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**Report on an interagency technical mission
to Nicaragua
June 2013**

The Executive Director presents his compliments and attaches a report on an interagency technical mission to Nicaragua that took place in June 2013. The ICO Head of Operations, Mr Mauricio Galindo, together with senior representatives of the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD) and the Brazilian Agricultural Research Agency (EMBRAPA), participated in the mission with the aim of analysing coffee growing in Nicaragua. The conclusions of this report will contribute to the development of a National Programme for the Transformation and Development of Coffee Growing for the country.



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)

BRAZILIAN AGRICULTURAL RESEARCH AGENCY (EMBRAPA)

INTERNATIONAL COFFEE ORGANIZATION (ICO)

INTER-AGENCY TECHNICAL MISSION

Analysis of Coffee Growing in Nicaragua

24-27 June, 2013

MISSION REPORT

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NICARAGUAN COFFEE GROWING**

A. BACKGROUND

On the occasion of the CELAC-EU Summit held in Santiago de Chile in February 2013 the President of the Republic of Nicaragua addressed a request to the Director General of the FAO, for technical cooperation designed to contribute to the analysis of the future model for coffee growing in Nicaragua. The Government of Nicaragua intends to transform the threat represented by coffee rust disease into an opportunity in which coffee production chain actors will join forces to bring about the transformation and modernisation of coffee growing.

In response to this request the FAO, together with the Nicaraguan Government authorities, organized and conducted a technical mission which visited Nicaragua from 24 to 28 June 2013. The Mission included international experts from the IFAD, the EMBRAPA and the ICO¹ (See Annex 1: Mission Team Members).

The aim of the Mission was to contribute an overall analysis of the coffee growing development model, taking into account international experience, international market trends and foreseeable climate change impacts.

The Mission Agenda was coordinated by Minister Ariel Bucardo, of the Ministry of Agriculture, Livestock and Forestry (Ministerio Agropecuario y Forestal – MAGFOR) and Minister Pedro Haslam, of the Ministry for Families, Communities, Cooperatives and Agricultural Associations (Ministerio de Economía Familiar, Comunitaria, Cooperativa y Asociativa – MEFFCA) with the participation of Miguel Obando, Deputy Director of the National Institute of Agricultural and Livestock Technology (Instituto Nicaragüense de Tecnología Agropecuaria – INTA) and Telémaco Talavera, Principal of the National Agrarian University.

The Mission carried wide-ranging consultations with all coffee sector actors. Field visits were carried out to various geographical areas in the country. The main working sessions carried out included:

- Consultations with public authorities involved in the coffee sector: the Ministers of the MAGFOR, the MEFFCA, the Treasury and Public Credit, and the Ministry of the Environment and Natural Resources (MARENA), the Director of the INTA and officials from the Ministries of Development, Industry and Trade, and Foreign Affairs.
- Consultations with representatives of coffee unions and exporting companies.
- Visits to the three main coffee producing areas: Las Segovias, Matagalpa-Jinotega and Carazo. The Mission visited coffee farms and processing establishments, carrying out consultations with:
 - Small producers and representatives of 30 coffee cooperatives.
 - Medium and large-scale producers and representatives of Departmental Coffee Associations.
- Directors and members of the National Coffee Council (CONACAFE).

¹ The Mission was composed of the following participants: Alan Hruska, FAO Plant Production and Protection Officer; Gabriel Bartholo, General Manager of EMBRAPA-Café; Antonio Guerra, Deputy Director of Research and Development at EMBRAPA-Café; Antonio Carlos Baião, Researcher at EMBRAPA-Café and Consultant to 'World Coffee Research' at the University of Texas; Carlos Siqueiro, researcher at EMBRAPA-Café and the Agricultural and Livestock Research Institution of Minas Gerais (EPAMIG); Mauricio Galindo, Head of Operations of the ICO; Bastiaan Louman, Consultant to the International Fund for Agricultural Development (IFAD) and climate change expert at the CATIE Research and Education Centre. The Mission was coordinated by Fernando Soto Baquero, the FAO representative in Nicaragua.

- Public and university authorities involved in existing coffee research and development activities and phytosanitary protection activities in coffee growing.
- Public officials from the Department of Agriculture and Livestock Protection (MAGFOR-DGPSA).

Using the opportunity provided by the presence of the Mission experts, MAGFOR and MEFCCA held a National Coffee Forum on 28 July, which was attended by 460 participants, comprising representatives of the private sector, technical personnel from public institutions, academics and coffee specialists. The country's National Human Development Plan and National Programme for the Transformation and Development of Coffee Growing were presented at the Forum, together with the Mission's main conclusions and recommendations. The opportunity was also taken to hold three technical conferences on: coffee genetics and varieties; climate change and coffee growing in Nicaragua; and phytosanitary protection in coffee.

This report highlights the main findings of the Mission, which provided an analysis of prospects and challenges for Nicaraguan coffee growing; recommendations on various key issues for improving its competitiveness and sustainability; and inputs for preparing an agenda for inter-agency technical cooperation.

B. PROMISING OUTLOOK FOR NICARAGUAN COFFEE GROWING

Nicaraguan coffee production employs 44,000 producers and is mainly characterized by a socio-productive structure, in which small and medium agriculture predominates (Fourth National Agricultural Census - CENAGRO 2012). With diversified production systems (coffee and food crops) and shade-grown coffee (grown under shade trees), smallholder coffee growing makes a major contribution to food and nutrition security, as well as to preservation of the country's natural resources (conservation of water resources, carbon capture, biodiversity, etc.).

Moreover, the challenge represented by a highly fragmented production structure is mitigated, since over 50% of the country's coffee producers are organized in coffee cooperatives, which export around 29% of total coffee exports. Cooperatives also account for around 88% of total specialty coffee production.

Medium and large producers represent only around 10% of the total number of producers but their enormous importance is that they cultivate 46% of the total coffee area. This group of producers also has higher productivity levels and greater access to markets, financing and technical assistance.

This structure has ensured that coffee growing, which generates around 300,000 jobs (around 53% of the total number of persons employed in the agricultural sector), has strong family roots and creates a coffee community, which includes, besides growers, both men and women farm workers (women provide over 50% of the labour force for harvesting). This means that the transformation and development of coffee growing in the country should improve the well-being and quality of life of producers and workers, as well as of the coffee communities in producing areas.

Coffee growing is currently going through a crisis to which at least three main factors have contributed in the last six months: an extremely aggressive outbreak of coffee rust disease (affecting 37% of the area under coffee); climate change, which in addition to being favourable to the spread of coffee rust also caused unexpected rainfall at the beginning of the harvest; and last but not least, the fall in international coffee prices. Although there is a certain

tendency to blame the coffee rust outbreak for the current situation, the Mission found that in different parts of the country there were various combinations of these three factors which account for a fall in production and producer incomes, and consequently for a high level of indebtedness in the sector.

The situation is occurring in a predominantly traditional coffee growing sector, characterized by very low yields, low or nil use of fertilizers and pesticides, and extreme vulnerability to climatic phenomena. This means that profit margins are relatively low and in many cases non-existent. Since production costs have been increasing over the last ten years, largely due to the steep rise in petroleum prices, traditional coffee growers have struggled to make a profitable business of their small farms.

To confront this situation, the Government of Nicaragua announced the formulation of a National Programme for the Transformation and Development of Coffee Growing, involving consultations with the various sectors involved and designed to transform the coffee sector through technology, investment in infrastructure, credit, and training so as to achieve higher levels of production and productivity in the medium and long term, in a sustainable and environmentally friendly form. The Programme provides for activities designed to improve the situation in the short term, by facilitating smallholder access to seed, financing and technical assistance; improving coffee processing quality; perfecting marketing channels; and strengthening coffee sector institutions.

The Mission considers that the promising potential and road to improving the competitiveness of Nicaraguan coffee growing lies in the production and processing of quality coffees. This conclusion is based on the fact that in global terms, the strengths and opportunities of Nicaragua's coffee sector are greater than its weaknesses and threats, as long as there is a public policy for putting into practice the Government's political commitment to the transformation of coffee growing and better articulation is achieved between all actors involved in the sector.

B.1 Strengths of Nicaraguan coffee growing

The main strengths identified by the Mission include:

- The Government's political commitment to the transformation and development of coffee growing.
- Nicaragua has suitable environmental conditions for producing very high-quality washed mild Arabica coffees. The country has mountain areas with abundant water and suitable forest reserves. Thanks to these characteristics, and a large number of small and medium coffee growers, the country has been producing and exporting coffee for at least half a century. This means that it can count on a producer base with a long tradition and an attachment to this crop.
- The country has an adequate labour supply for producing coffee, which gives it an important competitive advantage in speciality coffee markets.
- Nicaragua is widely recognized in the international market as a reliable supplier of regular and speciality coffees. This can be considered a national patrimony achieved over many years of successful relations with buyers from many sectors in the international coffee market.
- An overarching coffee cooperative movement, which has a membership of over 50% of the total producers and systems for developing the coffee heritage and providing credits and other services for members.

B.2 Weaknesses of Nicaraguan coffee growing

The main weaknesses identified by the Mission include:

- Lack of articulation in the coffee production chain. There is fragmentation in coffee sector institutionalality, which lacks a specific body with executive functions.
- Weaknesses in research, development and innovation systems for coffee growing. There are no research centres, few soil fertility and plant physiology laboratories, and only four coffee researchers. In addition, there is little interaction between existing research institutions and results of work carried out by various laboratories are not widely available.
- Weaknesses in technology transfer and communications systems. There are very few technicians to spread good practices in the main coffee areas.
- Poor availability of certified coffee seeds and lack of a quarantine system with adequate procedures for receiving and evaluating imported genetic material.
- Slow process for the renewal of coffee farms by planting higher- yielding varieties and varieties more resistant to major diseases and pests such as coffee rust, anthracnose, American leaf spot (*Mycena citricolor*), leaf spot disease (*Cercospora*) and coffee berry borer.
- Inadequate evaluation and supervision systems for fertilizers and agro-chemicals.
- The high level of indebtedness of coffee growers in general.

B.3 Opportunities for Nicaraguan coffee

- World coffee consumption is growing (2.5% a year) and consumption of specialty and differentiated coffees is growing even faster. In this context, there is even more dynamic growth in coffee consumption, one of consciousness and solidarity, which demands quality but is also concerned with the conditions in which the coffee is produced.
- There is significant potential for the expansion of the Robusta variety in Nicaragua's Caribbean coast, given the dynamic market for this type of coffee, which is being increasingly blended (in roasted) form with Arabicas in proportions which ensure that the final quality of the product is not spoiled.
- There is also a significant potential for expansion of domestic coffee consumption. There are opportunities to use the domestic coffee market for the promotion and distribution of cooperative coffee brands among the urban population.
- There is growing international interest in developing ecosystem services generated in coffee production (water conservation, carbon capture, biodiversity).

B.4 Threats to coffee growing

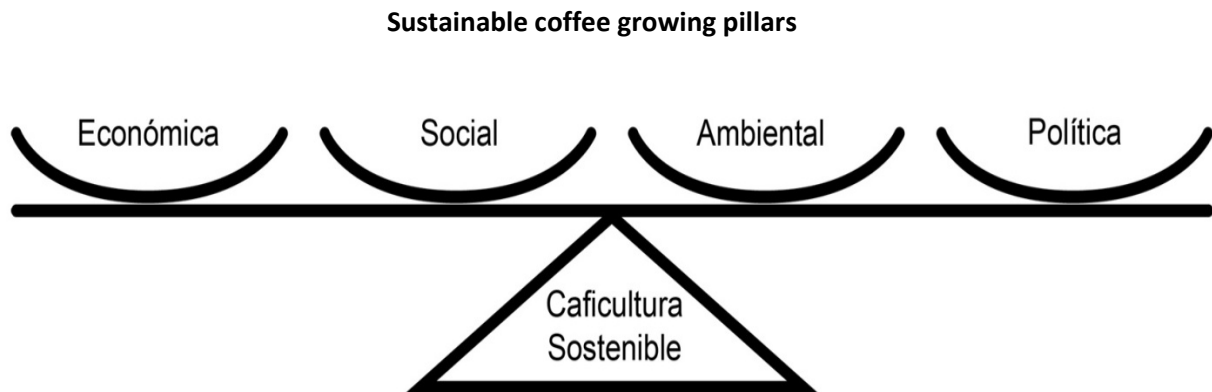
The main threats identified include:

- Marked volatility in international coffee prices.
- Climate change impacts (higher temperatures and less predictable rainfall patterns) which impact on coffee productivity and quality, and the incidence of coffee pests and diseases. In the drier northern areas or areas below 1,000 m.a.s.l, coffee is more sensitive to changes, making these areas potentially unsuitable for growing coffee in the longer term (International Center for Tropical Agriculture – Centro Internacional de Agricultura Tropical – CIAT).

- Outbreaks of pests and diseases.
- Deregulation of the international coffee market and growing competition in prices and quality.

C. THE CHALLENGE IS TO ACHIEVE SUSTAINABLE COFFEE GROWING

The competitiveness of Nicaraguan coffee in the international markets will increasingly depend on achieving verifiable results showing that the country is developing sustainable coffee production. A sustainability process should balance four pillars: economic, social, environmental and political².



This is particularly important for countries which, like Nicaragua, are committed to a strategy of producing and selling quality coffees. These markets will increasingly demand that quality applies not only to the product but also to the production process, the quality of life of the producers and workers involved, and the environment.

Economic sustainability of coffee growing should ensure not only that the activity is economically profitable for the various types of producers but also that:

- Productivity increases are achieved without reducing the cup quality of the coffee.
- Small producers manage to diversify their economic activities to supplement earnings from coffee.
- Value is added to coffee destined both to the domestic and export markets.
- Greater cohesion in the coffee cooperative movement, which is essential for incorporating small producers into the coffee value chain on more advantageous terms.

Social sustainability of coffee growing implies that as well as being a profitable activity producing a quality product it should achieve:

- Better distribution of the value generated in the coffee production chain among the various actors (producers, processors and exporters); the different types of producer (small, medium and large); and the workers (permanent and temporary). This implies countering the natural tendency for concentrating the value generated in the coffee production chain in the processing and exporting stages.
- Improvements in the quality of life of coffee producers and workers.

² See the EMBRAPA presentation 'Trends and Challenges in World Coffee Growing'.

- Application of Nicaragua's current labour legislation to coffee growing, ensuring compliance with payment of minimum wages, formalization of employment, social insurance cover, and health and security conditions in employment.

Environmental sustainability in conditions where coffee is grown mainly on mountain slopes and under shade depends on the achievement of at least:

- Increasing the value of the environmental services provided by coffee growing: obtaining water and managing, biodiversity protection, carbon capture, prevention of deforestation, etc.
- Elimination of the contaminating effects of wet-processing of coffee.

Political sustainability implies the existence of participation mechanisms in formulating and implementing public policies for the transformation and development of coffee growing ensuring:

- The availability of institutional mechanisms which promote and facilitate a public-private institutional structure with executive mechanisms to promote and facilitate coordination and articulation of actors and activities involve along the coffee growing production chain.

Since many of the world's producers seek to meet sustainability criteria, the competitive edge will be gained by those who achieve better quality both in the product and in the production process.

D. RECOMMENDATIONS AND INPUTS FOR A TECHNICAL COOPERATION AGENDA FOR NICARAGUAN COFFEE GROWING

The current situation of the coffee sector in Nicaragua makes it urgent to restructure the coffee production chain to make the most of the country's comparative advantages. Given the inevitable fluctuations in commodity price cycles – New York "C" Contract prices have fallen to around US\$1.20 per lb – it is more than ever necessary to transform the country's production structure if we wish to maintain the viability of coffee in Nicaragua in the medium and long term.

The National Programme for the Transformation and Development of Coffee Growing, which is currently in the consultation stage, involves a process of structural changes in the way coffee is produced in Nicaragua. In order to achieve the aims envisaged it is necessary to start adopting technological innovations in coffee growing, processing and marketing, and in the operation of the labour market.

The Mission made recommendations in eight areas where it considered that Nicaragua should promote coordinated action to kick start the structural changes required in national coffee growing. These areas are:

- Institutional strengthening of the coffee sector and coordination of the coffee production chain
- Technological innovation in the coffee production chain
- Phytosanitary vigilance and coffee rust control
- International coffee market
- Financing

- Environmental services
- Competitiveness of the coffee cooperative movement
- Operation of the labour market

The identification of potential technical and financial cooperation activities for agencies which participated in the Mission is merely indicative and these activities are subject to seeking financing before they can become a reality. In no case do they represent an offer or commitment for which subsequent negotiations with the Government would be required. The main recommendations and inputs for a technical and financial cooperation agenda are:

D.1 Institutional framework of the coffee sector and coordination of the coffee production chain

The Mission considers that restoration of a public-private institutional framework for the coffee sector and improved coordination between the various actors in the production chain is the main challenge facing coffee growing in Nicaragua in the short and medium terms. Without coordinated action between public and private sectors, there will be greater obstacles to promoting initiatives for the transformation of coffee growing and international cooperation will be less effective.

This institutional framework should facilitate coordination of the various links in the coffee production chain, ensuring the final quality of the product, expansion of markets and a more equitable distribution of the value generated by coffee, with a favourable impact on the living conditions of both coffee growers and coffee workers.

The Mission recommends analyzing existing international experience on the institutional framework of the coffee sector in various countries and, on the basis of the lessons learned, promote a wide-ranging public-private dialogue among the various actors involved.

The **IFAD**, the **FAO** and the **ICO** could contribute to the preparation of a comparative analysis of coffee sector institutionality in various countries and promote an exchange of the lessons learned. In addition, a process of dialogue should be initiated, which, led by the Government, would begin establishing the bases for a new institutionality to meet the challenges of modernization and sustainable development in Nicaraguan coffee growing.

The **ICO** is currently creating a detailed database which will contain information on the various coffee institutions responsible for regulating the coffee sector in each Member country. A first version of this database should be ready by September 2013. Once this tool becomes available, the **ICO** can support the Nicaraguan Government in the process of restructuring its coffee institutions by providing information and analysis when so requested.

D.2 Technological innovation in the coffee production chain

On the agenda of priorities of the Nicaraguan Council of Science and Technology (Consejo Nicaragüense de Ciencia y Tecnología – **CONICYT**), which is presided over by the country's Vice President, the first item is the establishment of a platform for scientific and technology development in coffee growing. The Mission's recommendations covered the following points:

a) **National Research and Development Programme and strengthening of Research Centres (phytopathology, soil and genetic laboratories) working on coffee**

The emphasis of this Programme should be on the development of **applied research**: production of improved pest- and drought-resistant coffee varieties; plant nutrition; shade management; post-harvest handling and phytosanitary control. The Programme should also take into account the findings of Research Centres in the region.

In this regard, the **EMBRAPA**, the **FAO** and the **IFAD** could provide technical and financial contributions for:

- The preparation of a National Programme aimed at overcoming inadequacies found in research related to: the development of more productive varieties that would maintain quality and be resistant to major pests and diseases, balanced nutrition for coffee plantations, shade management and adaptation to climate change impacts.
- Short and medium term training, such as participation of Nicaraguans in courses for Master's degrees and Doctorates, and technical visits to Brazilian universities and research institutions.
- Personnel training in plant nutrition: soil conservation and management and diagnosis of current conditions of plant fertility and nutrition in the various coffee areas of the country.

The Mission noted that the **MAGFOR** and the **INTA** have commenced execution of the 'Programme for the Development of Sustainable Agricultural and Livestock Production' (US\$52 million) financed by the Inter-American Development Bank (IDB) and the Central American Bank for Economic Integration (CABEI). This programme could, in accordance with national priorities, contribute financially to the strengthening of coffee research centres.

b) **A strategy for utilization of coffee varieties**

In relation to the ongoing discussions in the country on the use of coffee varieties that would not affect the cup quality of exportable coffee or the country's prestige in this respect, the Mission made the following comments on the Arabica (Catimor) and Robusta varieties:

- The use of hybrid Timor varieties like Catimor (a hybrid of the Timor and Caturra varieties), which, at least in the experience of Brazil and Colombia meet requirements relating to rust resistance, good size and productivity³, produced no evidence indicating that these coffees show a significant loss of cup quality compared with other Arabica varieties. These considerations are still subject to local tests and trials of cultivars.
- Given the prospects of a growing demand for Robusta coffee, it makes sense to develop cultivation of this species in areas that are not suited to growing Arabica. In the specific case of Nicaragua, this would be the Caribbean region, which is a low-altitude area and cannot produce Arabica, and which, having a lower economic development level, urgently needs new sources of employment and income generation.

³ This conclusion was confirmed after the Mission's visit by the Colombian coffee rust expert Carlos Rivillas of CENICAFE, who visited Nicaragua, from 1 to 5 July 2013 at the invitation of the UNDP.

The Robusta variety, which is grown at altitudes below 500 m.a.s.l. and produces a neutral beverage, is generally used in the soluble coffee industry but is now increasingly being used for blending with Arabica varieties (30% to 70%) without affecting the final quality of the product. International experience, and Brazilian experience in particular, has shown that Robusta varieties do not compete with Arabicas (there are no interbreeding or contamination risks); they are destined to different markets which operate independently, and consequently have not affected the international image of quality coffees.

The most successful experiences show that the strategy for coffee producing countries should be to diversify their utilization of varieties with different qualities in terms of particular markets. It is not only perfectly possible to gain a place in the market with different varieties and species, but, given the current context of an increasingly specialized market, it makes complete sense to do so.

The Mission also recommends strengthening the quarantine system by establishing procedures for receiving and evaluating imported genetic material.

The Mission noted that the **EMBRAPA** and the **FAO**, in addition to their potential cooperation in seed research activities in the medium term, could also cooperate, in the short term, in training human resources for the implementation of the MAGFOR-DGPSA Programme for the selection and production of suitable seed and the establishment of a Germplasm Bank to make up for the shortage of seeds for coffee renewal programmes. This cooperation would include the following activities:

- To facilitate design and implementation for evaluation of genetic material in various coffee growing areas in Nicaragua.
- To facilitate the completion and approval of technical regulations for certifying coffee seeds (Norma Técnica Obligatoria Nicaragüense – NTON).
- To facilitate the preparation of a plan for the multiplication of genetic seed or seedlings produced *in vitro* for the 2014 planting season.

a) Technology transfer system

The Mission recommends placing emphasis on training technicians and producers, particularly in the application of good practices for growing coffee on mountain slopes, bearing in mind the impacts of climate change. This would involve:

- Improving knowledge of coffee and technological transfer capacities of public system technical personnel (MAGFOR, MEFCCA, INTA).
- Training of promoters specializing in coffee among this producer group in horizontal extension programmes.
- Supporting technical coffee schools providing education for the sons and daughters of coffee producers in various production techniques and business management.

In addition, the Mission recommends the establishment of mechanisms to ensure cooperation between applied research and technology transfer activities.

b) Infrastructure and good practices in wet coffee processing

Nicaragua has an estimated 21,000 wet coffee processing plants, most of which are traditional and use contaminating processes and technology which does not provide for procedures to ensure preservation of bean quality.

The Mission noted that the **EMBRAPA** and the **FAO** could cooperate in promoting exchanges with Brazil to provide training for coffee cooperatives in post-harvest handling using low-cost equipment, and in treatment and re-use of waste water.

D.3 Phytosanitary vigilance and coffee rust control

The main phytosanitary problems affecting coffee in Nicaragua are coffee rust, anthracnose, brown spot or iron rust (*Cercospora coffeicola*), coffee berry borer, American leaf spot (*Mycena citricolor*) nematodes and bacteria. The recent outbreak of coffee rust in 2012, which affected 37% of the country's coffee plantations, was attributable to changes in rainfall patterns, temperature, poor plant nutrition, failure to monitor coffee rust and inadequate fungicide applications.

In relation to this item the Mission recommends:

- Inclusion of plant protection as a priority in the National Coffee Research and Development Programme, improving capacities for diagnosis of pests and diseases.
- Strengthening the vigilance and monitoring system for coffee pests and diseases.
- Improve the country's agro-climate information system to provide useful information for agricultural and livestock activities.
- Establishing an early warning system for pests and diseases based on information provided by the phytosanitary vigilance and agro-climate information systems.
- Strengthening the plan for coffee rust control currently being implemented by MAGFOR, through training for technicians, extensionists and producers.
- Carrying out effective supervision of inputs sold in coffee areas to ensure compliance with national regulations on product quality and effectiveness.

In relation to contributions to the technical cooperation agenda the Mission noted that:

- The FAO and the ICO will contribute technically with the coffee rust control plan currently being implemented in the country.
- The EMBRAPA and the FAO will contribute through training for bacteriology, mycology, biotechnology and nematology laboratory technicians, as well as in phytosanitary diagnostics and seed analysis.
- The FIDA, will contribute to the strengthening of the agro-climate and phytosanitary vigilance and monitoring information systems.

D.4 International coffee market

The Mission recommends that efforts should be made for the promotion of Nicaraguan coffee since the country produces exceptional quality coffees. Denomination of origin should be sought for the areas in which coffee growers have won 'cup of excellence' awards and where there is a possibility of gaining access to markets for specialty or 'terroir' coffees. This is a lengthy process and requires investment of resources but should be seen as an investment for the future. Honduras recently achieved denomination of origin for its 'Marcala' coffee, which both Guatemala (for 'Antigua') and Costa Rica (for 'Tarrazú') had managed to do previously.

It is also recommended that the country should continue with certification seals (Utz Kapeh, Rainforest Alliance, etc.) which not only command market price premiums but also establish longer-lasting and more stable relations with buyers. This enables coffee growers to plan their cash flow management throughout the year and places them in the Good Agricultural Practices (GAP) framework.

Nicaragua has been encouraging the conversion of coffee farms to **organic coffee** mainly through the cooperative movement. The Mission recommends the carrying out of a study on the costs and benefits of reconversion for producers. Two types of risks should be taken into account:

- a) The market for organic coffee is smaller than that for coffees certified under broader classifications (coffees certified under the 4C code as '4C coffees' for example), and it is not evident, therefore, that there would be guaranteed demand if supply of this type of coffee were significantly increased. This is particularly true given the interest shown by some African countries in starting to produce organic coffee, a market niche hitherto dominated by Latin American coffees.
- b) Numerous studies have shown that, as a general rule, conversion into organic coffee growing, unless accompanied by high levels of technical and financial knowledge, leads to such a high level of productivity loss at the end of the first production cycle (from around seven to eight years) that there is a negative balance for coffee growers, even after inclusion of any price premiums earned.

As a general rule, it is recommended that small producers should seek organic certification only when the organic coffee is grown in a 'natural state', so to say by producers whose resources are so scarce that they have to produce their coffee without using chemical fertilizers and/or pesticides. In all other cases, a technical and marketing viability study is indispensable.

It would be advisable to carry out a market study on the Robusta variety, including domestic consumption potential (roasted, soluble), so that a development strategy can be drawn up for the expansion of Robusta production in Nicaragua's Caribbean Coast.

Finally, the Mission recommends the preparation of a strategy to encourage domestic coffee consumption, including by means of public purchasing for providing coffee with milk in school meals, for instance.

The Mission noted that the **ICO** is in a position to continue providing technical assistance in respect of opportunities and mechanisms for gaining access to differentiated markets, analysis of the behaviour of demand in the various niches aimed at, and medium-term prospects for world coffee production.

D.5 Coffee growing financing system

International experience shows that as part of the institutional framework of the coffee sector, transformation and modernization of coffee growing is largely financed through the creation of special funds derived from coffee export retention. Examples are provided by the neighbouring countries of Honduras and Costa Rica, whose coffee institutions have already established funds based on export retention. In both cases these are privately financed and managed funds subject to public regulation.

The Mission considers that in the case of Nicaragua the consultation process initiated by the Government for the creation of a Coffee Support Fund with public and private contributions, should take into account international experiences in this area and proceed with the establishment of this fund to contribute to financing the National Research and Development Programme, as well as with technology transfer and international promotion of Nicaraguan coffee.

Medium and large coffee producers, as well as some Cooperative Coffee Unions/Centres have access to financing sources (private banks, exporting companies, international buyers), but small producers have very little access to financing. In these circumstances the Mission recommends:

- Ensuring financing for smallholders, less than 3 *manzanas* (unit of land measurement), through public financing provided under the CRISSOL-Café Programme. This programme uses solidarity credit methodologies and ensures basic upkeep of these smallholdings.
- Revising the funding policies and credit products (short, medium and long term) for smallholders provided by the Banco Produzcamos (public) for coffee. It would be important, in this case, to take into account the experiences of El Salvador Development Bank system in this area.

The Mission established that both the **IFAD** and the **FAO** could cooperate in the revision and adjustment of credit policies and products provided by the Banco Produzcamos for coffee growing.

D.6 Environmental services provided by coffee growing

Coffee growing in Nicaragua is carried out predominantly by smallholders in mountainous areas at altitudes of up to 1,800 masl who grow coffee under shade, which means that it has the environmental conditions suitable not only for producing quality coffee but also for providing environmental services. Coffee growing makes a significant contribution to water conservation, biodiversity preservation, carbon capture and landscape management. All these services are acquiring a market value worldwide.

The Mission recommends that on the basis of Law 765 on 'Development of Agro-ecological and Organic Production in Nicaragua' recognition and development of the environmental services provided by coffee growers should be encouraged since this could become an additional source of income in the medium-term. In the case of Costa Rica, for instance, there are coffee cooperatives already producing coffees with carbon neutral certification which earn significant price premiums.

The **IFAD** could contribute to the analysis of international experiences in this field and explore proposals for the development of these environmental services.

D.7 Improving competitiveness of coffee cooperatives

Around 50% of smallholder coffee growers in Nicaragua are organized in some 207 grassroots cooperatives, 14 Cooperative Unions, 5 Centres and 3 Federations. This cooperative movement enables smallholders to join coffee marketing channels and gain access to services such as buying inputs and technical assistance.

The Mission considers that the expansion and strengthening of the cooperative movement is one of the key elements for the modernization and transformation of coffee growing in Nicaragua. To achieve this at least three types of initiatives are required:

- a) Training and organizational strengthening of cooperatives to enable them to improve their management and risk management systems.
- b) Efforts to achieve greater internal cohesion in the cooperative movement, which will enable them to have greater impact on the formulation of public policy and on their negotiating capacity in markets. This cohesion would enable them to achieve better price risk management and a more equitable distribution of the value generated in the production chain.
- c) For financing production and processing, the coffee cooperatives generally have their own systems for short-term financing through the establishment of endowment funds financed from contributions of members with retentions of their coffee sales.

In this respect the Mission recommends:

- Implementing a programme for strengthening the cooperative credit system by linking it to levels ranging from the grassroots cooperatives to the Unions and/or Cooperative Groups;
- Creating mechanisms to provide greater access to external financing on the one hand and, on the other, to enable them to carry out better management of price and financial risks. The following recommendations are made in this respect:
 - To explore the viability of creating a public Guarantee Fund providing support for measures taken by cooperatives to obtain external financing (from buyers, etc.). There is evidence that financing opportunities would be much greater with additional guarantee backing;
 - To establish mechanisms for risk management of coffee prices and of external financing decisions taken by cooperatives. Failure in the management of these two types of risk is causing serious losses in the business management of cooperatives.

D.8 Labour market

Coffee growing generates around 300,000 jobs, most of them for temporary employment during the harvest season. Half of this temporary work is carried out by women or young people in areas with high levels of extreme poverty and malnutrition. Various studies show, however, that, in general, this is precarious employment, in other words that workers do not receive the minimum wages payable and have no employment contract, and hence no social security cover or decent pension rights.

International experience shows that the quality of employment is directly related to worker productivity, creating a vicious circle involving poor training of the workforce, low wages, informal employment and low productivity. Increasing coffee productivity as proposed by public policy requires a better functioning of the labour market with a more equitable distribution of the value generated along the production chain.

The Mission recommends carrying out an analysis of the operation of the coffee labour market and implementing mechanisms for the application of current labour legislation in coffee activities. Cooperation between the business sector and the cooperative movement is essential for achieving greater generation of decent employment in Nicaraguan coffee growing.