wide problems such as the lack of incentives, job insecurity and the limited connectivity between extension and research. Therefore, as DNER updates its Master Plan, it will be important to focus on these "bread and butter" issues in discussions with the Human Resources Directorate, the Directorate

¹⁹ See Berdegue, Reardon & Escobar (2002) for details.

²⁰ See Phillips and Serrano 1999.

of Economics, the Technical Council of Agricultural Research, NGOs and farm organizations and other clientele groups.

I recommend that DNER set up an Extension Learning Center (ELC) to collect and maintain records of on its ongoing extension reforms, its experience with outsourcing as well as reforms in southern Africa and in other parts of the World. This information will assist in preparing field experiments on outsourcing, cost recovery, cost sharing, farmer field schools and participatory extension models. The results of these field extension experiments will provide a national data base on alternative approaches to achieving a pluralistic, unified and cost effective extension service. After functional Mozambican models of extension are developed over the coming five years, the challenge over the subsequent 10 to 15 years will be to scale up these models to serve a larger number of districts and a larger number of farmers.

5. CRAFTING MOZAMBICAN MODELS OF EXTENSION: THE NEXT FIVE YEARS

PUBLIC EXTENSION AND PROAGRI

Crafting Mozambican models of extension is basically an accretionary institution building, process that unfolds slowly and almost invisibly over time. I have highlighted the achievements of the first four years of the implementation of the Extension Master Plan, and identified seven internal issues facing DNER. The resolution of these issues will help build a national extension system, with improved cooperation between the state, NGOs, farmer associations and the private sector over the 2003 to 2008 period. We shall focus on the next five years and then discuss outsourcing in the next section in a time horizon of 10-15 years.

Extension is one of eight components of PROAGRI. PROAGRI is now in its fourth year of operation and it has a number of accomplishments to its credit. First, PROAGRI has tightened financial accountability at central, provincial and district levels. During our field visits, we were informed that the disbursement of funds had been improved at the provincial level, but that there were still some disbursement problems at the district level and at some research stations. Although it has taken three of four years to improve financial disbursement, the partners in PROAGRI have praised this achievement. The second accomplishment is the decentralization of MADER. An estimated 60 percent of PROAGRI funds will be allocated to provinces in the 2003 PROAGRI budget (PROAGRI 2002). The third achievement is getting donors to exchange ideas and pool funds in exchange for one-stop accountability.

With improved financial management system in place, PROAGRI is shifting its attention from financial management to substantive issues that can affect the future performance of the Ministry of Agriculture and Rural Development, including DNER. There is a need for PROAGRI to figure out how to solve three system-wide problems that are constraining the performance of DNER: poor incentives for extension staff, lack of profitable technology and the lack of on-going micro-economic studies of new technology and alternative extension delivery models.

STRENGTHENING DNER: SEVEN INTERNAL ISSUES

We begin with a discussion of the general prescription and the special case. Over past decade proponents of structural adjustment programs have exerted persistent pressure on African governments to reduce public sector employment and move to a market economy. This general prescription has also been used to justify the reduction in the size and public expenditures on many national research and extension services. But Africa is a complex continent of 48 countries at different stages of economic history and institutional development. The T&V extension model was promoted as a general prescription for Africa starting in 1982 but, after two decades, the T&V model has turned out to be financially unsustainable. Therefore it is obvious that one should critically examine the general prescription to downsize public extension and research throughout Africa. To be sure, many academics and donor specialists have endorsed the general prescription of a new extension paradigm that embraces decentralization, participation,

outsourcing (contracting) and cost recovery with the goal of reducing the size of the government bureaucracy and public outlays on extension.²¹ But despite the appeal of the general prescription of donors to downsize research and extension systems throughout Africa, it does not follow that the general prescription to downsize and privatize public extension and research should become the specific prescription for Mozambique.

Mozambique is a special case, a country at peace for only a decade, a country with one of the youngest and smallest public extension services in Africa. Moreover, Mozambique has a surprisingly small stock of human capital in both research and extension. Several comparisons of the stock of human capital add a sense of reality to this view. Mozambique's INIA (National Institute for Agricultural Research) has 66 scientists (Harun 2002) as compared with 65 in the NARS of Botswana, a nation of 2 million (Sigwele 2002). Mozambique currently has 639 extension workers in DNER (down from 700 in 1997) as compared with 12, 000 in Kenya.

A number of internal issues/problems should be addressed by DNER during the preparation of the extension plan for 2003 to 2008. First DNER should compile an Extension Density Map that records the total number of (DNER, NGO and private) extensionists in each of the 128 districts in Mozambique. This information will be invaluable in making human resource projections for the next five years and determining the districts where the DNER/NGO mix should be changed. The recommendation of the 1997 Extension Master Plan to set a ceiling of 800 public extension workers seems arbitrary (DNER 1997, p23) because it is based on the heroic assumption that the private sector will rise to the challenge of supplying extension assistance to a large number of the 3.3 million farmers in the family sector. Without question, DNER is understaffed to meet the needs of the one million farmers that it is trying to serve. In fact, the forthcoming PROAGRI evaluation will likely conclude that public expenditures should be increased for both research and extension and that donors should gradually shift some of their support from NGOs to public research and extension.

The second internal problem that DNER should address is the urgent need to commission several impact studies to determine the costs, benefits and impact of public extension services in Mozambique. These studies can be jointly designed by DNER, INIA and the Policy Analysis Department. DNER needs to carry out impact studies of selected food crops (e.g. Vitamin A sweet potatoes and maize), cash crops for export and livestock. Since both DNER and INIA's benefits to society are poorly documented, it follows that DNER and INIA should jointly undertake these studies to inform MADER, the Ministry of Finance members of Parliament and donors of the cost, benefits and impact of public investments in extension and research.

Third, since front line extension workers are working under unacceptable housing and transport conditions, DNER should update the proposals in the 1997 Master Plan on this topic. MADER should request donor to finance the construction of several hundred

²¹ The Extension Master Plan calls for a reduction in public expenditure in extension "in the long run" (1997, p.33).

houses and provide motorcycles to interested extensionists on long - term purchase contracts similar to those developed by CLUSA (1999).

The fourth issue is the need to change the mindset of managers from importing and modifying foreign extension models to focusing on building Mozambican models of extension. The 1997 Master Plan sidestepped the question of whether to abandon the modified T&V model by introducing the concept of a Unified Model of Extension (SUE) that stresses cooperation between DNER and MADER Directorates of Animal Production and Forests and Wildlife. Our field trip revealed a number of partnerships between agriculture and livestock, but partnerships have proven to be more elusive in forestry, partially because forestry extension agents have to enforce regulatory duties. However, the Directorate of Forests and Wildlife is to be commended for helping communities develop self-managed community forestry programs and for initiating a 10 year joint Agro-forestry Project with ICRAF. To summarize, I see no need for DNER to continue to embrace the modified T&V model. I suggest putting the emphasis on crafting Mozambican models of extension, which may or may not include some components of models used in other countries.

The fifth issue is the need to accelerate the devolution of extension programming to the district level. I have observed that the decentralization of research to the provincial level (state in USA and prefecture in Japan) and the devolution of extension to the district level are the hallmarks of a productive agriculture. In Mozambique, the devolution of extension is now underway to the provinces but our field trip revealed that it is still not functioning smoothly at the district level. Decentralization of extension to the district level can give voice to farmers and farm organizations in setting extension priorities and eventually help co-finance extension. Much work remains to be done over the 2003 - 2008 period to empower farmers and farm organizations to generate some financial support for local extension workers. DNER should map out a rigorous and time bound plan of work on building the demand for extension services.

The sixth issue is for DNER to build working partnerships with INIA stations, NGOs, the private sector and farmer organizations. These partnerships are currently underdeveloped at the national, provincial and district levels. In order to promote extension and research synergies, I recommend shifting the scope of DNER's proposed Extension Management Committees for Districts (DNER 2002a) to the Provincial Extension & Research Management Committee in order to increase the connectivity between extension and research. In due course this same type of committee can be established at the District level.

The seventh issue is the need for DNER to develop some technical capacity in marketing and value-added commodities. Competitiveness in global markets is a critical challenge to agricultural research and extension services because African agricultural exports have declined dramatically from 8.6 percent of world agricultural exports in 1961 to 3.0 percent in 1996 (Binswanger and Lutz 2001). But Africa's extension services have historically focused on agricultural production, not marketing and adding value to commodities. In Mozambique, around 90 to 95 percent of all public extension workers are agronomists who are trained to help farmers increase agricultural production. The challenge for extension and research specialists is to ferret out new regional and global markets and help the family sector meet food security needs and generate new income streams from

the sale of value-added commodities such as sesame, paprika, and fruits and vegetables in national, regional and global markets. DNER should review the research that the Department of Policy Analysis (DAP) has underway on agribusiness and market development and determine how it can join forces with DAP on some of these activities.

TWO SYSTEM-WIDE PROBLEMS

Human Resources and Incentives

We shall now turn from the seven internal issues facing DNER to two system wide problems that are impeding the work of DNER extensionists. The first is human resources and incentives and the second is the lack of profitable technology for extensionists to diffuse to the family sector.

Nobel laureate T.W. Schultz's discovery that investments in human resources (formal, informal education and on- the- job training) can make a strategic contribution to economic development has been praised as an important contribution to development economics. But surprisingly after almost four years of operation of PROAGRI, the Ministry of Agriculture and Rural Development does not have a human resources strategy that addresses training needs, incentives, performance review, and career advancement pathways. The need for a strategy is apparent because MADER has 7070 staff members and PROAGRI acknowledges that staff competence is low in MADER at all levels. In May 2001, PROARGI called for a "strategic vision for human development". In May of 2002 this request was repeated and the partners in PROAGRI have requested a human resources strategy to be prepared in time for discussion at its semi-annual meeting in November, 2002 (PROAGRI 2002).

The most important finding in our analysis of human resources and incentives was the constant turnover of DNER staff in headquarters and in the field. For example, DNER has had three National Directors in the past four years. Another serious human resources problem is the distortion in economic incentives caused by foreign aid-financed extension programs which have created a parallel NGO extension system with substantially higher salaries and benefits than those enjoyed by DNER staff.²²

In our meetings with front line extension workers in six districts in May of 2002, the workers usually led off with a discussion of the increased dispersion of farmers over the past decade and the need for them to travel long distances by bicycle from their homes to their assigned villages where they work with two to three hundreds farmers. Most primary school teachers are given housing near their school, but with the exception of a few houses built by Irish foreign aid for extension staff, most extension workers have to find their own houses and ride bicycles 8 to 14 km to their villages for their work.²³

²² A NGO representative commented noted that the public extension workers were probably receiving per diem for their day-to-day work in their villages and that these per diem payments would probably narrow the financial gap between public and NGO extension workers. This issue was investigated and I was informed that front line public extension workers do not receive per diem for their day-to-day work in their villages.

²³ See DNER 1997b for an Annex to the Extension Master Plan that discussed motorcycles and housing.

Several extension workers reported that they could increase the number of farmers served by 50 percent if they were allocated a motorcycle, preferably on a purchase arrangement similar to the one developed by CLUSA (1999). One of the IFAD extension advisors in Manica province reported that a motorbike scheme has been operating smoothly in Zimbabwe for a decade but rural roads are in better condition in Zimbabwe than in Mozambique.

DNER should carry out studies of the cost of building houses, providing motorcycles to agents in areas with suitable roads²⁴ and a scheme to integrate some DNER agents on contracts into the civil service based on performance. The results of the pilot retirement program of DNER agents in Manica province should be assessed. Currently 57 staff in the province are in the process of being retired with the assistance of GTZ/ROCIPP funds (PROAGRI 2002, p.2). In short, major changes in the incentive structure are needed to reduce the brain drain from DNER to the NGOs. Resolving the incentive problem is one of the most important issues to address in updating DNER's plan for 2003 - 2008.

DNER should set up a task force to study the transport problem, including the problem of maintenance of motorcycles that was flagged in the recent DNER supervision mission to Gaza province (DNER 2002). The transport problem is an old problem but it should be revisited and addressed in the 2003 - 2008 Extension Master Plan. Our discussions with extension workers also focused on incentives, and career advancement pathways for those on civil servant terms and workers on annual contracts. Contract extension workers were generally unaware that an extensionist with a certificate or diploma over 35 years of age could not become integrated into the civil service. The agents discussed the public/NGO differential in salary, transportation and housing. Many reported that the NGO financial package was double or triple the value of that of DNER agents and researchers.²⁵ In Manica province, 51 of the DNER extensionists were on annual contracts and only two were civil servants.

To summarize, the recruitment, training, promotion and rewards for DNER staff at all levels are crucial issues that need to be debated and resolved because the front line extension workers feel like they are second class clerks compared to their counterparts in NGOs. Without question, the brain drain is undermining the ability of DNER to achieve its full potential. These issues should be pursued by a DNER task force and the findings assessed by the team preparing the 2003-2008 Extension Master Plan.

Although several reviewers have rightly pointed out that NGOs have helped train and upgrade former public sector extensionists who have joined the NGOs, I am convinced that the public extension system is the cornerstone of Mozambique's pluralistic national extension system at this early stage of institutional development. Therefore, policy attention should focus on leveling the playing field between public and NGO extension workers. Without question, the large financial gap between public and NGO extension

²⁴ A recent supervisory mission to Gaza Province discovered that 20 motorcycles were in need of repair in the Manjcaze District where motorcycles have been given to DNER extension workers. (DNER 2000).

²⁵ Ten INIA scientists have been trained overseas during the last decade but five of the ten are now working for NGOs on extension projects because of the attractive financial package offered by NGOs.

and public extension workers is a barrier to the growth, evolution and performance of the cornerstone – DNER – of Mozambique’s national extension system.

Because of Brazil’s success in capacity building in agriculture, it might be helpful to examine how Brazil patiently developed its impressive human capital base. In 1963, the government took a high level political decision to build a human capital base for a modern agriculture. With USAID financing, four American land grant universities assisted four Brazilian universities in strengthening BSc level training in Brazil for a decade followed by another four years of support for postgraduate education. In 1972, the government established EMBRAPA (Brazilian National Agricultural Research Corporation) to coordinate its national research program. EMBRAPA launched a massive human capital program and spent 20 percent of its total budget from 1974 to 1982 on training programs in Brazil and abroad. In fact in the late 1970s and 1980s, EMBRAPA had an average of more than 300 researchers enrolled each year in postgraduate training programs. Today, one third of EMBRAPA scientists have a PhD degree, half have M.Sc degrees and the balance have a B.Sc. (Beintema et al 2001). Brazil’s success story poses the question: should Brazilian educators be invited to assist MADER in developing a human resources strategy for the entire Ministry, including DNER?

The Lack of Profitable Agricultural Technology

Agricultural research in Mozambique has two fundamental roles to play in development. The first is to generate new technology to increase food production which can help meet the food security needs of families and the nation. The second is to develop new technology to help farmers generate new income streams from the sale of commodities in local, regional and global markets. The generation of new income streams from high value commodities such as paprika, turmeric, cardamom, cloves, annatto, and herbs (rosemary, basil, and sage) can raise taxable capacity and the imposition of taxes on agricultural exports can help finance local governments, including some of the cost of extension.

The Extension Master Plan highlights the “lack of technology messages” as a key problem. But on the basis of our field visits. I contend that the basic problem is the lack of profitable technology to use in preparing technical messages for the family sector. Our field visits reaffirmed the findings of several studies that show that agricultural research is the weak link – perhaps the weakest link – in the agricultural knowledge triangle (research, extension and higher agricultural education) in Mozambique.

Field visits, interviews and recent reports support the view that there is a lack of profitable technology for the family sector:

- A recent study concluded that the output of the four public research institutions in agriculture was “below expectations” (Royal Tropical Institute, 2002, p ii).
- Four of the five research stations that we visited could be considered as “inactive”. A few were facing financial disbursement problems. We found a total of one social scientist at the five stations.

- Many of the stations appeared to be in limbo, awaiting guidance from Maputo on how the institutional reforms would affect their station and their careers.
- Our field visits to five research stations revealed a heavy concentration on maize research. However, since the cost of fertilizer is US \$350 to 400 a ton at the farm level, several NGOs reported that they were not recommending the use of fertilizer on maize because it was not profitable.
- A study by agricultural economists of SG 2000 programs in Nampula and Manica provinces in 1998 revealed that the application of fertilizer increased smallholder maize yields but due to the high cost of inputs and low maize prices, many farmers lost money (Howard et al 1998). Although these results have been challenged by some experts in Maputo, there is general agreement that the 1998 maize study should be updated and similar studies carried out on other commodities.
- A study of maize in the northern part of Zambezia province found that “although there was a large biological response to fertilizer, the returns for using fertilizer were not particularly attractive due to the high cost of fertilizer, extra weeding needed in fertilizer plots and the low price of maize” (Hilton et al 1998/99).
- A recent Danida - sponsored study reported that “the research system remains largely unaffected by reform and maintains a top down approach not geared towards responding to farmer needs on community requests” (Danida 2002). The report added that social scientists were urgently needed to relate technology development to on going policy reforms.
- In March 2002 a DNER supervision mission to Gaza province reported that “the team has observed that there is a shortage of available technological options.”(DNER 2002).
- During our field visit a provincial agricultural officer reported that “we need new technical messages. We have preached the same messages such as planting on line for ten years. We need messages on conservation farming, tobacco, animal husbandry and fish farming.”
- The May 2001 PROAGRI meeting concluded that it would take 10 years to develop a productive research system (PROAGRI 2002). What can be done over the next decade to acquire new technology while the agricultural research system is being overhauled? I propose setting up a DNER/CTIA Task Force to work closely with provincial DNER agents, researchers, NGOs and the private sector and carry out a series of cost of production and marketing studies of traditional and improved technology on the major food and promising new cash crops such as paprika, turmeric, sage, annatto, sesame, sunflower etc.²⁶

²⁶ Messiter (1999) reports that a new open pollinated sunflower variety in South Africa was reputed to yield 50 percent more oil content than local varieties. Also see Langworthy et al 2001 for a discussion of CARE's experience with sesame. The planned opening of the new private Cheetah paprika processing plant in Nampula in 2003 has been applauded because it will represent an investment of US\$ 1 million,

EXTENSION LEARNING CENTER (ELC)

I recommend that DNER set up a small Extension Learning Center (ELC) to improve DNER's capacity to learn how to develop a unified and pluralistic extension system over the coming 10 to 15 years. This proposal is based on my observation that the on-going reform process is exploratory and experimental and that the results of experiments should be stored and made available to government agencies, NGOs, universities, donors and the private sector. The ELC should include a small collection of several hundred books and reports on global extension programs, reforms and survey methodology. The ELC can assist DNER staff and others prepare literature reviews for special studies such as outsourcing and extension density maps. The ELC can cooperate with other agencies such as DAP and INIA in studying the impact of new extension approaches such as the Farmers Field Schools (FFS) approach which has been successful in Asia but unsuccessful to date in Mozambique.²⁷ One of the questions to address is why has the cost of FFS programs being implemented by WVI in Mozambique been much higher than those in Asia (Danida 2002a).²⁸

The ELC can assist in the design of impact assessment because they have a critical role to play in learning how to craft a system of productive institutions. However, to date, impact assessment has been used primarily for accountability purposes by documenting projects in response to external pressure from donors. Impact assessment can also be used to learn how to build capacity and increase the sustainability of research and delivery systems. A balanced approach to impact assessment can produce results that will shed light on accountability and learning how to craft alternative models of agricultural services.

The ELC can help strengthen the connectivity between public, NGO and private extension organizations and between DNER and research and with other Directorates in MADER. An alternative to developing an ELC would be to have DNER & INIA develop and operate a joint Extension and Research Learning Center (ERLC). The ERLC could be launched at the provincial level rather than as a national center in Maputo. This approach is appealing because it promotes bottom up learning on how decentralization and research/extension cooperation is evolving at the provincial and district levels and it increases the connectivity between research and extension.

employ 50 to 80 local people and have the capacity to produce one thousand tons of finished product from the production of paprika from approximately 10,000 farmers. Each farmer is assumed to grow about 1/5 of a ha of paprika and earn about US\$ 40 to 60 each year. Cheetah will supply paprika seed and, a guaranteed harvest prices for four grades of paprika. Cheetah will rely on DNER and NGO extension workers help to farmers growing paprika. The Cheetah story is a textbook case study of public/private cooperation, rural income generation and value-added exports. CARE has prepared an excellent handbook for paprika cultivation (CARE 2001).

²⁷ At the farm level in Asia, the FFS program teaches farmers how to manage their rice plots as ecosystems, carefully maintaining the balance between pests and their natural predators and reverting to pesticides only when the pests are getting out of hand (Roling and Pretty 1997).

²⁸ The FFS approach seems to be best suited to rice mono cropping in Asia.

6. REFLECTIONS ON OUTSOURCING AND COST RECOVERY: THE NEXT 15 YEARS

Historically many countries have pursued outsourcing under various approaches such as gradual privatization (in the Netherlands), partial cost recovery (in England) and commodity extension programs (Dairy Board in New Zealand) (Rivera and Carey, 1997). Fortunately a landmark book of case studies on outsourcing extension has just been published (Rivera & Zijp, editors, Contracting For Agricultural Extension, 2002). I shall draw on some of the excellent case studies in the following review of outsourcing extension in industrial and developing nations. The DNER manual defines outsourcing as “the act of public sector extension of involving the private sector (whether private companies, NGOs, farmer associations, or registered individual extension consultants) to assume responsibility for providing extension services, in part or in full” (DNER 2001).²⁹

Let us start with the Chilean model of outsourcing extension because it is considered a success and it is being used by donor specialists and academics to promote outsourcing.

GLOBAL INSIGHTS

Chile

Chile is a dynamic, middle-income country of 15 million people, a life expectancy of 76 years (compared with 77 in the United States), a per capita GNP of US\$ 4600 and excellent all-weather roads. Chile's outsourcing experience can be described as a process of continuous innovation and refinement of its model since it was introduced in 1978. This experience can be divided into four phases:

Phase 1: 1978-84. Vouchers for Farmers. In 1978 the government of Chile made an ideological decision to privatize the economy, reduce subsidies and move aggressively to an open market economy. Chile privatized its public extension system overnight and farmers were immediately offered prepaid vouchers to purchase extension assistance from local agronomists, veterinarians, input dealers and traders. But there was a market failure in the countryside because of paucity of agronomists, veterinarians, and consulting firms to supply services to farmers in exchange for vouchers. Some farmers sold their vouchers, corruption grew and the voucher scheme was dropped in 1984 after six years of trial. Chile's ill-fated voucher scheme illustrates the danger of introducing a national program without pilot experimentation for a few years.

Phase 2: 1984-89. Integrated Technology Transfer System. The voucher system was replaced with a government-regulated Technology Transfer System with a focus on helping smallholders produce food for the domestic market. But under the military government, many NGOs and farmer organizations were not allowed to bid on contracts to provide extension services. At the end of this second phase in 1989, about 24,000 small-scale farmers were participating in the scheme.

²⁹ This summary draws on Berdegue and Marchant (2002).

Phase 3. 1990-96. Production for the World Market. In 1989 civilian-rule replaced military rule and the new government focused on helping the poor by changing the production goals from food crops for domestic markets to fruit, vegetables and other high value commodities for global markets. Also the new civilian government encouraged more extension providers to compete for contracts. After only two years of Phase III (1990 to 1992) the number of farmers participating in outsourcing schemes doubled to about 47,000.

Phase 4. 1996 to Present. The Agricultural Advisory Service (AAS). The name of the program was changed to the Agricultural Advisory Service and the following changes have been introduced:

- a. A greater role for farmers groups to choose, contract, evaluate and if necessary, replace the service provider
- b. greater responsibility of farmers in co-financing extension services
- c. promotion of the idea that the objective of the AAS was not simply to increase production, but to increase the ability of small scale farms to compete in an open market economy (without subsidies) and
- d. the introduction of municipal grants³⁰ to help poor subsistence farmers who would have difficulty competing in a market economy. Roughly 20,000 of the 52,000 AAS farmers received advice and help from municipal governments in the year 2000.

What lessons flow from the Chilean experiment for Mozambique? First it has taken several decades to build a pluralistic extension delivery system. Second, after two decades of experimentation and a significant reduction in cost, the outsourcing system is still receiving 85 to 90 percent of the total cost (US\$ 22 million per year) of outsourcing from public resources. In short, Chile has patiently developed an effective model of private delivery and public financing of agricultural extension for small-scale farms. Although Chile has slashed the size of the public extension bureaucracy, it has not reduced public expenditures on extension.

China

China's transition to a market economy in the 1980s resulted in a major reduction in public sector employment and a requirement that public service institutions, such as extension and research, recover all or part of their operating costs. Over the past decade, China has downsized extension both in terms of number of extension staff and public funding.³¹ China's approach to extension reform can be classified as building a extension system with public and private components. Agro-Technical Extension Centers (ATEC) have been constructed in each of the 705 townships in the nine

³⁰ The municipal grants averaged US \$240 per farmer per year.

³¹ This summary draws on Swanson (2002) and the World Bank (1999a).

provinces participating in the World Bank- financed scheme. Each ATEC includes an input supply center, diagnostic clinic and classroom for training farmers and for meetings of farmer associations. Under this model, the county government pays the salary of one or two government extension staff who conduct training courses and extension demonstrations within the townships. The government extension staff (civil servants) in the townships are supported by a team of three to five agricultural college graduates (three years of post secondary schooling) who work as technicians in the input supply store and the diagnostic clinic. Farmers bring their problems to the stores and pay for soil tests and other services from the technicians. The technicians also advise farmers on what inputs to use and how to use them on a fee basis. Essentially, government extension workers handle all group training and supervise the paid technicians and the profits from the sale of commercial services are used to pay the salaries of the technicians who are on contract. In the case of extension livestock clinics, there is a full cost recovery for artificial insemination (AI) services, vaccinations and the treatment of animals. (World Bank 1999a)

What can Mozambique learn from China's public/private model of extension? China's model represents an innovative partial cost recovery scheme by passing on part of the cost of extension to farmers. However, the success of this partial recovery of extension services is critically dependent upon having a high percentage of farmers purchasing farm inputs and paying for soil tests and other services. In China, for example, about 80 to 90 percent of the farmers purchase commercial fertilizer as compared with only 2.7 percent in Mozambique today (Low 2002). Hence, it will be difficult for Mozambique to adopt this model and expect extension to be financed by poor farmers when only a trickle of subsistence farmers have the means to purchase fertilizer, pay for soil tests etc. In my opinion the Chinese public/private extension model is premature for Mozambique.

Uganda

Over the past 15 years, Uganda liberalized its economy and regained its position as the largest coffee producer on the continent. The revitalization of agriculture has been guided by the Plan for the Modernization of Agriculture (PMA), which calls for the decentralizing of extension to the district and sub-county levels and contracting with private farms, NGOs and farmer associations to deliver extension services to small scale farms.³² In 1998, the Directorate of Extension in the Ministry of Agriculture, Animal Industry and Fisheries was abolished and central extension staffing was reduced by 80 percent. In 2001, the new National Agricultural Advisory Services Programme (NAADS) was launched with support from the World Bank, DFID and other donors. The first phase of NAADS is expected to cost \$107 million over a six-year period. A newly created NAADS Secretariat is providing overall direction for extension reform. The major reforms planned include the further decentralization of extension responsibilities from the district to sub-county level, cost sharing between national, and local governments and allocating about 2/3 of NAADS total resources to finance the contracting of extension services to private firms, academics, NGOs, farmer associations and the National Agricultural Research Organization (NARO).

³² This section draws on Crowder & Anderson (2002), and Nielson (2002). Nahdy, Byekwaso & Nielson(2002).

The Ministry of Agriculture will provide a regulatory framework and policy guidelines for the new extension model. The private sector is being encouraged to invest in input delivery and marketing farm products. Pooled funding from donors will flow from the districts and on down to sub-counties. Farmer organizations will use donor funds to pay for advisory services from an array of service providers. The public research service NARO (National Agricultural Research Organization) is decentralizing its services by posting small teams of researchers to each of the major agro-ecological zones.

Uganda's new extension reform program is only one year old but it is built on a foundation of stakeholder debates on how to restructure the three core institutions in the agricultural knowledge triangle (Nahdy, Byekwaso and Nielson 2002). The number of NGOs and private firms delivering extension services has increased. The strategic question is whether individual farmers and farmer organizations will be able and willing to pay for extension services after donor funding to NAADS has been terminated?

MALI

Over the past decade, the government of Mali and donors have helped develop a network of private veterinarians to replace government veterinarians who have been accused of being too costly and ineffective in increasing livestock production³³. In 1998, French foreign assistance underwrote the cost of an international NGO to train private veterinarians, and set up producer associations and Regional Agricultural Chambers (RACs). The RACs prepared contracts with 120 private veterinarians in 1999. The veterinarians were paid \$20 per visit per village to provide free extension assistance to herders. The herders and farmers paid the full cost of vaccines, artificial insemination (AI) drugs and fly traps. The total cost of these services is \$320 per village. Plans are under way to replace the international NGO with a local NGO to cut the overall cost of training new veterinarians and convening seminars and meetings. There is now pressure on the government to play a more important role in preventing unfair competition and supporting the training of private veterinarians. A big question mark is what will happen when French foreign aid withdraws its support from the international NGO?

OUTSOURCING EXPERIMENTS IN MOZAMBIQUE

The Extension Master Plan asserts that outsourcing can reduce the amount of government resources allocated to extension and the number of publicly-financed extension workers "in the long" run as the private sector and civil society take on an increasing role in promoting new production and post-production options (DNER 1997 p. 33). How long is the long run? Chile's outsourcing experience is relevant because after 22 years of vigorous experimentation with various outsourcing models, only 52,000 small-scale farms are participating in Chile's outsourcing schemes (Berdegue & Marchant, 2002). If it has taken Chile 22 years (1978-2000) to "scale up" to serve 52,000 farmers, how long would it take for Mozambique to scale up to serve 1,000,000 farmers (1/3 of the present 3 million family farms in Mozambique)? I am of the opinion that 15 years should be chosen as the appropriate time frame to expect some appreciable

³³ This case study is based on Ouinet and Gauthier 2002.

success in the outsourcing of extension in Mozambique because of the growing recognition that crafting institutional reforms is a pragmatic, exploratory and social learning process that unfolds over years and decades. Pilot studies are a fundamental part of the outsourcing process.³⁴

In Mozambique, outsourcing has been pursued on an ad hoc basis for more than a decade through has been a “patchwork of donor-funded projects”. During the rehabilitation phase of extension from 1992 to 1997, numerous international and local NGOs provided extension services to farmers Crowder 2001 (p.113). During the mid 1990s, under the World Bank’s Agricultural Services Rehabilitation Project, private Joint Venture Companies were paid to provide extension services to the family sector (World Bank 2001).³⁵ A Joint Venture Company working in a cotton zone was selected by DNER to deliver extension services to the family sector but the JVC’s financial terms were unacceptable and the program failed to take root. Crowder reports that the chosen JVC “felt entitled to incentives or subsidies from the government” which were “60 percent more costly” than the comparable public-sector extension services (2001, p.116).

A large number of NGOs are currently delivering extension services to the family sector on contracts (outsourcing) financed by donors. WVI has 300 total staff in Mozambique and CARE has 85 extension workers in Mozambique.

DNER Outsourcing

MADER has adopted a gradual and experimental approach to outsourcing (contracting out). DNER has developed a manual (DNER 2001) and terms of reference for outsourcing extension (DNER 2001a). In October 2002, DNER announced that a consortium of four NGOs headed by CARE had been chosen to carry out a study of outsourcings in Nampula Province from 2002 to 2005. The four NGOs chosen to study outsourcing in the Murrupula District in Nampula Province are: CARE, CLUSA, OLIPA (a Mozambican NGO) and Agro-Alpha (a private input supplier). The total estimated cost for the three year outsourcing study in Nampula Province is around one million US dollars. DNER will sign a contract in the November 2002 with a firm to carry out a similar three year outsourcing study in Nicoalala District in Zambezia Province over the 2002-2005 period. Similar three year studies are planned to be initiated in Niassa and Gaza Provinces in 2003. The first task will be to select a group of farmers to be studied by the outsourcing contractor and the other will be a “matching group” of farmers to be served by DNER extension workers.

I have four concerns with the scope of the work laid out in the DNER manual and terms of reference for the outsourcing studies (DNER 2001, 2001a). First, I think that the scope of the studies is too comprehensive for the task at hand. For example, the TOR

³⁴ World Vision International recently has adopted a 15 year time span for rural development projects in developing countries because they can be financed through sponsored projects. Sponsored projects are funded from private donations in the United States and other countries and they are assumed to have more stability in funding than government contracts (Henderson, 2002). The use of a 15 year time frame is enables project managers to carry out a three to five year pilot phase before scaling it up.

³⁵ Crowder (2001) report that state-owned cotton companies were partially privatized in the late 1980s by the formation of Joint Venture Companies (JVCs) through investments by international agribusinesses.

reports that in addition to the four main goals, “the contractor will explore best how to address other related areas in the district such as gender mainstreaming, natural resource management and rural youth development, as well as problems related to infrastructure availability and affordability of input supplies, markets and transportation” (DNER, 2001a, p.3). I recommend reducing the scope of the proposed studies.

My second concern is the quantity of data collected may overwhelm the contractor. For example the DNER manual calls for the contractor “to institute regular reporting, maintenance of records on farmers and farming systems in the District, and general record keeping on rural agricultural development needs, such as, social services, input supplies, agricultural credit, commodity markets and infrastructure” (DNER 2001, p5). Again I suggest cutting back on the amount of data to be collected.

My third reservation is about the vague nature of some of the indicators of outsourcing success and the difficulty of collecting appropriate data to measure success or failure over time. Here are some examples of targets that will be hard to measure:

- development of a “viable” extension service
- establishing “well functioning” markets
- make these groups (local extension committees) “viable”
- project “sustainability” (DNER 2000, 2001a)

My fourth concern is how to compare the costs and benefits of providing DNER services in one district with the costs of a contractor providing extension services in an experimental district? For example the tentative cost of outsourcing in one district in Nampula Province is estimated to be around one million dollars over the next three years. And keep in mind that there are 128 districts in Mozambique.

The Extension Learning Center should be charged with documenting the process of developing, implementing, monitoring and evaluating the DNER outsourcing experiments in Nampula and Zambezia Provinces so that the lessons of the first year of outsourcing can be fed into the design of experiments in the two follow-up Provinces (Niassa & Gaza) in 2003-2006.

European Commission’s Outsourcing

The European Commission through its Food Security Unit in Maputo recently launched outsourcing experiments in crop diversification and private investment in cotton and cashew areas. These schemes are designed to provide improved support services to farming households. Six outsourcing operations are being launched in northern Mozambique and one in the South.

The “Crop Improvement and Diversification Leading to Private Sector Development” component of the EC’s Multi-Annual Food Securities Program (MAFSP) aims to strengthen national and household food security through support to effective production and market-oriented interventions for existing and new high-value food and cash crops. As a result, two main interventions will be studied:

Support to the implementation of the Cashew National Plan: Sustainable increases in smallholder cashew production and marketing through the promotion of improved agronomic practices within current farming systems, and

Support to profitable smallholder diversification in cotton production areas through improved support services to and organisation of farming households.

Two institutions of the Ministry of Agriculture and Rural Development (MADER) – the National Cashew Institute (INCAJU) and the National Cotton Institute (IAM), manage the implementation of both components. Within MADER the operation is co-ordinated by the Cabinet for the Promotion of the Commercial Agriculture Sector (GPSCA) which was created in 2001. These institutions receive technical advice from the Commission's Food Security Unit (FSU). They also receive institutional support to improve its M&E systems with particular emphasis on their provincial Delegations (200,000 € INCAJU and 200,000 € IAM, 2002-2004).

The field operations have been selected on the basis of a Call for Proposals (CfPs) open to competition for a range of different organisations, including NGOs and private sector operators. This is in line with the official GoM policy of “outsourcing” operations to support the smallholder sector.

It is important to note that:

- i. The whole process is fully managed by the GoM through its representatives (IAM and INCAJU) co-ordinated by the GPSCA.
- ii. The private sector has demanded for some years now to be involved in development activities in rural areas.
- iii. The EC contributions are made in line with GoM budget management procedures.

The call for proposals was launched on 16 May 2001 and the projects signed on 18 February 2002.

OUTSOURCING: CAN POOR FARMERS BUY THEIR WAY OUT OF POVERTY?

Four lessons emerge from global outsourcing experiments for consideration by DNER and MADER:

- 1) The stage of a nation's institutional development and the degree of farmer participation in the market economy are critical factors in determining the scope for building and financing a competitive group of extension service providers. In Chile, free vouchers were offered to farmers in 1978 but after six years of market failure (i.e. a lack of extension providers), vouchers were abandoned. The lesson is that “building” an array of non-public extension service providers such as local NGOs is an important, complex and difficult task and the academic

literature is limited on this topic.³⁶ CLUSA's work on building "income generating" farmer support groups is promising and it should be carefully studied by DNER.

- 2) The second lesson is that it is difficult to finance extension services in subsistence and semi-subsistence economies that do not have agricultural exports to tax. The decentralization of extension to the district level raises taxable capacity by enabling farmers to see what they are getting for their taxes (Lewis 1967). If local extension workers help farmers generate new income streams (e.g. paprika) that can be taxed as exports, some of the tax revenue can be used by local governments to cost-share extension. Also the higher incomes accruing to paprika farmers, for example, can enable a producer association of paprika growers to pay for part or all the cost of extension services. The difference in the degree of commercialization of agriculture in China and Mozambique is striking. In China, 80 to 90 percent of the farmers purchase commercial fertilizer compared with 2.7 percent in Mozambique, one of the lowest percentages in Africa. To summarize, in subsistence and semi subsistence economics, there is a limited income base for farmers to "buy their way out of poverty", i.e. by paying directly or indirectly for extension assistance.
- 3) The third lesson is that international NGOs represent a proven model to deliver extension services. Some of this success is attributed to a generous flow of foreign aid, hiring the best local people and working in circumscribed project areas. However, the international NGOs that depend on foreign aid for the bulk of their financing are unlikely to be financially sustainable. MADER should request donors to agree to gradually shift their financial support from international to local NGOs and increase their contribution to DNER over a ten to fifteen year transition period.
- 4) The fourth lesson is that it has been more difficult for extension reforms to reduce the total public expenditure on extension than to develop a pluralistic system of extension providers. Even in Chile, a middle-income country, the public expenditures on extension are still 85 to 90 percent of the total extension budget after 22 years of experimentation. Therefore, MADER and The Ministry of Finance should assume that even if an array of NGO and private extension service providers emerge over time, the Government of Mozambique will most likely be the main financier of extension for decades to come.

In my judgment, outsourcing is premature in many African countries with limited market participation, weak institutions, poor roads and limited private sector involvement in input delivery and marketing. The experience to date suggests that Mozambique has made a wise decision to adopt a "gradual approach" (PROAGRI 2000) to outsourcing. Without question the outsourcing experiments now underway by DNER and the European Commission are valuable learning by doing exercises.

³⁶ An exception is Bingen's (1998) study of how smallholder cotton farmers developed farmer associations in Mali over a 20 year period.

7. SYNTHESIS

Two options are available for feeding Africa. The first is to rely on a gaggle of free and renewable “food aid subscriptions”. This “soft” option is attractive to farmers in industrial countries and to politicians and traders in developing countries. But this option will not make a dent in poverty alleviation. The second option is to invest heavily in a system of agricultural development institutions to help the family sector increase total factor productivity in agriculture and increase the size of the agricultural surplus. But strong political leadership is needed to ensure that some of the tax revenue from the agricultural surplus is reinvested back into rural infrastructure, research and extension in order to increase future agricultural output. In short, “getting the family sector moving” is the acid test for the political, scientific and private sector leadership of Mozambique over the medium term – the next 10 to 15 years.

This review of agricultural extension has concentrated on public extension programs under the direction of DNER. Public extension in Mozambique is a young organization that was established only 15 years ago in 1987. DNER is a relatively small organization of 639 extension workers to serve around 3 million farm families. This study has focused on strengthening the Public Extension System because it is the cornerstone of Mozambique’s pluralistic extension system. But there are no blue prints for strengthening extension in Mozambique. Rather institution building is an intensely political and pragmatic process. It involves pilot studies, trials, innovations and learning how to craft a system of institutions, public and private, into a coherent force that can undergird agricultural change. The conceptual framework involves three core institutions – agricultural research (the growth engine), agricultural extension and agricultural higher education. These three core institutions form the agricultural knowledge triangle, and they need to be reinforced by favorable economic incentives, improved roads and access to markets.

I have observed that donor agencies have a tendency to pursue general institutional prescriptions for all of Africa (e.g. T&V extension model and structural adjustment programs). But Africa is a large and complex continent of 48 nations at various stages of institutional development. To date, the T&V extension model has been financially unsustainable and structural adjustment programs have not achieved their promised economic growth rates in Africa.

This study argues that policy makers and donors should shift the debate from the general prescription on downsizing and privatizing public extension to the special case of building African models of agricultural extension. Mozambique represents a special case in institution building because its public extension service is in its infancy relative to the needs of 3 million family households. The incentive structure of front line public extension workers is unacceptably low, the job insecurity of extensionists on temporary contracts is debilitating and its human capital base in agricultural research is on a par (in terms of number of scientists) with neighboring Botswana, a country of only two million people.

One of the major conclusions of this study is that public agricultural extension in Mozambique is being kept “on hold”. For example, DNER’s current staff of 639 is less than the 700 in 1997 when the Extension Master Plan was completed. Also the 218 permanent civil service posts included in the 1997 Extension Master Plan have not been filled. Why is public extension being kept on hold? I think it is partially because Mozambique is following the general prescription of reducing the size of public extension. The Extension Master Plan adheres to this line and assumes that over time the private sector will replace public extensionists and total government expenditures on extension will be reduced.

But Brazil did not downsize its core agricultural institutions some 40 years ago when it began its march to build a strong human capital base and a globally competitive agricultural science base. Instead, Brazil mobilized high level political support to increase its investments in agricultural research and extension.

I am convinced that MADER should step back and examine whether an increase in donor support is needed for public research, extension, and rural roads. MADER has made a wise decision to support a gradual approach to outsourcing extension. The DNER and EC experiments now underway will help Mozambique learn from its own experience. To document the outsourcing story at both home and abroad, I have proposed that donors help finance a new and relatively small Extension Learning Center (ELC) to document the outsourcing and cost sharing programs now underway. Finally Mozambique, in my opinion, should jettison its support for the modified T&V Extension Model and concentrating on crafting an array of Mozambican models of agricultural extension.

In the final analysis, the rural poor in Mozambique will have a hard time “buying their way out of poverty” by paying for extension services. Public investments in agricultural research and extension are needed to produce public goods (information and knowledge) for free distribution to all people, with special emphasis on the poor.

The new extension paradigm of decentralization, participation, outsourcing and cost sharing is both appealing and seductive. Both public and private investments are needed to achieve the goals of decentralization and agricultural growth. The mix of public and private extension will vary over time. However, even if non-government extension providers can be developed over time, the public treasury will likely have to pay a large share of the extension bill for decades to come in a poor country like Mozambique just as it is doing in a prosperous, middle-income country like Chile. The challenge for the next ten to fifteen years is to focus and concentrate on strengthening and gradually expanding the size of DNER (public extension) which is the cornerstone of Mozambique’s pluralistic extension system. NGOs and private farms can supplement but not replace the necessary role of public extension at this early stage of Mozambique’s institutional development.

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Appendix

List of Persons Met

Tomas Bernardino	Permanent Secretary/MADER
Helder Gemo	National Director/DNER
Mohamed Harun	Director, CTIA
Calisto Bias	National Director/INIA
Arlito Cuco	Director, Forests and Wildlife/MADER
Julio Massinga	Director, Human Resources/MADER
Carlos Pedro Mucavele	Director, Economy/MADER
Victorino Xavier	Coordinator, Institutional Reform/MADER
Fernando Songane	Coordinator, PROAGRI/MADER
Eduardo Oliveira	Outsourcing Coordinator/DNER
Orlando Gemo	Head, Planning Department/DNER
Albertina Alage	Head, Extension Department/DNER
Solomon Teclेमariam	Advisor/DNER
Inacio Nhancale	Head, Training Unit/DNER
Ventura Macamo	Deputy Director, DINAP/MADER
Wayne Haag	Sasakawa – Global 2000
Bente Topsoe-Jensen	DANIDA/PROAGRI
Daniel de Sousa	World Bank/Maputo
Sally Henderson	World Vision/Maputo
Rufino Duvane	PROAGRI
Jan Low	Policy Analysis Department
Duncan Boughton	Policy Analysis Department

Mark Wentling	CARE/Maputo
Scott Simons	USAID
Regina E. Kapinga	International Potato Center, Kampala
Maria Andrade	SARRNET/INIA
Antoinette van Vugt	Eduardo Mondlane University
Rui Ribeiro	PAMA

Provinces

Custodio Mucavele	Advisor, SPER, GAZA
Jose Gaspar	Head, SPER Manica
Sergio Ye	Advisor, SPER Manica
Jose Maria Soveriano	Director, DPADR Niassa
Ernesto Macuaca	Head, SPER Niassa
Jowett Ndoro	Advisor, SPER Niassa
Carolino Antonio	Head, Research Station Lichinga/Niassa
Estevao Kanhandula	Head, SPER Nampula
Shadrec Tsimba	Advisor, SPER Nampula
Hortencio Comissal	Head, Research Center Nampula
Jorge Tinga	CLUSA/Nampula
Johnny Colon	CLUSA/Nampula

European Union

Paulo N. Mole	National Research Officer/EC
Julio Garrido-Mirapeix	Coordinator, Food Security Unit/EC