

Plant Introductions in the Maldives: Achievements and Opportunities in South Asia

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Several United Nations agencies deputed consultants to assist the Republic of Maldives for selecting agri-horticultural plants for imports. Major findings of seventies, eighties and till recent times are reviewed. Plant introductions suited for northern, central and southern atolls were listed for growing in the fields, household plots, community farming, and those suited to specific islands/atolls. The findings showed that efforts related to plant introductions mostly confined to the introduction and comparative analysis of productivity of individual species rather than variety performance within specific target species.

Integrated Agri-horticultural Development Systems for islands/atolls and uninhabited islands were recommended for continued supply of vegetables, fruits and other economic plant/plant products. The scope for floriculture, agro-forestry, fodder plants, export crops is discussed. The need for the use of exotic species for afforestation, firewood, timber, boat-making is elaborated. With a view to obviate the need for imports, the use of hydroponics system is discussed to produce vegetables and fruits for the consumption of tourists.

Key words: Maldives, Plant introductions, Island plants, Agri-horticultural plants, Community farming

Several agencies of the United Nations system, especially the United Nations Development Programme (UNDP), Food and Agriculture Organization (FAO), have been helping the Republic of Maldives for the last several years through the services of several experts/ consultants, aimed at planning and development of Republic for its economic prosperity. In the context of agricultural (agriculture, horticulture, forestry, etc.) development of the Republic, several U.N. experts/ consultants visited the country for short terms or worked on specific projects for few months or years. They submitted their respective reports from time to time. The Republic does not have any programme on plant improvement and plant introductions which has a prominent role to play in the sustainable development of the Republic. While several experts visited the Republic to make recommendations for the development of agri-horticulture and forestry, only a few experts conducted field trials of selected introduced plant species to assess their suitability to agro-climatic conditions of selected islands of the Republic. It was unfortunate that follow up action with respect to suggested recommendations for plant introductions of target species was not taken up. There has always been a high shortage of trained personnel to carry out the recommendations of the expert. Being

a least developed country, requests made by the Republic to different funding agencies were mostly accepted. Sometimes the international agencies International Board of Plant Genetic Resources (IBPGR)/ International Plant Genetic Resources Institute (IPGRI-now Bioversity International) undertook genetic resources surveys, collection, evaluation and seed multiplication; Convention on Biological Diversity (CBD) for country report on bio-diversity; the International Union for the Conservation of Native and Natural Resources (IUCN) for report on the status of climatic change and on rare species, etc.). The limited staff of the Republic was attached with the consultant, but again due to staff shortage, the continuity of various programmes was not maintained.

Major Findings of Seventies

To start the programme on adaptive research and agricultural development, the UNDP/ FAO appointed an agronomist (1967-1973), Mr. W.T. Butany, to undertake agricultural surveys and crop production trials. During this period 172 islands (115 inhabited and 57 uninhabited) from 18 atolls, were surveyed. Test crop trials were carried out at five important agricultural islands to identify suitable crop species for maximizing agricultural production. An excellent report was prepared (Butany, 1974). It has been cited as a reference by several subsequent experts, as a source of information about the country-its physical characteristics, population,

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administration, economy, physical features of islands, cultivable area and land leasing, natural vegetation, wild life, soils, water resources, agricultural and fishing activities, subsidiary occupations, etc. Since this report introduces the reader to the status of agricultural development in different islands of the Republic, major findings of this report are presented below. Finger millet (*Eleusine coracana*) and Italian foxtail millet (*Setaria italica*) were two main crops grown widely throughout the Maldives during the southwest monsoon season. Sweet potato was grown mostly in the South and only in some parts of the North. Cassava was grown on a field scale in many parts of the South and in a limited area in the North, all under upland conditions. Other tuber crops, like *Dioscorea*, yams, *Alocasia* and some wild tubers were cultivated in household compounds. In the low-lying swampy areas, taro was grown mostly in the South, throughout the year, wherever suitable conditions existed.

The cultivation of maize, which occupied a fairly large area in the South between 1966 to 1970, went down to negligible levels in 1971, because people began to prefer rice. The people in the North and South also grew sorghum.

Green chili (*Capsicum annum* var. *grossum*) and small red onion (*Allium cepa*) were grown on a large scale. The cultivation of these crops spread after the government provided the incentive in the form of a cash price of Rf. 5,000 to the highest producer of each of the two crops. While green chili was grown only in the Southwest monsoon season, small onion was grown throughout the year on several islands in the North.

The cultivation of watermelon, especially in Thoddoo Island, provided ready cash. The crop was grown widely in the North, but on a limited scale in the South.

Breadfruit, banana, pine apple, mango, lemon, pomegranate, *jamrol*, passion fruit, custard apple, screw-pine, sapota, wood apple, papaya, bullock's heart, jack-fruit, guava, jujube, bael fruit were some of the fruits grown in household compounds/ backyards. Area under banana cultivation was increasing. Breadfruits grown in each household compound were consumed in the household.

Maldivians were not fond of vegetables and they did not practice vegetable cultivation. Cucurbits, beans and cabbage were grown mostly for the use of visiting foreigners. Pumpkin (*Cucurbita maxima*), because of

its keeping quality, was grown widely. Cucumber was grown on a field scale in many islands. Ridge-gourd, bitter gourd, brinjal (egg plant), snake-gourd and drumstick, were grown here and there.

Coconut and arecanut were the only two crops taken as plantation crops. Arecanut was grown widely within the households only, while coconut was grown in the houses and outside.

The report mentions that in those days government used to decide whether people should do fishing, or agriculture, or both, in a specific year, depending on the amount of fish catch. Thus, at times, practically no land was taken up for community plantings.

All land preparations were done manually. The rainfall in the North during the northeast monsoon being meager, crops were grown in one season only, whereas in the South two crops could be taken up in a year. The report dealt with the cultivation practices of millets, maize, sorghum, tuber crops, onions and green pepper; pests and diseases; local storage practices; productivity and production of several crop and local uses of several crops. It referred to annual changes in the areas under each crop and incidence of diseases and pests, rodent damage, etc. It mentioned that millets and root/ tuber crops were mostly consumed in the islands. However, banana, coconuts, green and red chilli, small onions, watermelon were transported to Male for sale. Due to the lack of mechanized-motorized boats, several fresh fruits and vegetables used to get damaged in transit, the loss being 50-70% due to long delay and unfavorable weather. It mentioned several industrial products, viz., the agro-industries, handicrafts, mats, baskets, rope making etc.

Field trials of introduced food, cash, commercial, export-oriented, and vegetable crops, as well as of crops raised under the late sowing, in the second season, under low and large scale mechanized conditions, were conducted at different locations (Five islands-Guraidoo, Hithadoo, Kela, Vaikaradoo and Hithadoo). For each crop, the fertilizer dosage, time of sowing, yield, diseases and pests control and suitable varieties, were recommended. Economics of cultivation and income with or without the use of fertilizer was worked out. Such data were presented for rice, maize, millets, sorghum, pearl millet, small millets, finger millet, several legumes (greengram, blackgram, pigeonpea, cowpea), oil seed crops (groundnut, sesame), green pepper, small red onion, big-Bombay onion, fennel, methi, mustard,

sweet potato, taro, cotton and other crops (tobacco, etc.). Trials on green manure crops were also undertaken. Information on double cropping, effect on yield under irrigated conditions, crop rotation recommendations, were also presented. Information, based on trials, using spade digging versus tractor ploughing, was also presented. The need for further research was pointed out. In conclusion, the report emphasized that agriculture in the Maldives was in a primitive condition. Mainly minor millets and some tuber crops were sown by hand labour and without any fertilizer application. Soils were poor. Agriculture was at a subsistence level. It was, however, established that several warm weather crops could be grown and that the response to fertilizer and pesticides was excellent, leading to a considerable increase in yields. The southern region was considered more suitable for the cultivation of tuber crops during the southwest monsoon season and cereal crops and pulses in the northeast monsoon season. In the North, all crops could be grown only in the southwest monsoon season. For double cropping in the north, supplementary irrigation was considered necessary.

The report provided information, on the cultivated areas (upland-lowland), topography, soils, physiological grade, water table, pH and salinity of several islands and on the economic analysis of crop trials.

This report provided much needed basic information about the country and the status of agricultural economy and development.

Major Findings of the Eighties and Nineties

In the eighties and nineties, several consultants visited the republic and some experts worked for long-term assignments, mainly for the agricultural extension and development works. Some of the major findings are given below:

Several reports deal with the description of vegetation and plant species found in several islands/ atolls of the Maldives (Willis and Gardiner, 1901; Fosberg, 1957; Fonseka and Balasubramanian, 1984; Adams, 1983; Anon, 1992). Truly native or naturalized species are around 260, of which about 100 were present before human settlement. Adams (1983) listed 583 plant species, of which 55% were cultivated. The number of species varies in an island/ atoll based on the land area and human disturbance. Anon (1992) listed 686 species (cultivated and wild) including recent imports (including their economic plant parts) in the Maldives. Five species of *Pandanus* occur in the Maldives of which four are endemic (St. John,

1961). Dense stands of *Pandanus* occurred in Hittadoo Island.

Arora (1984) surveyed the genetic diversity of several plant species occurring in several islands of the Maldives. Mehra (1986a, b; 1989) and Mehra and Ibrahim (1988) collected 628 samples of cultivated plants and their wild relatives from 86 islands located in 18 atolls. Mehra (1988, 1989) evaluated at Feridoo Island the genetic diversity of samples collected in the Maldives. Rich diversity was observed in several crop species including vegetables.

Tobacco Production

Prospects of tobacco production in the Maldives exist for growing *Bidi*-type and dark Air-sun cured Tobacco. Thuddo Island was not found suitable for the cultivation of tobacco. The crop can also be grown successfully in Feridoo Island. High yielding, disease resistant cultivars were listed (Hamid, 1980).

Spice Cultivation and Processing

Ginger, turmeric and curry leaf plant have high potential for production in the Maldives. Cinnamon and cloves could also be tried. Varieties of these plant species considered suitable for cultivation were listed (Jacob, 1984). Adaptive research, feasibility trials and demonstration trials were recommended. Methods of cultivation and processing/drying of different spices were demonstrated. At present the farmers do not use scientific ways of drying and processing the produce. Since there is a problem of transport and marketing, the plants/plant products may be scientifically dried and processed. Since the farmers are familiar with the cultivation of betel leaf, there should be no difficulty in cultivating black pepper in the Maldives. Booklets on the cultivation, agronomic practices and processing procedures, were prepared for ginger, turmeric, curry leaf, black/ white pepper, cinnamon and cloves (Jacob, 1984).

Jackfruit Production

Jackfruit can be successfully grown in several islands (Ito, 1984). The existing jackfruit trees in Kandumafushi, Ariadhoo, Aidafushi and Dharandoo were highly productive. It was recommended that the seeds/ planting materials from these trees should be used for planting more trees. A booklet was prepared, describing the procedure for air layering and growing of jackfruit.

Citrus Disease Control and Rehabilitation

Two strains of *Xanthomonas citri* pv. *citri*, called Asian strain – A and the Maldives strain, were responsible for citrus canker damage in the Maldives (Roistacher, 1987). The condition of heavy rainfall, ideal temperature and strong winds make the Maldives islands an ideal place for the development and distribution of citrus canker. The expert provided suggestions for its control, including (i) a detailed survey; (ii) legalized regulations for quarantine and eradication; and (iii) programmes for education, research, nursery operations and the training of personnel. Only disease free, fresh stocks of *Citrus* were recommended for introduction in future.

Horticulture – Production of Fruits and Vegetables

Several experts visited the Maldives from time to time and presented their impressions about the status of horticulture and the manner in which the horticultural development, using the elite plant introductions, should be taken up. Some important findings/suggestions are as follows:

Information on general growth, fruit bearing capacity and the reasons for low production, was presented, based on experimental study of 19 introduced tropical fruits species. Also information on seed germination, establishment and days to harvest, of several introduced vegetable crops based on experimental work in the Maldives was presented (Belien, 1984).

Based on the information dealing with the seed rate, depth of sowing, manner of spacing, yield capacity and pH values of 25 species of elite introduced vegetable crops, including leafy vegetables (Tropical-sub-tropical materials), species suitable for growing in the country were recommended. Suitability of 16 tropical and sub-tropical introduced fruit species for growing under Maldivian conditions was analyzed based on small-scale adaptability trials (Belien, 1984).

List of planting materials likely to suit the agro-climatic conditions of the country, along with their sources was prepared. Most of the materials are available in Sri Lanka, India, USA and Europe. No varieties from atoll countries of South Pacific/Fiji were recommended. Most of the recommended varieties of fruits and vegetables are presently doing well in the tropical/sub-tropical field environments of India, Sri-Lanka, Pakistan, (Philippe, 1980; Choudhri, 1984; Herath, 1986). No varieties were listed, which have shown adaptation to high pH levels, low fertility and drought conditions. No varieties have been recommended that are being produced by

International Crop Research Centers, Asian Vegetable Research and Development Centre (AVRDC), CIAT, International Institute for Tropical Agriculture (IITA) etc. Evaluation trials of such elite cultivars need to be undertaken.

Species used as local, leafy vegetables were identified (Herath, 1986).

Several cropping patterns and related technological packages were recommended for annual, biennial, and long-range systems, using mixed cropping of two or more species (Herath, 1986). Similarly, cropping patterns were recommended for home gardens, community plantings and for growing in the uninhabited islands. Several experts recommended species of vegetables and fruits for use in the sequential cropping system, alley cropping system and integrated atoll/ island development systems (Mehra, 1993).

Several reports deal with packages of agronomic practices to be followed for several vegetable/fruit crops. Experts have presented their views about the manner through which the results of adaptive research could be taken up for implementation with the growers. Several reports deal with different aspects of extension and training methods, accountability, technological packages, staff training, training of growers, and woman participation.

Several extension bulletins have been published in the local language on vegetables, fruits and wood lots and on the diseases and pests of crops, vegetables and fruits.

An excellent, well-illustrated booklet, entitled – “Pests of crops and their control in the Maldives”, has been published in English. It deals with the description of insects, symptoms of damage on plants, chemical control measures, and procedures for the biological control.

Besides these reports on the agricultural/horticultural development, several economists of the UN system visited the country and offered their suggestions for planning agricultural research and development (Saini, 1987).

General Remarks

The perusal of available reports of various experts on the status of cultivation and production of specific economic plant species and their recommendation for problem oriented assignments (diseases and pests, scope for the cultivation of specific plant species) had revealed both constraints and possibilities of solving specific problems. Major constraints were the difficult agro-

climatic conditions of the islands, irrigation facilities, lack of technical know how of modern agronomic practices, plant protection, transport and marketing of the produce, pricing policy of the agricultural products and protectionist measures to increase the production and use of crops known to be suitable for growing in the islands (Mehra, 1993). Several crops were produced in large quantities in the country in different years, e.g. coconut (1977), finger millet (1975), arecanut (1976), maize (1975), sorghum (1974), Italian millet (1975), cassava (1975), *Colocasia* (1976), *Alocasia* (1976), sweet potato (1975), onion (1975) and chillies (1976). Although to some extent high production may be due to more area under a specific crop in a particular year, yet it does show the potential of the country to produce economically high yields and even more so through the use of better crop varieties and management practices (Mehra, 1993).

The study of several reports has further revealed that the factors mainly responsible for increased production are, choice of suitable varieties, proper management practices, transfer of technology, peoples' participation and extension activities.

Several experts have discussed in detail how to grow the planting materials and to look after plants, using appropriate agronomic practices. Manuals have been prepared. The project on agricultural extension has done a commendable job in several islands to improve the plant protection measures. The major constraint has been the choice of varieties of specific crops. Several reports on horticulture have listed plant materials to be imported from specific countries. The varieties recommended are mostly standard, popular varieties of specific plant species. No serious attempt has been made to go through pertinent literature to select specific elite cultivars of different plant species suited to the coral island environment. This has been the major limitation in increasing the production levels of several species. This limitation is more important for tree species (fruits, timber trees) because one would know about the wrong choice of the material only when the trees begin to bear fruits or produce timber. Therefore, selection and introduction of suitable material of different species is very important to increase the production of most of the target plant species.

Household Farming

Islanders generally grow a few trees of coconut, breadfruit, drumstick and other tropical fruits, curry leaf, betel leaf,

leafy vegetables, root crops, sometimes areca nut, chillies, bell pepper, egg plant etc. Mostly traditional varieties are sown from last year's seed stocks. The Ministry of Fisheries and Agriculture (MOFA) annually prepares suitable plans, providing information on crops and their introduced varieties to be grown, cultural practices to be followed and from where to get seeds and planting materials. In each island, where atoll chief lives, a demonstration plot may be laid with suitable choice of elite introduced species. The concept of nutritional gardens may be developed. When people come to atoll offices, they may see such demonstration plots. Regional hospitals are located in some islands. Such demonstration plots can also be laid there (Mehra, 1993).

Community Farming

In several islands, non-forest land is allotted to islanders for cultivating vegetables and watermelon. Since plots are adjacent and the farmers are interested to grow crops, timely guidance for cultural practices to be followed would highly increase crop production. Women committees of the islands should be involved in this endeavor. A list of crops to be sown may be provided to the islanders.

Introduced Varieties for Crop-Island Concept

A few islands have specialized in the cultivation of specific crops, e.g., Kela – cassava, banana and sweet potato; Nohivaram – betel leaves; Feevah – banana; Kaashidhoo – papaya; Thoddoo – watermelon; Isdhoo – cassava and taro; Hoadedhdhoo – chilli; Gadhdhoo – taro; Foa Mulah – taro and sweet potato and Hithadhoo – banana. Improved introduced varieties of crops may be supplied to the farmers to obtain increased production. Marketing facilities and pricing policies should encourage the cultivators. In fact, additional strategy should be to develop southern atolls for the production of root crops; central atolls for the production of onion, chili, water melon and other crops, which can be sold easily in Male; whereas northern atolls should be developed for the production of cereals and millets (Mehra, 1993).

Development of Uninhabited Islands

Leasing of the uninhabited islands are expected to develop them. Before a lease agreement is signed, the MOFA may prepare a programme of rehabilitation and development of the island in collaboration with the lessee. The development plan may be included in the lease agreement. The MOFA may supply improved introduced cultivars of crop plants, coconut and tree

species. There should be a separate plan for the planting of tree species. Technical inputs may be provided by the MOFA. The development of uninhabited islands under the guidance of the MOFA would be one of the best ways of extension of research findings. Lessees could also be advised to record data on production levels. When a tree is cut with the permission of the government, the indenter is required to plant another sapling or a few seeds of tree species. Even such plantation programmes should fall under uninhabited island development plan. A suitable plan providing details of species to be sown, spacing between plants and information on how to raise the planting materials should be provided by the MOFA. Some economically rich commercial enterprises may be persuaded to take up planned development work in the uninhabited islands (Mehra, 1993).

Integrated Agri-horticultural Development

Multi-crop, agri-horticultural development of islands/atolls should receive priority. The farming systems should be developed to have a continuous supply of vegetables and fruits (Mehra, 1993). This is easily possible at least in the southern atolls since they receive good rainfall in both seasons. Species diversification is also possible.

Ornamental Horticulture

Maldivian people are very fond of ornamental horticulture. Most of the households in Male have ornamental plants in the front yards of their homes. There is a good scope to develop ornamental horticultural enterprises to generate more income (Mehra, 1993).

Development of Agro-industry

In several islands, agricultural products are produced in plenty to generate surplus. However, due to the lack of marketing facilities and transportation problems to take the produce to Male for sale, farmers feel reluctant to grow several crops. If spices could be dried, breadfruit could be made into chips, and root crops (cassava – sweet potatoes) could be processed, more income could be generated.

Similarly, several tropical fruits grown in the far off islands could be processed. Agro-based industries may be developed around islands, which specialize in crops amenable for long-term preservation (Mehra, 1993).

Cultivation of Plants for Fodder

Goat production has been taken up in several islands without undertaking a plan for fodder production. This

enterprise being new to the islanders, they are not aware about what plant species to use as fodder. Several tropical forage plant species are suitable for growing in the islands. Species of *Pueraria*, *Centrosema*, *Desmodium*, *Macroptilium* and *Leucaena* may be tried. All are legumes and can also enrich the soils, being capable of nitrogen fixation. *Vigna marina* and *Desmodium umbellatum* already grow in several islands. *Desmodium umbellatum* is also amenable to several cuttings. Similarly, several grasses, i.e., species of *Cenchrus*, *Setaria*, *Pennisetum*, *Cynodon*, etc. should be evaluated for growing in the islands. The coastal Bermuda grass (from U.S.A) is especially suitable for the coastal areas (Mehra, 1993).

Crops with Export Potential

Catharanthus roseus (Periwinkle) grows wild in several islands. It is grown and exported by India and some Latin American countries to USA and Europe for use in the pharmaceutical industry. Two alkaloids extracted from this plant are used for curing certain forms of leukemia. The cultivation of crops like periwinkle, betel and Chinese ginger with export market in USA/Europe/Pakistan/India and Japan, respectively may be encouraged (Mehra, 1993).

Hydroponics

Since the tourist industry started in 1972-73, the number of visitors to the Maldives have increased with an amazing growth rate, reaching a total of 180,000 registered tourists in 1991. This figure practically exceeds the existing domestic population, when seen in the light of the effective purchasing power. There is a demand generated by European and Japanese tourists who consume several species of vegetables. In 1991, the country imported 4,890 tons of fresh vegetables, amounting to Rf 3.19 million and another Rf 4.5 million of potato, sweet potato, yams and cassava. Strong possibility exists of meeting this high demand by producing fruits and vegetables through hydroponics in the Maldives. A comparison of the landed prices of vegetables and fruits presently being imported and distributed to the resort islands, with the cost of producing those by hydroponics seem not only much advantageous but also reasonable since it would provide employment to the local people besides saving the foreign exchange. One experimental station, located in Biyaadoo, produced tomato at the cost of \$ 1.25/kg, which is a little higher than the whole sale import cost, but lower than the

retail price. In fact, the tourists consume 39% of the imported vegetables, but if we take potato and onions out, the tourists consume 53% of the rest of the vegetables. Thus, the hydroponics is a promising agro-industrial enterprise, which deserves much attention and encouragement (Mehra, 1993).

Afforestation Using Exotic Species

With a view to meet its daily energy requirements for cooking food and for the production of lime from corals, wood is cut or collected from the native trees or shrub species. Over exploitation of tree cover of the terrestrial eco-systems has led to a rapid loss of natural (plant) resources. One of the ways to cater to the need of firewood is to plant exotic, quick growing tree species.

Bamboo and its products are used in the Maldives for fishing poles, scaffolding, furniture and handicraft. During 1987 to 1991, bamboo and its products (baskets, curtains, canned shoot, skewers, handicrafts and pies, etc.) were imported worth Rf 1,845,538, and in 1991 over ten thousand pieces of fishing rods worth Rf 495 thousand were imported. Therefore, to make the country self-sufficient, bamboo plantation may be taken up in selected islands.

Exotic Species for Fire-Wood

Existing bamboo stands adapted to the soil-climatic conditions of the Maldives may be evaluated in other islands. Other species viz. *Bambusa arundinacea*, *B. atra*, *Dendrocalamus strictus*, *Melocanna baccifera*, *Ochlandra scriptoria*, *Schizostachyum lima*, *S. lumampao*, *Thyrsostachys siamensis* and *Dinochloa pubiramea* have also been recommended for trials and use in the Maldives (Virtucio, 1993).

Present Afforestation Programmes

Casuarina trees were planted in 5 islands each in Haa Alifu, Lhaviyani, Alifu and Dhaalu atolls; all the inhabited islands in Meemu atoll; and some selected islands in Lammu atoll. *Eucalyptus* was also planted in 4 islands. Plantations of bamboo were taken up in Raa and Alifu atolls. The technique for raising the seedlings and propagation of cuttings had been standardized and the staff of the MOFA explained such procedures to several growers of these atolls.

Wood is generally getting scarce and imported timbers are now used for many purposes, suggesting extensive modification of the natural vegetation (Brune, 1984). Considerable ecological damage has already been

done to the ecology as a result of fuel-wood and timber exploitation (Saini, 1987).

With a view to promote the use of locally grown plant species for use as timber handicraft and fire wood and to save much needed foreign exchange, detailed instructions for raising nurseries were prepared and those were now being followed by the staff of the MOFA. Methods of propagation and raising seedlings have continued to be demonstrated to the local people. Several exotic species, which could be grown in the Maldives, were recommended, for use as fire-wood (Brune, 1984).

The total cultivable area is given as 46,766 acres (Anon, 1987) most of which is used for subsistence production. Agricultural production in 1984 involved more than 10% of the country's labor, but accounted for 11.44 % of the Gross Domestic Product (GDP), having declined from around 18% in 1981. In 1985, however, despite a 4.83% increase in GDP from Agriculture, this sector share of total GDP had fallen to 10.48 % (Saini, 1987). The contribution of agricultural sector to the total GDP has continued to decline. Thus, this sector accounted for 9% (1990), 3.6% (1995) and 2.8% (2000) of the total GDP. The growth rate of agriculture has been 0.74 (1981-1985), 4.1 (1985-90) and 2.6 (1990 onwards) per cents, respectively (Mehra, 1993).

The future opportunities pointed out in this presentation, and the programmes presently being taken up by the MOFA, especially coconut rehabilitation; timber tree plantation; vegetable and fruit tree growing, including the use of improved varieties; increased production of poultry and eggs; integrated island/atoll development; better transport and marketing facilities for the agricultural produce; rural credit; etc., are expected to start paying off.

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