

Working Paper 150

**Extension, Poverty and Vulnerability in Nicaragua
Country study for the Neuchâtel Initiative**

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Acronyms

ADDAC	Asociación para la Diversificación y el Desarrollo de la Agricultura Campesina (Association for Diversification and Development of Peasant Agriculture)
APENN	Asociación c de Productores y Exportadores de Productos No Tradicionales (Association of Producers and Exporters of Non-traditional Products)
ATM	Asistencia Técnica Masiva (massive technical assistance)
ATDR-BL	Asociación de Trabajadores de Desarrollo Rural – Benjamin Linder (Association of Rural Development Workers – Benjamin Linder)
AGM	Asociación de Ganaderos de Matagalpa (Ranchers Association of Matagalpa)
CNAATT	Cooperación Nicaragüense de Apoyo Agropecuario y la Transferencia Tecnología (Nicaraguan Cooperative for Agricultural Assistance and Technology Transfer)
CARE	Cooperative for Assistance and Relief Everywhere
CPCPV	Centro Promocional Cristiano por la Paz y la Vida (Christian Promotion Centre for Peace and Life)
CIAT	Centro Internacional de Agricultura Tropical (International Center for Tropical Agriculture)
CLUSA	Cooperative League of the United States of America
DFID	Department for International Development (UK)
DRYSA	Grupo Temático par el Desarrollo Rural y la Seguridad Alimentaria (Thematic Group on Rural Development and Food Security)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
HIPC	Highly Indebted Poor Country
IDR	Instituto de Desarrollo Rural (Institute for Rural Development)
IFAD	International Fund for Agricultural Development
INTA	Instituto Nicaragüense de Tecnología Agropecuaria (Nicaraguan Institute of Agricultural Technology)
MAG	Ministerio Agropecuaria (Ministry of Agriculture and Livestock, old name for MAGFOR)
MAGFOR	Ministerio Agropecuaria y Forestal (Ministry of Agriculture, Livestock and Forestry)
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Cooperation
PCAC	Programa Campesino a Campesino (Farmer-to-Farmer Programme)
PRSP	Poverty Reduction Strategy Paper (Nicaragua)
REMACC	Red Matagalpiña de Comercio Comunitario (Matagalpa Network for Community Commercialisation)
SDC	Swiss Agency for Development and Cooperation
Sida	Swedish International Development Agency
SPRS	Strengthened Poverty Reduction Strategy
UNAG	Union Nacional de Agricultores y Ganaderos (National Union of Farmers and Ranchers)
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VAM	Vulnerability Analyses and Mapping
WFP	World Food Programme

Summary

The objectives of this study are to look at the current and potential roles of extension in supporting the livelihoods of the poor in Nicaragua. Options are reviewed, cognisant of policy frameworks and their impact on the social, political, and economic context in which extension operates. This study relates the policy environment to the micro-level dynamics of change in public sector extension agencies and other institutional actors in order to provide an understanding, not only of policies and programmes that have been put in place to address these issues, but also of how resulting incentive structures have influenced field-level institutions in their changing relationships with the rural poor.

With an annual per capita income of US\$ 430 (1999), Nicaragua is the second poorest country in Latin America. External debt amounts to 600% of exports and three times the annual gross domestic product (GDP). Nicaragua is also extremely prone to natural disasters and has experienced a major conflict. Development has not been a linear process. Shocks to livelihoods and to the national economy and public expenditure are regular occurrences. Given its extreme indebtedness and geo-political position as a small country with very close links to the United States, Nicaragua has very little capacity to withstand the pressures of globalisation. Success in taking advantage of export opportunities has been mixed. Growth has been good since the mid-1990s, but to a large extent this has been recovery from near collapse at the end of the 1980s. Lack of infrastructure, weak entrepreneurialism, poorly functioning credit markets, fragmented institutions, and poor governance constitute major obstacles for even the wealthier actors in the agricultural economy to draw benefits from globalisation. Most agricultural service providers in Nicaragua are pessimistic that poor producers will succeed in significantly accessing international markets. A more pressing concern about the impact of globalisation is whether poor producers will be able to retain a domestic market in the face of competition from regional imports.

Several policy frameworks are of major relevance in relating poverty and vulnerability to extension. These strategies share a broad acceptance that Nicaragua must face globalisation head-on. Continued structural reform and open markets are inevitable. Strategies alternate, however, between assuming that explicit measures are necessary to ensure inclusive development, and assumptions that growth alone will eradicate poverty. The policy formation process in Nicaragua has been profoundly influenced by the experience of Hurricane Mitch, and the relatively massive aid flows that followed. The context before Mitch was one of polarisation between a neo-liberal governing regime and an opposition of the populist left. This state of affairs has shifted to a more complex set of forces involving donors as active policy advocates, a more united and stronger set of civil society institutions, and a government pressured more towards populism in the face of a coming national election.

Nicaragua's Strengthened Poverty Reduction Strategy (SPRS) is the main policy initiative that takes a livelihoods approach to analysing how the poor employ their assets. The strategy emphasises that poverty is primarily a rural phenomenon, but that even in rural areas, the primary way to escape from poverty is to move away from agriculture, particularly from subsistence agriculture. Areas with least poverty have access to labour markets. Those with the highest levels of basic cereal production have the highest levels of malnutrition.

The current strategy of the Ministry of Agriculture, Livestock and Forestry (MAGFOR) takes a very different perspective. It has three basic goals: (i) productive rationalisation, (ii) institutional modernisation, and (iii) food security. Productivity increase is the central focus. The strategy is supportive of those farms with the capacity to take advantage of market opportunities and to make major productivity leaps, and is thus most viable in areas of the country that have relatively good access to markets. Before Hurricane Mitch, food security received very little attention. After

considerable criticism of failure to address extreme poverty and vulnerability, the Government is now placing greater emphasis on food security. The current policy combines a focus on food crops with presumptions that productivity increase will solve food insecurity. There is a notable tendency to divorce food security objectives from the context of poverty. Donors, non-governmental organisations (NGOs) and United Nations (UN) agencies, however, are actively engaged with the Government in promoting a deeper understanding of food security and vulnerability.

The link between inappropriate agricultural and natural resource management practices and a heightened risk of natural disasters is central to the inclusion of vulnerability in rural development policy. This is reflected in the agreement among the governments, civil society, and donors on principles for the 'transformation' of Central America after Hurricane Mitch. The 'Stockholm Declaration' highlighted the problems of weak governance, political polarisation, and the lack of coordination capacity in the massive reconstruction effort, while positioning poverty and environmental risk within the rehabilitation and development agenda.

Until recently, the current Government pursued neo-liberal agricultural policies with genuine commitment. A minimal role for the State in service provision was accepted and, despite difficulties in rationalising staffing, extension was expected to be a showcase for the reform effort, with services increasingly contracted out to the private sector. Consideration of public goods issues was a major feature in the design of new structures. Public goods issues are now receiving less attention. Plans have been proposed to establish a national extension structure based on broad coverage and very intensive extension agent to farmer contacts in order to invigorate agricultural development. This shift has emerged from the broader political context. The failures of the Government to mobilise a strong response to Hurricane Mitch were rooted in neo-liberal policies that reduced public service capacity. Political pressures to shift to more populist policies are growing, and extension agents working face-to-face with farmers are seen as an effective way to demonstrate government commitment.

The ebb and flow of policy reform was influenced by three narratives. The first (and formerly dominant) was a set of neo-liberal concepts based on a minimal role for government agencies in implementing programmes, paired with a broad faith in economic growth as the driving force both supporting and deriving from agricultural development. As elections draw near, this is giving way to an alternative narrative that places production growth at the centre of strategic thinking. Earlier emphases on public goods have given way to a pragmatic and simpler drive to get services to farmers. Questions of who and how (and the longer-term sustainability of the 'whos' and 'hows') have been put on the back-burner in the interest of showing results and stimulating a rapid transformation. The third narrative is that of vulnerability reduction and poverty alleviation. This agenda, promoted primarily by the donor community and civil society, acknowledges that neither economic nor productivity growth will automatically address the deplorable situation of the poor.

The institutional landscape in Nicaragua contains a confusing and seemingly paradoxical mix of policies, structures, and priorities. NGOs that often trace their roots to leftist initiatives are actively promoting a modest role for the Government and stronger market orientation. State bureaucracies, although led by the neo-liberal Government, have been slow to adopt a market focus and have plans to expand their roles. Furthermore, Nicaragua is a land of projects. Government capacity to use policy as a tool to coordinate the mass of projects that together make up the thrust of Nicaraguan rural development initiatives has been limited. Projectisation has a profound impact on the nature of institutions offering extension services. Agencies expect to be judged by donors by their potential capacity to undertake different extension tasks, rather than 'correct' service provision slots for state, private sector, and civil society institutions.

Decentralisation of responsibilities for natural resource management and the projectisation of rural development have created a potential for greater subsidiarity in extension and agricultural development. As yet, there are relatively few examples of this potential being acted upon either by local governments, line ministry agencies, or the various actors managing rural development projects.

This is due to several factors, including:

- local government has limited institutional and financial capacity in rural development;
- local political priorities focus on urban development and infrastructure because politicians and their constituencies assume that this is the role of municipal government;
- there are virtually no lines of accountability from public sector agricultural institutions to local government;
- cynicism and pessimism prevail among donors and NGOs on the potential for strengthening local government's role outside of urban areas;
- paternalism and prevalence of donor-driven agendas hinder attempts to strengthen local government, leading to lack of genuine ownership.

Extension structures have followed overall national trends of expansion and contraction of the public sector. Nicaragua had a large public sector (24% of the work force) in 1990, which was reduced to 5.3% by 1998. The World Bank-supported extension programme in Nicaragua has taken a lead in introducing user-charges for extension services and in contracting out service provision to private firms. This has been seen as a model for introducing cost-recovery in other countries. NGOs and producer organisations usually have very negative preconceived views of user-charges, though they have little experience in their use. Neither governments nor NGOs expect that service charges or contracting out will be viable for isolated farmers engaged in subsistence production and watershed management.

NGOs are involved in farmer-to-farmer approaches promoting watershed management, sloping agricultural land technologies, home gardens, and alternatives to slash and burn agriculture through both concrete extension projects and advocacy. Such projects have succeeded in establishing a certain level of national debate on alternatives to conventional agriculture. Some doubts exist, however, about the longer-term financial viability of these types of extension programmes. The agricultural technologies themselves may (perhaps) be profitable. Critics point out, however, that rhetoric about farmers helping one another may hide a considerable level of donor-funded investment in extension staff and logistics. Before these approaches become more definite mainstream alternatives to conventional extension programmes, they will first need to be subjected to the same scrutiny as other initiatives. That said, the cost of farmer-to-farmer approaches could be justified, based on the reduced levels of environmental destruction.

Extension priorities can be seen as falling into two general categories in relation to livelihoods, helping poor people cope with their vulnerability, and helping them to 'escape' from poverty and thrive. The latter consists of commercialisation, market participation, and increased income. The former emphasises security, subsistence, and safety nets.

Many thriving-oriented, extension-related initiatives focus on non-traditional commercial crops that require close supervision and market information flow to ensure quality, timeliness, and transport. NGOs and producer organisations are establishing collection and processing centres that provide packages of extension, inputs, processing, and marketing. High levels of extension inputs have proved essential for maintaining quality and also to ensure that products are available according to market demand. These schemes are mostly for the production of vegetables by small-scale farmers on irrigated land. While relatively poor, access to irrigated land is an indication that these producers are not among the very poor.

Transport, processing and market knowledge are key factors in enabling poor producers to access markets. Micro-entrepreneurs are essential in linking supply and demand. They even provide some technical assistance as part of their other services. Middlemen, however, are seen as villains by most agencies, an attitude that limits openness to seeing how small, independent entrepreneurs can be supported to provide necessary services. Little caution is observed in intervening with project subsidies in perhaps imperfect but nonetheless functioning markets. NGOs take on marketing roles using aid resources without concern about how future marketing will function, or with unrealistic expectations that the farmers themselves will organise and manage all tasks. The frequent failure to promote rural enterprise is symptomatic of a broader problem of poor market orientation among both governmental and non-governmental extension institutions.

Beef has traditionally been one of Nicaragua's main exports. Extensive production dominates, primarily in the former rainforest areas of the agricultural frontier. Over the past four decades, huge areas of land were cleared, first for staple production, and then for cattle. Today many of these lowland pastures are empty. There are vast areas of poor quality pasture with few or no animals. Livestock is the only agricultural sector that is declining. The areas with empty pastures are some of the poorest in the country. If livestock development could be revived, it would seemingly be an entry point for improving the livelihoods of the poor.

An essential problem for Nicaraguan meat producers is the proximity of subsidised beef production in the United States. Profit margins have been small, leading to falling investment. Milk production for domestic and regional markets has, however, increased. Most cattle ranchers combine milk and meat production, using milk to cover running costs and the sale of meat to generate profit. Since smaller producers require relatively regular income, they concentrate more on milk production. Access to markets determines the balance between the milk and meat. Where new roads are constructed there is often a consequent increase in milk production, together with a shift to more intensive production methods. Without infrastructure, there is little motivation for intensification and dairy production.

The major outlet for milk and cheese in the North has been the Salvadoran market, where milk prices are far higher than in Nicaragua. There were fears that this market would shrink in 1999 after El Salvador imposed a ban on imports of (non-pasteurised) products from uncertified plants, but since then the trade has continued unabated on an illegal basis. This raises significant ethical questions about extension strategy, especially for poor producers who have least potential to establish competitive and viable systems to pasteurise their milk. Should an investment be made in strengthening a 'black market' because it is undoubtedly an attractive market for the poor? If the market does not demand quality control, should extension priorities weigh the health concerns of importing and domestic consumers against the well-being of poor exporting producers?

Suggestions are often raised that niche products for export are a potential option for the poor. Small-scale producers, however, usually access markets via a learning process that begins with local markets, and then continues to national, regional, and international markets. With niche products, there is rarely a local market to use as a stepping-stone. Knowledge of international markets is limited among all types of extension staff, and among producers themselves. Risks are also very high, particularly for a small and disadvantaged (in terms of infrastructure and capital) country such as Nicaragua that has great difficulties competing with its neighbours. Given these risks, the poor are in many cases more likely to benefit from niche products through employment generation effects on medium and larger farms that can afford to take such risks.

One of the biggest niche products in Nicaragua is organic coffee. Poor producers are expected to draw benefits from organic production if transaction costs, specifically for certification and marketing, can be reduced to manageable levels. The price differentiation between organic and non-

organic coffee is currently very wide, with non-organic coffee being mainly unprofitable at current prices. NGOs support organic coffee production by subsidising the initial period of learning and establishing routines of certification and marketing, thereby only burdening producers with the running costs of systems already in place. Some NGOs think it is essential that ‘the producer must know the buyer’, both for certification, and to understand broader demands for quality control.

Many NGO efforts and food security programmes emphasise ‘coping’ strategies. This is due to both normative objectives and because projects were often initiated after major crises. These priorities are based on the belief that ‘thriving’ will not reach everyone. Thriving is contingent on the availability of roads, markets, and institutions. A realisation is emerging that coping strategies for those that lack these prerequisites need to be supported, even if the mechanisms to support these strategies are not necessarily ‘sustainable’. Market solutions alone will not lead to inclusive development. A mix of subsidised and unsubsidised strategies is needed.

Despite relatively abundant and fertile land, Nicaragua has a major food deficit. Production of cereals has increased over the past decade, but at a cost of unsustainable conversion of forest and grassland to agriculture. Pessimism prevails about the capacity of Nicaraguan farmers to compete in the production of the primary staple – maize. The areas of the country with the highest per capita levels of food production are also those with the highest levels of poverty and malnutrition. Cereal production is the most common form of agricultural production by the poor. Food accounts for 60% of the expenditure of rural families, and malnutrition is highest among children in rural areas. These factors point to several difficult but fundamental questions. Should subsistence and cereal production be improved, or should alternatives be found? Should the emphasis on supporting poor people’s livelihoods be on stimulating production (perhaps through higher prices) or entitlements for consumption (through lower prices)? The discourse on the future of subsistence farming and cereal production in Nicaragua is deeply divided. This is part of the broader question of whether current livelihood strategies should be fortified, despite grave concerns about an inevitable decline in competitiveness, or if farmers should be encouraged to abandon current priorities to invest in higher-risk alternatives.

Nicaragua is one of the most disaster-prone countries in the world. One result of this is that relief and rehabilitation programmes and social funds are (and deserve to be) a regular feature of the institutional landscape. Many NGOs involved in rural development started their programmes as part of post-war resettlement and other rehabilitation projects. It is within such schemes that some of the most positive examples have emerged of reconciliation in a country that is otherwise torn by polarisation. Little systematic attention, however, has been paid to finding and developing synergies between these projects and long-term development programming. Moreover, with the notable exception of some watershed management and soil conservation efforts, there have been relatively few attempts to address disaster risks in development planning. There is a significant role for extension in addressing the issues of: (i) increasing the impact of rehabilitation efforts on long-term development, and (ii) increasing the impact of long-term development efforts on reducing risk and vulnerability. The frequently poor performance of these programmes is not solely due to the short-sightedness of the planners of emergency and rehabilitation programmes. A major problem has been the lack of readiness of development planners to look for ways to integrate and utilise these efforts in their programming. Extension staff are at the front line of these processes, and could be expected to play a key role in addressing this gap.

Watershed management and related interventions to improve land husbandry on sloping land receive considerable attention. Before Mitch, this was justified by environmental concerns, to mitigate the environmental destruction underway at the agricultural frontier, and to intensify resource use in order to reduce pressures for further expansion into the rainforest. After Mitch, two additional justifications came to the forefront. These projects are now being promoted on an

expanding scale as ways to reduce risks of disasters (especially landslides) and as windows for safety nets (food/cash for work). Many extension staff remain highly sceptical of such schemes, however, seeing them as exceedingly staff-intensive and expensive.

Poor people in rural areas are producers, consumers, labourers, and residents. Technological change affects them differently according to these different roles. The promotion of technological change in agriculture will impact on the lives of the Nicaraguan poor through greater entitlements in the form of three overlapping categories: (i) production and labour markets, (ii) reduced vulnerability, and (iii) greater empowerment.

Entitlements can be enhanced through increased production and access to employment. Basic elements include: increased cereal production for consumption and sale; diversified diets; access to new commercialisation opportunities; improved marketing and 'good exits' from agricultural through an invigorated rural service sector; labour-intensive production technologies on larger farms to create employment; labour-saving technologies for small-scale producers; better relationships between labour markets and harvesting/processing technologies; intensification to make more efficient use of family labour; and skills for migrants and semi-skilled agricultural labourers.

Vulnerability reduction involves increased resilience to livelihood shocks, environmental protection, access to safety nets, and better health and nutrition, i.e., addressing the myriad of risks that confront poor and even better-off households. Examples of vulnerability reduction priorities include: enhanced environmental health through the reduction of pollution and more appropriate use of agro-chemicals; better nutrition through cheaper and more varied diets; access to safer foods; reduction of production risks through lower risk technologies; diversification; reduction of risks of landslides and erosion; greater access to entitlements in the event of livelihood shocks, including making the best of 'cash/food for work' programmes; improved quality of rehabilitation projects through better links to development strategies; insurance; and mitigation of rural violence through livelihood opportunities for youth and marginalized groups.

The poor need a stronger stance in dealing with institutions of government and the market if they are to transform production increases into better livelihoods. Power is related to knowledge of the market for their products, the ability to update that knowledge, and institutions that create a critical mass for negotiation and a choice of production options. It is therefore imperative that extension strategies are formed in relation to an overall focus on knowledge as the linchpin of rural development. This includes: marketing and quality-control skills that increase the producer's power to negotiate; processing and marketing infrastructure that increases the producer's power to negotiate; organisations that increase the producer's power to negotiate and demand services; the existence of more than one person with whom to negotiate through a more dynamic rural service structure; control of the production process through producer capacity to manage linkages of credit, processing, marketing, quality control, and input supply; and diversification to avoid dependence on one crop/buyer/processing structure.

What should be the link between agricultural (and rural development) policy and existing survival strategies? If poverty is to be addressed in thinking about extension in Nicaragua, a two-phase approach is needed, drawing on different geographic priorities and potentials.

High potential and accessible areas:

- commercialisation of fruit and vegetable production;
- expanded irrigation;
- labour-saving technologies for household production;
- labour-intensive technologies for large-scale production;

- environmental health interventions;
- quality and sanitary improvement.

The private sector is dominating the agenda for technological change in high potential and accessible areas. The public sector has a relatively limited role, and should emphasise clearly defined public goods, especially as related to health, sanitation, and nutrition. Labour markets should be a major factor in programming, albeit with an acceptance of the fact that government policy can influence but presumably not lead developmental trajectories. There is also a role for the public sector to provide technical backup to re-establish production after a disaster, where the private sector is overwhelmed, and where capital is in short supply.

Low potential and isolated areas:

- products with high value relative to transport costs;
- diversification of diets;
- subsistence production;
- natural resource and watershed management;
- skills for migration to higher potential areas.

Whilst there is a great need for investment in extension in these areas, it is doubtful that the public sector will be able to cover the level of recurrent costs for services that will reach the diverse and scattered populations. There are social and political costs as well, however, in abandoning these areas value relative to transport cost. There is also some potential for using extension institutions as a skilled, knowledgeable, and locally based public-service contractor. Rehabilitation programming and safety nets are important windows for such contracting.

Within this dichotomy between dynamic areas and those areas that are perhaps out of reach of weakened state institutions, there is also a third discernible set of targets — the end of the road. In deciding how to most effectively employ a few hundred extension agents (the size of Nicaragua's public extension service), a potential priority is targeting areas where new infrastructure is just opening opportunities for commercialisation and income enhancement. Poor farmers could be supported to access new markets. There is also an increased need for risk-mitigation efforts, as roads lead to increased deforestation and are frequently designed with insufficient regard to gully formation and the risk of landslides.

These recommendations assume the need for greater articulation between policies and the projects that make up the bulk of Nicaraguan rural development initiatives. Extension practice derives from a mix of incentives, regulations, relationships, and visions. Ideally, a democratic political process should define parameters that are then codified in policies, to inevitably guide practice, often with the support of projects. Such is often not the case in Nicaragua, where projects are an arena for political processes. The interplay between these projects and politics tends to outweigh the influence of a consistent political vision in guiding policy formation for extension practice.

Triage is a useful concept with which to face the questions surrounding extension and policy formation. Whom can we reach with a given intervention, and what does that say about the policy for the rest of the rural population? It is a useful way of shedding light on the practical and moral choices to be made in extension prioritisation, and for placing this prioritisation within the broader context of rural development policy. Triage highlights a number of difficult policy trade-offs that are rarely addressed in extension planning. As costs rise relative to production benefits for small or isolated producers, the question becomes one of the relative appropriateness of different subsidies. Trends in rural development in the face of globalisation have shown that this issue is more acute than ever. Chronic violence and social alienation are becoming endemic, revealing the heavy economic and moral costs stemming from the withdrawal of services from isolated areas. The

dismantling of 'unsustainable development' is proving unsustainable. If triage is to be used as an analytical concept for understanding these choices, but not as a recipe for exclusion, then greater articulation between policy formation and programming is needed. This means bringing agriculture into the national debate on poverty. Much of the potential for using extension as a tool for poverty alleviation currently falls between the cracks of rural development programming.

1 Background

1.1 Objectives of the study

The objectives of this study are to look at the current and potential role and relevance of extension for supporting the livelihoods of the poor in Nicaragua. In this study ‘extension’ is defined in the very broad sense of public, private and civil society institutions engaged in providing information and otherwise facilitating technological change. These issues are reviewed, cognisant of policy frameworks and their impact on the social, political, and economic context in which extension operates. Some of the specific questions being addressed are:

- Should public expenditure on extension be focused on areas that have some opportunity to take advantage of the opportunities of globalisation, e.g. where new infrastructure has opened access to formerly isolated areas? In this sense, should extension abandon the more difficult areas?
- On a similar theme, should extension be linked more closely with commercialisation and intensive production methods (even if these are beyond the capacity of poor farmers themselves) and so aim to impact on the poorest as consumers and labourers, rather than as producers?
- Is there value in thinking in terms of a separation of poverty perspectives; accepting a failure to find sustainable mechanisms for direct support to agricultural production, while retaining a clear focus on the poorest through indirect strategies (labour-intensive technologies for larger farms) and livelihoods (‘good exits’ from agriculture)?
- Can a new cadre of advisors be developed who are skilled at helping poor people make good exits from agriculture by making sound choices about their livelihoods? Which types of institutions might lead such an effort?
- Extension has a rather poor record of providing support to diversification, having had more success with commodity approaches. The poor, however, need support to diversify, as their potential to successfully compete in the market and/or meet subsistence needs through staple and single commodity production is bleak. How can this be addressed?
- Do vouchers or other demand-oriented financing and subsidisation mechanisms provide realistic options for poor people to access a mix of relevant services, or do such schemes fall victim to the same deficiencies as other extension structures in poverty targeting?
- Are producer organisations a solution to the need for demand-driven mechanisms? Are they accessible to the poor, or is working through producer organisations in fact a form of triage if such organisations fail to include the poor?
- Part of the paradox of new forms of diversified livelihoods is that they are a way of spreading risk – but they are also highly risky in and of themselves. Information is a major factor in mitigating these risks, but has considerable costs. Poor information is a widespread form of market failure. How far can government (and public sector support for extension in particular) improve access to information by the poor?
- In meeting the dynamically changing and increasingly stringent demands for control of production quality and marketing, regulatory and certification agencies are playing a growing role in driving technological change in agriculture. What are the implications for the role of extension in supporting the poor? Are these organisations the extension services of the future? How can a mix of advisory and regulatory functions be handled? Do initiatives demanding strict quality control thereby exclude poor producers who cannot live up to the demands, or bear the costs, of these services? What are the implications of this?
- What is the potential for extension to make a more concerted contribution to addressing systemic crisis in major disasters or market collapse, either through information services or through closer links with public works and other safety nets?

This study reviews the policy environment in the context of the micro-level dynamics of change in public sector extension agencies and other institutional actors. The resulting analysis is intended to provide a better understanding not only of the policies and programmes that have been put in place to address these issues, but also of how resulting political processes and incentive structures have influenced field-level institutions in their changing relationships with poor and vulnerable farmers.

It is important to stress that, as a small country located close to the North American market and dynamic regional neighbours, Nicaragua is greatly affected by globalisation and technological change. The poor are experiencing the impact of these changes, not only through the production environment, but also through changes in their vulnerability to natural hazards and economic shocks, in both labour markets and their own health. This study looks at the implications of different rural extension trajectories in terms of impact on the lives of the poor in all of these areas.

In analysing these objectives in Nicaragua, a central question that emerges is the relationship between alternative policy narratives at central and operational levels, and the political processes in which they are entwined. 'Extension policy' in Nicaragua is not set in stone. It consists of a shifting and contested set of practical, political, and pragmatic institutional structures and priorities.

1.2 Overall economic/political/social situation

With an annual per capita income of US\$ 430 (1999), Nicaragua is the second poorest country in Latin America. Internationally, Nicaragua is in the highest 20% in terms of inequity of income (Government of Nicaragua, 2000). Whereas life expectancy is near average for Latin America, most other indicators are far lower, particularly in rural areas (UNDP, 2000). Fertility rates are double the average for Latin America, and adolescent fertility is the highest in the region (World Bank, 2000). Poverty is closely correlated to youth. Of children under five, 20% are chronically undernourished or stunted. Agricultural productivity, as measured by production per unit of land area, is considerably lower than in other Central American countries. Poverty is highly concentrated in the countryside, particularly in those areas that were most affected by the conflict of the 1980s, and where there is relatively limited commercialisation.

The economy gradually collapsed during 1978–94, before which Nicaragua had a relatively strong, though highly inequitable economy, particularly in agriculture. Relative poverty rates declined slightly during the late 1990s, primarily in urban areas, but absolute rates have increased. Despite a modest recovery during the late 1990s, per capita GDP is approximately half that of the 1960s and 1970s (World Bank, 2000). External debt amounts to 600% of exports and is three times the annual GDP (UNDP, 2000). In order to qualify for the Highly Indebted Poor Country (HIPC) Initiative, the size of the public sector has been scaled back considerably, from a high of nearly 250,000 employees during the Sandinista era to fewer than 80,000 today. It is also within the framework of complying with HIPC conditions that Nicaragua has developed a Poverty Reduction Strategy Paper (PRSP).

In addition to macro-economic and structural factors, natural disasters and complex political emergencies are central aspects of the vulnerability context of Nicaraguan development.

These include:

1972	Managua earthquake
1979	Sandinista revolution
1983–90	Civil war and United States embargo
1988	Hurricane Joan
1992	Tidal wave
1992, 1994	Volcanic eruptions

1996–8	El Niño drought
1997	Hurricane Mitch
2000–present	Collapse in coffee prices

The sum result of these events is a dynamic of changing vulnerability. Hurricane Mitch did not affect the overall poverty profile in Nicaragua (World Bank, 2000), though it did have a profound impact on the livelihood strategies of the poor. Development has therefore not been a linear process. Shocks to livelihoods and to the national economy and public expenditure are regular occurrences. In the north-western part of the country, there is a 25% chance of major agricultural losses due to drought in any given year (World Food Programme (WFP), 2001). Resilience is perhaps in many ways a more sensible objective than stable growth. Studies have shown that the poor perceive the increased risk of their current situation (with a market economy, uncertain safety nets, etc.) as being a major aspect of their poverty. They react by adopting risk-averse production strategies (World Bank, 2000).

Nicaragua displays a curious combination of areas where a seemingly ‘normal’ process of economic development is underway, with areas within a relatively short distance from the capital where insecurity and violence continue. The peace accords included promises of land and rural services that have in many cases not been implemented. Consolidation of the peace process is still not complete (Ardón, 1999), due not least to the legacy of debt and decline in social capital inherited from the war years (FitzGerald and Grigsby, 2001). Rural public services are very weak, because of Nicaragua’s extremely limited public finances, and the conditions subsequently followed as part of qualifying for debt relief within the HIPC process. Corruption levels are high, and the donor community has followed an exceptionally firm, frank, and openly critical dialogue with the Government on the issue of transparency.

Given its extreme indebtedness and geo-political position as a small country with very close links with the United States, Nicaragua has very little capacity to withstand pressures of globalisation. Furthermore, its current neo-liberal government furthermore, has embraced open markets as a solution for economic development, and with that for poverty alleviation. Globalisation has two basic impacts on markets relevant to the poor in Nicaragua.

First is access to export markets. Indications of success in taking advantage of export opportunities are mixed. Growth has been good since the mid-1990s, but this can be seen to a large extent as recovery from near-collapse at the end of the 1980s. Lack of infrastructure, weak entrepreneurialism, poorly functioning credit markets, fragmented institutions, and poor governance constitute major obstacles to even the wealthier actors in the agricultural economy drawing benefits from globalisation. Most agricultural service providers in Nicaragua are pessimistic that poor producers will succeed in significantly accessing international markets.

The second, perhaps more relevant question about the impact of globalisation, is if poor producers will be able to retain a domestic market. Regional imports are increasingly dominating the domestic market. Despite a relative abundance of land and labour, Nicaragua lags far behind its Central American neighbours in agricultural productivity. Traditionally, Nicaragua was able to compete largely by expanding production areas in the ‘agricultural frontier’ of the former rain forest, without increasing productivity. With the destruction of the forest, this is no longer a significant option. Nicaragua must now catch up with its more populous neighbours by adopting more intensive production systems. So far, however, Nicaraguan labourers can in many cases better enhance their livelihoods as migrants on better-capitalised, more market-oriented, and infrastructurally accessible Costa Rican farms than they can at home. Simple assumptions that cheap land and labour automatically constitute a structural advantage are not valid in the Nicaraguan case.

Although expansion of the agricultural frontier is no longer a major option, Nicaragua is not overpopulated. Favourable agro-ecological conditions and relatively abundant land present opportunities to increase production through intensification. Demographically, an 'escape' or exit from agriculture would not seem essential, even though most analyses of poverty show that this is the most attractive option.

In some areas, Nicaraguan producers have been able to compete. Milk and cheese exports to El Salvador and Honduras have done well. Beans are a traditional product for which demand remains strong, even in urban markets (unlike maize, which is losing ground to other grains). Vegetable production is growing, despite regional imports. Coffee production has recovered, even though current low prices mean that significant further investment is now largely on hold.

Extension and agricultural priorities must be seen in the perspective of economic trends and poor people's livelihoods, both of which point towards good exits from farming being as important for rural development as improvement in farming itself. Rural income is 50% derived from non-agricultural activities, and education levels can be directly correlated to the ability of rural households to diversify out of agriculture (Government of Nicaragua, 2000). This is in line with trends elsewhere in Latin America (Berdegué et al., 2000). Non-farm incomes are mainly derived from services in relatively accessible areas (Corral and Reardon, 2001).

Migration is particularly important. Close to half of farm households have at least one family member permanently working away from the farm, a large proportion of whom are outside Nicaragua (WFP, 2001). Given the importance of migration and remittances for the poor, an awareness is starting to emerge that migration is not just a drain on rural communities, but also a major factor in keeping rural communities alive and bringing in much needed capital.

National policy priorities and the investment climate are currently in flux. A major factor in how Nicaragua addresses the challenges of the coming years is the atmosphere of extreme political polarisation. National elections will be held in November 2001. Political concerns have led the governing party to shore up its rapidly declining popularity by softening its neo-liberal stance. It is presenting more populist rural development policies including expanded services.

Nicaragua represents an example of a country struggling with post-conflict and post-natural disaster issues. This involves coping with the massive destruction, extremely high debt, and economic collapse stemming from both forms of disaster. It is also impacted by large flows and an entrenched focus on 'projects' as the motor for rural development. Simplistic polemics based on dichotomies between 'dependency' and 'sustainability' fail to provide a basis for understanding the complex landscape of rural development in Nicaragua today. In order to effectively analyse Nicaraguan rural development, it is essential that 'abnormal' events (such as disasters) and structures (such as the active donor engagement in the national policy discourse) be accepted as part of the context of policy formation during the coming decade.

2 Policy frameworks

Five policy frameworks that are of major relevance in relating poverty and vulnerability to extension are in place:

- Strengthened Poverty Reduction Strategy (SPRS)
- Policy on Food and Nutritional Security
- Strategy for the Development of National Agriculture Towards 2010
- National System of Prevention, Mitigation and Attention to Disasters
- Stockholm Declaration

What these five strategies have in common is a broad acceptance that, as a small and deeply indebted country with weak institutions, Nicaragua must face globalisation head-on. Continued structural reform and open markets are inevitable. These strategies alternate, however, between narratives that assume explicit measures are necessary to ensure inclusive development, versus assumptions that growth alone will eradicate poverty. Policy formation, as promoted by government, donors, the private sector, and civil society, has been centred on these differing narratives.

The policy formation process in Nicaragua has been profoundly influenced by the experience of Hurricane Mitch, and the relatively massive aid flows that followed. To grossly simplify, the context before Mitch was one of polarisation between a neo-liberal governing regime and an opposition of the populist left. This state of affairs has shifted to a more complex set of forces involving donors as active policy advocates, a more united and stronger set of civil society institutions, and a Government pressured more towards populism in the face of a coming national election.¹ The result is not a consensus on future development strategies, but rather a set of different and often poorly integrated narratives that are directed at and pander to their respective audiences, but largely lack continuity and ownership within key areas of the Government.

2.1 Strengthened Poverty Reduction Strategy (SPRS)²

Nicaragua's Strengthened Poverty Reduction Strategy (SPRS) is the main (perhaps the only) policy initiative that takes a livelihoods approach to defining national policy. It states:

The determinants of rural poverty are:

- lack of access to assets (financial, natural, human, and social capital);
- the context in which to use those assets (market failure, absence of institutions supporting competitiveness, deficient infrastructure);
- lack of off-farm income sources, especially rural non-agricultural employment;
- lack of options to escape from poverty (such as peasant agriculture, diversification, social assistance or migration) (Government of Nicaragua, 2000).

The main issues raised in the SPRS, that have potential relevance to defining extension's role in poverty alleviation and vulnerability reduction, are:

- poverty is multidimensional and stems from a variety of causal factors;
- diversification out of agriculture is a central poverty reduction priority;

1. It should be noted that Latin American politics has shown a resurgence of populism, including the current regime in Venezuela and the victory of the followers of the former dictator Rios Montt in Guatemala against a neo-liberal opposition. The simple assumptions that the political choices in the face of globalisation are merely between neo-liberalism and the left are no longer valid, especially in Latin America.

2. The title used for Nicaragua's PRSP.

- labour markets are more important than production;
- labour-intensive approaches should be explicitly encouraged;
- nutrition should be linked to rural development;
- strong social policies and transfers/safety nets are needed;
- indigenous communities on the Atlantic Coast should be given priority.

The SPRS includes a relatively nuanced analysis of the nature of Nicaraguan poverty that draws attention to how the poor employ their assets. The United Nations Development Programme (UNDP)'s support for this process can be seen in the emphasis on human development and in the links between equity and vulnerability being particularly highlighted (UNDP, 2000).

The SPRS draws particular attention to the fact that poverty is primarily a rural phenomenon, and that even in rural areas, the primary escape from poverty is to escape from agriculture, particularly from subsistence agriculture. 'The poor depend more on agriculture than the non-poor. The possibility of becoming less poor is associated with more diversified activities, a higher level of education, and less dependence on agricultural activities, especially in the case of small farms and 'minifundios'. (Government of Nicaragua, 2000). Those areas that have least poverty are those with access to labour markets. Those with the highest levels of basic cereal production have the highest levels of malnutrition. Food security appears to be best served by not producing food (a point that is notably absent from food security policies, see below).

The Strengthened Poverty Reduction Strategy suggests an ambitious and progressive approach to social policy. Governmental commitment to these aims should not, however, be taken for granted. Social issues have not featured strongly in government policies towards agriculture. Agricultural policies often display great faith in the assumption that production and economic growth are the solutions to social problems. The Strengthened Poverty Reduction Strategy has been prepared by the President's Office with support from UNDP. It forms the core of the Government's response to donor demands for poverty alleviation that emerged after Hurricane Mitch, paired with similar pressures from their participation in the HIPC Initiative. It suffers from the limited ownership that has been noted in other PRSP efforts that are motivated by HIPC conditionality (Cheru, 2001). The strategy is currently primarily a donor-driven process, but nonetheless has the potential to provide an influential platform from which to reconsider Nicaragua's future development direction. Efforts to anchor the strategy in a participatory national discourse have been mixed. Discussion of the strategy among local government and civil society institutions through a series of meetings at municipal level is in progress.

A central problem in considering the relevance of the agriculture and rural development component of the SPRS to concrete institutional actors (such as extension) is that there is virtually no connection between the Strategy and the projects that make up the content of the response. These projects largely represent the pre-existing portfolio of projects of each ministry (prepared before the Strategy). Many of these programmes scarcely mentioned poverty in their original goals, even though they are summarised in the annexes to the SPRS as if they were designed as explicit poverty alleviation initiatives.

2.2 Strategy for the Development of National Agriculture Towards 2010

In January 2001, the Ministry of Agriculture, Livestock and Forestry (Ministerio Agropecuario y Forestal, MAGFOR) produced a new strategy document with three basic goals: (i) productive rationalisation, (ii) institutional modernisation, and (iii) food security. Apart from the food security component, the strategy emphasises growth and competitiveness through the adoption of 'modern' agricultural approaches and technological investment. This document makes no reference at all to

the Strengthened Poverty Reduction Strategy, nor to the document that formed the basis for MAGFOR strategy before 2001 (MAG – Ministerio Agropecuario, 1998).

Major features of the new Strategy include:

- commercialisation and market orientation are primary objectives;
- optimisation and increased supply of extension services and credit are given high priority;
- supply of services is to be related to market demand;
- watersheds are an emerging focus;
- little attention is given to poverty per se, which is relegated to ‘food security’;
- poverty impacts of mainstream economic development approaches are given scant attention, or seen only as a modest positive externality;
- earlier strategies that put greater emphasis on public goods and on defining a narrow role for the State constitute a fading vision with unclear links to current policies.

Agricultural policy clearly emphasises productivity increase. On the whole, the strategy can be said to be mainly supportive of those farms with the capacity to take advantage of market opportunities and to make major productivity leaps. The policy vision is clearly most viable in areas of the country with relatively good access to markets. Potentially exclusionary spatial aspects are given little attention. The meaning and implications of ‘rationalisation’ are not made clear. Although export crops are promoted, there is a realisation that more support is needed to ensure that the Nicaraguan producers are able to retain the domestic market in the face of regional imports. In general, the policy can be said to emphasise supply of services, market orientation, and organisational strengthening to enable farmers to link to services and the market. Farmers’ own capacity to choose and draw down services, and the ability of service institutions to respond to *farmer* demands (as opposed to those of the market), are mentioned only in relation to World Bank financed initiatives, but are not otherwise emphasised.

Productivity growth is presented as the overriding solution for poverty, despite little evidence to suggest how this will occur. Issues of consumption, price effects on the poor, and public health are largely ignored. Although agriculture provides 43% of national employment (UNDP, 2000), the effects of policy on employment generation are unexplored. Questions of how policies may affect the livelihoods of the landless or near landless, are not addressed. ‘Efficiency’ is frequently implicitly equated with a shift to more capital-intensive production methods, without mention of the impact on labour markets. In the few areas where issues of positive and negative externalities in the choice of technology are mentioned, these are not related to prioritisation of public investment in research and extension.

Where referred to, poor producers are represented as a sector needing ‘assistance’, rather than as a mainstream component of production and development. Direct transfers are proposed: ‘The mechanism is the system of vouchers or coupons that will be provided to producer families to be exchanged for productive inputs or goods for capitalisation of their farms...’ (MAGFOR, 2001). This implies an acknowledgement of the need for safety nets.

The food security component of the MAGFOR policy, and the Policy on Food and Nutritional Security upon which it is based (Secretaría de Acción Social de la Presidencia de la República, 2000), can be characterised as follows:

- equitable access to food and freedom from hunger are described as basic human rights;
- income, subsistence, and supply of services are emphasised;
- improved nutrition is an explicit objective;
- little mention is made of poverty as the cause of food insecurity – policies are solution- rather than problem-driven;

- constructive donor/government coordination structures are in place at national level, but little is established at operational level, including links to health institutions.

Nicaragua is in the process of developing a new policy narrative for food security. Before Hurricane Mitch, food security received very little attention. In the face of considerable criticism for failure to address extreme poverty and vulnerability, the Government is placing greater emphasis on food security, which has now been declared a basic human right. The current policy combines a focus on food crops with presumptions that an increase in productivity will solve food insecurity (echoing the mainstream focus of agricultural policy). The latter is summarised by the statement that 'Productive rationalisation will guarantee food security through the efficient production of food and the creation of wealth in the rural areas, thereby increasing employment, purchasing power, and with this the continuous access to basic food. It will also guarantee the linking of agro-industry and 'technological convergence' (MAGFOR, 2001).

The strategy makes little direct mention of poverty. In this document, lack of food and poor nutrition are traced to ignorance, illiteracy, lack of infrastructure, credit, etc., but there is no analysis of the nature of poverty itself as the ultimate cause of food insecurity. This is in marked contrast to the vulnerability analyses and mapping (VAM) that are currently being conducted by the WFP that clearly show that food security is a matter of entitlements, not production. Non-farm income constitutes 41% of rural household income (Corral and Reardon, 2001). The World Bank also emphasises that malnutrition is caused by a lack of income, rather than by an absolute lack of food (World Bank, 2000).

Off-farm livelihood strategies are rarely mentioned as factors impacting on household food security. Agricultural development is seen as the central way to increase access to food and income. The Nicaraguan Institute of Agricultural Technology (Instituto Nicaragüense de Tecnología Agropecuaria, INTA, the Government agency that manages most research and extension) clearly interprets food security as primarily deriving from increased food production. This is in contrast to many of the findings in the Poverty Reduction Strategy that emphasise the very strong roles of migration, wage labour, etc. on livelihoods.

INTA has a major role in promoting increased cereal production. INTA is mainly perceived as having a technological portfolio that is relatively strong in this area. Earlier institutional strategies, that gave priority to INTA's sections working with commercial agriculture, are being reviewed, with the intention of strengthening the support given to producers in 'less favourable conditions'. This primarily emphasises subsistence and cereal production.

The food security component of MAGFOR policy gives significant attention to the need to address issues of nutrition, but the concentration on production (rather than consumption) inhibits insertion of explicit nutritional criteria in the choice of extension priorities. Primary responsibility for nutritional issues is placed with the Ministry of Health (Jiménez, 1999). Practical collaboration between the two sectors is rare, despite the existence of a National Commission on Food and Nutritional Security that includes MAGFOR, the Ministry of Health, and others; and a Technical Committee on Food and Nutritional Security. It is only in the area of home gardens that are primarily promoted through small NGO projects, that nutritional priorities are given prominence.

Despite the tendency to divorce food security from poverty in the current document, this is an area where links may eventually emerge between agricultural policy and poverty. A variety of actors are exerting influence in this area. The WFP is becoming increasingly active in developing an understanding of food security and vulnerability. The WFP is engaging a variety of organisations in discussing the accuracy and relevance of the different models for understanding poverty, food security, and the relationships between them. A thematic discussion group on Rural Development

and Food Security (Grupo Temático para el Desarrollo Rural y la Seguridad Alimentaria, DRYSA), led by the Food and Agriculture Organization of the United Nations (FAO) started 2 years ago. It has become a central forum for bringing together different actors to build a consensus around food-security strategies. Under the auspices of DRYSA, FAO commissioned a review for MAGFOR that combined inspection of risk, poverty, and food security (Jiménez, 1999). This study presents the problem of food security in the face of globalisation as relating to three factors:

- financial and technological marginalisation;
- lack of an entrepreneurial culture;
- poor articulation among sectoral strategies, including health, education, and infrastructure.

2.3 National System of Prevention, Mitigation and Attention to Disasters

A consensus exists regarding the link between inappropriate agricultural and natural resource management practices and heightened risk of natural disasters. Given that Nicaragua is extremely prone to disasters, a link between vulnerability to disasters and the broader discourse on poverty and vulnerability would seem natural. The nature of vulnerability to livelihood shocks, particularly from natural disasters, is, however, very seldom raised in policy discussions.³ Given the impact of Hurricane Mitch on Nicaraguan policy formation, this is surprising. There are several reasons for this gap in the policy discourse:

- After Mitch, disaster mitigation and preparedness quickly became overshadowed by a polemic debate over development models. Many of the reports and recommendations on Nicaragua's post-Mitch 'transformation' ignored the seemingly glaring risks to this transformation from natural hazards. The potential to see rehabilitation and 'transformation' also as risk reduction is not mentioned in many programme documents and recommendations.
- The clichés that disasters are merely an indication of underdevelopment and that it is only the poor who suffer (due to their underdevelopment) are used widely in Nicaragua to justify a failure to engage in disaster mitigation and preparedness. Development is said to be the solution for everything, so why pay specific attention to risk? A brief look at Nicaragua's experience of natural disasters, however, shows that these clichés do not tell the full story. In some areas the poor were most affected by Mitch, as they built their homes on available risk-prone land. In other areas, relatively well-capitalised, irrigated areas were wiped out, while the low-quality land on the slopes, where the poor were farming, experienced less impact. The poor have suffered from the loss of wage employment on these irrigated fields, but may also gain from the demands for labour to rehabilitate this infrastructure. The sum effect is difficult to estimate. Volcanoes and earthquakes in Nicaragua do not only affect the poor. 'Development', regardless of which model is employed, will not erase these risks.
- Another reason for the lack of interest in disaster mitigation and preparedness is the very negative experience with dependency creating NGO-led humanitarian programmes during the conflict and immediate post-conflict years. Poorly planned initiatives and general NGO amateurism have left a strong suspicion of all programmes that are not explicitly development-oriented. In order to avoid critique, there is a tendency among both governmental and non-governmental development agencies to avoid association with emergency programming.

One opening for eventually integrating risk and vulnerability in rural development policy is the recently approved law creating a National System of Prevention, Mitigation and Attention to Disasters (Secretaría Ejecutiva del Sistema Nacional de Prevención, Mitigación y Atención de Desastres, 2000). A National Committee and Executive Secretariat have been formed to establish this system. It is still too early to tell if this small, new secretariat will be able to exert influence on the other major actors. To be successfully linked to rural development strategies, it will be

3. UNDP's policy input is a notable exception, as are some policies that make reference to watershed management and soil conservation.

important to integrate efforts with other attempts to analyse vulnerability.⁴ Coordination with local government, civil society, and territorial planning is essential if the new system is to become operational. MAGFOR is given an explicit role in this system, but is notably not included in the National Committee that leads the work of the Secretariat.

Some important factors in integrating risk management and agricultural development are:

- although the environment is stressed in disaster-mitigation strategies, agricultural policy is seldom used as a tool for promoting risk reduction environmental management;
- there is a prospect for greater eventual integration as part of enhanced analyses and discussions of vulnerability, poverty, and food security (WFP-VAM);
- land-use planning is a natural mechanism for integration, but is dependent on strengthened local government and inter-agency links;
- insurance is an emerging, but as yet unproved focus.

A major challenge in addressing vulnerability to landslides is to relate land-use planning to actual land use. Landslides were the major cause of death in Nicaragua, tragic events that were repeated in El Salvador after the earthquakes in January and February 2001. Latin American countries are particularly vulnerable to this type of disaster, as experiences in Colombia and Brazil have shown. Progress has been made in linking the findings of territorial studies to land use in peri-urban areas, particularly where local government has taken on a strong role. The impact of landslides has been less in rural areas, and where population pressures and large areas with fragile geological structures limit the ability to resettle farmers and promote alternative land use. It is clear that MAGFOR, together with land-use planning authorities and local government, face a major normative and regulatory challenge that will depend on strongly enhanced collaboration.

2.4 Stockholm Declaration

A unique aspect of policy formation in Nicaragua is the agreement among the Government, civil society, and donors on basic principles for the ‘transformation’ of Central America after Hurricane Mitch. This agreement was reached at the Stockholm Conference of the Consultative Group for the Reconstruction and Transformation of Central America in May. This process was necessary to address the problems of weak governance, political polarisation, and the lack of coordination capacity in the massive reconstruction effort that followed Hurricane Mitch.

The goals and principles of the ‘Stockholm Declaration’ are as follows:

- reduce the social and ecological vulnerability of the region, as the overriding goal;
- reconstruct and transform Central America on the basis of an integrated approach of transparency and good governance;
- consolidate democracy and good governance, reinforcing the process of decentralization of governmental functions and powers, with the active participation of civil society;
- promote respect for human rights as a permanent objective. The promotion of equality between women and men, the rights of children, of ethnic groups, and other minorities should be given special attention;
- coordinate donor efforts, guided by priorities set by the recipient countries;
- intensify efforts to reduce the external debt burden of the countries of the region.

The Stockholm Declaration effectively positioned poverty and environmental risk at the centre of the rehabilitation and development agenda. Civil society was given the task of working with

4. Devereux (2000) describes an example of a WFP-VAM effort in Malawi that was explicitly linked to potential extension prioritisation.

governments towards these aims. Progress has been made in establishing interfaces for these tasks (particularly with regard to environmental projects), but it is as yet unclear how far this collaboration can be concretised. With respect to the issues reviewed in this study, the following points are particularly salient:

- the Stockholm Declaration is not a policy document per se, but rather a mechanism for promoting and monitoring poverty alleviation objectives, decentralisation, and reduction of environmental vulnerability;
- the poverty focus of the Stockholm Declaration has meshed with the pressures of the HIPC Initiative in the Strengthened Poverty Reduction Strategy, but nonetheless suffers from the limited ownership characteristic of donor conditionality;
- the environmental vulnerability focus has been important in addressing a serious gap in earlier agricultural and rural development policies;
- the environmental focus is reliant on uniting state and civil society, often a difficult task due to political polarisation, but where attitudes are clearly changing;
- decentralisation is a central theme, with strong implications for uniting local government with civil society, but to date has had little impact on bringing MAGFOR into local policy formation.

2.5 Policy reforms and political pressures

Until recently, the Government robustly pursued neo-liberal agricultural policies with genuine commitment. This was not a donor-driven agenda. A minimal role for the State in service provision was accepted and, despite difficulties in rationalising staffing, extension was expected to be a showcase for the reform effort, with services contracted out to the private sector as much as possible. Consideration of public goods issues was a major feature in the design of new structures. In planning these extension strategies, MAGFOR had at times pursued an even more radical neo-liberal reform of the system than suggested by World Bank advisors.

The current Minister of Agriculture has steered a very different course. Public goods issues are receiving less attention (though they are still central to World Bank-supported initiatives). Plans have been proposed to establish a national extension structure based on broad coverage and very intensive extension agent-to-farmer contacts (40 farmers to one extension agent). It is expected that various projects, NGOs, institutions, and private sector service providers will be subsumed in an overall scheme coordinated by MAGFOR. INTA structures, developed over the years with the support of the World Bank, the Swiss Agency for Development and Cooperation (SDC), the International Fund for Agricultural Development (IFAD), and the Norwegian Agency for Development Cooperation (NORAD), are to redirect their efforts toward supervising the approximately 4000 field-level extension agents who will carry out this scheme. These proposals are being met with great scepticism.

Why is this happening? Much can be attributed to the personal drive and vision of the current Minister, who is committed to mobilising a major push to invigorate agricultural development. Backing for these concepts can also be seen to derive from the broader political context. The failures of the Government to mobilise a strong response to Hurricane Mitch were rooted in a shrunken civil service that in turn stemmed from neo-liberal policies and the limitations imposed by efforts to qualify for HIPC support. Due partly to discontent with the Mitch response, the ruling party did poorly in municipal elections during 2000. As national elections are to be held in November 2001, pressures are growing to shift to more populist policies, and extension agents working face-to-face with farmers are seen to be an effective way to demonstrate governmental

commitment.⁵ Championing extension has political benefits that are not to found in the leaner structures suggested by current extension thinking.

Three narratives influence the ebb and flow of policy reform. The first (and formerly dominant) was a set of neo-liberal concepts based on a minimal role for government agencies in implementing programmes, paired with a broad faith in economic growth as the driving force both supporting and deriving from agricultural development. As elections near, this narrative is giving way to an alternative narrative that places production growth at the centre of strategic thinking. Earlier emphases on public goods, a limited role for the State, and efforts to put agriculture in a broader rural development perspective, have given way to a pragmatic and simpler drive to get services to farmers. Questions of who and how (and the longer-term sustainability of the ‘who’s’ and ‘how’s’) have been put on the back-burner in the interest of showing results and stimulating a rapid transformation. The third narrative is that of vulnerability reduction and poverty alleviation. This agenda, promoted primarily by the donor community and civil society, acknowledges that neither economic nor productivity growth will automatically address the deplorable situation of the poor. A broader perspective on rural development is needed, wherein agriculture will perhaps not necessarily be the overriding component. The Government has made some efforts to create space for these concepts, as discrete policy components or projects, but has not shown interest in the genuine integration of these priorities into agricultural development thinking.

As will be described below, at field-level these three broader policy narratives have surprisingly little influence. Policy narratives among street-level bureaucrats are developed around the interface between ongoing work routines and projects, with the latter rapidly displacing the former in relative impact. Politicisation at field-level is deeply entrenched within both NGOs and Government, with agencies frequently selecting and being selected by beneficiaries/clients/members according to matching political hue (Jiménez, 1999).

5. Fears have been raised that these staff may even be assigned direct political tasks as part of their work in light of other experience with attempts to politicise the civil service.

3 Projects and institutions

3.1 The relevance of policies in a land of projects

Nicaragua is a land of projects. Government capacity to use policy as a tool to coordinate the mass of projects that together make up the thrust of Nicaraguan rural development initiatives has been limited. The reasons for this are:

- a political process is entrenched, wherein the tool of patronage via donor-funded projects tends to overshadow policy vision;
- there is often a genuine (though perhaps fading) commitment to a neo-liberal ideology that sees the role of the State as very limited;
- the State has very limited capacity to mobilise its own resources (due to debt service and HIPC restrictions);
- large and unpredictable aid flows tend to overshadow modest state resources;
- Profound donor concerns exist about corruption and lack of transparency, which in turn encourage bypass solutions;
- street-level bureaucracies frequently lack awareness of, and interest in, official government policies;
- government policies lack legitimacy in the field due to a widespread perception that they are steered by personal whims and interests of current (and highly interchangeable) ministers, and therefore do not represent a consistent framework for action.

These factors have all meant that development policy formation is extremely fragmented by projects. The impacts of the high level of projectisation of rural development on policy narratives are:

- a strong ‘supply-side’ bias exists, where concern over how to fund and implement a given agency’s (or donor’s) preferred solution takes precedence over a given action’s relevance to policy objectives, or to the livelihood and asset investment strategies of the poor;
- demand-pull mechanisms are overshadowed by pipeline pressures and paternalism;
- there is a lack of continuity in service provision and in relationships between service providers and their clients, further contributing to lack of demand mechanisms;
- little attention is given to defining the roles of different institutions based on public goods;
- an extreme fragmentation of services exists, where rural people have little control over the continuity, quality, and priorities of service provision;
- pluralism in provision of services has not resulted in pluralism in options for producers;
- there are strong tendencies toward a ‘contract culture’ among service provision agencies.

These impacts affect all types of institutions; governmental, non-governmental, farmer organisations, and even parts of the private sector. All of these factors have been aggravated by the increased flow of funding after Hurricane Mitch. NGOs in particular realise that they are unable to provide the needed continuity in relations with producers due to their dependency on short-term and uncertain funding sources. This has rarely, however, led them to question whether they should engage in such projects at all.

In light of this projectisation and fragmentation, a sector-wide approach to rural development would seem imperative. Nicaragua is, unfortunately, not a candidate for such an approach on a national level. Given profound concerns about continuity, transparency, and capacity – the basic foundation of a successful sector-wide approach (Brown et al., 2001) – there have been no serious efforts to mount a sector-wide effort.

Part of the argument used to justify the new MAGFOR proposals for a massive increase in extension staffing is that such a scheme would actually require few additional resources, given the large amount of funding already being provided to technical assistance through the existing myriad of projects. This argument may well be true, since there is a large number of often very highly paid extension staff in the many donor, NGO, and private sector initiatives already in the field. The proposed structure would, however, effectively require an administrative capacity and legitimacy to coordinate and effectively control these scattered projects. Such a structure is not in place at MAGFOR.

3.2 Contract culture

Projectisation has a profound impact on the nature of institutions offering extension services. High levels of aid, extreme restrictions on governmental capacity to cover recurrent costs, and weakening relationships between producer organisations and their members have led all to devote increasing attention to hustling projects – especially in the wake of the increased aid flows after Hurricane Mitch. One result of this is that, even where relatively clear directives exist about a given institution's goals, structures, and priorities, there is often a high degree of flexibility in following the aid market and implementing projects according to availability of funds. This is in marked contrast to a low capacity to follow and adapt to markets for agricultural products.

Therefore such categories as extension agency, private firm, NGO, producer organisation, and producer cooperative all overlap. Many membership organisations increasingly treat their members as clients (or customers) rather than as members, per se. The Association of Producers and Exporters of Non-traditional Products (Asociación Nicaragüense de Productores y Exportadores de Productos No Tradicionales, APENN) for example, is ostensibly a producer organisation, but effectively works in many respects as a private enterprise engaged in contract farming. Its members resemble clients. Despite their relatively well-defined roles, government agencies such as the Institute for Rural Development (Instituto de Desarrollo Rural, IDR), MAGFOR, and INTA have shown themselves ready and willing to implement a variety of projects outside their formal mandates, and to effectively compete with one another. The difference between NGOs and private service firms becomes increasingly defined by their degree of market orientation, rather than basic principles.

Furthermore, it should be noted that different organisations' flexibility, and the aid dependency upon which such flexibility is founded, is seen as a fact of life for agencies in the field. There is little drive to find clearer roles. Agencies expect potential donors to judge them by their capacity to undertake different extension tasks, rather than by how they fit into 'correct' service provision slots for state, private sector, and civil society institutions. This neutral and pragmatic stance emerges from the fact that there is no indication that Nicaragua's aid dependency is going to significantly diminish in the near future. Institutional 'sustainability' in the normal sense of the term is not on the short-term agenda.

3.3 Organisations

The institutional landscape in Nicaragua contains a confusing and seemingly paradoxical mix of policies, structures, and priorities. NGOs that usually trace their roots to leftist initiatives are actively promoting a modest role for the Government and a stronger market orientation. State bureaucracies, although led by the neo-liberal Government, have been slow to adopt a market focus, and have plans to expand their roles.

Service provision and inter-agency partnerships are poorly integrated and articulated. Each agency hires its own technicians, with little or no consideration of joint efforts or long-term roles and recurrent costs. Bypass solutions abound, and the need for such approaches is essentially taken for granted. IDR is a case in point; it was explicitly created as a structure under the direct control of the President's Office to provide donors (especially the Inter-American Development Bank, IADB) with a ready-made bypass solution for implementing rural development projects. Though IDR's well-trained, paid, and resourced staff is involved in a variety of agriculture-related initiatives (often in conjunction with infrastructure projects), other governmental and non-governmental actors report that collaboration is minimal.

Despite these problems, a desire is clearly emerging among various actors to bring together a dialogue on extension and technological change. After considerable apprehension in the past, INTA has begun to adopt a more open attitude to sharing experience with NGOs, and many NGOs appear ready to participate in such a dialogue. Nitlapán, an institute at the University of Central America, has given priority to supporting forums for exchange between governmental and non-governmental institutions (Nitlapán, 2001).

3.4 Decentralisation and the role of local government

Decentralisation of responsibilities for natural resource management and the projectisation of rural development have created a potential for greater subsidiarity in extension and agricultural development. As yet, there are relatively few examples of this potential being acted upon either by local governments, line ministry agencies, or the various actors managing rural development projects. This is due to several factors:

- local government has limited institutional and financial capacity to invest in rural development;
- local political priorities focus on urban development and infrastructure (electricity, roads, schools, and health facilities), due to assumptions by politicians and their constituencies that provision of such infrastructure and services is the role of municipal government (Larson, 2001);
- there are virtually no lines of accountability from public sector agricultural institutions to local government;
- cynicism and pessimism prevail among donors and NGOs about the potential for strengthening local government's role outside of urban areas;
- paternalism and prevalence of donor-driven agendas hinder attempts to strengthen local government, leading to lack of genuine ownership.

The process of decentralising governmental responsibilities to the municipal level began during the Sandinista regime of the 1980s. During the 1990s, this process continued, and was formalised with the approval of the Reforms to Municipalities Law in 1997. The legal basis for decentralisation has now been put into place in many respects, but since the municipalities have extremely limited human, financial, and logistical resources, this has in many ways led to a decentralisation of responsibilities far beyond the capacity of local administrative units. Many municipal governments fail to significantly extend their authority beyond the urban centre. The current situation can be characterised as one of local government struggling to define how it will prioritise use of resources in relation to its expanded responsibilities, while also finding a role in engaging/participating in the myriad of projects in progress in its areas of jurisdiction. The future links between decentralisation and technological change in agriculture will be largely determined by the stance taken on the continuum between pandering to donors and coordinating them. This in turn will depend on a mix of pressures relating to supply (of aid projects) and demand (from constituents).

Evidence shows that the more urban and wealthy municipalities fare better than the rural and poorer municipalities in handling their expanding powers and responsibilities. Surprisingly, the most urban municipalities are proving better at taking into account rural issues than the primarily rural municipalities (Larson, 2001). This can be attributed to two factors. First, Hurricane Mitch created a new awareness of the dangers to urban populations caused by environmental destruction on the slopes above populated areas. A political will to prevent future disasters has thus emerged that is notably lacking in many rural areas where the problem is more distant and the cost, relative to existent resources, is seen to be overwhelming. Second, the wealthier urban municipalities have the human resource capacity and a critical mass to think strategically about rural-urban linkages and their role in development. IDR, NGOs, and bilateral and multilateral projects are trying to help weaker rural municipalities develop, finance, and operationalise strategic plans that extend beyond basic urban services, but these efforts have had mixed results.

Decentralisation of central government functions varies according to the structure and history of the given ministry. One problem in linking decentralisation efforts to extension is that INTA and MAGFOR structures are largely coordinated at provincial 'departemento' levels, whereas local government is based at municipal level. MAGFOR and INTA staff members are supposed to coordinate with municipal officials, but their line responsibilities are entirely to MAGFOR itself, with no horizontal lines of responsibility. This is in contrast to decentralisation trends elsewhere in Latin America, where municipal authorities have been given considerable control over extension (Reyes and Rodriguez, 1998). MAGFOR intends to strengthen its provincial delegations to facilitate improved local linkages, but it is not clear if, or how, the leap will be realised from provincial coordination of ministries, and aid agencies to municipal planning.

NGOs are often more integrated in local planning processes than MAGFOR and INTA. In some cases synergy between local government and civil society, involving both pressure and support, has played a major role in mobilising a more active role by local government in natural resource management (Larson, 2001).

In Nicaragua, the issue of decentralisation is completely entwined in the politicisation and polarisation of local government. Some donors have been eager to support the government's decentralisation efforts, but have run into difficulties due both to the heavy-handed attempts by elected officials to politicise the provision of services, and the loyalties of local administrative personnel. The lack of horizontal linkages between MAGFOR/INTA and municipal authorities may be largely due to fears of politicisation. Experience from Hurricane Mitch demonstrated that quality of performance can be directly correlated with the ability of municipal authorities to overcome polarisation (Rocha and Christophos, 2001).

Despite the difficulties in linking decentralisation to extension and rural development processes, the fact remains that local government now has the responsibility (and theoretically the power) to do something. It has the authority to bring people together and it has major regulatory instruments. There are opportunities to build on these powers that have not been capitalised on because of prevailing cynicism and pessimism from outside agencies. Once decentralisation takes greater hold in the municipalities, and confidence grows, this process may begin to have greater impact on rural development.

4 Extension structures, priorities and potential foci

4.1 Extension's role in development and poverty alleviation strategies

Extension structures have followed overall national trends of expansion and contraction of the public sector. The public sector constituted 24% of the work force in 1990; by 1998 this proportion was reduced to 5.3% (World Bank, 2000).

A large extension structure was first developed during the 1970s with support from United States Agency for International Development (USAID). This was followed by a broader extension-led structure during the Sandinista years, wherein extension agents became development agents, with a broad range of rural development roles. All of this collapsed with the economic crisis at the end of the 1980s and early 1990s.

During both of these periods, extension's role was primarily to support large-scale farmers. During the Somoza era, economic development was driven by wealthy enterprises run by the Somoza family and its associates. The Sandinistas primarily promoted large-scale state- and cooperative-run agro-industrial enterprise, excluding small producers (Maldidier and Marchetti, 1996). This created a strong distrust of the Sandinistas (which still exists today) among many small-scale farmers, particularly in northern Nicaragua. In general, technology transfer has been characterised by an elite, high-external-input and capital-intensive bias, and has essentially subsidised the production of better-off farmers (Báez and Baumeister, 1997).

INTA was founded in 1993, with support from the World Bank and Swiss Agency for Development and Cooperation (SDC). Its main roles are research (primarily validation trials) and extension services, but it is also engaged in some seed multiplication. After Hurricane Mitch, INTA started to manage food-for-work projects. INTA was created as a semi-autonomous institution, as a reaction against the experience of the Sandinista years when the extension service became a powerful but overburdened tool for the broad implementation of rural development policy. INTA was to be managed outside of line ministry structures to ensure efficient implementation of policy, and to avoid politicisation. In 1998 INTA was administratively placed under MAGFOR, but with its principle of autonomy largely intact. Semi-autonomous research and extension institutions have had a long history in Latin America (Nogueira, 1990).

With its flow of donor funding, INTA is relatively well-financed. Its 150 field staff and 125 additional private sector contracted staff are mobile and relatively well-trained, though some question their capacity for innovation and efficiency. The World Bank support to INTA has, in recent years, taken a lead in introducing user-charges for extension services and in contracting out service provision to private firms. Farmers are charged a set proportion of the costs of direct service provision in areas deemed to have high potential. This has been seen as a model for introducing cost-recovery in other countries (Dinar and Keynan, 1998). More recently, this model has been acknowledged to have had mixed results. Willingness to pay for services has varied, but the experience has been mainly positive.

INTA's geographic coverage is limited. It has little coverage in poorer areas and virtually none on the Atlantic Coast, the main target for food security and poverty alleviation initiatives. The private firms who provide services are said to emphasise the more accessible clients even more (Dinar and Keynan, 1998). Although this is acknowledged as a problem, there is no clear strategy of how to address the spatial nature of poverty. There seems to be an implicit assumption that the poorest areas will be served by donor projects.

NGOs and producer organisations frequently have very negative preconceived views of direct user charges, though they have little experience of the practice. Despite this mistrust of cost-recovery in extension per se, NGOs are even more involved than INTA in market integration through improved quality control, certification, and processing. As producers gradually take on the responsibility for such schemes, NGOs are starting to accept that producers will need to cover the costs of advisory services within broader packages.

Neither Government nor NGOs expect that service charges or contracting out will be a viable way to support isolated farmers engaged in subsistence production and home gardens. Many expect that environmental protection in particular (primarily in the form of watershed management programmes) will require further subsidies for the foreseeable future, both for recurrent costs and even in the form of food or cash for work.

The vision of the World Bank (not necessarily shared by the current Minister) is to encourage INTA to develop into a market-oriented 'think tank' supporting a multiplicity of private sector service providers, and using a combination of public and private finance. The assumption is that as the market for contracted service provision expands, so will the supply and quality of private sector services, some of which will be charged for and others not. INTA will thereby gradually withdraw from direct service provision. It is acknowledged, however, that this transformational process within INTA will be difficult. Current staffing and organisational culture are focused on 'doing extension', and INTA is, for the time being, ill-equipped for this new role.

In the meantime, INTA has sometimes found itself tempted to enter the competition for managing projects, effectively drawing it in an opposite direction. In particular, INTA has become involved in contracting for the management and support of food-for-work schemes. This is seen by INTA and by the WFP as a positive way to increase links with poorer groups. Being 'contracted in' by such aid programmes may also have implications for INTA's financial stability as their sources of revenue are diversified. There may also be a downside to INTA's engagement in project contracting. As field staff take on potentially diverse and short-term activities their clients may receive less coherent and regular contacts with extensionists. If INTA begins marketing their services upwards to funding agencies, their downward accountability to farmers could suffer accordingly.

INTA has two basic extension approaches. Services to 'favourable areas' are based on direct advisory services with a degree of cost recovery. Intensification and diversification are given priority in the favourable areas. 'Less-favoured areas' are addressed through a programme of mass technical assistance (*asistencia tecnica masiva*, ATM). This modality was originally structured on the use of media, farmer fairs, etc. The results were deemed insufficient, and this component is currently under review. In practice, ATM focuses on lead/model farmers, with subsistence, nutrition (home gardens), and environmental protection as major components. Low-risk maize and sorghum varieties are promoted. Gender issues are receiving increasingly explicit attention.

In practice, extensionists are given leeway to respond to producer demands, regardless of whether they live in a favourable or less-favoured area. This often results in more emphasis on cereals, even in areas classified (based largely on rainfall and soil quality data) as having higher potential. Choice of technologies may also relate to the relative strengths and weaknesses of INTA's technological portfolio, since INTA is known to have more to offer about basic grains than cattle or coffee, for example. There are also some indications that farmers' demands tend to correspond with a desire to access whatever free inputs INTA has available at a given time. In addition, farmers report that they value INTA's services largely as an avenue for preferential access to credit (Barandun, 2001).

Greater emphasis is now being placed on collaboration with other institutions (NGOs, IDR, local government, etc.). Partnerships focus primarily on natural resource management and soil conservation (often including food-for-work), inspired by the experience of Hurricane Mitch. This focus has the potential to direct INTA away from a focus on wealthier farmers and toward closer collaboration with NGOs. INTA is also increasing its collaboration with NGOs in post-harvest technologies.

Clear analyses of public goods were given attention in the original design, and in the planning of the second phase of World Bank support to INTA. Efforts were made to specify which services could be provided on a commercial basis, and which would need to be provided for free. In the first phase there was, however, a general impression among many observers that those aspects defined as public goods perhaps received less attention, leading to the poor performance of the ATM modality. Many of the deficiencies in balancing efforts to satisfy demand for both public and private goods have been addressed in the planning of the next phase.

MAGFOR itself (excluding INTA structures), in principle limits its role to normative inputs, information flow, sanitary protection, and certification. Its services are entirely oriented towards regulatory efforts and public goods. Its greatest successes in service provision have been in parasite control, particularly the eradication of the Barrenador worm (MAGFOR, 2001). MAGFOR has a structure of provincial delegations that are frequently perceived of as weak and politicised. Steps are being taken to reduce the politicisation and improve the stature of the delegations by recruiting better-qualified staff, primarily from producer organisations. The Ministry intends to expand the activities of provincial delegations to include a much stronger emphasis on information flow. This will include reinforcing the information technology capacity of the delegations and organising a series of meetings with all actors in the sector in each province.

The information technology focus will probably be greeted with scepticism. At provincial and municipal levels, most actors state that market information is not a panacea. A considerable amount of market information is already distributed both governmentally and to NGOs, who express doubts about its usefulness to their work. In isolated areas, where there is little access to markets, mere supply of information is not seen as solving the main constraint of access. This raises questions about the hopes expressed internationally that information technology will become a driving force in agricultural commercialisation. As of yet, there are no programmes operational to test this hypothesis, but some will certainly come on-line in the near future.

Provincial MAGFOR delegations usually lack resources to mobilise their existing staff (jealousy towards the better-funded INTA structures is apparent). Programmes such as control of vampire bats that are designed to be ongoing are managed sporadically depending on the availability of project funds. Crosscutting issues linking sanitation and human health are acknowledged to require better coordination with health institutions, but are currently also addressed only on an ad hoc and occasional basis.

There is considerable interest within MAGFOR in strengthening governmental structures for technical education in agriculture, though the strategy for this is still unclear. In the meantime, the number of students in technical education in general and agriculture in particular is declining (UNDP, 2000).

NGOs have major roles in direct provision of extension services. The majority of extension workers in Nicaragua are probably employed by NGOs. Agent-to-farmer ratios are very high. Costs are invariably met through project aid. Sustainability and continuity are major problems, and in the mid-1990s many NGOs were experiencing a crisis due to declining aid flows after earlier post-conflict donor generosity. The influx of funds after Hurricane Mitch provided breathing space for

many (Levard and Marín, 2000), but the financial squeeze can be expected to return again in coming years. NGOs have shown little interest in entering the market that is being created for private extension provision within the World Bank-supported INTA programme.

NGO agricultural efforts are focused on soil conservation, home gardens, and commercialisation. NGOs often provide extension combined with credit programmes, as capital is assumed to be a greater constraint than technological knowledge. Soil conservation and natural resource management programmes vary from short-term food-for-work initiatives, wherein extension is a small add-on activity, to longer-term watershed management projects, often implemented in collaboration with the Ministry of Natural Resources and the Environment. Home gardens are promoted partly as initiatives to support gender equity, and also as a means of diversifying income and diets. NGOs take greater account of agriculture–health linkages than governmental agencies. Some NGOs even produce traditional medicines. Commercialisation is an increasingly important theme for NGO extension efforts, and staff often display a strong awareness and concern for market factors. Exchange of experience among farmers is a major way that commercialisation and technological assistance are generally supported.

Farmer-to-farmer approaches are well entrenched among many NGOs. The most prominent initiative is the farmer-to-farmer organisation (Programa Campesino a Campesino, PCAC) within the (Sandinista-backed) National Union of Farmers and Ranchers (Union Nacional de Agricultores y Ganaderos, UNAG). This organisation primarily promotes watershed management, sloping agricultural land technologies, home gardens and alternatives to swidden agriculture (a type of slash-and-burn) through both concrete extension projects and advocacy. It is well established and receives broad donor support. It also collaborates with international NGOs and research institutions, e.g. the International Center for Tropical Agriculture (Centro Internacional de Agricultura Tropical, CIAT). Due to its Sandinista affiliation and outspoken criticism of conventional agriculture, it has limited collaboration with the Government.

The projects run by PCAC and other NGOs with similar methods and goals have succeeded in establishing a certain level of national debate on alternatives to conventional agriculture. Some doubts exist about the longer-term financial viability of these types of extension programmes. The agricultural technologies themselves may (perhaps) be profitable. Critics point out, however, that rhetoric about farmers helping one another may hide a considerable level of donor-funded investment in extension staff and logistics. If these approaches are to become mainstream alternatives to conventional extension programmes it will be essential that they become subject to the same scrutiny as other types of efforts. That said, the costs of farmer-to-farmer approaches could be justified by the chance to reduce levels of environmental destruction. This comparison of costs and benefits will need to be made in a transparent manner, with an acknowledgement that environmental protection has an intrinsic value that may justify a significant level of subsidisation.

Bi- and multilateral projects usually employ their own extension personnel, often at wages far above what others provide. This has proved unavoidable in a context where bypass structures are virtually the norm, but it has severely distorted the labour market and incentive structures for technical assistance. The Swedish International Development Cooperation Agency (Sida) is planning to avoid this tendency by channelling its extension support through existing institutions.

Producer organisations, particularly in coffee, livestock, and non-traditional products, are increasingly involved in providing extension services, both as a part of their regular activities, and through projects. Services are not always limited to members. This is a positive point in relation to their potential access by the poor, who are rarely active members of such organisations. On the other hand, such services are an indication that these agencies are either being pulled into the

prevailing contract culture, or are acting as commercial service providers. In both situations, accountability to the organisation's members is in danger of becoming a secondary priority.

Private extension service providers consist of technical assistance firms and individuals contracted directly by farmers or banks. The market for technical assistance firms was largely created by the establishment of INTA's private technical assistance facility, and will presumably grow if the vision of a gradual shift to out-contracting in the World Bank-supported MAGFOR programme is expanded and becomes national policy.

A number of individual private extension agents are active in providing services to wealthier farmers. Some banks demand that loan recipients, particularly for coffee, contract such individual extension providers as a way of reducing risk. Some individuals also provide small ad hoc training to groups of farmers, either on demand or in combination with input marketing.

Across the full range of extension providers there is scant capacity for broad strategic thinking and for monitoring and evaluation (Levard and Marín, 2000). This is directly related to the supply- and project-driven nature of extension provision. Institutions are atomised and poorly articulated (Báez and Baumeister, 1997). Continuity, efficiency, and equity are the victims of Nicaragua's projectised aid and extension market. Service provision is patchy. In some places (favoured by the so-called 'CNN effect' of media attention drawing inappropriate concentration of resources) and with some technologies (home gardens), agencies are competing with each other to provide subsidies. In other areas (particularly those that are inaccessible in the north and east) and for other farmer needs, there is a dearth of service providers. The recent proposals put forth by MAGFOR for mobilising 4000 extension agents reflects an awareness of this problem, and despite concerns about the realism of the scheme, may nonetheless serve to stimulate a broader national discussion on the gaps in service provision.

4.2 Potentials and priorities

Extension priorities can be seen as falling into two main categories in relation to livelihoods: helping poor people cope with their vulnerability, and helping them to 'escape' from poverty and thrive. The latter consists of commercialisation, market participation, and increased income. The former emphasises security, subsistence, and safety nets.

Internationally, the vast majority of governmental and commercial extension schemes have been justified on the basis that they contribute to thriving. The need to show a positive internal rate of return on investment has meant that thriving is in many cases taken for granted to be the *raison d'être* for extension. Analyses of poverty, vulnerability, and nutrition all clearly point to thriving strategies as being most effective and 'sustainable' with respect to recurrent costs, dependency, and a limited role for public finance. Thriving is also increasingly dependent on information flows, but not on traditional technology transfer. Farmers need to understand and follow changing markets. They must also adapt to increasingly onerous sanitary controls in order to access international markets (Henson and Loader, 2001).

NGO efforts and food security programmes have more usually emphasised coping, as have many projects initiated after major crises. This alternative set of priorities is based on the belief that thriving will not reach everyone. Thriving is contingent on the availability of roads, markets, and institutions. It will not address the need to support livelihoods where social, economic, and physical infrastructures are not in place. Among neo-liberal Latin American economists, there is a growing readiness to assume that a significant proportion of rural peasant production is simply not viable. This classification is becoming more common in referring to marginal areas in Latin America

(Bebbington, 1999). It is becoming acceptable not to invest limited finances in these areas, as people are assumed to be better-off migrating or finding different livelihoods, rather than remaining on their failing farms. The technocrats have often assumed that by merely ignoring the ‘non-viable’ communities, they will dissolve and join the mainstream.

However, this is not happening. Instead, a destitute, alienated, and often-violent culture is becoming entrenched. The isolated agricultural frontier, where the forest has been cut to provide more agricultural land, has traditionally been the area that absorbed the poor and landless from the rest of the country. With the destruction of the forest nearly complete, this is certainly a less viable option than it was in the past (as can be seen from the poverty statistics), but there is no indication that these areas are being abandoned. A realisation is emerging that coping strategies need to be supported, even if the mechanisms to support such strategies are not necessarily ‘sustainable’. Market solutions alone will not lead to inclusive development. The internal rate of return on extension for isolated subsistence producers will probably be negative, and the prospects for significant cost recovery are nil, but these arguments are not sufficient to write these areas off. A mix of different strategies, most of which may require some form of subsidy (at least at the beginning) are needed.

In Nicaragua, the simple thriving–coping dichotomy does not fit neatly with real-life livelihood strategies. It is nonetheless a useful heuristic device for relating extension to livelihoods. It should be noted that for poor people themselves, thriving and coping strategies are always entangled. Their use of assets to escape their current situations, and to survive in the meantime does not sort well into such categories. Furthermore, some of the labels for such strategies give cause to confusion about the coping–striving continuum. ‘Diversification’, for example, means very different things to poor farmers and to policy-makers. Poor people diversify their livelihood strategies as a risk-reduction measure, by not putting all their eggs in one basket. In the policy discourse, diversification tends to mean that the country as whole should better distribute its eggs. Risks to the national economy could be mitigated by developing products for new markets. In order to enter non-traditional markets, individual farmers will inevitably need to specialise more (and diversify their household production less), thereby increasing their risk at the household level.

There are myriad ways to support the livelihoods of the rural poor. The following examples do not constitute a catalogue, but are rather illustrations of potential extension priorities. They are not intended to provide a thorough overview of how extension could, or should, contribute to rural livelihoods.

4.2.1 Thriving

Contract farming, processing and commercialisation

Contract farming in Nicaragua is largely limited to non-traditional commercial crops that require close supervision and market information flow to ensure quality, timeliness and transport. NGOs (e.g. TechnoServe) and producer organisations (e.g. APENN) are establishing collection and processing centres that provide packages of extension, inputs, processing, and marketing. These schemes mainly support vegetable production. The agencies managing such efforts also take care of arranging contracts with buyers, such as national and regional supermarket chains and other large-scale consumers including hospitals and hotels. In one case, a producer of organic vegetables for export to the United States (one of the first) is offering similar services to nearby farmers, renting the services of APENN’s processing facilities. In these examples, high levels of extension inputs have proved essential for maintaining quality (both in the field and in post-harvest processing) and also to ensure that products are available according to market demand. Timing is extremely important in vegetable production, both to maintain buyer confidence and to avoid market flooding,

a problem that has traditionally had a very serious impact on small-scale producers. This is seen to be one of the central extension roles in these schemes.

Quality control for export production is also being promoted in other ways. The Cooperative League of the United States of America (CLUSA) is experimenting with establishing small rural coffee laboratories, based with cooperatives but providing commercial services to others, where coffee producers can assess and gain a better understanding of how to improve the quality of their products.

Commercialisation schemes have been primarily directed toward small-scale farmers using irrigated land. While relatively poor, access to irrigated land is an indication that these producers are not among the very poor.⁶ Programmes such as these do not often have explicit poverty alleviation objectives, and analyses of positive or negative externalities with regard to poverty are rare. Increased income among those moderately well-off farmers who participate is the main objective. There are virtually no links between these commercialisation schemes and the many home garden initiatives (that sometimes employ simple irrigation systems and minor commercialisation), given the great difference in risk and investment costs between these types of projects. There are some reports from food-for-work projects that poorer farmers have entered irrigated production of fruit and vegetables in areas that have become more accessible with the construction of new tertiary roads, but there are no apparent links with contract farming.

The smaller-scale, poorer farmers have tended to use these schemes to access national markets, whereas larger-scale producers have used them for regional and international markets. There has been some criticism and suspicion of the perceived dominance of APENN by large-scale producers, but this appears to be diminishing with a sense that a diverse membership base provides a more sustainable institutional structure. Large-scale producers are increasingly seen as essential to open markets and ensure that sufficient bulk produce is available to attract major buyers.

The activities of the commercialisation centres were originally financed with aid resources, but unlike many other NGO efforts, organisations explicitly strive for financial viability (even with the costs of extension included). An exception to this is that many of the participating producers in these schemes received rehabilitation assistance after Hurricane Mitch. This indicates how aid resources can be used to cushion the effects of a disaster on an otherwise well-functioning system. In a Sida-supported, post-Mitch programme, rehabilitation funds were used to establish demonstration farms using drip irrigation, and thus use the destruction of the disaster as a window of opportunity for technological change, but it is too early to tell if this technology will be effective.

Public finance for infrastructure and organisational support appears to be essential in the early stages of establishing commercialisation programmes directed at small-scale producers, as private capital will otherwise go toward large-scale producers. Collaboration between producer organisations and NGOs seems to be most appropriate, with NGOs initially providing aid-financed extension, before turning it over to either the producer organisation itself, or to the firms handling commercialisation. Extension costs are eventually included in producer prices. USAID has supported the involvement of a private export-promotion firm that may eventually take over some of the services currently provided by the NGO TechnoServe, but on a strictly commercial basis.

For both contract farming and other commercialisation schemes, the only opportunity for financially viable small-scale farmer participation is through strengthening producer organisations, either pre-existing or new. The question of whether or not existing cooperative structures can be revived will depend much on the local history, politics and perceptions of cooperatives. In some

6. There are some examples of producers using rainfed production renting the use of these facilities. Regular membership of these schemes, and with that access to extensive extension support, is not considered by APENN and TechnoServe to be viable.

cases in Nicaragua it has proved necessary to avoid the word 'cooperative', due to its association with Sandinista structures. In addition to explicit commercialisation schemes, such as those discussed above, some producer organisations also have modest commercialisation initiatives connected with other extension-related efforts, especially in the northern provinces of Jinotega and Matagalpa (Jiménez, 1999).

There are also traditional forms of contract farming, based on sharecropping principles. One of these is shared cattle production, whereby large-scale producers place cattle with small-scale farmers. The small-scale farmer has access to the milk, while the large-scale farmer retains the cattle offspring (discussed further below).

Whereas processing units have been drawn into extension roles in non-traditional crops, the same is not true of similar facilities dealing with maize and beans. Farmers are often well aware of quality factors associated with these crops, even though they may lack the capital to invest in the post-harvest processing needed to improve quality on-farm. Though these units play an increasingly important role in levelling market demand, they do this primarily through storage, with only limited involvement in arranging marketing.

An alternative approach to promoting commercialisation is that of marketing organisations/networks. The Matagalpa Network for Community Commercialisation (Red Matagalpiña de Comercio Comunitario, REMACC) is a network of ten NGOs and farmer organisations that provides services such as market studies, publicity and promotion, arranging fairs, joint training of producers in sales, and exchange of experience. REMACC focuses on local markets, as most of the producers with whom they work have little capacity or quantity to enter larger markets. Given the local market focus, there is considerably less demand for extension or quality control.

Community commercialisation centres are examples of micro-enterprises with synergy to agriculture. NGOs and producer organisations usually pay little attention to the major role that micro-enterprise can, and does, play in post-harvest processing and marketing. Transport, processing, and market knowledge are key factors in enabling poor producers to access markets. Micro-entrepreneurs are essential in linking supply and demand. They even provide technical assistance as part of their other services. Middlemen, however, are seen as villains by most agencies, an attitude that limits openness to seeing how small, independent entrepreneurs can be supported to provide necessary services. Those agencies that promote micro-enterprise are virtually entirely focused on urban areas (Báez and Baumeister, 1997). A result of this tendency to see micro-entrepreneurs as 'the problem' is that little caution is observed in intervening with project subsidies in perhaps imperfect but nonetheless functioning markets. NGOs take on marketing roles using aid resources without concern for how future marketing will function, or with unrealistic expectations that the farmers themselves will organise and manage all tasks, instead of supporting the creation of yet more middlemen to compete with one another.

One exception to this is Tropitec, a university-based NGO that actively seeks to promote small, private sector veterinary services, input supply, and processing. Tropitec specifically seeks to link technical assistance and availability of processing technology, the latter through organising groups of farmers to obtain credit (from a bank managed by another branch of the same university institute) for shared machinery. Cut-and-carry livestock fodder systems, for example, are being supported by arranging joint purchase of machinery for processing fodder by several small-scale dairy farmers. Universidad Campesina also works to actively promote micro-enterprise as a way of both providing good exits from agriculture and promoting greater articulation in the rural economy. There is room for growth in small-scale rural services as there are notably few grinding mills, traders, and input suppliers in many rural areas.

The failure to promote rural enterprise is symptomatic of the broader problem of poor market orientation among extension institutions. Both MAGFOR and INTA field staff have been criticised for failing to pay sufficient attention to market factors due to their supply-oriented organisational cultures. INTA is now establishing a unit to focus on commercialisation issues. This is perhaps indicative of the difficulties experienced by a bureaucracy created to promote increased aggregate production in adopting a market orientation wherein production decisions are subsidiary to market signals. INTA and MAGFOR staff acknowledge that the task of changing their organisational culture, and the set of incentives and structures upon which it is based, will be a difficult and extended process.

Livestock

Livestock, in many poor communities throughout the world, tends to be categorised as a coping, rather than a thriving, strategy. This is changing in the face of rising demand for livestock products (Delgado et al., 1999). Although livestock plays a mixed role in Nicaragua, the emphasis is clearly on commercialisation issues.⁷

Beef has traditionally been one of Nicaragua's main exports. Extensive production dominates, primarily in the agricultural frontier. Particularly during the period of 1960–90, vast areas of land were cleared, first for staple production, and then for cattle. Highland areas have converted to coffee and relatively intensive livestock production, but the vast lowlands have primarily become pasture. This process is in progress in many parts of Latin America. Views differ as to whether the conversion to pasture has been driven by small-scale farmers, desperate for land on which to grow subsistence crops, or by wealthy cattlemen, who support poor farmers to clear forest in order to take over their plots when fertility declines (Humphries, 1998). The process of converting forest to cropland and then to pasture has been accompanied by a concentration of landholding; 52% of livestock is now owned by 5% of the farming population (UNDP, 2000). Generalisations are difficult, but a cycle of development can be discerned whereby the agricultural frontier has been initially colonised by small-scale farmers producing staples, followed by a deterioration of soil quality. Since poor producers lack capital to convert their production to livestock, land holdings have shifted to large-scale cattle ranchers (Maldidier and Marchetti, 1996). In the older agricultural frontier, this has in many cases stabilised in a somewhat extensive but environmentally sustainable production system, combining dairy and meat. In the newer areas, there is an apparent shift from very extensive systems to near abandonment. Poor infrastructure and lack of capital have reduced cattle production considerably in the newer agricultural frontier areas. The proportion of pasture to cropland in Nicaragua is now well over two to one, a shift from near parity at the beginning of the 1980s (UNDP, 2000).

Today, many of these lowland pastures are empty. There are vast areas of poor quality pasture with few or no animals. Livestock is the only agricultural sector that is declining (Jiménez, 1999), and absolute numbers of cattle are falling. The areas with empty pastures are some of the poorest in the country. If livestock development could be revived, this would seemingly be an entry point for improving the livelihoods of the poor, even if it were indirectly via the creation of employment, due to the current concentration of land ownership.

An essential problem for Nicaraguan meat producers is the proximity of subsidised cattle production in the United States. Profit margins have been small, leading to falling investment. Coffee production, in the nearby highland areas, was a more attractive investment for both farmers and financial institutions until the recent fall of coffee prices. Milk production for domestic and regional markets has, however, increased. Most cattle ranchers combine milk and meat production, using milk to cover running costs and the sale of meat to generate profit. Since smaller-scale producers require relatively regular incomes, they concentrate more on milk production. Larger-

7. Exceptions to this are primarily the integration of small stock in home gardens for household consumption.

scale milk producers employ a significant amount of wage labour, thereby also having positive effects on poverty alleviation (Fernandez and Scoffield, 2001).

Infrastructure and access to dairy markets determine the relative balance between milk and meat. Labour-intensive milk production is more attractive in the relatively accessible areas. Where new roads are constructed there is often a consequent increase in milk production, together with a shift to more intensive production methods. Without infrastructure, there is little motivation for intensification and dairy production. The isolated agricultural frontier regions produce more meat, and are thus dominated by large-scale production. Spatial factors thus have major potential implications for extension strategies.

There is an active debate on the impact of infrastructure on environmental destruction (Humphries, 1998). Some propose that the wealthier dairy farmers tend to buy out poor subsistence producers, forcing them to convert more forest at the frontier (which is also made accessible by new infrastructure). Others suggest that infrastructure encourages intensified commercial production. Few would deny, however, that this is a complex process with profound implications for policies supporting technological change. Close monitoring and analyses are more appropriate than set models in determining how to address the interface between infrastructure and technological change.

Despite the vast quantities of under-utilised land, there is a large and growing population of landless, including colonists from other parts of Nicaragua and such other groups as demobilised soldiers and former cooperative members. Many of the landless received parcels of land as part of demobilisation and land-reform schemes, but have since sold their property to wealthy neighbours (Fernandez and Scoffield, 2001). Landlessness and unemployment among rural youth is a major concern. Security in cattle-producing areas is a major problem, with kidnappings of large-scale producers commonplace.

Assumptions that industrial milk processing will overwhelm local and small-scale processing have thus far proved unfounded. Industrial production has stagnated at 20%, and is concentrated in the most accessible areas. At the same time, small-scale dairy production and traditional cheese manufacture has expanded rapidly, now accumulating 60% of national milk production (Cajina et al., 2000). Cheese is mainly produced in areas with moderately poor infrastructure. If the infrastructure is very good, cheese producers must compete with industrial milk purchasers. If it is too poor, transport costs become too high. This implies that efforts to link extension to systems of collection and processing would be most effective if linked to these small units, particularly as targeted to poor producers.

The major outlet for milk and cheese in the North has been the Salvadoran market, where milk prices are on average 70% higher than those in Nicaragua. The price paid for milk by the Salvadoran traders is somewhat lower than for industrial purchasers, but the quality demands are much lower also, making this market more attractive for the poor (Lorío, 2001). There were fears that this market would shrink in 1999 after El Salvador imposed a ban on imports of (non-pasteurised) products from uncertified plants, but since then the trade has continued unabated on an illegal basis, still handled primarily by Salvadoran traders.

This raises significant ethical questions regarding extension strategy, especially for poor producers who have least potential to establish competitive and viable systems to pasteurise their milk. Should an investment be made in strengthening a lucrative 'black market', with pro-poor economic benefits? If the market does not demand quality control, should extension priorities weigh the health concerns of importing and domestic consumers against the well being of poor exporting producers?

Improvement in the sanitary quality of milk products is naturally also related to infrastructure, both roads and electrification. Targeting dairy interventions to areas where new infrastructure is being put into place could be an appropriate strategy for helping poor producers before wealthier farmers take on a dominating role in the local market.

Extension for cattle and dairy production involves several actors. Sanitation and quality control issues, as regulatory functions, are the responsibility of MAGFOR provincial delegations. Governmental livestock extension is the responsibility of INTA, though it is not a high priority. Needs for technical assistance related to sanitation and quality control tend to fall into a grey area MAGFOR lacks the mandate and resources (particularly logistical, as their human resources are often under-utilised) to provide extension, whereas INTA lacks expertise. Some MAGFOR provincial delegations would like to step in and fill the gap in livestock extension. Despite the fact that INTA is part of the Ministry, collaboration between the provincial delegations and INTA in this respect has not been strong.

Government policy on how to improve cattle production is unclear. MAGFOR's strategy emphasises improved breeds and artificial insemination. INTA places stronger emphasis on improved pasture/forage and a shift to semi-intensive methods. This is in line with a consensus that animal management and nutrition are the major constraints to improved production in Nicaragua (Cajina et al., 2000).

Silvipastoral production is being increasingly promoted as a way to stabilise production in the former agricultural frontier. The impacts of such technologies on demands for wage labour and their specific applicability to poor farmers have, however, not been analysed in most development initiatives. In some respects, the prospects for a broad intensification of cattle production would seem poor, since there exist large areas of under-utilised pasture (albeit of low quality). Milk production is presumably the major avenue for supporting intensification. Interest in cut-and-carry and other more intensive forage production is also said to be growing in areas that experienced extensive landslides after Mitch, as awareness has been raised of the dangers of earlier production methods.

Another entry point for intensification is that of poor households that care for the cattle of wealthy producers in exchange for retaining all, or a portion of, the milk production. It has been observed that some of the poorest producers plant quality pasture for cut-and-carry on the limited land they have available, as a way of attracting the interest of wealthy neighbours who may enter into such shared production (Lorío, 2001).

Intensification will demand increased access to medium- and long-term credit. This is needed not just for acquiring stock, but also for fencing and other infrastructure to improve pasture management (Cajina et al., 2000). Hurricane Mitch caused major damage to the infrastructure of small-scale producers.

Small stock has frequently been promoted by NGOs in relation to home gardens and gender interventions. This is primarily directed at home consumption. Pigs, however, are produced for the market. Rural swine- marketing systems are relatively well-developed (Lorío, 2001; Jiménez, 1999). Isolated areas actually have a certain comparative advantage in that there is often surplus production of grain and tubers that cannot be marketed due to transport costs. These food stocks are used as fodder for pigs, which have a higher value relative to transport cost, and which can actually walk to the road or riverside. Indigenous communities in the humid areas of the northeast, where producer prices for maize are extremely low, are the main groups converting cereals to marketable meat in this way (Jiménez, 1999). More extension attention to feeding and management could have

an impact on poor producers, both in improving meat quality, and in sanitation and health, as parasites are prevalent.

There is potential for increased production of sheep and goats in many areas, but Nicaraguan farmers have virtually no tradition of, and considerable scepticism toward, sheep and goat production. The market is also uncertain. Some NGOs, however, have had success in promoting goats for household milk production.

Niche products

Suggestions are often raised that niche products for export are a potential option for the poor. The fundamental obstacle to this is that small-scale producers usually access markets via a learning process that begins with local markets, and then (perhaps) continues to national, regional, and international markets. With niche products, there is rarely a local market to use as a stepping-stone. Despite the existence of many NGO projects that intend to make a direct jump, results are not encouraging. Knowledge of international markets is limited among all types of extension staff, and among producers themselves. Risks are also very high, particularly for a small and disadvantaged (in terms of infrastructure and capital) country such as Nicaragua that has great difficulties in competing with its neighbours. Nicaragua experienced a number of major failures in attempts to enter non-traditional and niche markets in the early 1990s.⁸ Given these risks, the poor are in many cases more likely to benefit from niche products through employment generation effects on medium- and larger-sized farms that can afford to take such risks.

Very often, NGO plans to support niche production are built on assumptions that the negative aspects for small-scale producers can be mitigated if transaction costs are reduced by 'eliminating the middleman'. This can be done by forming cooperatives, or by direct market involvement with an NGO. There are some initial discussions among different agencies of using information technology to directly access international markets, but no operational examples were found in the course of this study. The common assumption that the 'middlemen' are the problem rather than the solution is implicitly based on a belief that either the farmer organisation or individual producers can lower the costs of these transactions by performing these tasks themselves. In most NGO projects to promote niche products, it is hard to obtain a clear view of actual current transaction costs due to the variety of hidden subsidies in different projects. Producers themselves also lack continuity in the services they receive that are often provided through short-term projects, and therefore cannot accurately assess the real transaction costs themselves. This is particularly true of certification costs for organic coffee, as different institutions use different structures and subsidies, and also provide services of varying quality.

The biggest niche product in Nicaragua is organic coffee. Poor producers are expected to draw benefits from organic production if transaction costs, specifically for certification and marketing, can be reduced to manageable levels. The price differentiation between organic and non-organic coffee is currently very wide (US\$ 161 versus 75), with non-organic coffee being perceived as unprofitable at current producer prices. Since world production of coffee is expanding far faster than demand (because of the new production areas in Brazil and Southeast Asia, and the introduction of irrigated production in Colombia), organic, speciality, and other high-quality niche coffees are perceived as perhaps the only Nicaraguan coffee products that will be profitable in the future.

NGOs often support organic coffee production by subsidising the initial period of learning (by farmers, producer organisations, and the NGOs themselves) and establishing routines of certification and marketing, thereby only burdening producers with the running costs of systems

8. INTA is notably cautious about such initiatives, having recently been involved in the failure of a Taiwanese-funded effort to produce Asian vegetables when export markets failed to materialise.

already in place. Some NGOs are providing major support to help producers learn about and follow the different certification requirements. They see it as essential that ‘the producer must know the buyer’, both for certification and to understand broader demands for quality control. In many respects, the cost of learning about certification must be added to the cost of certification itself to obtain an accurate view of transaction costs. In the long-term, the only way to significantly reduce this form of subsidy is if a common standard is agreed among the importing countries and institutions. The eventual recurrent costs of certification may also be subject to hidden subsidies. Many NGOs take a direct role in arranging export contracts either marketing directly through associated distributors in the North, or with large firms. If and when such subsidies diminish, the best chance for poor producers to cover the costs of certification will be through group certification and farmer organisations. The obvious problem is that the poor are seldom members of these organisations.

To summarise, given the high level of risk in investing in the certification process, the complex set of procedures involved, etc., it is unlikely that poor producers could be expected to enter the market for organic coffee without considerable subsidies from outside agencies. Another notable aspect about organic coffee production is the use of multiple tiers that carries with it a significant degree of diversification and risk reduction. Some producers have reported that with the current low coffee prices, the production of the bananas and plantains used to shade the coffee is of greater economic importance than the coffee itself.

Perhaps the greatest indirect impact on the poor of a shift to organic or low external-impact coffee production is that resulting from the recycling of coffee pulp. Processing waste and pulp are major pollutants of water sources in coffee-growing areas, as they are usually discarded into nearby streams. The impact on the health of the poor is particularly great, since they are most dependent on unprotected water sources. A challenge for many agencies promoting environmentally friendly production has been to encourage using the pulp as organic fertiliser. The difficulty is that pulping facilities are often located in the valleys below the hillside coffee plantations. Whilst some success has been found in promoting the use of coffee pulp on the nearby trees and home gardens, the labour of carrying the pulp back to the trees has been a major limiting factor to the widespread use of pulp as fertiliser.

In addition to organic coffee, there are some other smaller niche products that show potential for poor producers. Ginger is grown by small-scale, isolated producers in Matagalpa. These producers were initially supported by a European Union (EU) project. The high product value relative to the transport costs involved and the durability of the product have enabled poor farmers far from export markets to profitably produce ginger. A commercial firm markets the ginger (for export to the United States as ‘Chinese vegetables’).

Honey also has proved a niche for some very poor and landless producers. The wide variety of microclimates in close proximity to one another in some areas has provided opportunities for transhumant strategies, whereby bee-keepers travel with their hives to different zones following different flowering seasons. Local farmers welcome the beekeepers for their assistance with pollination. Much of the honey goes to export. Honey is valued in Nicaragua as a cure-all medicine, but is not used as food per se, thus limiting the market for domestic consumption.

Beekeeping currently receives no formal extension, credit or commercialisation support. Even after Mitch, there was only one (Sida-financed) project for the rehabilitation of a beekeeping cooperative. Technical assistance is provided by experts from the private sector. These experts also sell inputs and equipment. In the past, beekeeping did receive public support; during the Somoza era an agency was created specifically to promote and market honey. It proved so successful that the Somoza family chose to run it as a business. During the Sandinista period beekeeping received significant

support, but lack of supplies prevented growth. Despite many positive aspects for the poor, bee disease problems and limited marketing channels make beekeeping a relatively high-risk enterprise.

Finally, the large number of Central American immigrants in the United States would indicate a potential market for 'ethnic' food products, both among immigrant consumers and for the broader population if demand spreads. Cheese is an example of such an artisanal product with a potential market. It has been noted, however, that such ethnic products are 'reinvented' in global commodity chains. By the time international markets are accessed, the commodity often bears little resemblance to the original product, and demands very different processing methods (Long and Villarreal, 1998). Although such products are perceived as 'artisanal' by consumers in the North, they may need to be produced industrially in the South. As a result, these types of product may have more impact on the poor as labourers rather than as producers.

4.2.2. Coping

Subsistence, nutrition, and home gardens

Despite relatively abundant and fertile land, Nicaragua has a major food deficit. Production of cereals has increased over the past decade, but at the cost of unsustainable conversion of forest and sloping land to agriculture. Maize is still largely a subsistence crop. Only approximately half of maize production is marketed (WFP, 2001). Cereal production is the most common form of agricultural production by the poor, but, while food accounts for 60% of expenditure by rural families, malnutrition is highest among children in rural areas (Government of Nicaragua, 2000). These factors point to several difficult but fundamental questions. Should subsistence and cereal production be improved or should alternatives be found? Should the emphasis on supporting poor people's livelihoods be on stimulating production (perhaps through higher prices) or entitlements for consumption (through lower prices)? The discourse on the future of subsistence farming and cereal production in Nicaragua is deeply divided. This is a fundamental question facing extension and the poor. Should their current livelihood strategies be fortified, despite grave concerns about an inevitable decline in competitiveness, or should farmers be supported and encouraged to abandon current priorities to invest in higher-risk alternatives?

Pessimism prevails as to the capacity of Nicaraguan farmers to compete in the production of the primary staple – maize. Rice and wheat are also major staples, but rice is exclusively produced on large farms and wheat is imported. Prospects are somewhat better for beans partly as urban demand has remained strong despite other changing tastes, and partly as wholesalers from Honduras and El Salvador are increasing their procurement in Nicaragua (WFP, 2001). Plantains and cassava are significant crops in some areas, and their potential for growth and protection from competition from imports (due to high transport costs) are good. Irrigated plantain production in southern Nicaragua benefited from the destruction of plantations in Honduras during Hurricane Mitch. Plantains receive little technical assistance (Marín, 2000).

It should be noted that the Central American market for staples is very fluid (where infrastructure permits), with Salvadoran merchants playing a major role. As a result, high levels of staple production do not run the danger of flooding local markets, as do vegetables. Bean prices, for example, remained stable even after the extremely good production in 1998/99 (Jiménez, 1999).

Relatively few NGOs and donors consider maize to be a priority for extension. INTA, on the other hand, gives high priority to cereals in its extension for 'less favoured' farmers. They see no other viable alternative, and INTA is perceived to have a relatively good portfolio of technologies available for maize and beans. Whether these technologies are good enough to compete with imports remains to be seen. In any case, much of the maize production will inevitably be in

relatively isolated areas, where high transport costs will protect local markets and lack of alternative livelihood options will maintain the focus on subsistence.

Nutrition is a theme that is receiving increasing attention from both NGOs and the Government. The causes of malnutrition are often assumed to be poor production and ignorance. Nutrition is rarely analysed in terms of broader livelihood options. One of the most striking findings in the WFP–VAM studies and the Strengthened Poverty Reduction Strategy is that those areas with the highest per capita levels of food production are actually those with the highest levels of malnutrition (and poverty). There are two basic causes for the direct geographic correlation between food production and poor nutrition. The argument of the food security strategy is that productivity levels are low. The Strengthened Poverty Reduction Strategy suggests that reliance on maize production is not a solution, but rather an indication of poor market integration since farmers have no other viable options, and that poor market integration is the basic cause of poverty (and thereby food insecurity). At the very least, any assumption that increased food production will lead to better nutrition deserves to be approached with great scrutiny. The interplay of these two factors on household well-being deserves close attention.

Home gardens are a major focus of the nutritional component in the food security strategies of both MAGFOR and many NGOs. Objectives combine gender equity, health, and to a lesser extent, income generation. Home garden production is expected to be primarily for home consumption. The results of these interventions are very mixed. A few enterprises, such as poultry production, build on existing production patterns, but fruit and vegetable production are relatively rare among poor producers, and have not caught on rapidly. A popular view is that the primary problem is cultural, in that conservative Nicaraguan farmers are not used to eating or marketing fruits and vegetables, and therefore do not raise them. The emphasis, therefore, is as much on efforts to increase awareness of nutritional and food-security benefits as on production advice. It is questionable, in many cases, whether governmental or NGO extension agents, with an education in agronomy, are skilled at addressing such cultural issues. Links to health institutions would seem appropriate, but are relatively uncommon. Similarly, only a few agencies identify young people as a target group for these projects (e.g. the NGO Cucalmeca, even though this would seem an obvious entry point if ‘tradition’ is the limiting factor).

It may be postulated that the ‘cultural’ issues so often mentioned could actually be partially related to livelihood structures and to the ways that the poor employ their assets. It would be useful to explore whether this ‘black box’ of ‘culture’ is in fact influenced by livelihood strategies or, alternatively, to seek to understand which cultural values actually underpin these traditions.

Reconstruction, rehabilitation, and vulnerability reduction

Nicaragua is one of the most disaster-prone countries in the world. It has been estimated that the average Nicaraguan will experience 3.7 major natural disasters in her/his lifetime (Martinez, 1999). Volcanoes, hurricanes, earthquakes, and even a few tsunamis have all taken their toll, as have, of course, the conflicts of the 1970s and 1980s.

One result of these traumas is that relief and rehabilitation programmes and social funds are (and deserve to be) a regular feature of the institutional landscape. Many NGOs involved in rural development started their programmes as part of post-war resettlement and other rehabilitation projects. It is within such schemes that some of the most positive examples of reconciliation have emerged in a country that is otherwise torn by polarisation (Ardón, 1999).

Little systematic attention, however, has been paid to finding and developing synergies between current rehabilitation projects and long-term development programming. Moreover, with the notable exception of some watershed management and soil conservation efforts, there have been

relatively few attempts to address disaster risks in development planning. There is a significant role for extension in addressing these issues of: (i) increasing the impact of rehabilitation efforts on long-term development, and (ii) increasing the impact of long-term development efforts on reducing risk and vulnerability.

In practice, these two issues have come together in the emphasis that emerged after Hurricane Mitch on environmental protection, where many efforts have involved food-and-cash for work. The pros and cons of food-for-work schemes have been debated extensively, and will not be reviewed again in this study. Food-for-work is a major activity in Nicaragua, and can be seen as part of the institutional landscape. The questions raised here relate to how to make the best of it, rather than debating its appropriateness. Since Nicaragua is a small country with a largely monetarised economy, well-integrated into international markets, it is assumed that the negative impact of food-for-work on local producer prices will be minimal. WFP (2001) argues that due to the low purchasing power of the rural poor, well-targeted use of food aid will not distort national grain markets. New innovative ways to channel safety nets such as food or inputs for work show additional promise for alleviating many of the dangers of traditional food-for-work (see Devereux, 2000). In light of the ease of buying and selling food, it is assumed that there would be comparative advantages of cash over food-for-work (Peppiatt et al., 2000; British Red Cross, 1999), but that these advantages are a matter of degree of efficiency in use of aid resources, rather than in producing significantly different impacts on the livelihoods of programme participants.

Food- and cash-for-work schemes for soil conservation, road construction, and farm rehabilitation have been used for many years, often in conjunction with extension support. The results have been mixed. Overall, one could say that the long-term impact of these programmes is more related to the quality of, and long-term relationship to, extension and other support, rather than to the inherent qualities of the schemes themselves. Where food- or cash-for-work have been used as an entry point for a long-term relationship relating rehabilitation to broader development efforts, the results are often positive. TechnoServe is one of the most highly respected NGOs in Nicaragua. Their programmes began at the end of the war as food-for-work financed demobilisation schemes for former combatants. Food-for-work, however, was just one component of a broader effort combining organisational, entrepreneurial, and technical training and advisory services. These producers, who combine subsistence and commercial production, are now contracting private extension services.

Cooperative for Assistance and Relief Everywhere (CARE) has noted that a significant demand has arisen for extension support and access to inputs where food-for-work road construction has created new access to markets. Many farmers have recognised this as an opportunity to shift from subsistence to more diversified production. A problem is that, since there was no previous infrastructure to stimulate the entrance of commercialisation, there was consequently no extension service in place to help farmers take advantage of the new infrastructure. CARE quickly dispatched extension staff to assist. CARE has also noted similar spin-off effects of water programmes, where increased access to water has stimulated interest in fruit tree and other commercial production. Other agencies express considerable scepticism about the sustainability of CARE's efforts to tack on agricultural components to their short-term rehabilitation programmes. This would seem to indicate a need for greater articulation of efforts through more professional and longer-term extension support.

In general, where food-for-work schemes have been used as a 'pseudo-developmental' window for relief aid, with short-term technical assistance and no long-term relationship, the results have been poor. There are many stories of fruit tree promotion without studies of market access and other failures. Inevitably, much will depend on funding structures. TechnoServe is now engaged in initiatives similar to their earlier projects, but with much shorter-term (18 month) spans of funding. The results will be worth monitoring.

The poor performance of such pseudo-developmental projects is not only due to the short-sightedness of the planners of emergency and rehabilitation programmes. A major problem has been the lack of readiness of development planners to look for ways to integrate and utilise these efforts in their programming. An example of a rehabilitation project that has failed to live up to its potential to become integrated into development programming is the FAO Procasitas project. This two year 'emergency' initiative includes many elements that would seem to provide potential synergy with development programmes. Forest management committees have been established, tree planting promoted, and firewood marketing supported. The planners of the project openly acknowledge that these efforts are unsustainable if links are not made to more permanent institutional structures. Their efforts to initiate such relations have, however, been repeatedly rebuffed by other agencies working in the area with long-term development projects.

Another example of poor articulation between development and rehabilitation programming is that of a US\$ 20 million Taiwanese credit fund that was established for medium-scale irrigation after Hurricane Mitch. Disbursement of these funds has been very slow (Arróliga, 2001), but attempts to establish links from other small-scale post-Mitch rehabilitation programmes, that could employ greater capital inputs, have not been successful.

Management and reduction of risk is not a major feature of post-Mitch rehabilitation programming (Frühling, 2000). For example, TechnoServe's post-Mitch project has built its commercialisation office and infrastructure on a low-lying area of land, devastated by Hurricane Mitch, and clearly at risk from future floods. In addition, TechnoServe's support to their target group of producers affected by Mitch does not include risk-reduction components.

Two strategies stand out as obvious priorities for vulnerability reduction and disaster mitigation:

- On low potential, sloping land subsidies will be needed to promote environmental vulnerability reduction. The market is unlikely to solve the problem. The question is how to use subsidies and safety nets in an effective and relatively sustainable manner. Links among extension, land-use planning, and agencies managing cash/food-for-work programmes are essential. A frank and constructive understanding of how poor people combine access to assets in the form of subsidies (inputs, food/cash-for-work, etc.) within their broader livelihood strategies would be a useful point of departure. In a broader perspective, a central factor will be the question of whether the political will exists to address thorny land-use and conflict issues. This is especially problematic in isolated areas that can be easily ignored by local government. *Current disaster-mitigation efforts have poor prospects for becoming more than small showcases if a concern for risk is not better anchored in local institutional structures.*
- In high potential areas, the motivating force behind risk reduction should be economic. In the long term, insurance schemes are a far more sustainable and appropriate solution than rehabilitation assistance for relatively well-off producers. Synergy could be found between insurance and credit, as interest rates should be able to fall as risk is addressed, and as insurance premiums could create pressures for risk-reduction measures (Matin et al., 1999). A broader look at financial services may provide new perspectives. *Extension (perhaps provided by the financial institutions themselves) has an obvious role in increased information and awareness and assessment of risk.*

The dynamics of insurance and risk reduction are, however, highly complex. MAGFOR, together with the World Bank, has prepared a proposal for a 'rainfall risk management learning and innovation project', that would provide a publicly financed insurance scheme, a 'National Disaster Fund' with the objective of discouraging farmers from 'self-insurance', defined as low-risk production strategies such as intercropping, staggered sowing of plots, and use of traditional low-yielding varieties. Higher risk production measures would therefore be encouraged by such a scheme, whose increased production would form the eventual financial rationale.

The small funds disbursed by such a public insurance scheme may provide a more systematic structure for accessing inputs to re-establish production after a major crop loss. Private insurance could have an indirect impact by enabling large-scale producers to re-establish production. Non-publicly funded insurance schemes are often presumed to be too expensive for the poor. Costs, however, are related to available information on the level of risk of different production strategies. Banks, for example, chose to reduce their risk in loans for coffee production by requiring their clients to contract technical assistance. Extension may come to have a similar role in reducing exposure to risk in insurance schemes. An area where extension may contribute to disaster mitigation, preparedness, and rehabilitation is in the reduction of transaction costs. Accessing information, identifying profitable activities, and building social capital are all made more expensive in the contexts of risk uncertainty, both from conflict and natural hazards. The improved flow of information on risk has the potential of reducing interest rates, creating insurance markets, and promoting a favourable investment climate. As a set of institutions directly involved in such information flow, extension has a seemingly self-evident role. This connection, however, is not currently made explicit in extension thinking in Nicaragua, despite its being an area of potentially great importance in a such disaster-prone country.

Risk reduction traditionally gains less attention in justification of extension interventions, since it involves estimating potential ways to reduce losses from 'extraordinary' events, rather than from producing profits. Furthermore, many of the points above inevitably require public subsidies. Whereas subsidies used for risk reduction are perhaps more palatable than those used for production increase, this is still a topic that is difficult to discuss openly in the face of insistence on 'sustainability'.

Other obstacles to linking agricultural policy to risk reduction after Hurricane Mitch relate to pipeline pressures and the need to show quick physical results from high-profile rehabilitation initiatives. Additional problems include the fact that field staff are often busy picking up the pieces of their own lives and are tempted by a lucrative and often poorly monitored flood of aid resources. Furthermore, it has been poignantly suggested that 'Rehabilitation is an inappropriate concept, as it is something one 'does to things' rather than with people' (Schafer, 2001). Seeds, tools, bridges, and houses are placed before livelihoods. Windows of opportunity to incorporate risk in development planning are ignored because people are too busy building things (Frühling, 2000; Christoplos et al., 2001).

Despite these problems, huge quantities of resources are expended. These programmes do exist and will continue to exist, and are sometimes actually quite successful in mobilising people around the 'things' that are built (see Tandler, 1997). Since rehabilitation is mainly promoted with dual objectives related to risk reduction and economic development, a door is opened to insert risk management into development thinking. By placing the 'things' that are the focus of rehabilitation in the perspective of how poor people themselves are re-jigging their use of assets, the twin factors of dealing with both livelihood shocks and the changing political economy of rural development may be brought together. To put this into the livelihood analysis framework, if rehabilitation programming suffers from the tunnel vision of merely dealing with livelihood resources, the challenge should then be one of relating this to the strategies and outcomes that poor people pursue. Extension staff members are the people at the frontline of these processes, and could be expected to play a key role. Moreover, these people are often strongly motivated to engage in just this issue since they gain status from being associated with the 'things' that rehabilitation delivers, but must also design their longer-term role in the community around strategies and outcomes (Tandler, 1997).

Sloping lands and watershed management

Support to agriculture on sloping lands and improved watershed management are strategies that ideally should straddle both thriving and coping strategies. However, since these initiatives are not often primarily market-driven, but heavily subsidised, they are best discussed as part of the coping end of the spectrum.

Watershed management and related interventions to improve land husbandry on sloping land have received considerable attention in Nicaragua for a number of years. Before Mitch, this attention was justified by environmental concerns, to stabilise land-use and the aftermath of the destruction at the agricultural frontier, and to intensify resource use in order to reduce pressures for further expansion into the rainforest. These watershed management projects were criticised as not justifiable in economic terms due to the need for intensive extension investment and subsidies. They received scant attention in government agricultural policy, and were mainly promoted by NGOs and in smaller projects managed by the Ministry of Natural Resources and the Environment.

After Mitch, two additional justifications came to the forefront. These projects are now being promoted on an expanding scale as ways to reduce the risk of disasters (especially landslides) and as windows for safety nets (food/cash-for-work). These programmes have now become integral parts of MAGFOR's vulnerability-reduction agenda. It is increasingly accepted that in addressing such issues, the reliance on market forces that otherwise dominates agricultural policy is not sufficient (UNDP, 2000). In many respects, vulnerability reduction has become virtually synonymous with watershed management and related environmental efforts. Part of this can be attributed to a desire to access funding for disaster mitigation through environmental protection. There are also indications that the huge numbers of landslides that were caused by Mitch created a genuine concern, among producers and agencies alike, to address these issues. Perhaps due to this explicit link to vulnerability, watershed management has proved to be a good entry point for bringing out links between water, health, livestock, and agriculture. It is one of the few areas where holistic approaches (farming systems thinking and livelihoods) have shown the potential to be mainstreamed in central Government strategies.

It must be said, however, that progress is still limited, and politicisation is a major factor in where and how such mainstreaming may occur. In Posoltega, the Sandinista-led municipality where Mitch had its most devastating effects, there is an overwhelming sense of abandonment by central Government (Fauné and Kaimowitz, 1999). Despite strong collaboration between local government and civil society in establishing a post-Mitch rural development agenda based on a risk mitigation approach to watershed management, there is a sense that this is being done without support from the centre.

Beyond initiatives related to enhancing sustainability and increasing or maintaining the productivity of current systems on fragile soils, suggestions are emerging that much of the low-quality, currently empty pastures and the slopes used for declining slash-and-burn production would be best utilised for forestry. Despite this logic, there are as yet no indications that a shift to forestry is in progress. Commercial forestry, on a medium scale, exists in some parts of the country, but only accounts for 0.3% of GNP and is not expanding (Jiménez, 1999). In order to expand, a considerable change in current management systems would be required, not the least of which would be better control over the use of fire. Presently, fire is considered by most authorities and extension personnel as an evil to be eradicated. It is a regulatory and policing issue, rather than a management question. Due to the poor capacity to regulate and police burning, this focus has had limited impact. If extension were to take a more open approach to discussing the use and abuse of fire in pasture management, in close coordination with municipal regulatory authorities, the trade-offs between different management regimes could perhaps be addressed in a more constructive manner. Farmer-to-farmer extension approaches could prove effective in overcoming the current impasse on this issue.

Post-Mitch MAGFOR policy emphasises watershed management, but many INTA staff remain highly sceptical of such schemes, seeing them as exceedingly staff-intensive and expensive, and as dependent on very high levels of donor funding and technical support. The levels of human resources required to establish the institutional structures and deal with the local conflicts that underpin watershed management are seen as being far beyond what can be managed by INTA's small and over-stretched staff. These projects are thus seen as playgrounds for donors and NGOs, rather than as a viable role for an extension service. Nonetheless, INTA is being drawn into engagements through their management of WFP-financed food-for-work schemes.

There is a need for a frank discussion and vision about subsidisation of environmental protection and vulnerability reduction. Labour-intensive investment in poor-quality sloping land will not be profitable in purely economic terms. Despite the project-driven nature of most such initiatives, a broader perspective is needed where a departure from faith in market forces is not just considered a temporary post-Mitch phenomenon. A more long-term vision needs to be anchored in rural development policy discussions on the connections between watershed management and the role of subsidies for environmental protection, and as employment creation in rural livelihoods.

5 Livelihoods and extension

5.1 Areas of intervention

Poor people in rural areas are producers, consumers, labourers, and residents. Technological change affects them differently according to these different roles. Promotion of technological change in agriculture will impact on the lives of the Nicaraguan poor through greater entitlements in the form of three overlapping categories: (i) production and labour markets, (ii) reduced vulnerability, and (iii) greater empowerment.

5.1.1 *Production and labour markets*

Entitlements can be enhanced through increased production/productivity and access to employment. Basic elements of increasing production and enhancing labour markets through technological change include the following:

- increased cereal production for consumption and commercialisation;
- diversified diets, primarily through home gardens and small stock;
- taking advantage of new commercialisation opportunities, particularly in conjunction with access to expanding infrastructure (e.g. dairy);
- improved marketing and ‘good exits’ from agriculture through an invigorated rural service sector, including processing and small enterprise development;
- labour-intensive production technologies on larger farms to create employment;
- labour-saving technologies for small-scale producers to increase competitiveness and opportunities for diversification;
- programming that builds on the relationships between labour markets and harvesting/processing technologies;
- intensification to make greater and more efficient use of family labour;
- skills for migrants and semi-skilled agricultural labourers;

5.1.2 *Reduced vulnerability*

Vulnerability reduction involves increased resilience to livelihood shocks, environmental protection, access to safety nets, and better health and nutrition, i.e. addressing the myriad risks that confront poor and better-off households.

Examples of vulnerability reduction priorities include:

- enhanced environmental health through the reduction of pollution from processing facilities, and more appropriate use of agro-chemicals;
- better nutrition through cheaper, more varied and nutritious (and even medicinal) diets;
- access to safer foods (especially dairy);
- reduction of production risks through lower-risk technologies;
- diversification of on-farm and off-farm asset investment;
- reduction of risks of landslides, erosion, etc.;
- enhanced community/household food security through greater access to entitlements in the event of livelihood shocks, including making the best of post-disaster safety nets, such as cash/food-for-work programmes;

- improved quality and impact of rehabilitation projects through better links to development strategies;
- insurance;
- mitigation of rural violence through livelihood opportunities for youth and marginalized groups.

5.1.3 *Greater empowerment*

‘Poverty is related to the lack of political power of the poor’ (Government of Nicaragua, 2000), and inevitably the poor will need a stronger stance in dealing with institutions of Government and the market if they are to transform production increases into better livelihoods. Power is related to knowledge of the market for their products, the ability to update that knowledge, and institutions that create a critical mass for negotiation and a choice of production options. Extension can deal with some of these factors directly. In others, its role will need to be developed within a broader policy and institutional environment that enhances the power of poor people to exert their demands. Education is the single most important factor in improving the welfare of rural households (World Bank, 2000), and it is therefore imperative that extension strategies are formed in relation to an overall focus on knowledge as the linchpin of rural development. There are six areas where such empowerment can be promoted:

- skills that increase the producer’s power to negotiate (knowledge of marketing, quality control, certification bureaucracies, etc.);
- infrastructure that increases the producer’s power to negotiate (storage, processing, and other post-harvest technologies);
- organisations that increase the producer’s power to negotiate and demand services;
- the existence of more than one person with whom to negotiate (i.e. more traders/competition and a more dynamic service economy);
- control of the production process through producer capacity to manage linkages of credit, processing, marketing, quality control, and input supply;
- diversification to avoid dependence on one crop/buyer/processing structure/etc.

5.2 **Conclusion: Refocusing priorities**

What should be the link between agricultural (and rural development) policy and existing survival strategies? If poverty is to be addressed in thinking about extension in Nicaragua a two-phase approach is needed, drawing on different geographic priorities and potentials:

5.2.1 *High potential and accessible areas*

Such areas include:

- commercialisation of fruit, vegetable, livestock, and dairy production;
- expanded irrigation;
- labour-saving technologies for household production;
- labour-intensive technologies for large-scale production;
- environmental health interventions;
- improvement of production quality, timeliness, and sanitation;
- targeting extension inputs to areas made accessible by new infrastructure.

In these areas, thriving should be the major focus for both direct and indirect (wage labour) opportunities. There should be preparedness, however, to support coping strategies when required,

as thriving carries with it some increased vulnerabilities. The private sector is dominating the agenda for technological change in accessible areas. The public sector has a relatively limited role, and should emphasise clearly defined public goods, especially as related to health, sanitation, and nutrition. Labour markets should be a major factor in programming, albeit with an acceptance of the fact that government policy can influence but presumably not lead developmental trajectories. There is also a role for the public sector to provide technical backup to re-establish production after a disaster, where the private sector is overwhelmed, and where capital is in short supply.

5.2.2 *Low potential and isolated areas*

These areas include:

- products with high value relative to transport cost;
- diversification of diets;
- focus on areas that will soon become accessible with new infrastructure;
- subsistence production;
- natural resource and watershed management;
- more effective use of safety nets;
- skills for migration.

Coping strategies will thus dominate the agenda for low potential and isolated areas, although some openings do exist for limited thriving strategies. Whilst there is a great need for investment in extension in these areas, it is doubtful that the public sector will be able to cover the level of recurrent costs for services that will reach the diverse and scattered populations of the distant agricultural frontier. It has been noted that there is a global trend for states to abandon areas such as these to non-state actors from the private sector, civil society, and even uncivil society (Duffield, 2000). To suggest that public sector extension should buck this overall trend is rather over-optimistic. There is, however, some potential for public service institutions to be contracted in, i.e. to be used by aid projects to engage in tasks for which they otherwise lack resources, while providing a skilled, knowledgeable, and locally based organisation to contracting agencies. Rehabilitation programming is an obviously important window for such contracting in. Experience has shown that this regrettably leads to ‘ad hococracy’. But this points to the need to address another layer of problems, that of finding synergy between rehabilitation and development. Links between temporary safety nets and ‘normal’ development should not be assumed to be inherently dysfunctional.

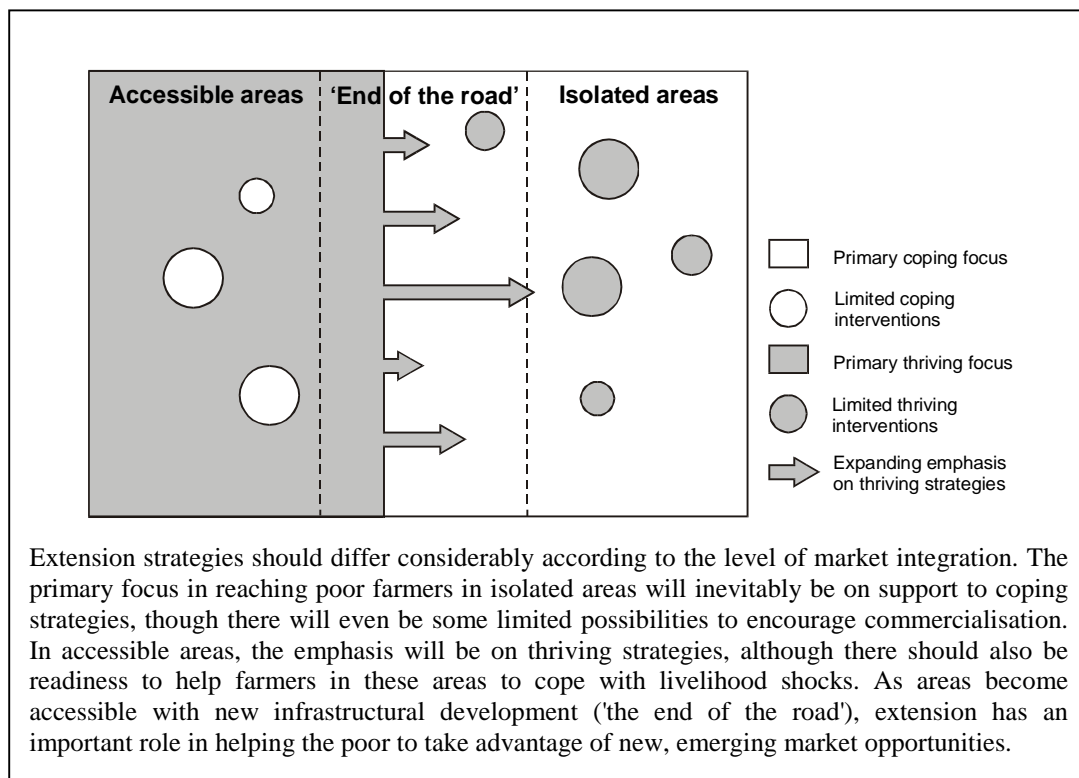
5.2.3 *The ‘end of the road’*

Within this dichotomy between dynamic areas and the areas that are perhaps out of reach of weakened state institutions, there is also a third discernible set of targets – the ‘end of the road’ – where infrastructure is improving, but where market forces are not yet fully established. UNDP states that ‘territorial integration is a fundamental step in social and economic integration’ (UNDP, 2000). Roads create major impacts on technological change, so it is imperative that extension takes this factor explicitly into account. Roads create threats and opportunities. They may:

- accelerate destruction of the forest;
- raise land values and therefore encourage more sustainable land husbandry;
- raise land prices, forcing the poor to sell their land;
- encourage investment by large-scale producers that creates employment opportunities;
- encourage investment in capital-intensive technologies, displacing the poor;
- open access for low-priced imports to compete with existing production;
- create access to markets for poor producers.

Together, these and other factors create a complex and dynamic mix of pressures on poor people and on agents for technological change. A central challenge for extension is to monitor and adapt to this mix of opportunities and threats. Nicaragua's road network is expanding, and producers are adapting to the new opportunities and threats that these roads represent. In deciding how to most effectively employ a few hundred extension agents (the scale of INTA's operations), targeting areas where new infrastructure is just opening opportunities for commercialisation and income enhancement would seem an obvious priority. There may be particular synergy where soil conservation and watershed management efforts on higher-potential sloping land suddenly offer possibilities for better links to markets. There is also an increased need for risk-mitigation efforts, as roads lead to increased deforestation and may also be designed with insufficient regard to gully formation and landslide risk.⁹

Figure 1 Schematic view of extension strategies in relation to degree of market integration



5.2.4 Pro-poor extension amid politics and policies

Extension practice derives from a mix of incentives, regulations, relationships, and visions. Ideally, a democratic political process should define parameters that are then codified in policies, to inevitably guide practice, often with the support of projects. Such is often not the case in Nicaragua, where the interplay between these projects and politics tends to outweigh the influence of a consistent political vision in guiding policy formation for extension practice. Local politicians derive their prestige, legitimacy, and often their identity from bringing projects (especially visible infrastructure) to their constituents (see Larson, 2001; Tendler, 1997). With such a state of affairs, it is easy to become cynical about the scope of policy-led agricultural development.

9. The Santa Tecla landslide that accompanied the January 2001 earthquakes in El Salvador was apparently related to inappropriate road construction (Radix, 2001).

Cynicism of agricultural extension's role derives from the fact that extension, as the bearer of technology, is naturally assumed to be a set of institutions that should fit hand-in-glove with a technocratic vision of development. When placed amidst the messiness of Nicaraguan policy on rural development and poverty alleviation, disillusionment easily sets in. As Tandler (1997) has pointed out, however, this type of situation is not as grim as it seems. It is possible to find ways of linking to ongoing processes of political and institutional change that may create openings for state institutions, civil society and the private sector, to reach poor farmers. Common interests can be found, even if the path to finding such interests fails to resemble a linear model of policy implementation. In order to find the levers that relate extension reform to poverty reduction, it is important to accept that they will not always emerge from an overall policy vision, but may often be found in a more 'nitty gritty' local process.

A new narrative of policy formation that retains poverty alleviation objectives is needed, while putting aside hopes that extension will pick the 'right' technologies. It should be asked: Have extension actors expanded (or shown the potential to expand) the range of choice and options of the poor in their use of their resources; Are the poor expanding their market involvement and thereby their exposure to risk; or are they hunkering down with subsistence and on-farm diversification; Who has/could help them pursue either strategy more effectively? These questions relate to how the importance of vulnerability is perceived. Should extension (and the policies in which it is embedded) seek to help farmers find more baskets in which to place their eggs? Should extension support be directed at helping farmers to manage a broader and more flexible portfolio of investments, on and off the farm? Or should extension help farmers feel secure enough to transcend the 'egg basket' vulnerability paradigm and plunge into intensive, full-time, competitive commercial production, using other mechanisms (e.g. insurance or safety nets) to cushion the increased risk?

Triage is a useful concept for facing the questions surrounding extension and policy formation. Triage is defined as 'the principle or practice of allocating limited resources, as of food or foreign aid, on a basis of expediency rather than according to moral principles or the needs of the recipients' (Collins, 1991). This usage of the term stems from battlefield medicine, where casualties are sorted according to those who will survive without treatment, those who will probably not survive at all, and those in-between for whom treatment will yield greatest impact. Even though triage is a word rarely used in studies of extension, it has nonetheless been a guide for many extension investments. It is a useful way of shedding light on the practical and moral choices to be made in extension prioritisation, and for placing this prioritisation within the broader context of rural development policy.

The recommendations presented here suggest that extension directed at producers themselves will yield diminishing returns (relative to costs) with isolated and very small producers. If we ask whether or not small-scale production for the poorest is a worthwhile investment, we open the door to better differentiating between actions that have direct, indirect, or improbable/undefined impacts on the poor. It is also a useful concept for specifying how far down the poverty line one can hope to reach with a given type of intervention. The two zones mentioned above, plus the end-of-the-road target area, provide a graphic structure for sorting through these choices.

It may be that interventions with larger-scale producers have a better chance of impacting on the poorest than supporting relatively small-scale farmers. The latter depend primarily on household labour, while larger-scale producers employ landless labourers and provide the extra income that is required for a household to stay on in the rural areas. Small-scale coffee producers, for example, are not among the poorest of the poor. They usually farm using almost exclusively family labour. It may actually be the case that in order to produce a labour market for the landless, it would be better to target larger-scale producers, as it is they who employ significant numbers of wage labourers. A

symbiotic relationship could be found between impoverished rural households in Nicaragua and the use of labour-intensive farming technologies on large farms in Costa Rica.

In using analytical frameworks such as this, triage highlights a number of difficult policy trade-offs that are rarely addressed in extension planning. As costs rise relative to production benefits with small-scale or isolated producers, the question becomes one of the relative appropriateness of different subsidies (e.g. between subsidising input supply, marketing, organisational support, or finance). Each of these types of subsidies has emerged over the years as a panacea for inclusive rural development. Assumptions that subsidies can merely be withdrawn after a few years when everything has become 'sustainable', has either proved false, or convinced planners that these programmes must be redirected at a somewhat wealthier target group. Calls are emerging to reassess standard 'rules' about donor funding and recurrent costs (Arana et al., 1998), but this can only be done if the broader issue of safety nets is taken out of the sustainability closet.

Trends in rural development in the face of globalisation have shown that this issue is more acute than ever. 'Durable disorder' (Duffield, 2000) is now taking hold in marginal areas in the form of chronic violence and social alienation. Transnational economic networks are taking advantage of the withdrawal of the state from isolated rural areas by establishing smuggling, production of narcotics, and other forms of illicit enterprise. This phenomenon suggests that there are heavy economic costs (in addition to moral issues) stemming from conflict, criminality, and social disintegration when services are withdrawn. Dismantlement of 'unsustainable development' has also proved unsustainable.

How might a pragmatic approach be achieved, accepting that Nicaragua is a land of projects, but rejecting the tendencies to put poverty on the back-burner? If triage is to be used as an analytical concept for understanding these choices, and not as a recipe for exclusion, then greater moral and pragmatic articulation between policy formation and programming are needed. This, in turn, will mean bringing agriculture into the sphere of the national debate on poverty and the Government–civil society–donor triangle that emerged after Hurricane Mitch. It is only if all three of these actors take their national policy commitments more seriously, as guides for operational planning, that the current fragmentation can be overcome. Much of the potential for using extension as a tool for poverty alleviation currently falls between the cracks of rural development programming. This is particularly true of vulnerability, since alternative models for growth, from both left and right, have shown a repeated tendency to ignore, and thereby aggravate, risk.

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Appendix 1

Persons met

Name	Organisation
Norman Piccioni	World Bank
Norman Zavala	TechnoServe, Sébaco
Rector Telémaco Talavera	Universidad Nacional Agraria (National University of Agriculture)
Marth Yadira Zeledón	Cooperación Nicaraguense de Apoyo Agropecuario y la Transferencia Tecnología, CNAATT (Nicaraguan Cooperative for Agricultural Assistance and Technology Transfer)
John Scoffield	Danagro a/s
Edgar Fernandez	Independent Consultant
Melinda Cuellar	Orgut (Swedish Consultants)
Eduardo Baumeister	Orgut
Francisco Zamora	TechnoServe
Margarita Lorío Castillo	Independent Consultant
Aurora Acuña	Independent Consultant
Wilfredo Ortero Riviera	Independent Beekeeping Advisor
Pedro José Tórriz Aguilar	Asociación de Ganaderos de Matagalpa, AGM (Ranchers Association of Matagalpa)
Marlo Torres	Asociación Nicaragüense de Productores y Exportadores de Productos No Tradicionales, APENN (Association of Producers and Exporters of Non-traditional Products)
Juana Maria Büschting	Red Matagalpiña de Comercio Comunitario, REMACC (Matagalpa Network for Community Commercialisation)
Edgar Castellón	Universidad Campesina, Esteli
Elvis Perez	Universidad Campesina, Esteli
Uriel Perez Acuña	Esteli Municipality
Gustavo López	TechnoServe, Jinotega
Maren Egedorf	World Food Programme (WFP)
Björn Frostell	Swedish International Development Agency (Sida)
Peter Herthelius	Sida
Carlos Sánchez	Cooperative League of the United States of America (CLUSA)
Peter Frasier	CLUSA
Hugo Lopez	Cooperative for Assistance and Relief Everywhere (CARE) International, Matagalpa
Danilo Valle	Asociación para la Diversificación y el Desarrollo de la Agricultura Campesina, ADDAC (Association for Diversification and Development of Peasant Agriculture)
Enrique Arau Sáenz	Centro de Acopio (Processing Centre), Matagalpa
Rita Muckenhirn	Cucalmeca, Jinotega
Nireda Gonzalez	Cucalmeca, Jinotega
Sonja Vasquez	Centro Promocional Cristiano por la Paz y la Vida, CPCPV (Christian Promotion Centre for Peace and Life)
Guillermo Gomez	CPCPV
Barbara Pesce	United Nations Development Programme(UNDP)

Alvaro Herdocia	UNDP
Jean-Francois Ghyyoot	Food and Agriculture Organization of the United Nations (FAO), Managua
Gustavo Zapata	FAO, Leon
Livio Sáenz Mejia	Ministerio Agropecuaria y Forestal, MAGFOR (Ministry of Agriculture, Livestock and Forestry), Managua
Julio Solorzano	MAGFOR, Managua
Martha Loyman	MAGFOR, Managua
René Escoto	MAGFOR, Managua
Felipe Padilla Altamirano	MAGFOR, Matagalpa, Jinotega
Herman Arguello	MAGFOR, Managua
José Betanco	Instituto Nicaragüense de Tecnología Agropecuaria, INTA (Nicaragua Institute of Agricultural Technology), Managua
Arturo Garcia	INTA, Managua
Alejandro Blandón	INTA, Matagalpa
Sérgio Cuadra	INTA, Sébaco
Carlos Barrios	Nitlapán
José Luis Rocha	Nitlapán
Yuri Marín Lopez	Nitlapán
Patrik Dumazert	Nitlapán
René Mendoza	Nitlapán
Marcelo Rodriguez	Nitlapán-Tropitec
Rebeca Leaf	Asociación de Trabajadores de Desarrollo Rural– Benjamin Linder, ATDR–BL (Association of Rural Development Workers–Benjamin Linder)
Alejandro Sevilla-Somoza	Grupo SeSo
Trinidad German Reyes	Centro Internacional de Agricultura Tropical, CIAT (International Center for Tropical Agriculture)