ROLE OF WORLD BANK IN AGRICULTURAL DEVELOPMENT OF JORDAN SINCE 1971

ABSTRACT

THESIS

SUBMITTED FOR THE AWARD OF THE DEGREE OF

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BY

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ABSTRACT

Agriculture has always been the backbone of an economy. The present study concentrates on Jordan and documents the role of World Bank in the agricultural development of Jordan. The study consists of five chapters.

The first chapter is the introduction, consisting of information on the Jordanian economy. A detailed review of literature and the research methodology.

The Jordanian GNP has grown from JD 235.1 million in 1970-1971 to JD 4898.4 million in the 1997-98. With a population of 4.4 million, a well-educated labour force, the economy has continued to grow over the last three decades in real terms. The agricultural growth rates have also increased, mainly because of the vegetables and fruits rather than in cereals. The decline in cereals has largely come about because of the dependence on rainfall, whereas vegetables and fruits are largely irrigated crops.

The review of literature contains the importance of agriculture in an economy's development and the contribution that agriculture makes. Any structural transformation is depending on agriculture. Services and industries are also dependent on agriculture.
After an overview of agriculture in general, the role of the World Bank group, its activities, policies have been discussed. The World Bank group consisting of International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA) makes loans for projects that promote economic and social progress by helping to raise the productivity so that people may live better lives. Along with IBRD and IDA, there are International Finance Corporation (IFC), Multilateral Investment Guarantee Agency (MIGA) and International Center for Settlement of Investment Dispute (ICSID) collectively known as the “World Bank”. The World Bank group also offers technical assistance to countries, which is designed to support the development strategies of the economies. It is also in partnership with client governments helping promote human development. In 1998 the World Bank published its new Rural Strategy Paper focusing on raising the emphasis of rural development contributing to food security and making land and water use more efficient. The last part of the chapter proposes the framework of the research methodology.

The second chapter is on agriculture in Jordan. From the data we see that the percentage share of agriculture, forest and fishing given as one component has been declining. The percentage to GNP in 1971 was 12.2%, falling to 7.3 % in 1980. It went up to 8.1 % in 1991
but fell down to a low of 3% in 1997, also the wide fluctuations show the dependence on rainfed agriculture and the fact that agriculture is affected by drought. It has to be modernized and access to water supply and other inputs are more easily done.

In fact within agriculture produce there has been steady decline with yearly fluctuations in terms of volume in wheat, barley, tobacco lentils and all other field crops. In vegetables there are fluctuations but tomatoes, eggplants, cucumbers and melons have shown growth. Cauliflower, Cabbages and Potatoes are growing in importance. In the case of fruits there has been an overall growth in Olives, Grapes, Citrus fruits and Bananas. Major reason for the growth of vegetables and fruits has been irrigation.

Jordan has relatively limited cultivable land with over 80% of the economy classified as desert. The Jordan Valley depends entirely on irrigation. Because of an acute shortage of water, saving water has become a necessity. Jordan’s agricultural development plan is committed to a development strategy that achieves a balance between the agriculture sector and ensures the minimum requirements of food security. It is trying to develop agriculture within the framework of integrated rural development and increasing its participation, intensification of efforts in
irrigation and raising productivity by introducing modern techniques.

Credit agencies have been established to disburse credit to the agriculture sector the Agriculture Credit Cooperation (ACC), Jordanian Cooperative Organization (JCO) and Jordan Valley Farmers Association (JVFA). The ACC concentrates on the building up of livestock reserves, JCO on provision of basic foodstuffs, and JVFA on vegetables crops.

The third chapter is on the role World Bank group in Jordanian economy. Jordan and the World Bank have been partners in development for nearly four decades. The IDA in 1962 was the first World Bank Project that assisted the government in financing a water and sewage project for Amman. The objective of the World Bank group is to assist Jordan to promote rapid and sustainable growth. It supports the government as it builds market responsive private sector capable of creation of new jobs while offsetting temporary social adjustment. It is providing environmentally sound infrastructure loans. It is also supporting the Jordan governments attempted investment. The World Bank group is working on number of projects that span across a broad range of economic sectors.

As Jordan’s program of economic adjustment takes place there is the possibility of short-term dislocations. The World Bank group is working together with the
government to build a safety net for the poor and the adversely affected. This includes micro enterprise financing facility and a program of public assistance targeted at the most needy. The World Bank group has funded almost all sectors of the Jordanian economy. They include education, telecommunication, health care, water supply, power and oil, transportation, tourism and human resource besides agriculture.

World Bank has emphasized local participation as an essential element of its lending strategy. The World Bank has been criticized in many cases for not caring about the local people and the poor effected by the program. Realizing that it has emphasized on local participation to enhance the effectiveness of the program by bringing local knowledge and local ownership.

The fourth chapter is on the World Bank's contribution to Jordan's agriculture sector. The World Bank group is trying to make contributions to Jordan's agriculture along with the need to manage the most important and scarce resources of water. A comprehensive review was carried out by the World Bank group in 1987, focussing on irrigation and the increasing water prices. In fact limited availability of arable land and irrigated agriculture are major constraints. Agriculture Sector Adjustment Loan (ASAL) and Agriculture Technical Assistance Program (ATAP), the World Bank program have
been able to help the government in policy reforms and to provide support to farmers in getting the best out of the process of adjustment.

Some of the World Bank's ASTAP programs are in the areas of agriculture technical assistance projects, water-related features, irrigation improvement and water management. Also as a part of the adjustment program there is sustainable with on withdrawal program for ground water nationwide. The possible ASAL program impact will be on the change in the price level of the agricultural products, improving the information systems in the agricultural sector. There have been a number of major loans received by Jordan government in the area of agriculture and allied areas. Projects involving World Bank group loans have covered areas in irrigation improvement, agricultural market development, agriculture support services, improvement in marketing access, agro industry, incentives for farmers and water management. It has also proposed the setting and integrating the private sector and the public sector in the area of the food and agribusiness.

The fifth chapter consists of the conclusion, the study of the role of the World Bank in Jordan's agriculture development. It has had an impact on almost all of the agricultural activities in the country. Some of the suggestions that come out of study and bear important implications for agriculture in Jordan are as follows:
1. Agriculture should be integrated and developed in the creation of additional income for agricultural workers and small agricultural holders.

2. Programmes should be developed for increasing participation through cooperatives and agricultural bodies.

3. Increasing productivity by modern techniques should not lead to alienation of the small and the poor farmers.

4. Turning agriculture production towards commodities where Jordan enjoys relative advantages and at the same time keeping national food security in consideration.

5. To create strategy stocks of foodstuffs and complete the infrastructure.

6. Soil conservation and fruit tree planting on lands unsuitable for cereal production.

7. Applying water conservation and water harvesting practices.

8. Pricing of irrigation water which does not harm the small farmers.

9. Improving canal leakage and improvement in drip irrigation.
10. Development of agriculture extension and agroindustry to benefit all the sections of the farmers so that private initiative does not leave them out

Thus the present study documents comprehensively the role of the World Bank in the agricultural development of Jordan, the study emphasizes the fact that local participation is very important in the overall development of the economy and the fact that the World Bank also releases this fact.
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This is to certify that the thesis presented under the title "ROLE OF THE WORLD BANK IN AGRICULTURAL DEVELOPMENT OF JORDAN SINCE 1971" is the original work done by Mr. Hussein A.A. Al-Zyuod (Research scholar in the Department of Economics) Under my supervision.

Considering it suitable for the degree of Ph.D. in Economics, he is advised to submit it to ALIGARH MUSLIM UNIVERSITY for assessment.

Dated- 13 Nov. 2000

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PREFACE

The Hashemite Kingdom of Jordan and the World Bank group have had a strong relationship since the establishment of the World Bank. Presently there are five agencies related to the World Bank which in turn work for the economic development of its member countries by providing different types of financial and technical assistance, including promotion development and technical finances. Therefore the contribution of the World Bank in Jordan's economy has increased considerably.

The first chapter outlines the objectives and importance of the study of the structure of the Jordanian economy, World Bank, Research methodology and a review of the literature of Research work.

The second chapter focuses on the agriculture sector in Jordan and its share in the economy, its has increased rapidly during the last three decades.

The third chapter is devoted to the analysis of the relationship between the World Bank group and Jordan, the loans and assistances received by Jordan. Where as the loans and assistances given by the World Bank group for agricultural purposes are discussed in detail in the Forth Chapter.
The fifth and final chapter presents a summary of the main findings of the study and provides some suggestions which may prove to be helpful in improving the management of the assistance available to Jordan from different agencies and also suggestions regarding the solution of their problems.

I would highly thankful to my supervisor Prof. A.Z. Rizvi under whose able and painstaking guidance, constant inspiration, talented and constructive supervision I was able to complete my thesis. With a deep sense of gratitude, immense pleasure and feeling of privilege I offer my sincerest thanks to him.

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Hussein Al Zyoud

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INTRODUCTION

Agriculture has always been the backbone of any economy. Even though the percentage share of agriculture in the developed and the developing economies has been decreasing, the basic needs of humanity—hunger has to be met through the agriculture sector. The present study analyses the role of the World Bank in agriculture development of Jordan since the 1970's. The World Bank has been helping the Jordanian economy in developing the agriculture sector in terms of financial aid and technical inputs, the impart of these factors through directly on the agriculture output of vegetables, field crops and fruits and through policy changes is an important area of research. The aim of the present study is primarily to collect and tabulate data pertaining to the role of the World Bank in the agriculture development of Jordan, analyses the data collected and add new perception and knowledge toward this particular area of research.

The present study concentrates on Jordan, its agriculture and the role of the World Bank. The land area of Jordan is 89,342 sq.km. According to the World Bank study, 1998 World Development Index, the population of Jordan is 4.4 million. The total G.N.P of the country was $6.8 billion with per capita G.N.P at US$ 1520 in 1998. Total imports was US $ 4101.9 million and total exports was US $ 1.833.3 million, government expenditures as a percentage of GDP throughout
1990-97 has fluctuated between 37-35.7%. Gross investment, as a percentage of GDP throughout 1990-97 has ranged from 37.4% in 1993 to 28.4% in 1997. Foreign aids in terms of loans and grants to Jordan in 1996 have been US $ 363 million from bilateral sources and US $ 458 from international sources.

THE STRUCTURE OF JORDANIAN ECONOMY

The structure of the Jordan economy in 1970 was such that among the three, agriculture, manufacturing and mining and services, the services sector dominated in the GNP. According to the central Bank of Jordan, yearly statistical services, 1996, of the JD 235.1 million GNP at current prices agriculture provided only JD 24.6 million, manufacturing JD 23.9 million and mining and Quarrying JD 3.8 million. The rest of the GNP was spread out over trade, finance, transport, communication, construction and electricity as well as government services. Subsequently in 1980 when the GNP at current prices was JD 1213.7 million agriculture provided only JD 83.0 million, whereas manufacturing, mining and quarrying provided JD 173.5 million. In 1990 with the GNP at JD 2428.8 million, agriculture provided 50187.8 million to the GNP with manufacturing provided JD 345.3 million and mining and quarrying having JD 148.8 million of the GNP, the rest coming from services. In the between 1992 and 1997, the percentage of agriculture has shipped from 11.0% in 1992 to 5.2% in 1997, as percentage of GDP at 1985 prices. The percentage of manufacturing in the GDP has stagnated around 14% during the
period 1992 to 1997. The largest contributions to the GDP come from transport and communication at around 15%, finance and insurance etc, at around 21% all during the period 1992 to 1997.

Jordan enjoyed an unprecedented growth during 1973-1984, boosted by foreign assistance and loans, workers remittances and export to regional markets. This ended in the mid-eighties as a result of the rapid decline in the price of oil and the subsequent slow down in regional economies. By 1991, real per capita income had declined, unemployment and poverty was increasing and the income of the people was slowly coming down. The government has responded by undertaking policy adjustments to stabilize the economy and to restore growth. The stabilization policies, notwithstanding the disruptions caused by the Gulf crisis in 1991, have been successful. Inflation has been checked, and now prices, interest rates and exchange rates are largely market-based.

Jordan's close tie and to some extent too much dependence with the Gulf region as a source of official grant and remittance income constitutes a powerful spur to economic growth. However, it has left deep structural problems for the Jordanian economy in terms of

1. Reliance on foreign savings to finance domestic expenditures and in vulnerability to external shocks.
2. Reliance on uncertain demand from the Gulf region for income and employment opportunities.
The loss of foreign exchange earnings and transfers since the mid-
eighties has left domestic wages above their market clearing levels
with a small internal market and a strong human resource base.

Growth oriented strategy aiming at greater integration with the
world economy has been followed for the last few years with some
initial success. The government envisages a growth target of 6% per
annum in its draft five-year plan for the year 1993-1997, a gradual
decline in unemployment from about 15% in 1992 to 9.6% in 1997
and a decline in current account deficit from 23% in 1992 to 3.1% in
1997. The achievements of the growth and current account objectives
as put down in the five-year plan of 1993-1997 require that far-reaching
structural reforms be implemented to grow and develop the domestic
economy and improve the efficiency of existing resources.

For a small economy such as Jordan, with a well-educated
labour force, located in the passageway among three major continents
in the world, size does not matter so long as the economy is
integrated with the world market. Such integration would offer Jordan
the best prospect for long-term prosperity, and could enable her to
overcome the limited domestic market scale, and to increase
productivity through specialization.

Jordan’s economy has continued to grow in real terms in mid
1990’s, the growth rate of the economy exceeded that of the
population, thereby causing the Per Capita Gross Domestic Product
(GDP) to rise. Moreover, inflationary pressures were contained,
particularly those arising from the aggregate demand side.
Additionally, the labour market witnessed some improvement as unemployment dropped from its level in the preceding year.

The economic stabilization and structural adjustment of the economy that has taken place through the several measures that were initiated at liberalizing prices, removing market distortions, and providing greater incentives to the private sector for broader participation in the economy. Further, monetary policy continued to reinforce the country's balanced economic growth objective, despite negative external influences to which the economy was subjected during the year, through the advocacy and upholding of monetary stability, and maintenance of exchange reserves.

The Jordanian economy is expected to achieve further improvement in accomplishing the goals set forth in the economic adjustment program in the coming years. This expectation is based on the continued success of structural reform efforts, the progressive support of entrepreneurship, the opening of new markets to Jordanian exports.

*Jordan's Economy*

For balanced development and to raise the levels of living for the average rural dweller, agricultural production and the productivity of both labour and land must be rapidly increased throughout Jordan. Like any other country Jordan needs to become self-sufficient in their food production.
Jordan's dominated resources are phosphate and potash deposits. Unlike in most Arab countries, oil and gas are found in very small quantity in Jordan. The country suffers from water shortage, significant unemployment and foreign debt. The UN sanctions at the port of Aqaba following the Gulf crisis had caused economic damage.

The Jordan government has been aware of the importance of economic development and growth. It has exerted increasing efforts to improve the economy through implementing several economic and social plans and through improving the overall climate of the economy especially the investment climate. By doing so, the Jordanian government has been able to overcome many of its economic difficulties and has to a great extend attracted the attention of various foreign and Arab countries. In October 1994 it signed an agreement with Israel ending the state of war between the two countries.

Agriculture and Water

The agriculture sector is restrained by severe water shortages but several projects regarding water facilities are currently carried out. Agriculture is mostly in the Jordan valley. The country has a relatively limited cultivable land, about 40,000 hectares, and over 80% of the country are classified as desert. The Jordan valley depends almost entirely on irrigation. Because of severe shortage of water, saving
Water is an urgent necessity. Some three-quarters of water consumption are for irrigation. Not only are the country's water resources extremely limited, but also 60% of current water supply comes from ground water reserves, which are predominantly in the east, while the population is largely concentrated in the west. Jordan has traditionally drawn water from the Jordan river, but Israel is now pumping out of the Jordan river into lake Tiberias (the sea of Galilee), from which it draws its own water supply. Following the peace treaty with Israel however, a $5 million pipeline was constructed in June 1995 to carry water from lake Tiberias to Jordan's king Abdullal canal at 30-50 million cubic meters. Clearly, the water sector has received the largest allocation of money by Jordan and Israel. Projects include, a water conveyance system from Turkey to Jordan and Israel, the expansion and upgrading of wastewater treatment plants in Jordan, Israel and Gaza strip, desalination plants in Jordan, Israel and the Gaza strip and water management of the lower Jordan river.

Other projects aimed at ameliorating the agriculture sector have been carried out. Including the construction of several irrigation works, the introduction of greenhouses, plastic tunnels, construction of an additional capacity on the Karameh dam, etc.

In terms of output, principle crops in Jordan are Citrus Fruits, Melons, Grapes, Bananas, and Vegetables like Tomatoes, Cucumbers, Eggplants, Cauliflower, Cabbages, and Field Crops like Wheat, Barley and Olives.
A review of preliminary indicators related to the developments that occurred in 1996 in the agricultural sector shows a decline in the growth of the sector compared to the previous year. This slowdown was due principally to the decrease in rainfall in the 1996 agricultural season in comparison with the agricultural season of the previous year. The decrease in rainfall had negative impact on rain-dependent agriculture, particularly on field crops, and livestock production because of the resulting lack of natural grazing fields. On the other hand, most irrigated agricultural crops (vegetables and fruit trees) registered positive growth at various rates. In spite of the moderate growth in the sector, domestic agricultural products earmarked for export showed a noticeable rise, whether measured by the quantity index of agricultural exports, or by the data prepared by the agricultural marketing organization on exported quantities of vegetables and fruits, which grew by 12.3% in 1996 to 1997.

REVIEW OF LITERATURE

Importance of Agriculture

Ever since time immemorial it been has emphasized that agricultural progress contributes to the support of greater productivity throughout the economy. The limitation on the growth of agricultural output set the upper limit to the growth of the nonagricultural sector and to capital formation for economic expansion and the issue of the diminishing return in agriculture become very important.
It is now customary to summarize in four ways how greater agricultural productivity and output contribute to an economy’s development. They are

1. By supplying foodstuffs and raw materials to other expanding sectors in the economy.

2. Providing an “investible surplus” of savings and taxes to support investment in another expanding sector.

3. Selling for cash “a marketable surplus” that will raise the demand of the rural population for products of other expanding sectors, and

4. Relaxing the foreign exchange through import substitution.

Simon Kuznets (1965) summarizes these contributions as the “market contribution”. A given sector makes a contribution to an economy when it provides opportunities for other sectors to emerge, or for economy as a whole to participate in international trade and other international economic flows. These contributions and mentioned the market type because the given sector in this case agriculture provides such opportunities by offering part of its product on domestic or foreign markets in exchange for goods produced by the other sectors, at home or abroad.

Therefore, agriculture makes a market contribution to economic growth through:

1. Purchasing some production items from other sectors at home or abroad.
2. Selling some of its product to not only pay for the purchase listed above but also to purchase consumer goods from other sectors or from abroad, or to dispose of the product in any way other than consumption within the sector.

In all these ways, agriculture makes it feasible for other sectors to emerge and grow and for international flows to develop; just as these other sectors and the international flows make it feasible for the agriculture sector to operate more efficiently as a producing unit and use its product more effectively as consuming unit.8

The "factor contribution occurs" when there is a transfer or loan of resources from the given sector to others. Thus if agriculture itself grows, it makes a product contribution. If it trades with others, it renders a market contribution; if it transfers resources to other sectors, these resources being productive factors, it makes a factor contribution.9

The development process is viewed as one of structural transformation, from an economy in which agricultural employment and output is dominant to a slow decline in the percentage share of agriculture in GDP. But this structure transformation is itself dependent on agricultural progress. Industrial development will be cut short by lack of agricultural progress unless the economy is in the exceptional situation of being able to export manufactures for imports of foodstuffs and raw materials.

A "marketable surplus" from agricultural is needed not only to finance the wage good to industry, but also to widen the home market
for the industrial products. The demand for industrial products depends on growth of farm cash income, unless the country can export its growing industrial output. Barring unlimited export possibilities, and with 70% to 90% of the home market in the rural sector, the nature of the rural demand will affect the growth of non-farm employment and output. Increased agricultural productivity, a growing marketable surplus, and rising real income are necessary to raise the rural sector's demand for industrial output.

Finally, agriculture can be a major source of foreign exchange, and agricultural exports dominate in a country's early phase of development. But also important in relaxing the foreign exchange constraint is the possibility in several developing countries to save foreign exchange by replacing imports of foodstuffs with home production. Export promotion and import substitutions are activities not only for the industrial sector but also for agriculture.

Agriculture Development and Employment:

Considering these various contributions of agriculture, that if there is to be in the longer run a structural transformation in output and labor force, there must first be in the short run successful policies of agricultural development with the emphasis on absolute poverty removal and the employment problem, it is necessary to concentrate on agricultural development for the sake of employment and a diminution in inequality. Even though the longer term objective is structural transformation - the absorption of a larger fraction of the rural
population in new income earning opportunities - there remains the complex problem of the timing of this transformation and the inter temporal sequence of policies to accomplish it. According to Edgar Edwards' the lessons of recent history have shown that an "urban bias" can discriminate against agriculture, the net outflow of resources from agriculture may be excessive. Not only may there be an inefficient use of the resources transferred to the non agricultural sectors, but the transfer may itself be at expense of more employment and higher income in the agricultural sector. Should not the "growth-promoting interactions between agricultural and industrial development" mean more than that agricultural development should have simply instrumental value for industrial development?

The emphasis on agricultural development now is not only for its instrumental value in sustaining expansion elsewhere in the non-agricultural sector, but for its own absorption of labour and its own increase of real income among the rural poverty target groups of the small farmers and the landless laborers. The root of the employment problems lies in the fact that modern economic activity is not being diffused to the economy side. An agricultural strategy that would improve the rural-urban balance now requires the extension of planning, infrastructure, appropriate technology, and complementary resources to the rural sector (Mellor, 1986). If in earlier decades of development, agricultural development had instrumental value, in future decades it must have an intrinsic value of its own.
An agricultural and employment based strategy of economic development requires at a minimum three basic complementary elements.  

1. Accelerated output growth through technological, institutional and price incentive charges designed to raise the productivity of small farmers.  
2. Rising domestic demand for agricultural output derived from an employment oriented urban development strategy; and  
3. Diversified non-agricultural labour-intensive rural development activities that directly and indirectly support and are supported by the farming community.  

To a large extent, the 1960's, and 1970's witnessed a remarkable transition in development thinking - one in which agriculture and rural development came to be seen by many as very necessary and basic to national development. Without such agricultural rural development, industrial growth either would or, if it succeeded would create such severe internal imbalances in the economy, that the problems of widespread poverty, inequality, and unemployment would become even more pronounced.  

A major reason for the relatively poor performance of third world agriculture has been the neglect of this sector in the development priorities of the governments. This neglect of agriculture and the accompanying bias toward investment in the urban industrial economy in turn, can be traced largely to the misplaced emphasis on rapid industrialisation via import substitution and exchange rare
Overvaluation that permeated development, thinking and strategy during 1950's... and throughout most of the 1960's. According to Scapankik\textsuperscript{12} The share of total national investment allocated toward the agricultural sector as a sample of 18 less developed countries was approximately 12\%, even though agriculture in these countries accounted for almost 30\% of GDP and more than 60\% of the total employment. One significant manifestation of this rural neglect and the corresponding emphasis on urban growth has been the massive migration of rural peasants into the teeming cities of third world nations.

The agricultural openness of these countries vis-à-vis the rest of the world almost inevitable raises questions as to what the continued role of agricultural trade should be as attempts are made to foster development. There appear to be three main questions:

1. Can a country attempt to grow further specialization in agriculture, or should growth efforts be concentrated in non-agricultural trade?

2. Even if it appears under present prices and trade arrangements that most rapid growth could be achieved by reliance on agriculture, are there long run uncertainties that militate against following this course?

3. Does short-run instability of prices of agricultural exports interfere with development efforts?

As a result of this disappointing experience and realization that the future of most underdeveloped countries will depend to a large extent on what happens to their agriculture, there has been a
marked shift in development thinking and policy making. This shift, which began in the late 1990's and continued through the 1990's has been a way from the almost exclusive emphasis on rapid industrialization and toward a more realistic appreciation of the overwhelming importance of agricultural and rural development for national development. A first step toward understanding what is needed for agricultural and rural development, however, must be a comprehension of the nature of agricultural systems in diverse third world region and, in particular, of the economic aspects of the transition from subsistence to commercial agriculture. This applies to the present study of agriculture in the Jordan’s economy.

**Agriculture Structure and Productivity**

Low productivity in agriculture can limit economic growth; industrialization and agricultural development are not valid alternatives. Effective development plans must embrace both goals. Raising agricultural productivity and including a marketed surplus of farm products must be a major concern, as must development of linkages between the two sectors that will give effect to the interdependence required between them in a modern industrial economy.

According to Johnston and Southworth, a number of broad interrelationships between agriculture and the nonagricultural economy in development are well recognized. As the largest sector of the economy, at least in the earliest stages of development, agriculture is the source of manpower for industrial expansion. It is source of
essential supplies for maintaining a growing industrial population and of export to be traded for industrial goods, and it is the chief potential source of savings for nonagricultural investment. For these roles to be fulfilled, however, agricultural productivity must be increased. This requires a variety of off-farm inputs; providing them can be a stimulus to the industrial sector. It also requires incentives to farmers to invest in these inputs, in the form of attractive markets for their increased output; this also the growing non-form sector can provide. For incentive income to be meaningful to farmers there must be goods that they can buy with it; the development of this rural market can also provide stimulus to non-agricultural industries. Thus growth in the two sectors of agriculture and Industry interact each other supporting and stimulating both the sector and the overall economy.

In general, raising farm productivity as well as output depends mainly upon the use of increasing quantities of purchased input and for these farmers must depend upon nonagricultural sources. Their ability to purchase input from outside of agriculture depends upon their receipts from sales of farm products. But in a predominantly agricultural economy, the market demand for agricultural output (except for the possibility of exports) is severely limited because of the relatively small population dependent upon purchased food. As a result, most farm household is of necessity mainly engaged in producing food to meet their own subsistence requirement.

Thus the scope for raising output per worker in agriculture (again apart from the possibility of export production) is dependent upon the growth of domestic demand for agricultural products, relative
to the size of the farm population. Here, again, the population problem complicates the picture, because in most developing countries population is concentrate to increase rather than to decrease. In concert terms, overcrowding on the land is aggravated, or where it is not yet a problem is certain to become one, unless non-farm employment opportunities are growing more rapidly than the population of the working age.

Given the availability of inputs needed to improve technology and a sufficient final demand for increased output, how rapidly farmers will adopt the improved technology depends upon additional factors. Efficient sources of credit may be important in enabling more rapid adoption by farmers of new technology that requires use of purchased inputs. Equally important is an organization of production that both permits and gives incentive to producers to increase their output.

In agriculture, the biological production process depends upon solar energy, rainfall, and, must be adapted to the peculiar conditions of individual locations. Production is seasonal, and each worker must be skilled in a variety of seasonal tasks. The production process is only partly subject to human control, and the management requires the ability to cope with randomly variable exigencies of local weather and other growing conditions. Production is normally carried on by a large number of individual farm operators for whom it is not only a livelihood but also the source of their families’ sustenance. Errors are costly, and individual farm operators are understandably hesitant to assume the risk of innovations whose advantages over traditional methods are uncertain.
Agriculture Production and Development

In early stages of economic development, agriculture is the dominant sector in employment of resources and in generation of income. The consequent interdependence of agriculture and the nonagricultural sector limits the usefulness of considering the development of either in isolation from the other. Because agriculture is an industry of major proportion at the start of economic development, its development is a process of modernization rather than the creation of a new industry. The nature of the existing agricultural base strongly conditions the development process for agriculture. Thus a theory of agricultural development must rise from a theory of the operation of a traditional agriculture. The distinct character of agriculture and of its development, as well as its importance, argues for treating agriculture as a separately delineable sector in theories of economic development.14

The great variability in the conditions of agricultural production makes it difficult to drive a conceptually simple and yet operationally useful concept of agricultural development, this variability traces from three principal sources as stated below:

1. The physical conditions of agricultural production vary considerably from place to place. The types of agricultural product commodities that can be produced, the kinds of resources used in production, and the transformation rates of input into output vary correspondingly, because of differences in their products and
production conditions. Agriculture in different regions face different price and income elasticity for their output; they require different resources with different opportunity costs and supplies schedules; and they yield different returns, both net and gross, from the use of these resources. Put concretely, the means of modernizing agriculture and hence the role agriculture will play in development will differ significantly in the different regions of the world. A theory of agricultural development must be broad enough to encompass these widely divergent conditions. Practical programs of development must be detailed enough to deal successfully with widely divergent problems.

2. Agricultural production normally takes place on an enormous number of independently managed small units. The operators differ in natural capacity, training, and inclination for farming. Consequently there is substantial variability from farms in the results of particular agricultural development programs. Such interregional variability influences the strategy of agricultural development agriculture's potential role. Differences in the human factor may also imply different regional patterns of development.

3. Present planned development is conditioned by the past. Previous development efforts, private and public, have modified economic, cultural, institutional, and physical environment of agriculture, thereby changing output possibilities, input requirements, and input returns. Today's priorities arise in part from yesterday's actions. Such differences also appear in other sectors of the economies but they are more sharply marked in agriculture. They create unusual
problems of generalization for a theory of agricultural development. Such a theory can point at best only to the nature of complex interrelationships and provide useful background for generating rules of the thumb and operating procedures.

The learning process, needed for modern industrialization is sometimes long; but it is fallacious for a nation, comprising above all a promising but overwhelmingly underdeveloped agriculture, to conclude that, in order to begin the process of learning, a general attack on numerous branches of industrial activity should be initiated. A far better way is to concentrate first upon high-yielding mass rural development, supported (partly for learning's sake) by such selective ancillary rapid industrialization on a broad front.

The first generation agricultural production problems and the second-generation marketing and demand difficulties created by the green revolution, were largely short-run issues. By contrast, the third-generation agricultural problems, having to do with equity, welfare, employment, and social institutions generally arise from four principle sources as below.\(^5\)

1. Population growth rates in excess of 2.5% annually in areas already extraordinary densely populated;

2. Very low average income levels, coupled simultaneously with great regional and personal disparities in income, wealth and political power,

3. Limited opportunities for non-farm employment, even if the manufacturing and service sectors grow very rabidly.
4. The possibility for technological leap forging with agricultural inputs and techniques, which are often of a labour-displacing nature.

The resulting dilemma can be stated as that the countries need agricultural growth if ever they are to break the chains of poverty; but they need equity as well, for obvious humanitarian reasons and in order not to find themselves in a continuous cycle of violence and repression. The challenge of these forces or to be faced is far greater in magnitude than the problems ever faced most of the developed nations. Moreover, the latter are not in a position to help. Although they are perhaps capable of exporting the growth technology, they have few institutional forms to export that can come to grips with the income distribution and employment questions that now agricultural problem in developing countries.

Perhaps even more important than the direct effects, and often-neglected in discussions on employment, are the side effects of increased food supplies and lower prices on public and private savings and investment generally. The food price constraint is an important one and has a pervasiveness that extends far beyond the agricultural sector. Here too, the green revolution helps, provided that its potential for increasing saving is realized and is transferred into real investment. Far more disturbing, however, are two other effects of the green revolution on employment, welfare, and stability. Both of these derive basically from the unequal regional growth that seems to be a concomitant of the new technology.
There are several recommendations and reconsideration suggested in the light of these third-generation questions. Some of them are identified as below.

1. As long as the new agriculture varieties remain limited to a few regions and as long as farm incomes are primarily dependent on acreage rather than people, it is naive to believe that the new technology for agriculture is likely to be a stabilizing influence. Growth generally is destabilizing, and this form of unequal agricultural development is particularly so. Even if the first borrowing of technology are neutral to scale (which in practice probably they are not), subsequent borrowings are likely to be labour-displacing unless strong policy measures are introduced. The magnitude of this phenomenon will vary by commodity and region, but the direction seems fairly clear.

2. Some way must be found to close the gap between social and private benefits from certain forms of agricultural technology. It is not sufficient to appeal and to urge labour-intensive techniques for agricultural and industry, or to proclaim the virtues of small-scale industry. Such pronouncements must be transformed into instruments of direction and control; high taxes on tractors; a possible lowering of wheat and rice prices as a stimulant to the rest of the economy; much higher interest rates on capital and higher de facto rates for foreign exchange, progressive land taxes; and perhaps even ceilings on farm size so as to make uneconomical, from a private point of view, certain forms of technology. And in any
Asian country, no one should discount the size and power of the forces that are likely to be against most of these policies.

3 Either no growth or equity problems can be solved by the green revolution or even by the agricultural sector alone. The employment problem in particular is total economy in character, whose solution requires increased saving, more foreign exchange, higher investment rates, altered factor- and product- pricing structures- in short, economic development. While agricultural policies should not aggravate the situation, meaningful answers to these issues must look to other sectors as well.

4 Given the tearing effect that unequal regional growth has on the national fabric, there is need to stress again the importance of developing new technology for the monsoon/dryland areas.

The thrust of the above argument is that it is possible and desirable to devise and implement agricultural strategies which are efficient in terms of number of objectives, including but not confined to the objective of achieving desired increase in farm output at low cost, the following objectives, seem to be especially relevant to the design of strategies for agriculture that are efficient in a broad sense.

The objective would be contributing to the overall rate of economic growth and the process of structural transformation and achieving a satisfactory rate of increase in farm output at minimum cost by encouraging sequences of innovations which exploit the possibilities for technical change most appropriate to a country's factor endowments. Further achieving a broadly based improvement in the
welfare of the rural population, and facilitating the process of social modernization (including the lowering of birth rates, the extension and improvement of rural education, and the strengthening of entrepreneurial capacities) by encouraging widespread attitudinal and behavioral changes among farm households.

Agricultural Pricing and Infrastructure

The effects of government intervention in agricultural pricing have become a major concern in economics. This concern is directed to an analysis of the interrelationships among agricultural prices and resource allocation, incentives, income distribution, and employment.

It has been argued strongly that the economic potential for agricultural development has been largely unexploited because of government intervention to suppress economic incentives by pricing agricultural products below competitive market equilibrium relative to inputs. These government interventions are based on:

1. Under valuation of agriculture's contribution to growth derived from the misunderstanding of agriculture as an inherently backward sector incapable of innovation.

2. The false assumption that the market mechanism is an instrument for middlemen to exploit small farmers and poor urban consumers.

3. The false assumption that there is a trade-off between agricultural efficiency and equity in income distribution both within agriculture and between rural-urban sectors.
Agricultural infrastructures may be divided into two major types: capital intensive infrastructures are those which heavily involve reproducible capital for the provision of the service, such as roads, bridges, warehouses, or dams. This category comes close to the usual notions of social overhead capital. Also included are the organizations and institutions, which maintain and operate the capital infrastructure facilities such as marketing firms to transport farm products or cooperatives to store and to process crops.

Capital extensive, or service, infrastructures are those in which the capital component is negligible, such as extension education, conservation schemes, agencies for plant and animal protection, disease and pest control organizations. In both types, one is eventually concerned with the flow or provision of a service, which affects agricultural production on an individual farm or production unit. The distinction between the two is arbitrary, in that the proportion of capital costs per unit of service varies throughout a wide spectrum. But at the capital-intensive end of this spectrum, is the heavy investment that turn upon the traditional economic criteria for investment in non-human, reproducible capital.

Agricultural Farm Size

In agriculture it may be possible to operate under a wide variety of farm size conditions it is particularly noticeable that the output per worker varies among countries with stages of economic development. Agricultural progress seems to be related to a wide
complex of conditions rather than to the pattern of farm size. Many countries have dual size structures involving many small farms and a heavy concentration of land in large units the relatively rapid economic progress of agriculture in Mexico, consequently, may be ascribed to the complex of agricultural development policies, including agricultural prices and land tenure policies, rather than to the dual size structure in which 85% of the land still remains in holding of over 500 hectares. Similarly, the more rapid agricultural development in Japan than in India and other small farm size, countries must be primarily related to the complex of agricultural policies. In countries where extremely large farms predominate, however, do suggest that problems of scale exist in reaching intensive margins in agricultural production.18

The conditions that give a rise to questions about size of farms required for improving agricultural productivity in the less developed countries vary greatly, but three major situations can be identified as below.

1. In small farm countries where resources are distributed relatively evenly among farms, questions both of minimum size farms and economies of larger farms arise. Do the sizes of farms that prevail, in terms of land area and number of workers per farm, make efficient use of available resources? Or smaller units lead to increased efficiency?

2. In dual size structure countries where land resources are distributed unequally among farms, questions arise concerning the effects of increasing sizes of small farms by reducing sizes of large
farms. Is land on large farms used more extensively? Are factor costs different on large and small farms? Would a more equal distribution of land resources among farms lead to increasing in resources used?

In countries where extremely large farms predominate, questions arise concerning the effects of size on problems of coordination and incentives. Are these factors important to the economics of farm size in the less developed countries? What alternative to large-scale organization of agriculture should be considered?

Farm size questions arise in developing plans for land settlement projects. Frequently, the land area available for settlement is limited, and the number of potential settlers exceeds the number that can be settled on farm. In these instances, it is necessary to decide what is the maximum adequate income. In instances where land is not a limiting factor, questions arise concerning what farm size will be most economic, taking into account available capital and technology should family-size or large units are established?

Farm size problems, of course, can not separated from those of type of farm, including different kinds of crops and livestock to be produced, and forms of land tenure. Similarly, farm size problems are closely related to those of developing supporting services for marketing farm products, supplying capital inputs, and providing credit, extension and other services.
Agriculture Programming

At the general and historical level much has been written on the place of agriculture in the process of economic growth. Particular elements of agriculture policy, such as price stabilization, trade taxation, agricultural credit, agrarian reforms, and improvement of marketing, research, and extension. However, the actual process of building up a national development program for agriculture as a whole, and the principle for arriving at an optimum pattern of public expenditure in this field have not yet been greatly shown in research work.

It is now agreed that if steady and lasting progress is to be made, agricultural programming must be conducted as an integral part of a comprehensive, multi-sector approach to the planning of overall economic development. Developments in agriculture and in other sectors are interdependent and should be mutually supporting. In development planning it is important to exploit as far as possible the positive linkages between the sectors and keep some kind of balance in overall growth. This is possible only if the economy is considered as a whole.

The nature of the agricultural programming therefore partakes, to a large extent of the nature of general economic programming, although there are some important differences in method and approach.

The key item in agricultural programming is the rate of the growth of the economy as a whole which is to be aimed at, usually
expressed as an annual percentage increase in the national income. From this is derived some times by use of an estimated capital-output ratio, an assessment of the overall capital requirements for the economy over the period of the plan, which is usually 5 years. In the light of production of domestic savings, projection and investment, public aggregates are made- total private consumption and investment, public expenditure, total exports and imports and balance of payments and likely need for foreign aid. More detailed programming goes on to fill in this framework with the totals for major industries or sectors of the economy, for major development projects and perhaps for specific regions of the economy. In order to assure consistency and to avoid large-scale waste and disorganization, care is to be taken that the component parts of the programme form a coherent and coordinated whole.

The end product of agricultural programming in the ideal case is a recommended pattern of development and of public expenditure over a definite period of years providing for the implementation of an integrated set of policies, measures, and projects geared to the attainment of goals and targets for food and agriculture consistent with the objectives of the national economic development plan. More specifically, the main elements of a comprehensive agricultural development programme may be taken to include as follow:

1. A statement of the agricultural development objectives and strategy within the framework of the overall development objectives of the country.
2. Targets, actual or indicative, for all-important branches of agriculture over the plan period.

3. A detailed statement of the policies and measures to be adopted to enable the targets to be reached.

4. A list of any special projects of public investment required, with detailed justification.

5. A statement of the long-range needs of agriculture for which some provision should be made in the current plan period.

6. Any organizational change needed to promote for facilitate the implementation of the plan, and to check on the progress required for implementation of the program.

The World Bank

The World Bank, consisting of the International Bank for Reconstruction and Development (IBRD), and the International Development Association (IDA), has one overreaching goal; helping its borrowers reduce poverty. It is a partner in strengthening economies and expanding markets to improve the quality of life for people everywhere, especially the poorest.20

The IBRD and IDA make loans for projects and programmes that promote economic and social progress by helping raise productivity so that people may live better lives. Along with these loans, the World Bank provides advice and technical assistance. The International Finance Corporation (IFC) - which works closely with
private investors and invests in commercial enterprises in developing countries and the Multilateral Investment Guarantee Agency (MIGA) which encourage direct foreign investment by offering insurance against non-commercial risk-all share the same overall goals. The International Center for Settlement of Investment Disputes (ICSID) share the World Bank’s objective of promoting increased flows of international investment by providing facilities for settling disputes between foreign investors and their host countries. Collectively, these five institutions are known as the World Bank group.

The World Bank presently 178 member countries are each represented by one governor who is usually the finance minister of the country. The share of the World Bank that each country owns is determined largely by the size of its economy. The share of capital determines a country’s voting share in the bank. The board of governors delegates its authority to a small group of representatives, the Board of executive directors who are responsible for decisions on policies affecting the Bank’s operations and for the approval of all loans. The World Bank president is the chairman of the board of Executive Directors. The Board, which is in permanent residence, meets several times a week to approve loans and World Bank policies. Finally, the World Bank’s staff members from over 100 countries carry out the management and day-to-day operations.

The IBRD raises most of its money from bonds and other debt securities issued in world financial markets, based on the guarantee of share capital subscriptions from its members. Other sources of World Bank funds are shareholders capital and retained
edinnigb ISRD loans are given for a period of 15 to 20 years, and generally have five-year grace period. The interest rate on these loans is adjusted every six months according to changes in the cost of funds to the Bank.

The executive directors consider and decide on the IBRD loan and IDA credit proposal made by the president, and they decide policy issues that guide the general operations of the bank. They are also responsible to policies made by the president, and they decide policy issues that guide the general operations of the Bank. They are also responsible for presenting the board of governors at the annual meetings an audit of accounts, an administrative budget, and an annual report on the operations and policies of the bank, as well as any other matters that in their judgement require submission, to the board of governors.

In addition work groups of executive directors and alternate executive directors at times make special trips to borrowing counties to observe bank-supported operations and the bank's assistance strategy first hand. They met a wide range of people including staff of the bank's resident missions or field offices, government officials, project managers non-governmental organizations (NGO's), project beneficiaries, and the business community. In fiscal 1998, groups of executive directors visited the Middle East and North Africa (Jordan, Tunisia, West Bank and Gaza, and Yemen) and eastern and southern Africa (Eritrea, Lesotho, and South Africa).
Under its renewal programme the World Bank established business practices to link staff who work across the World Bank through four thematic networks:

1. Human development (HD),
2. Environmentally and socially sustainable development (ESSD),
3. Finance, private sector, and infrastructure (FPSI), and
4. Poverty reduction and economic management (PREM).

The HD network, for example, automatically includes all staff working on education, health, nutrition, and population, and social protection. These communities of professional working in the same field help staff work together across organization boundaries, and equally important, with partners outside the Bank. The networks help draw lessons across countries and regions and bring global best practices to bear in meeting country specific needs in four ways:

1. Applying the "knowledge management", the process of systematically collecting knowledge on development issues from inside and outside the bank and disseminating it- both inside and outside of the bank.
2. Setting common strategies for regional and central units;
3. Ensuring that skills are deployed effectively by putting together strong task teams to deliver higher-quality products to clients, and
4. Helping enhance staff skills.
Components of World Bank

The IBRD was established in 1945, and Governments of 181 countries now own the IBRD. To join the IBRD, countries must first be members of the International Monetary Fund (IMF). Upon joining the IBRD members subscribe to its capital stock. The amount of share each is allocated reflects its quota in the IMF, which in turn reflects the country's relative economic strength in the world economy. Members pay in a small portion of the value of their shares; the remainder is "callable capital" and would only be paid when the IBRD is unable to meet its obligations, a situation that has never arisen.21

The IBRD lends only to worthy borrowers and only for projects that promise high real rates of economic return to the country. As a matter of policy, the IBRD does not re-schedule payments, and it has suffered no losses on the loans it has made. While it does not aim to maximize profits, but rather to intermediate development funds at the lowest cost, the IBRD has earned a net income every year since 1943.

The IBRD borrows most of the money it lends through medium and long-term borrowings in capital markets across the globe. It also borrows funds at market-based rates from central banks and other government institutions conservative lending policies. Strong financial backing from members and prudent financial management give the IBRD strong standing in the markets. As well as borrowings, the IBRD is funded by the capital its members have paid in, its retained earnings and repayments on its loans.
IDA was established in 1960 to provide assistance to poorer developing countries that cannot meet the IBRD's near-commercial terms. IDA provides credits to the poorest countries—mainly those with an annual per capita gross national product in 1997 of $925 or less. By this criterion, about seventy countries are eligible.

All members of the IBRD are eligible to join IDA, and 160 have done so. Unlike the IBRD, its richer members contribute most of IDA's funds, although some developing countries contributed to IDA as well. In addition, IDA receives transfers from the net earnings of the IBRD and repayments on its credits.

IDA credits are made only to governments. The repayment period is thirty-five to forty years. Credits carry no interest, but there is a small service charge, currently 0.75%. There is also a commitment charge, which is set annually, within a range of 0-0.5% of the undisbursed balance; the commitment charge is currently set at zero%. Although IDA is largely and financially distinct from the IBRD, it shares the same staff, and the projects it supports have to meet criteria as do projects supported by the IBRD.

Under its articles of agreement, the World Bank cannot allow itself to be influenced by the political character of member country; only economic considerations are relevant. To ensure that its borrowers get the best value for the money they borrow, bank assistance is united and may be used to purchase goods and services from any member.
The IFC, established in 1959, helps promote private sector growth in developing countries and helps mobilize domestic and foreign capital for this purpose. It has 174 members. Legally and financially, the IFC and the World Bank are separate entities and the IFC has its own operating and legal staff. It draws upon the World Bank for administrative and other services, however, the IFC provides loans and makes equity investments in support of projects. Unlike most multilateral institutions, the IFC does not accept government guarantees for its financing. Like a private financial institution, IFC seeks profitable returns and prices its finance and services to the extent possible, in line with the market while taking into account the cost of its funds. The IFC shares full project risks with its private sector partners. The IFC issues its own annual report.

Strategy of World Bank Loan

In making or guaranteeing a loan, the World Bank is obliged under its articles of agreement to pay "due regard to the prospects that the borrower, and, if the borrower is not a member, that the guarantor, will be in a position to meet its obligations under the loan"; the articles further enjoin the World Bank to act 'prudently' in the interests both of the borrowing country and of the members as a whole. Even apart from this provision of the charter, it would be implicit in the concept of the World Bank as a continuing institution, designed to operate on a sound business basis and with funds borrowed in the private market,
that it should make loans only where there are reasonable prospects of repayment.

This does not mean, of course, that the World Bank adopts the standards of the market place in determining how much it can lend in individual countries. On the contrary, one of the principal reasons for creating the World Bank was to have an agency, which accept the special risks inherent in international investment in cases where, by reason of those risks, private investors were unwilling or unable to act unaided. For example, the World Bank must accept the risk of another world war if it is to achieve the purposes envisaged in its articles of agreement. Similarly, the World Bank has to accept the risk of a recurrence of a worldwide depression of the type experienced in the 1993's. In fact, for the long term the World Bank adopts for operational purposes the assumption that production, income and trade in the world as a whole will continue to expand.

Underlying many of the Bank's lending policies is the provision of the articles of agreement requiring that "loans made or guaranteed by the World Bank shall, accept in special circumstances, be for the purpose of specific projects of reconstruction or development".

The objective of this provision is simply to be assured that bank loans will be used for the most productive purposes. In effect, the only requirement which it imposes is that, before a loan is granted, there shall be a clear agreement both on how the proceeds of the loans are to be expended and what the loan is expected to achieve.
Otherwise it would be impossible for the World Bank to judge whether or to extend a loan is likely to be effective in raising the level of production.

In the early days of the operations, there was considerable criticism of the specific project approach, but the criticism was almost always based on the assumption that the World Bank examines the merits of particular projects in isolation, without reference to their relation to the over-all development needs of the borrowing country. In fact, the World Bank does precisely the opposite. The World Bank seeks in the case of each borrowing country to determine what are the appropriate investment priorities and then to adapt its financial assistance to meet the priority needs. Consistently with this approach the World Bank has encouraged its members to formulate long-term development programs and has provided them with substantial technical assistance for this purpose. The existence of such a programme, particularly in countries whose investment requirements are large in relation to their available financial resources, greatly facilitates the task of determining which projects are of the highest priority in the light of their prospective contribution to the program.

Once a determination has been made of the most urgent needs of any member country, the only safeguard by which the World Bank can assure that its resources are in fact used to meet those needs is to require, before granting a loan, that an agreement be reached with the borrower on the precise purpose of the loan, whether it be for a single project or for a programme of related projects. If the World Bank were to make loans for unspecified purposes or for vague
development programs which had not been worked out in terms of the specific projects by which the objectives of the program are to be achieved, there would be danger that the bank's resources would be used either for projects which were economically or technically unsound or had low priority.

Where the project under consideration is revenue-producing such as a power system, railroad or manufacturing plant, which is intended to pay its way, the World Bank wishes of course to satisfy to achieve that objective. But the relative profitability of different projects is frequently not a sufficient test of their relative contribution to a country's development. In many cases, certain basic investments in public utilities, transportation and ports, flood control, reclamation, irrigation and similar projects are required before other investments in more immediately profitable activities can be undertaken. The indirect benefits properly attributable to these basic investments may be very great even though the direct earnings of the activities, at least in the short run, are not high or may even be nonexistent. But it may foster all kinds of industrial and agricultural activity. Similarly, flood control, irrigation or land reclamation projects may often be among the most useful and most urgent investments to be undertaken, even though, if their cost is paid out of general tax revenues rather than from water charges or other direct assessments.

As a matter of general policy, derived implicitly from the article of agreement the World Bank concentrates its lending on projects designed to contribute to productive capacity and normally does not finance community projects of a primarily social character.
such as street-paving, water supplies, sewage housing, hospitals and schools. Although projects of this latter type are plainly basic to the development of any country, the World Bank loan of the total investment expenditures of the borrowing country can most effectively be applied in the more directly productive sectors of the economy.

Determination of the priority of the project is, of course, only a first step. The World Bank also needs to assure itself that the technical, financial and administrative plans for the project are satisfactory. Determination of these points often involves investigation, study and negotiations over a broad field, for example, the World Bank wishes to be satisfied that the engineering plans have been competently drawn, that the project is suitably designed, and that construction will be entrusted to competent hands and will be properly supervised. And the cost estimates are as complete and accurate as possible, and that the financial structure of the enterprise is appropriate for the type of venture involved. The arrangements for obtaining the remainder of the capital not supplied by the World Bank are also carefully scrutinized to determine their adequacy to assure prompt completion of the project. If the planning or proposed arrangements appear unsatisfactory in any of these respects, the World Bank seeks to help the borrower to work out suitable modifications.

Goals and Activities of World Bank

Recent United Nations conferences have adopted several goals for the twenty-first century. The World Bank is helping to
achieve the goals and will monitor them in the countries it assists. The goals are to:

1. Reduce by half proportion of people living in extreme poverty by 2015.
2. Achieve universal primary education in all countries by 2015.
4. Reduce infant and child mortality by two thirds and maternal deaths by three-quarters by 2015.
5. Provide universal access to reproductive health services by 2015 and.
6. Reverse current global and national loss of environmental resources by 2015.

The broad-based economic recovery of recent years has yet to resolve major challenges facing the Middle East and North Africa (MENA) region, including high unemployment against a background of rapid force growth and important disparities in socioeconomic welfare and opportunities. In fiscal 1998 the World Bank work with regional partners to promote the policy reforms and private sector development needed for productive job creation, to support equitable growth based on human development and poverty reduction, notably through targeted efforts to help the region’s poorest and most vulnerable people, and to protect the region’s natural resources and unique cultural heritage.
Several operations approved by the executive director in fiscal 1998 targeted specific impediments to private sector-led growth.23 Jordan has received funds from the World Bank on different aspects of agriculture under the Jordan Agriculture sector adjustment loan, Jordan Economic reform and Development, Jordan Amman Water and Sanitation and second and third Economic Reform and Development loan. In the West Bank and Gaza, where the growth of employment and incomes has largely been hostage to the pace of the peace process, the bank and the IFC—along with the Palestinian authority, bilateral donors, and private investors supported an innovative public private partnership for the creation of the Gaza industrial estate, which will create up to 50,000 jobs for Palestinians. Opportunities for competitive participation in today's increasingly skills-intensive global markets can be restricted by shortages of appropriately qualified manpower. To address such shortages, bank loans to Lebanon and Tunisia are supporting vocational and technical training and market-oriented reform of the higher education sector, respectively.

Well-functioning physical infrastructure plays a key role in domestic and overseas businesses' investment decision and hence in promoting dynamic private sector employment creation and growth. And the desirability of private participation in infrastructure development is becoming increasingly recognized, notably because it both relieves government budgets of some of the very large costs involved and typically enhances services quality and cost effectiveness. During fiscal 1998 the bank continued to support
The World Bank and the MENA Countries

The World Bank's Middle East and North Africa (MENA) region extended from Morocco in the west and Iran in the east. The region is economically very diverse, including both the oil-rich economies of the Gulf and countries that are resources-scarce in relation to population. Per capita incomes in the countries in which the World Bank is active vary widely—from less than $300 a year to an estimated $2,700 a year.

Despite the difficulties of recent years, the countries of the region have the opportunity to enter the 21st century with real prospects for substantial increases in national prosperity and individual well-being for their citizens. World economic growth prospects, driven by the dynamic forces of trade liberalization and globalization of production and service provision, are bright and provide unprecedented opportunities for developing countries that make determined efforts to seize them. Within the region, "early reformers such as Jordan, Morocco and Tunisia, and more recent reformers such as Algeria, Egypt, and Yemen, have undertaken or are embarking on determined programmes of macroeconomic stabilization and economic restructuring. In several cases, these programmes are beginning to pay off in terms of more rapid growth
in incomes, exports, and jobs. Meanwhile, the middle east peace process, if successful, efforts middle east countries of the region the chance to focus their priorities away from political and military confrontations and towards economic development an could help restore urgently needed private investment flows as perceptions of political risk gradually recede.

The World Bank has a long history of creative and productive bilateral partnership with individual MENA countries. The cumulative total of financing provided to 11 borrowers in the region including one, and one recent addition, the West Bank and Gaza has reached nearly $29 billion. More than half of this total has been provided over the last 10 years. And the decade has seen changes in lending priorities designed to match countries changing needs. Only about half of the decade's lending has seen in the bank's traditional areas of concentration.

New or expanded areas of emphasis have included support for public sector management and policy reform (multi sector lending) for financial sector development essential for private-sector-led growth, for the environment, and for human resources development (education, health and social welfare), which serves both equity and efficiency goals-bringing opportunity to those not previously empowered by it, and providing the skills base for a labour force able to match international competition while also protecting the disadvantaged.

Meanwhile, the World Bank has expanded its product mix
of services beyond direct lending in two important areas. It is supporting inflows of private investment into the region by the active use of guarantees that simultaneously reduce investors’ perceptions of risk and recipient countries borrowing costs. The guarantee function is of special importance for promoting essential new private financing flows for infrastructure development.

The World Bank has broadened the scope of its analytical work and policy advice in support of MENA borrower country development strategies. In addition to traditional country economic studies, this work is now focusing on such critical areas as private sector development, poverty, and the environment. The bank also has an active technical cooperation programme with the Arab states of the gulf, those income levels makes them ineligible to borrow for investment projects. This programme consists of (mainly reimbursable) technical assistance that emphasizes sharing with these countries best practices with respect to macroeconomic and sectoral policies, based on bank development experience throughout the world. It also provides a precedent for supplying non-lending services to countries elsewhere in the world those successful efforts lead them to "graduate" from borrower status.

The World Bank is also placing increasing emphasis on its role as sponsor and facilitator of an expanding network of multilateral partnerships between MENA countries and their external supporters and among MENA countries themselves in key areas of common concern. These partnerships range from the Mediterranean Environmental Technical Assistance Programme (METAP), through
the multilateral working groups on regional economic development, water and environment set up under the auspices of the middle east organized to mobilize funding for the West Bank and Gaza, and the MENA desertification initiative by the European union for a Euro-Mediterranean partnership and economic area.

Finally, the World Bank is working to improve its responsiveness to MENA countries, needs by changes in its own organizational structure. The World Bank's local presence in the region has been expanded in recent years with the establishment of new offices in member countries, and the delegation of more responsibility to them.

Both the IFC and MIGA were active in supporting private sector investment in the MENA region during fiscal 1998. About half of the IFC's MENA operations supported the expansion of financial services in partner countries, with a special focus on services designed to support employment creating small and medium sized enterprises. The IFC is making special efforts to encourage private sector development and also to establish a first of its kind $100 million peace technology fund, primarily designed to boost high technology and high value added industrial activity and promote joint venture partnerships. The IFC has also initiative, entailing the establishment of a $40 million small enterprise fund, which has already made four investments in small and medium sized manufacturing enterprises.
World Bank Support to Human Development and Poverty Reduction

Even under conditions of accelerating GDP growth, special interventions may be needed to ensure those poor or marginalized groups benefit from economic growth. Hence, a significant proportion of operational work during the year supported MENA government’s strategies to address the impoverishing effects of inadequate or insufficiently accessible health care and to respond creatively to the special needs of poor communities, including rural population where poverty is often disproportionately high.

The Bank’s poverty reduction strategy, first outlined in the World Development Report (WDR) 1990 involves policies and institutions to:

1. Promote broad-based labour-demanding growth.
2. Improve poor people’s access to basic education, health and nutrition; and
3. Create effective safety nets for those who can not take advantage of income-earning opportunities or who are heavily risk prone.

While development experience has confirmed the soundness of this strategy, the bank has been reviewing ways to enhance the effectiveness of its own efforts to help clients reduce poverty. With poverty assessments completed in 83 of 105
countries, covering approximately 90% of the world’s poor, more is now know about poverty than ever before; data availability has improved immensely, and the assessments have helped increase client awareness of poverty work. However, the quality of data is uneven; the analysis varies in quality and effectiveness; poverty assessments do not always guide operational strategies and action; domestic institutional capacities for monitoring and analysis remain weak, and evaluation and feedback need to be strengthened. To address these problems, in fiscal 1998 the bank shifted directions in its work on poverty in two ways:

1. From describing poverty to formulating strategies for reducing poverty, through operational strategies in individual countries and policy research on poverty in preparation for the WDR 2000; and

2. From counting poverty-focused projects to assessing their impact on the poor, and from focussing on measuring inputs (such as lending amounts or number of projects) to measuring outcomes in poverty assessments.

The bank is moving toward better evaluation of the impact of lending and projects on household's welfare and in fiscal 1999 it plans to select a few projects from different regions for a rigorous assessment of the impact on poor households.

In the health sector, rapid growth and constrained government budgets have created an urgent need both to improve the efficiency with which health care resources are deployed and to expand basic preventive and curative services.
In fiscal 1998 the executive directors approved innovative operations directly targeted at improving the living conditions of poor and marginalised communities and special groups.

In Jordan a $30 million bank loan is supporting the community infrastructure for up to about 1.6 million people living in the country's poorest municipal areas and villages. The project, which represents the pilot phase of the wider government social productivity programme, will also test the potential for supporting income-generating activities and, possibly, micro enterprise development in Jordan's poorest communities. Strong beneficiary participation is a central feature of the project's design and implementation arrangements.

Several of the year operations were targeted at the special plight of very poor rural water supply and sanitation to about 1.3 million rural inhabitants in the country's poorest provinces. In addition to its health benefits, the project is expected to have an especially impact on girls school attendance, which is currently often curtailed by domestic duties, including having to fetch water from distant locations.

Finally, the World Bank continued to offer mainly reimbursable technical assistance to the countries of the region through a long-established technical cooperation programme (TGP), which is designed to support the development strategies of these economies. TGP activities in fiscal 1998 included work on privatization, export promotion, power, water, and tourism. Reimbursable technical assistance under the TGP amounted to US $4.2 million during the
year, including thirteen years of staff time; non reimbursable activities amounted to an additional US $11 million, including three years of staff time.

Human Development (HD) is crucial if the development target adopted by the international community are to be met; no country can cure sustainable economic growth or reduce poverty without health, well-nourished and well-reeducated people. Thus, the World Bank in partnership with client governments is helping promote human development through three mutually reinforcing principles:

1. Expanding opportunities through broad-based sustainable economic growth.

2. Improving poor people's access to basic social services.

3. Providing social safety net programmes to protect vulnerable groups

The World Bank remains the largest external financier of HD programmes (education, health, nutrition and population, and social protection) in its client countries with the total HD active portfolio increasing by more than 13% in fiscal year 1998. By the end of the fiscal year, cumulative lending for HD totaled $49,180 million with 449 active projects in all countries.

To enhance its role as a provider of up-to-date knowledge on HD practices, help desks and web sites up by the HD network are providing advice, data, and information for staff and clients alike (World Bank, 1997a, 1997b).
World Bank and Rural Strategy

In fiscal 1998 the World Bank published its new rural strategy paper (World Bank, 1997)\textsuperscript{20}, and selected rural development as one of the top size areas of emphasis for the next few years. Nearly three quarters of the poor people in developing countries live in rural areas so it is essential to focus on rural economies if poverty is to be reduced. Effective rural development also contributes to food security and helps protect the environment by making land and water use more efficient. This is critical if the world is to feed a rapidly growing population-estimates suggest population could grow by 45% over the next thirty years.

The revitalization of the Bank’s work on rural development is showing demonstrable results. The operation evaluation department (OED) evaluations show that projects are now performing much better than in recent years, with 72% of completed projects being judged satisfactory in actual years 1995-98. The goal is to achieve an 80% satisfactory rating by 2002.

Bank supported rural strategies are raising the emphasis of rural development particularly in the twenty-two focus programmes, which are intended to accelerate rural development by leveraging incremental activities (assisted by $6.5 million funded under the strategic compact). These activities in 1998 included rural strategies for Jordan, India, Morocco, and Vietnam; a water management strategy in the Middle East and North Africa region, and analysis of
cross-country agricultural policy issues by seeking admission to the EU.

Demand for World Bank support for rural projects is growing. The pipeline for agricultural and rural projects for fiscal 1997-99 averaged some fifty-seven new projects per year, up from forty-six per year in fiscal 1994-96. In fiscal 1998, lending for rural development projects totaled US $3,162 million and included projects supporting rural transport and rural water supply and sanitation, some of IBRD’s project for Jordan are:

1. IBRD-$5 million. This pilot project, targeted at the unemployed poor, will introduce an efficient and effective linkage between public expenditures for short-term training and business needs. Total cost $6 million.

2. IBRD $32 million. Sustainable and environmentally sound tourism will be increased, urban infrastructure developed and the environment protected. Total cost $44 million.

3. IBRD $30 million. About 1.6 million poor people’s living conditions will be improved through provision of small-scale infrastructure. Total cost $140 million.

The total IBRD and IDA cumulative lending operations (loans and credits) for Jordan till June 1998 was US $1757.3 million.
**RESEARCH METHODOLOGY**

Research is matter of raising a question and then trying to find an answer. In other words, research means a sort of investigation describing the fact that some problem which added new knowledge and developing of theory as well as gathering of evidence to test generalization.26

The Webster's International Dictionary defines research as "a careful critical inquiry or examination in seeking facts for principles, diligent investigation in order to ascertain something". The people when they talk about research are not specific and precise enough to get a complete and clear idea of what research involves. Improving upon the definition given above, it may be stated that research refers to a critical and exhaustive investigation or experimentation having it as aim of revision of accepted conclusions in the light of newly discovered facts. The researcher is constantly concerned with researching of the accepted conclusions of the theories and degrees of agreement existed at a given point of time. So he does research by probing for facts of the empirical that confirm or falsify the accepted conclusions. In a way, research may in effect turn to build up of new theories to take place of those no longer suitable to the data of the data of the empirical world. Stated otherwise, research is a systematic endeavor to seek beyond our level of knowledge, truth, and reality and difficult to perceive; and follow to keep on these horizons without end. In modern times, research is often a corporate affair in as much as the complex technique of collecting and proceeding data resulting in generalizations.
Another important definition given by the encyclopedia of social science, defines research as the manipulation of things concepts or symbols for the purpose of generalizing to extend correct or verify knowledge whether that knowledge aids in construction of theory or in the practice of an art.

J Francis Rummel defines “research is an endeavour process that has developed over hundreds of years”. Ever changing in purpose and form and always searching for truth, research may be defined by W.S Monroe as “a method of studying problems whose solutions are to be desired partly or wholly from facts. The facts dealt with in research may be statements of opinions, the results of tests answer to questionnaires, experimental data of any short, and so forth”.

Thus, research looking up for facts and figures involves an integration of them in a new way to shed light on a new problem. The term research does include the formulation of hypothesis, the developing of theory as well as the gathering of facts to test the generalization. Therefore, research is the function of solving problem, which leads to new knowledge using method to inquire which is currently accepted as adequate by the researchers in the field. The final purpose of research is to ascertain principles for developing theory. The testing validity of theory can not be possible but for research. That is why research is often defined as “scientific thinking”.

The critical examination of past or happenings in order to know the truth and later on to generalization is known as historical
research. By historical research, previous efforts on the topic convey the depth of knowledge on the subject. Therefore, this method of research is important to methodology. It studies people and their problems. One can create a sense of continuity and a consciousness of unity among people by doing research under this method.

A research design is a plan of the proposed work. It is a blueprint and therefore, at its best only tentative. Changes in the design are permitted and are dictated by considerations during the operations of the project. In other words, a research design is not a highly specific plan to be followed without deviation but rather a series of guideposts to keep one headed in the right direction.

Research Design

A research design is a catalogue of the various phases and facts relating to the formulation of research efforts. Research design is an arrangement of the essential conditions for collection and analysis of data in a form that aims to combine relevance to research purpose with economy in the procedure. A research design should be based upon the facts of methodology. It should be made once, the topic and problem for research have been selected and formulated, objectives have been properly outlined, concepts have been properly defined and the hypotheses have been properly framed. The presentation of the guidelines for the design some of the practical difficulties, deficiencies and shortcomings in the planning and executing of
A good research design should possess the following four characteristic features, viz., objectivity, reliability, validity and generality.

Objectives of the study

The present study an titled "Role of the World Bank in Agriculture Development of Jordan Since 1971" is generally based on secondary data which has been collected from various resources primarily data by meeting of the farmers in Jordan Valley and I interview various farmers their who gave me reliable primary data for this research work. I have examined and analyzed this research work mainly on the basis of secondary data and partly on the primary data.

Main objectives of this study are given below:

1. To find out the role-played by the agriculture by the economy.
2. To find out the role-played by the World Bank in the developing agriculture in Jordan.
3. We have to find out by this study the impact of the World Bank on Agriculture development in Jordan with special reference to field crops, vegetables and fruits.
4. We have also to critically examine the role of World Bank in this regard.
5. Finally to find out changes in the policy of financing by World Bank group in agricultural production and give suitable suggestions in this regards

The objectivity of the findings to the methods of collection of data and securing the response. Any research design should permit the use of measuring instruments that are fairly objective in which every observer or judge seeing a performance arrives at precisely. This ensures the objectivity of the collected data that will be used for the analysis, inference and generalizations.

Reliability

Reliability refers to consistency throughout a series of measurements. That is to say if a respondent gives a response to particular item, he is expected to give the same response to that item whenever he is asked subsequently. The investigator should frame this item in such a way that the respondent can't but give only one genuine response. There are different methods in determining the reliability of the responses given out by a respondent.

Validity

Any measuring instrument is said to be valid when it measures what it purposes to measure. For example, an intelligence test constructed for measuring intelligence should measure only intelligence and nothing else.
Tabulation of Data

Tabulation is a part of the technical process in the statistical analysis of the data. The technique of presenting data, either qualitative or quantitative in the columns and rows is called tabulation. The purpose of tabulation in investigation is to arrange in easily accessible form. Thus, the most important use of a table is that it makes required information easily accessible. By arranging in the form of table, the significance of data is made very clear.

Research is a systematic search for information and new knowledge. The present study will help us towards an understanding of the various policies and programmes trends and composition of the finance of World Bank in agriculture development of Jordan since 1971, and the trends in the production of different agricultural products in Jordan.
References


6. Ibid.


21. Ibid.


23. Ibid.


Chapter Two

AGRICULTURE SECTOR IN JORDAN

Jordan's economic performance has been determined, to a large extent, by its economic relations with neighbouring oil exporting countries through the following factors: financial transfer of both the private (workers remittances) and public (official grants) sector, capital flows (mainly soft loans) and trade flows.

During the 1970's, the increased level of economic activity in the Gulf countries, caused by the sharp rise in oil prices, created an economic boom; this boom through its economic relation with these countries affected the Jordanian economy. Rising exports helped finance capital formation and rising imports. The flow of the financial transfer contributed to a build up of international reserves. As a result, the Gross domestic product (G.D.P) recorded double-digit growth rates, external indebtedness was minimal, and inflation remained moderate.1

The objectives of the medium term economic and financial challenges include accelerated growth, creating additional employment opportunities and sustaining viable budgetary and balance of payments positions. It is also recognized two constraints deserving attention, namely, Jordan's growth population, and increasing scarcity of water.
Jordan's Economic Planning

Jordan is constantly involved in drawing up plans and studies to back up various segments of the comprehensive multi-year plans. Nonetheless, Jordan's multiyear plans, although by no means entirely realized, have been of significant help in development process.

1. They have lent direction, coherence, and emphasis to the overall effort.

2. They sketch out specific designs for planned growth in G.D.P, personal income, and trade, which in turn are benchmarks against which progress may be measured.

3. Explicit major and many minor projects are listed in detail. This planning exercise is not only a description of what is to be done, but also provides a major document for development fund raising purposes, that is the document may be (and is) used as a sophisticated shopping list.

The first Plan was a general five-year plan covering the 1962-1967 period. It was scrapped in 1964 and replaced by a seven-year plan that gave much more detail about specific projects and was thus more usable as means to attract financing. It also provided a blueprint for Jordan's capital investment intentions for the subsequent seven years. With the onslaught of regional and domestic nation threatening events, planning was virtually forgotten in the 1967-72 period. In 1972, an interim three-year plan was published, making Jordan's return to
normalcy. The five-year plan of 1976-1980 was considerably more significant including as it did growth projections for all sectors as well as a listing of numerous projects in these sectors.²

The 1981-1985 development plan was publicity presented by the national planning council in spring 1981, the fifth plan. The sectoral development projections were:

1. Agricultural income would grow 40 percent at an annual rate of 7%.
2. Industrial and mining income would increase at a phenomenal 17% annual, service-sector income growth would be slow, at 8.2% per annum. The plan includes a series of projects and programs ranging from a focus on Jordan valley development and livestock.
3. Improvement to the potash mining and attendant industries, light manufacturing, and joint ventures with other Arab countries.

Another important feature of the plan in the balancing of domestic government revenues with expenditures and increasing domestic income through improved taxes and a stimulated economy. About one third of Jordan’s rapid economic growth originated in the industrial sector which includes manufacturing, construction, and water and electricity. Industrial income derived mainly from three heavy industries: phosphate extraction, cement manufacturing, and petroleum refining. Growth, however, slowed during the 1980’s and 1990’s. In the decade of the 1970’s the growth in the service sector
was due to activity in the real estate market. The government policy of rationing credit by fixing interest rates regardless of the prevailing inflation rate led investors to look for quick profit by investing in short-term projects such as real estate and housing projects. The government services accounted for the bulk of the service sector share, as the government remains the main employer and provider of public services such as education and health care.

**Jordan's Agricultural Products**

Jordan's main agricultural products are cereal, fruits, and vegetable. The share of agricultural products in GDP was 10.7% in 1970, went down to 6.3% in 1975, then declining to only 5.3% in 1985, then rising somewhat to 2% in 1990.

Product yield varied widely, depending on prevailing weather conditions. For example, record high yields of wheat and barley in 1974 were severely reduced by drought in subsequent years. During the last 20 years, drops in agricultural productivity occurred seven times—almost every other year. The growth rate in the agricultural sector fluctuated between a negative rate of 43.7% in 1973 to a positive rate of 77.9% in 1980. In recent years, many farmers have left farming for more secure incomes in the towns where industry located.

The details in the following three tables 1a, 1b, and 1c gives the Gross National Product at current prices, the component of
### Table 1a:

Gross National Product at current Prices and share of Agriculture(1970-1979)( million JD)

<table>
<thead>
<tr>
<th>Year</th>
<th>GNP</th>
<th>SHARE OF AGRICULTURE, FORESTY &amp; FISHING</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>235.1</td>
<td>24.6</td>
<td>10.4</td>
</tr>
<tr>
<td>1971</td>
<td>24705</td>
<td>30</td>
<td>12.1</td>
</tr>
<tr>
<td>1972</td>
<td>28507</td>
<td>34.7</td>
<td>12.1</td>
</tr>
<tr>
<td>1973</td>
<td>316.7</td>
<td>25</td>
<td>7.9</td>
</tr>
<tr>
<td>1974</td>
<td>394.8</td>
<td>57.2</td>
<td>14.5</td>
</tr>
<tr>
<td>1975</td>
<td>449.5</td>
<td>30.2</td>
<td>6.7</td>
</tr>
<tr>
<td>1976</td>
<td>569.4</td>
<td>42.3</td>
<td>7.4</td>
</tr>
<tr>
<td>1977</td>
<td>698.3</td>
<td>52.5</td>
<td>7.5</td>
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<td>1978</td>
<td>802.4</td>
<td>76.9</td>
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</tr>
<tr>
<td>1979</td>
<td>1008.2</td>
<td>61.4</td>
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Table 1b:

<table>
<thead>
<tr>
<th>year</th>
<th>GNP</th>
<th>SHARE OF AGRICULTURE, FORESTY &amp; FISHING</th>
<th>PERCENTAGE</th>
</tr>
</thead>
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<tr>
<td>1980</td>
<td>1213.7</td>
<td>83</td>
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<td>1981</td>
<td>1526.8</td>
<td>79.6</td>
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<td>1982</td>
<td>1765.5</td>
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<td>1983</td>
<td>1877.9</td>
<td>109.8</td>
<td>5.8</td>
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<td>1984</td>
<td>1995</td>
<td>97.4</td>
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<td>1985</td>
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<td>98.4</td>
<td>4.9</td>
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<tr>
<td>1986</td>
<td>2146.3</td>
<td>114.3</td>
<td>5.3</td>
</tr>
<tr>
<td>1987</td>
<td>2158.4</td>
<td>137.8</td>
<td>6.4</td>
</tr>
<tr>
<td>1988</td>
<td>2175.9</td>
<td>134.5</td>
<td>6.2</td>
</tr>
<tr>
<td>1989</td>
<td>2180.7</td>
<td>139.8</td>
<td>6.4</td>
</tr>
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</table>
Table 1c: (1990-1997)

<table>
<thead>
<tr>
<th>Year</th>
<th>GNP</th>
<th>Share of Agriculture, Forestry &amp; Fishing</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>2428.8</td>
<td>187.8</td>
<td>7.7</td>
</tr>
<tr>
<td>1991</td>
<td>2634</td>
<td>213.5</td>
<td>8.1</td>
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<td>1992</td>
<td>3306.8</td>
<td>246.9</td>
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<td>1993</td>
<td>3662.3</td>
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<td>1995</td>
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<td>1996</td>
<td>4598.7</td>
<td>160.7</td>
<td>3.4</td>
</tr>
<tr>
<td>1997</td>
<td>4898.4</td>
<td>147.5</td>
<td>3</td>
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</table>

Source: Central Bank of Jordan statistical series, different issues
Agriculture, forest and fishing and its percentage share in total GNP.

The GNP at current prices has been taken from the period of 1970 to 1979 covering the three decades of 1970’s, 1980’s and 1990’s. In the 1970’s the GNP has grown steadily from JD 235.1 million in 1970 to 1008.2 million in 1979. Whereas there was very little growth in the early 1970’s. In 1975 the GNP was JD 449.5 million which more than doubled in 1979 to JD 1008.2 million. The share of agriculture, forest and fishing has been given as one competent because of the allied activities. Agriculture and allied activities contributed JD 24.6 million in 1970 for a total of 10.4% in the GNP. The contribution of the agriculture has fluctuated quite a lot during the 1970’s. Its contribution in 1970 was JD 24.6 million, in 1973 it was JD 25 million. It jumped to JD 76.9 million in 1978 and was JD 61.4 million in 1979, in 1979 it was JD 61.4 million. Thus we see that the difference between the highest and lowest output of agriculture is almost three times. These wide fluctuations show the dependence on rainfed agriculture, the price of the output as well as the inputs. In fact the alarming situation is that the percentage share of agriculture, forest and fishing has gone down from a high of 12.1% in 1971 and 1972 it touched the highest at 14.5% in 1974 at 14.5% contribution to the GNP decline to only 6% in 1979.

In the 1980’s decade the GNP increased from JD 1213.7 million in 1980 to JD 2180. Million almost doubling over the last decade. But the increase in growth were in the early decades of 1980’s where it
increased from JD 1213.7 million in 1980 to JD 2015.5 million in 1985. Thereafter the growth in the later part of the 1980’s for the GNP was almost stagnant, remaining in the range of JD 2000-2200 million only. In contrast, the component of agriculture in the GNP increased steadily from JD 139.8 million in 1989. There were slow in and steady increases over the decade but the percentage contribution of agriculture in the GNP remained low. In fact, the declining contribution had started itself in the 1970’s with percentage contribution from above two digit (10 to 14%) falling below to single digit level of 6 to 9% for the 1980’s the contribution of agriculture did not increase more than 7.3 % in 1980 with contribution percentage falling to 4.9 in 1985. Though in the late 1980’s the contribution of agriculture to GNP was around 6.2 to 6.4 %.

In the 1990’s decade the GNP increased from JD 2428.8 million in 1990 to JD 4898.4 million in 1997 almost doubling in these years. Almost every year of the 1990’s show some growth in the GNP. This is in sharp contrast to agriculture, forestry and fishing, whose output in 1990 was JD 187.8 million increased to JD 246.9 million in 1992 and thereafter declined to JD 193.3 million in 1993. After that there was a steady decline with a low of JD 147.5 million in 1997. Due to the decline of the output the contribution of agriculture in the GNP has further decline from a high of 8.1% in 1991 the contribution of agriculture in 1997 has fallen to only 3 %. This fall to only 3 % as of the GNP reflects the fact that agriculture was affected by droughts has
### Table 2a

**Production of main agricultural crops**

(1970-1979)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat</th>
<th>Barley</th>
<th>Tobacco</th>
<th>Lentils</th>
<th>Tomatoes</th>
<th>Eggplant</th>
<th>Cucumbers</th>
<th>Melons</th>
<th>Olives</th>
<th>Grapes</th>
<th>Citrus fruits</th>
<th>Bananas</th>
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<tbody>
<tr>
<td>1970</td>
<td>54.1</td>
<td>5.3</td>
<td>0.9</td>
<td>5</td>
<td>137.4</td>
<td>23.1</td>
<td>3.4</td>
<td>22.5</td>
<td>3</td>
<td>6.4</td>
<td>3.8</td>
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</tr>
<tr>
<td>1971</td>
<td>168.1</td>
<td>26.2</td>
<td>1.1</td>
<td>20.8</td>
<td>137</td>
<td>44.9</td>
<td>9.8</td>
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<td>18.6</td>
<td>8.9</td>
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<tr>
<td>1972</td>
<td>211.4</td>
<td>34</td>
<td>1.4</td>
<td>22.4</td>
<td>152.7</td>
<td>32.5</td>
<td>17.7</td>
<td>63</td>
<td>35</td>
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<td>20.9</td>
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<tr>
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to be modernized and access to water supply and other inputs be more easily done. It also reflects the fact that Jordan is becoming a more dynamic and open economy with services sector and nontraditional items of export becoming very important. Thus over the three decades of the 1970's, 1980's and 1990's, in absolute term the value of the agriculture has increased from JD 24.6 million in 1970 touching high of JD 246.9 million in 1992 and then falling down to JD 147.5 million in 1997.

From the three tables 2a, 2b and 2c the productions of main agricultural crops have been divided into the three decades of 1970's, 1980's and the 1990's. The production has been taken in thousand ton as that gives an idea of physical production. The production in terms of JD would have the problems of inflation and the price index would have to be used to deflate it. The major field crops are wheat, barley, and tobacco with recent additions of corn and clover in the 1990's. The major vegetables are tomatoes, eggplant, cucumbers, melons, cauliflower, and cabbages. Major fruit trees are olives, grapes, citrus fruits, bananas, apple, and peach. There are wide variations in the outputs of almost each of the product. In 1970 wheat output was 54.1 thousand ton, going up to 244 thousand ton in 1974, decreasing to 16.5 thousand ton in 1979. In the 1980's the highest and the lowest output for wheat was 50.6 thousand-ton and 133.5 thousand ton. In the 1990's the variation is less and the output does not increase more than 75.4 thousand ton which was in 1992. In fact
There has been an overall decline in the output of wheat. In fact, the output of wheat has shown a steady decline over the three decades as well as major fluctuations in consecutive years. For example, output in 1970 was 54.1 thousand tons, increased dramatically to 168.1 thousand tons in 1971, further went up to 211.4 thousand tons in 1972 to fall back to only 50.4 thousand tons in 1973. This shows the dependence on rainfed operations of agriculture and the effect of drought. In fact, the output of wheat has stagnated in the 1990s in the range of 40 to 70 thousand tons with it being only 41.8 thousand tons in 1997.

Among the field crops, barley has also shown almost the same trend of decline as that shown by wheat. In 1970, the production of barley was only 5.3 thousand tons, jumped almost 5 times next year to 26.2 thousand tons in 1972, but again declined to 5.9 thousand tons in 1973, with a further decline in 1979 to 4.8 thousand tons. In the 1980s, also lots of fluctuations are shown. In 1980, the production of barley is 33.1 thousand tons falling to 19.2 thousand tons next year. Again in the decades of 1980's the output fluctuated between a low of 9.0 thousand tons in 1989. The picture in the 1990's was no different for barley production. The fluctuation continued with output touching a high of 68.9 thousand tons in 1992. Subsequently, in the next few years output has stagnated between 27.4 thousand tons in 1994 to 29.2 thousand tons in 1995 and 29.4 thousand for 1996 and 1997 respectively.
In the case of another field crop, tobacco, the crop output has shown not much change. A output of 0.9 thousand ton in 1970 it went up to a high of 1.5 thousand ton in 1974 shipping back to 1.1 thousand ton in 1979. The 1980 being 3.3 thousand ton touching a high of 5.9 thousand in 1983. In fact the production of Tobacco did not touch this level in next many years. The 1990’s decade shows some fluctuations in the output, with it touching 4.8 thousand ton in 1995 but again was a low of 2.7 thousand ton in 1997.

Another field crops, a lentil has shown a slow decline in output over the three decades. From a low of 5.0 thousand ton in 1970, output went up to 22.4 thousand ton in 1972, a high of 31.0 thousand ton in 1974 which was the best year. Subsequently it started declining touching an alarming low of only 0.8 thousand ton in 1997. In the 1980’s output stagnated between lows of 5.9 thousand-ton and only 1.7 thousand ton. The 1990’s were no better with output stagnating below 4.8 thousand ton in 1993 and 2.1 thousand tons in the last three years of 1995, 1996 and 1997.

In the group of vegetables there have been fluctuations but they do not show a decline. In fact Tomatoes, Eggplant, cucumbers and Melons have shown growth in output over the three decades of 1970’s, 1980’s and 1990’s. In the 1990’s there have been other vegetables, which have also become important like Cauliflower and Cabbages, Potatoes and Zucchini. The output of Tomatoes was 137.4 thousand ton in 1970, touched 203.3 thousand ton in 1978 but falling
to 171.8 thousand ton in 1979. In the decade of 1980, it increased to 250.4 thousand ton in 1989. The 1990s also showed strong growth with output touching a high of 490.3 thousand ton in 1992 though it subsequently declined to 324.0 thousand ton in 1997. Over the period of three decades, there was steady growth in Tomatoes.

In the case of Eggplant the output shows a small increase. In the output over the three decades. In 1970 the output of Eggplant was 23.1 thousand-ton touching a high of 73.4 in 1995 but going down to 39.7 thousand ton in 1997. In the 1980's the output was in the range of above 50 thousand ton. Thus for Eggplant there was consistent high level output in the 1980's and major fluctuations in the 1990's through there is growth over the three decades.

Similarly Cucumbers and Melons show a growth over the years. The output of Cucumber was only 3.4 thousand-ton in 1970, which showed to be 62.2 thousand ton in 1997. In fact the output showed consistent growth in the 1970's and 1980's. Melons have also shown growth over the three decades. The output of Melons in 1970 was only 22.5 thousand-ton touching a high of 63.0 thousand ton in 1979. In the 1980's the output touched over 80 thousand-ton consistently in some years. In the 1990's the output stabilized over the 1000 thousand ton in 1994 though declining a little to 124.0 thousand ton in 1997. Thus the group of vegetables have shown growth in output over the three decades. What though is important to realize
that major fluctuations have taken, which could be due to the effect of

droughts.

In the case of fruits also there have growth over the years. Olives, Grapes, Citrus fruits, and Bananas. Over the three decades
have grown and in the 1990's the output of Apple and Peach have
grown in importance in the 1990's.

Olives have shown dramatic growth over the three decades. In
1970 it touched a high of 40.5 thousand ton in 1974 falling back to the
low level of 6.8 thousand ton in 1979. In 1980's output started with
34.5 thousand ton in 1980 touching 70.8 thousand ton in 1988. In the
1990's output touched a high of 94.1 thousand ton in 1994 though
showing a decline to 57.1 thousand ton in 1997. Even though output
fluctuated over the years from lows and highs the output has steadily
increased over the three decades.

In the case of other fruits also increased they show growth in output, Grapes output was 6.4 thousand ton in 1970 touched 18.2
thousand ton in 1980, a high of 50.2 thousand ton in 1992 though
again declining to 18.3 thousand ton in 1997. In the case of citrus
fruits the increase of output has been very dramatic. In 1970 the
output was only 3.8 thousand ton, went up to 49.0 thousand ton in
1980, increased to 154.1 thousand ton in 1990 finally reaching 168.9
thousand ton in 1997. In the case of Bananas, the growth has been on
the low side. Output was 8.2 thousand ton in 1970, a low of 6.2
thousand ton in 1980, going up to 18.9 thousand ton in 1990 and
stagnant at 18.9 thousand ton in 1997, after touching 30.3 thousand ton in 1993. Also Apple and Peach have increased their output in the 1990's with output of Apple increasing from 18.8 thousand ton in 1992 to 31.0 thousand ton in 1997. In the case of Peach output fluctuated from 5.5 thousand ton in 1992 touching 17.2 thousand tons in 1994 and declining to 3.8 thousand in 1997.

Taking the three broad groups of field crops, vegetables and fruits, the groups of field crop have shown an overall decline has been coming through major fluctuations in the outputs. In the case of vegetables and fruits, there have been improvements in output and some have shown very impressive increase. But again the increases have come over the decades through major fluctuations in the output. One reason could be the effect of droughts for which proper access to water should be provided with to the different crops, vegetables and fruits.

The agricultural share of the labor force declined from 33.1% in 1967 to only 10% in 1989. The drop in the agricultural sector's share has favored the growth of the industrial sector in the Jordanian economy as shown in the above figure.

A reliance on rain for cultivating over 90% of the cultivable land makes water a particularly important resource for agricultural production. The average annual rainfall varies from 600 mm or more in high regions to less than 200 mm in desert areas. The aggregate
The agriculture development plan (1981-1985) is committed to a development strategy, which achieves a balance between the agricultural sector and other sectors, and ensures the minimum equipment of food security. This strategy includes the following elements:

1. Trying to develop agriculture within the framework of integrated rural development and the creation of sources of additional income for agricultural workers and small-holders.
2. Increasing participation in the development of the agricultural sector through the establishment of co-operative or organizing workers via popular organizations.
3. Intensification of efforts in the field of irrigated and unirrigated agricultural land and raising its productivity by means of
introducing modern techniques and overcoming the problems of fragmentation of holdings.

4. Attempts to integrate animal and plant production; and paying more attention to animal wealth.

5. Turning production toward commodities where Jordan enjoys relative advantages, and at the same time keeping to the minimum of national and Arab food security.

6. Creating a strategic stock of basic foodstuffs, and the completion of the infrastructure

Despite the limited natural resources such as land and water in Jordan, the agricultural upswing there has absorbed modern techniques, particularly in irrigated agriculture, vegetable production, livestock meat, and eggs.

Food security has been among the priorities of agricultural development plans. To achieve a minimum of national food security, the government has adopted an agricultural development policy involving the execution of a) agricultural projects; and b) national strategic stock of basic foodstuffs such as Wheat, Rice and Sugar, and increased storage capacity to help ensure this stock by building stores and silos.

Introducing modern methods on the dry land farms has been somewhat problematic. The use of labour-saving devices such as tractors and combines is widespread; both private entrepreneurs and agricultural cooperatives provide them. Fertilizers, pesticides, and
Herbicides are also increasingly available and in use, again through both private communities based cooperative channels. The introduction of the new grains developed in the green revolution, however, has been slow, because of two underlying problems. The new seeds require more water than average Jordanian rainfall provide, and they are soft wheat varieties rather than the hard wheat variety that require less water have been (and continue to be) developed.

The dry land area also produces Wheat, Barley, various animal forage crops, legumes, and other vegetables like Lintels, Chickpeas, Beans, Tobacco and Sesame. Fruit and nut trees as well as grapes are also grown widely olive trees are perhaps the major fruit bearing trees.

The Jordan valley is highly productive area. Realizing that this valley was the only region in which agriculture could be dramatically increased, the government has put considerable effort and resources into it.

Jordan has been attempting throughout the last decade to build up an agricultural infrastructure capable of meeting domestic demand for agro-products and farming a significant national income source, especially through exporting these products to the highly absorptive markets of GCC countries. In fact, a major portion of investment in agriculture has been devoted to the development of projects in the agro-export sector. The loss of the GCC markets will mean that these
projects will have to be adapted and adjusted; they will most likely have to undergo radical changes to respond to new cropping patterns, such as growing grains to meet local demand instead of growing export-oriented fruits and vegetables.\textsuperscript{6}

The Jordan government adopted in 1973 a development plan for the Jordan valley with the objective of building up infrastructure facilities, extending irrigation canals, reclaiming new areas and constructing housing facilities. The Jordan valley authority was set up then to be in charge of development program in the valley. In the rainfed areas, trees planting were encouraged by the government, particularly olive trees. With a sufficient local market, poultry expanded through private investments.

Arable land in Jordan around 15\% of the total Jordan land. The climate in the country is basically a Mediterranean climate characterized by dry hot summers and mild wet winters and extreme variability in rainfall within and among years.

Dry land regions of Jordan are characterized by low and highly variable rainfall. Unreliability and variability of rainfall increases as the amount of rainfall decreases.

The rainfed area in Jordan is essentially a fixed resource and any future additions to the cropped lands must come either from conversion of natural grazing lands or from reclamation of areas that are, at present, not used for agricultural production.
Farmers in the dry land regions of the world historically, have been ingenious in devising ways of managing and manipulating difficult environments within the constraints imposed by soil and climate. Now the problem facing the Jordanian farmers is the traditional methods of cropping with the risks and hazards of dry land agriculture (e.g.; fallow, sowing, methods, plowing, etc) are breaking down under population pressure, while modern technology has not yet produced acceptable alternatives.

The challenge facing farmers, agriculturists, and policy makers in Jordan is how to raise productivity of the dry land farming. A well organized program for the development of rain fed and arid areas is essential and is expected to bring about considerable economic and social benefits, particularly as more than 85% of the farming population lives in the rain fed areas and most of the live stock depends to varying degrees upon grazing over the arid rangelands. Any further delay in providing investment support to developing these areas poses the following hazards:

1. Progressive erosion resulting in loss of soil and soil productivity.
2. Threat of desertification; and
3. Low farm income leading to migration of the rural population to urban centers.

The Jordan government has always stressed the importance of increasing productivity in the agricultural sector, in particular. This increase in productivity is planning to be achieved through introducing
modern production techniques, applying research findings and developing extension services. Some of the project undertaken is to conduct agricultural development research on different aspects of rainfed agriculture in the highlands of Jordan. Another is to develop agricultural extension services through the training of qualified staff for this purpose. The extension services will be a vehicle of disseminating research results and findings to the farming community in the highlands. The projects call for a complete survey of potential agricultural lands in the country and decisions regarding their optimum use.

There were a number of soil conservation projects like the Zarqa river catchment project, which aimed to develop and increase agricultural productivity in the lower Zarqa river catchment area of about 82,000 hectare.

Suitable soil and water conservation measures have been and will be built on farmer’s lands as needed. In addition, the projects will work to develop rangelands in the catchment and increases their productive capacity. Other major projects, which will be initiated and/or continued for agriculture growth and its sustained development are:

1. Soil conservation and fruit tree planting on lands unsuitable for cereal production;
2. Seed improvement and multiplication project. Foundation and certified seed of cereal and legume crops will be produced
through cooperative efforts of the ministry of agriculture and the Jordan cooperative organization,

3. Introducing grain legumes and forage crops in the crop rotation. It is hoped that this will lead to a better integration of crop production and animal husbandry in the rural areas of the country and,

4. Mechanized agricultural services. The Jordan cooperative organization will develop agricultural machinery stations. The services offered by these stations are expected to increased crop yield in the rainfed sector through the use of modern machinery and cultural practices for crop production.

**Agricultural Credit System**

A credit institution set up to provide investment for the rural sector. This investment is a means of promoting innovation and, perhaps, efficiency in the agricultural sector. Through improved efficiency, it is also seen as a means of abating the poverty of farmers.

Easy credit, however, does not often lead to the desired end results, but instead to ever-increasing indebtedness of farmers; and examples of bankrupt institutions are common. The factors contributing to these can be divided into two categories, those, which are external to the credit agency, and those, which are concerned with the practices of the agency itself.
Some of the problem internals to the agency are:

1. The use of land for urban development (often necessary as farm workers migrate to industrialized areas in search of work). As a contributing factor to reducing available land for agricultural use and, therefore, to reducing the incomes of farmers;
2. Problems of land by fragmentation, which decreases efficiency of land use;
3. Wastage of pasture land by deforestation, soil erosion etc;
4. Inefficient water distribution networks;
5. Difficulties in supplying agricultural inputs; and
6. Deficiencies in supportive services, for example, poor market information or a lack of storage facilities.

Internal problems are often unique to the country involved. However, more general lessons may be learned from the identification of the problems within a specific situation.

In Jordan, there are three separate semi-government agencies exist to disburse credit to the agricultural sector; the Agricultural Credit Corporation (ACC), the Jordanian Cooperative Organization (JCO), and the Jordan Valley Farmers Association (JVFA)\(^8\).

The ACC, JCO, and JVFA have different areas of responsibilities, the ACC concentrates on the building up of livestock reserves, the JCO on the provision of basic foodstuffs such as wheat and barley, and the JVFA on vegetables crops. The lines of responsibility are not, however, so clearly defined for example the JCO and ACC can both
lend money for the purpose of purchasing machinery. This raises the possibility of the farmer receiving a loan for the same purpose from more than one source and making an insufficient increase in profit to allow him to make the necessary repayments.

Those who receive loans and the manner in which loans are disbursed are other problem areas for the agencies in Jordan. The ACC lends to individual farmers; the JCO to the co-operatives and the IVFA to farmers who are members of the association and co-operatives in the area.

The general aim of establishing a credit agency is to service the rural sector. These are to provide investment to promote innovation and efficiency, and to reduce the poverty of farmers. There can be added other general aims for example, ensuring food security in the nation. The provision of cheap and accessible credit is a useful tool for development but only where it forms part of an overall strategy to lead to improvement in the performance of the agricultural sector and therefore, to the generation of income for farmers.

The precise role of credit in agricultural development is not always easy to determine. Even though credit has often been regarded by government as a primary factor in promoting a agricultural development, credit can only have an ancillary role following the establishment of some basis for new investment. Probably new technical knowledge and possibly also a degree of structural change in rural society. The popularity of agricultural credit
programmes is due, in part, to the ease with which most of them can be carried out. But credit should not be seen as the panacea for the problems of the agricultural sector.

Cropping, Rainfall, and Sowing Pattern

The cropping program is developed and administered within the ministry of agriculture. Production limits are determined within the agricultural economic branch of the ministry's office in Amman. The production organization subgroup of the agricultural economic branch has both planning and monitoring (follow-up) functions. The programme-planning group actually specifies the details of the program - makes estimates of the required area of each crop by season and by region. The following group, also within the agricultural economic branch, is responsible for monitoring the program.

The cropping pattern program is an allocation of crop areas based on the forecast constructed for each region during each of the two seasons- winter and summer. Individual forecasts are done for each of domestic fresh consumption, domestic processing use, and exports.

Once the production desires and forecasted needs have been determined, ministry of agriculture officials makes tentative assignment for each region (Jordan valley and highlands) and for each season. Allocations for individual farms may be based on the
farm's historical area or the allocation may be based on the requested area made by the farmer.

The cropping pattern programme for irrigated vegetable production in Jordan has motivated primarily by the desire to effect an increase in price of four major vegetables: cucumbers, tomatoes, squash, and eggplant. A secondary objective was to increase the production of other vegetable and field crops. An analysis indicates that the price of the four vegetable crops did not increase as a result of the rather severe reductions in production of the four primary vegetable crops. This is explained by suggesting that Jordan is a small agricultural producing country, in which the export market plays a significant role in price determination. There exist several substitute-producing countries, which apparently did not make simultaneous effort at supply control. There are also price controls in the domestic market. In technical terms the demand function facing Jordanian vegetable producers (those producing vegetables for export) is elastic. Reducing production resulted in lower total revenue to Jordanian farmers.

Farmers in the rainfed areas of Jordan have to contend with extreme temporal and spatial variability of climate and with a high level of spatial variability of soil and other physical factors. Rainfall is the most variable and most important of these factors. In a country of such environmental diversity, it is important to assess the effect of the environment variability on agricultural production.
In dry land farming (Abandah), agriculture interfaces with a dynamic complex of natural conditions, among which meteorological factors are the most prevalent and the most changeable. The effect of these factors on agricultural processes and subjects determines, to a considerable extent, harvest size, product volume, cost, and operation efficiency. Because of these reasons, the accurate calculation and measurement of meteorological components, as well as the use of information concerning weather phenomena and climate resources, are needed for the efficient solutions of many agricultural problems in the country.

Land use in the rainfed agricultural sector are inefficient, partly because of a lack of information on capabilities of soils for crop production, as not much attempt has been made to document available soil survey information for land assessment purposes according to Qudah. Agricultural specialists in Jordan should view the conservation of the country's agricultural lands as their highest priority and determine the best use of these limited resources to maximize food production.

Traditional crop rotations, which are practiced in Jordan, were based on the follow system and conventional tillage practices. This system performed reasonably well in the past, however, with the increased population pressure and mechanization of the dry land farming, new and highly improved tillage practices are needed to stabilize both soil resources and crop production.
The dry land farming systems, which developed around the Mediterranean over more than 2000 years were based on delicate balances between crop and livestock systems, tree crops and rangelands, and cereals and grazed fallow. This balance is being disturbed by rapid growth of population. Soil erosion, extension of cropping areas to the marginal lands and uncontrolled increase of livestock numbers.

Tillage as a component of mechanized dry land farming has contributed to the imbalance of the cropping system in Jordan and other countries in the Mediterranean basin. Conventional tillage, used by farmers, should be studied as to timing, costs, and implements. Experiments should be initiated to evaluate the effects of each tillage operation on the following: soil moisture, erosion control, weed control, sequence of tillage implements and its effects on weed control and weed population, and crop residues left on the soil surface following tillage.

Research is needed to develop conservation tillage systems for the major soil types throughout the country. Basic information is needed on tillage effects on soil properties that control infiltration and evaporation, in order to increase soil moisture storage and water use efficiencies.
Information is needed on how to manage crop residues under minimum or no-tillage systems if these new systems are to be adopted in certain dry land farming areas of the country. New and improved practices need to be developed for weed control, planting and for fertilizer application.

Also, more efficient herbicides, including pre-emergence ones, should be introduced and tested under local conditions. These herbicides should be highly specified affecting subsequent crops in the crop rotation. Improved equipment for drilling seeds in stubble is needed, these drills should be able to operate in heavy stubble and produce a uniform stand. Obviously, a large number of variables are to be studied simultaneously to develop a sound village system for the major dry land farming areas in the country.

The problem in agriculture is not merely a business cycle one, but how to ensure steady and noticeable growth in agricultural income to meet the country's needs, and potentially to become a net exporter of food items.
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Chapter Three

ROLE OF WORLD BANK IN JORDANIAN ECONOMY

The World Bank group consists of the International Bank for Reconstruction and Development (IBRD) and its three affiliates: the International Development Association (IDA), the International Finance Cooperation (IFC), and the Multilateral Investment Guarantee Agency (MIGA). The IBRD accounts for about three fourths of all World Bank lending. IDA provides highly concessional "credits" to the world’s poorest countries. IFC lends directly to the private sector without government guarantees. It also takes up equity positions in companies to foster development of capital markets in developing countries. MIGA promotes private investment in developing countries by providing guarantees on project investments.

JORDAN AND WORLD BANK

Jordan and the World Bank have been partners in development for nearly 35 years. Over this period, successive Jordanian governments have transformed Jordan’s economy into one of the most open, dynamic and socially advanced in the Middle East. Today, the people of Jordan
are poised to seize the new opportunities and meet the new challenges presented by rapid integration into the global economy, with the support of the World Bank and other development institutions.¹

The government of Jordan has embarked upon a broad-based program of economic adjustment and reform that is designed to transform Jordan's considerable potential into reality. As a small country with limited natural resources, Jordan's future prosperity will depend upon the creation of an investment-friendly economy with a strong export base. Fortunately, Jordan's people are among the most educated in the region. This talented workforce is Jordan's greatest asset. As the government's economic reforms improve the climate for the business activity, the professional and technical skills of the workforce can be applied to increase Jordan's productive capacity and competitiveness. At the same time, this combination of business investments and skilled workforce can develop the physical infrastructure necessary to sustain a vibrant private sector-led economy.

But a higher rate of economic growth is not an end in itself. The government of Jordan has repeatedly stressed that progress needs to be both broad-based and deep so that those on the bottom of the socioeconomic ladder are elevated and not left behind. A pattern of growth witnessed in many developing countries, where the upper strata of society while the poor absorb the benefits of increasing economic activity, is unacceptable in Jordan. The government is determined to
chart a course that combines national prosperity with greater social equity.

As the government of Jordan undertakes the process of economic restructuring essential to building a stronger economy. Some of the leading institutions of the international financial community have offered their support. The World Bank, the international monetary fund, the European union, Germany, the Arab fund for economic and social development, the Islamic development bank, and several others have all responded to government requests for assistance with a series of loans and project-oriented financing that is targeted to meet specific needs across all sectors of the economy. Jordan and the donors are active partners in such diverse areas as water, energy, education, health, agriculture, tourism, transportation, and export development.

Rapid and sustainable growth can only be achieved through a transformation of the economy that enlarges the role of the private sector, reduces barriers to trade, and enhances Jordan's productivity capacity. Thus, Jordan, the World Bank, and the various donors all share a common strategic vision.

The government of Jordan is rapidly moving beyond the macro economic shocks of the 80's and early 90's and is building a vibrant national economy that is becoming increasingly competitive in the global economy. Through public-private partnership, policy reforms, incentives, and greater economic integration within the region, the government is
moving forward on a broad range of fronts with policies and initiatives that are designed to secure a more prosperous future.

As this economic restructuring takes place, the World Bank and other donors have continued their support for investment projects in primary area of importance. The World Bank has also provided non-project assistance in the form of policy loans, analytical studies, policy recommendation, training and institutional developments that is designed to spur economic developments from within Jordan.

As of June 1996, ten bank-supported projects totaling almost $500 million were in progress, while two other loans totaling an additional $100-$150 million were nearing approval, and several other projects were in various stages of preparation.

The Need for Financial Aid

Jordan became independent in March 1946 with the end of the British mandate established by the League of Nations in 1922. In June 1949 the country was renamed Jordan (the Hashemite kingdom of Jordan). In 1955 the World Bank sent a mission to study the economy of Jordan and to make recommendations. The mission reported that Jordan had achieved a rapid expansion in economic activity since 1948, but the report added that overall, the expansion of economic activity has been far from sufficient to absorb the increase in the population of the working
age, and all those displaced by the Arab-Israeli war. More than half the refugee population was without any occupation (employment, even seasonally), in 1954, and most of the rest, as well as many of the indigenous population, found only casual or seasonal employment. Consequently, in 1954 the country was heavily dependent on foreign aid.

The inflow of foreign aid with a smaller but mostly positive capital account has more than offset Jordan's resource gap, reserves have accumulated and the country's overall balance of payments has remained strong. This reflects Jordan's ability to meet its financial obligations, maintain a stable value for its currency in the foreign exchange markets, and attain a higher rate of growth by financing a relatively large import surplus.

The current economic development and the influx of capital allow Jordan to import whatever needed for the nutrition of its inhabitants. But what about the future? Dependence on food imports also means a large degree of economic and finally political, dependence. The evaluation of agricultural potential is, therefore, of great importance.

Jordan's natural resources are limited. Shortage of water and the poverty of most of the usable soil are predominant bottlenecks in the agricultural sector. An exception is the Jordan valley, which owing to its geographic characteristics, is a sort of a natural greenhouse here, in the course of an integrated development programme, an intensive horticulture has been established with high-quality fruit and (especially
tomatoes, eggplants, melons, grapes and citrus fruits). And animal products which, for the most part, are exported to neighbouring Arab countries. However, the amount of investments required confirms recent international experience that, due to increasing costs of land reclamation along with increasing shortage of arable land in many developing countries, the capital-output ratios in agriculture have often started to exceed those in manufacturing. On non-irrigated soils the yields vary year by year in line with the irregular rainfall. Several drought periods in the past years have stimulated large investments in irrigation, especially in the Jordan valley, which has the greatest agricultural potential of the country. By now, irrigation plants utilize most of the available river reservoirs. In order to secure the increasing water demand of the crowded urban areas, the possibility of importing in pipelines from Iraq has been discussed.

In the past, the traditional semi-arid soils were neglected over huge public and private investments in commercial and predominantly export-oriented agricultural production. Perhaps much greater emphasis in the future should be placed on the attachment of the rural population to their land, as the exodus from rural areas has been a major cause for concern to the cities as well as to the farms. To this goal, modern facilities should be made available to the rural areas, ranging not only from tractors but also to efficient transport electricity, health, communication, and recreation facilities.
World Bank Objectives in Jordan

The central objective of the World Bank's assistance to Jordan is to promote rapid and sustainable outward-oriented growth. Three-sub objective support this overall theme:

1. To support the macroeconomic transition taking place and assist the government as it builds a market-responsive private sector capable of creation thousands of new jobs, while offsetting the temporary social adjustment likely to occur as Jordan continues its process of trade liberalization, privatization, and financial and regulatory reforms.

2. To help the government address infrastructure constraints while encouraging environmentally sound investment practices by providing investment loans and other forms of assistance in key sectors of the economy such as water, energy telecommunications, tourism, agriculture and natural resources management.

3. To support the government's attempt to reduce poverty through targeted investment and continue its excellent track record ensuring quality access to education and health care for all Jordanian's.

Jordan and the World Bank group have enjoyed an ongoing partnership since 1962, when the International Development Association (IDA), the group's soft loan arm, was invited to assist the government in financing a water and sewer project for Amman. Since supporting that initial investment in Jordan's economic well being, the World Bank, and IDA have provided assistance as partners in 55 projects. Total lending
commitments through mid-1996 approached $104 billion, with about $500 million committed for ongoing projects.

These funds have been used to help the government finance investments in priority areas of infrastructure development such as energy, water, mining and transport, as well as in human resource development through programmes in education, vocational training, and health. Since 1989 the World Bank has added a series of quick-disbursing adjustment loans that are designed to assist the government with sectoral reforms in energy, water, agriculture, and with the macro-economic restructuring that is currently taking place.

The World Bank is working with the government of Jordan and other donors on number of projects that span a broad range of economic sectors. The loan programmes and projects identified in this chapter offer a few specific examples of how Jordan, the World Bank, international and regional donors are working together to meet the challenge of better future.

In addition, the World Bank has extended grants to Jordan for environments improvements and institution strengthening, and has administrated millions more in grants from other sources for pollution control and other environmental protection.

World Bank's economic reform and development loans, which was approved in 1995, provided $80 million to help deepen and strengthen the government's economic adjustment program. The loan
supported Jordan's efforts to establish the outward-oriented trade environment and investment-friendly environment needed to pave the way for a stronger export capacity and closer relations with international trading partners. It is part of a series of major loans designed to help achieve these objectives. In addition, the World Bank's $40 million loans for the export development projects, approved in 1996, will provide better access to commercial financing for firms wishing to expand their exports.

Since the government's program of economic adjustment is likely to involve some short-term dislocations, the World Bank group is also working with the government to build an effective "safety net" for the poor and the adversely affected. This includes a micro enterprise financing facility by the International Finance Corporation (IFC) the World Bank group's private sector arm, and a programme of the public assistance targeted at the most needy.

**World Bank and Finance Sector**

The World Bank in March 1996 through the Jordan Export Development Project (EDP) proposed to fund $35 million through the IBRD in the finance sector. The objective of the (EDP) is to help and increase Jordan's export competitiveness and increase its export revenues. It is proposed to bring reforms to custom legislation, simplify, standardize and automate procedures. To allow private sector to establish export processing zones, providing term finance through a
credit line etc. expenditure by the fund will be on technical assistance, services of experts to help firms to improve their technical and marketing know how. Also on hardware and software to computerize custom operations. The project will be implemented by project teams at the central bank of Jordan, Customs Department, Ministry of Finance, Investment Promotion Agency and Ministry of Industry and Trade. A project coordination unit at the Ministry of Planning would ensure coordination among implementing agencies.

**World Bank and Education in Jordan**

As is true in all societies, there is a strong correlation in Jordan between low levels of educational attainment and poverty. Nothing improves a poor child's potential for social and economic advancement like education. In Jordan 80% of the poor are employed, but reside in households dependent on wages earned from menial and low-skill labour. This underscores the crucial importance in imparting skills necessary to rise above poverty level and low income employment. Consequently, the government has made a commendable effort to ensure that primary and secondary education is accessible to all children rich and poor alike.

That goal has, by and large, been achieved for the current school-age generation. But in the coming years-heavy new burdens will be placed on the primary and secondary school system. This is due to the
fact that Jordan is a young society. More than 67% of the population growth is still in the high range of 3.6-3.8% per annum. Meeting the needs of future generations will require increased investment in education to ensure the construction of new textbooks and learning materials.

The World Bank on 19 Feb 2000 approved $ 34.7 million for the higher education development project in Jordan. According to the World Bank, the objective of the project is to "initiate improvement in the quality, relevance and efficiency of Jordan higher education, and to support the kingdom's program to reform sector governance" (World Bank, 2000). After the implementation of the above project, it is expected that there will be establishment of systems with modern information technology, management, information systems and library infrastructure for higher education. Also grants to public universities for innovative and economically relevant subprojects and initiation of reforms for higher education governance.

The World Bank through IFC has invested $ 4.4 million in Jordan's Middle East Investment Bank in May 2000 through bonds and equity options. This investment is part of a $14 million re-capitalizing, restructuring and management program. It will allow it to meet the minimum capital and the restructuring will provide technical experience and be able to introduce a wide range of retail banking products.
It is expected that the IBRD loans to Jordan would average $100-150 million per year between 2000-2002, assuming an overall satisfactory macroeconomic management. Also IBRD guarantees could total $200 million for private sector infrastructure investments.

The World Bank group expects to lend for higher education, agriculture, export, vocational education, tourism, social protection, water and public sector reforms.

The government is making this investment and is committed to raising the quality of the educational system. To assist in that process the World Bank has provided fund for nine major education projects in Jordan. Other donors have contributed additional millions by participating as co-financiers of various education projects.

Since 1987 the World Bank has committed $173 million in three loans to help Jordan meet the challenge of providing high quality education for its rapidly growing student population. These loans financed the construction of new schools with well-equipped libraries and improved the quality of instruction through the establishment of teacher resources centers, the provision of an improved curriculum and other teaching resources materials, and training for teachers and other education professionals. In order to strengthen the link between education and employment, a vocational training curriculum has also been established at community colleges. The emphasis of these education efforts is strongly on quality. To produce graduates who are
skilled in problem-solving and creative thinking, as well as equipped with the traditional knowledge base

World Bank and Jordan’s Telecommunication

Jordan’s telecommunications infrastructure is undergoing a rapid expansion to meet all of the demands imposed by modern business practices, and the government has adopted a long-term plan for telecommunications network development. To assist the government in the modernization of Jordan’s telecommunications system, the World Bank in 1994 approved a $20 million investment loan designed to improve the capacity and efficiency of the current system. An additional $81 million in confining is being provided by other donors. This ambitious project will double the number of lines in Jordan’s telecommunications system by the year 2001 while greatly expanding geographic converge.

The modernization of the telecommunications system will be achieved not only through physical expansion of the state-owned telecommunications corporation, but also through the recent privatization of cellular telephone and data transmission and the introduction of transparent regulatory framework and few technologies support for the startup of the private firm which installed and operates the cellular network.
Direct loan financing provides only a portion of the World Bank's assistance. The government has also received a $50 million bond guarantee from the World Bank, which paved the way for private sector financing on attractive terms. This creative approach has succeeded in leveraging private capital into the telecommunications sector and speeding the space of modernization.

The presence of a modern telecommunications infrastructure will help Jordan make the most of its talented human resources by opening new possibilities for outward-oriented service industries.

**Health Care and World Bank**

Health care in Jordan ranks among the best in the Middle East, the continued viability of the public health care system is threatened by the increasing demands being placed upon it and by persistent deficits within the sector. A high 07.5% of Jordan's GDP is devoted to health services. To help the ministry of health address problems that have caused persistent inefficiencies within the system, the World Bank provided it with a $20 million loan in 1993. This loan brought total World Bank assistance in the health care sector to $55 million.

World Bank funds will also be used to support a ministry of health project that seeks to improve Jordan's health care system through better organization and management, greater reliance on pre-hospital services, increased training of medical personnel, and the construction of
additional hospital emergency rooms. In addition, a program is being designed to implement measures for higher levels of cost recovery that include more effective collection mechanism. As a result of this program, it is expected that the ministry of health will be to contain the rising costs that threatens the system, while medical personnel will be able to provide better quality care that ensures continued access for the financially disadvantaged. By addressing health care delivery problems before they reach crisis proportions, Jordan and the World Bank is working together to make certain that all citizens continue to receive the high-quality health care to which they are entitled.

The World Bank is also now working with the government to prepare a project, which would carry these improvements further. It would help produce more and better services for each person in several ways; health facility managers would be given incentives and flexibility to manage their hospitals and health centers efficiently. Public health programmes would be targeted better to the major disease burdens facing the population. The private sector would be regulated and coordinated with public health services better, cutting down on duplication of expensive new technologies and excess hospital capacity. And pharmaceuticals, which account for over a quarter of health spending, would be procured, sector, and distributed in more cost-effective ways.
Water Supply and the World Bank

Due to shortage and scarcity of water, it means every effort must be made to conserve and recycle it, and new ways to finance new water supplies need to be developed. The World Bank and the government are working closely together on these fronts. They plan to launch a series of the projects over the next few years to reduce the system losses in Amman and other cities (where over half the incoming water is lost); to upgrade waste water treatment so that agricultural and industrial users receive good quality recycled water; to bring new supplies of water to urban areas' and to raise the efficiency of irrigation.

The World Bank through the IBRD and IDA had laid great emphases on water supply and sanitation. Water supply is the most important input for agriculture. Appropriate water supply and sanitation is important to the health of the people and is an important indirect input. For the people working in agriculture need clean water and sanitation facilities. IBRD and IDA in 1999 have funded various projects in the area of water and sanitation. The countries that have benefited are as diverse as Jordan, Argentina, Bangladesh, China, Kazakhstan, Turkey, West Bank & Gaza, Yemen, etc. For Jordan the IBRD is giving $ 55 million out of total cost of $135 million. This particular project is for an estimated 2 million people specially from low income and refugee camps. It will enable them to enjoy health benefit through more efficient management, operation and access to water services. All the other countries will be receiving funds in the range of $16 million to $ 369 million for sustainable
improvement in water and sanitation services, water sector reforms, institution of tariff policies and be more efficient and environmentally responsible.

Approximately three-quarters of Jordan's water supply are devoted to agriculture. Crop substitution that is away from water-demanding crops such as fruit, wheat, and barley would substantially less water use and create an economically more efficient agriculture sector. The gradual implementation of the government's policy reforms should help reduce water waste by creating a more realistic incentive structure for farmers. Market-oriented reforms include the removal of price controls and subsidy for farm products and the liberalization of trade that will encourage expansion into export markets.

To assist with this transition, the World Bank approved $ 80 million agriculture sector adjustment loans to help offset some of the transition costs of reform. In addition, the World Bank has approved a $6.6 million technical assistance loan that will help facilitate water management in the Jordan valley, assist with ground water control, and help strengthen agricultural support services. Now in the planning stage is a project with making international finance corporation support for building up agricultural exports.

In the coming century emerging technologies will make water a renewable resource for those countries that make the necessary capital outlays. Revenues derived from water supply as well as general
economic growth need to be reinvested to increase water availability and to steer clear of the dangers of a water crisis. The World Bank and other donors are working with the government to stave off the potential for a future crisis by taking steps today to promote water conservation, development, and an equitable distribution of this scarce resource. The water supply problem can be understood as follows:

Per capita water supply is among the lowest in the world, and falling rapidly as population rises, by 2025, it will be only 17% of its level in 1960. Most aquifers are seriously overused; highland aquifer extraction is almost 80% above natural recharge. Saline intrusion and higher pumping costs are serious problem. Significant losses of water (54% in urban systems, 45% in the Jordan valley). Water quality, especially of wastewater, is poor and declining causing losses on farms in the central Jordan valley and elsewhere. The cost of new water and wastewater in high and rising faster than the GDP.

The possible solutions for the management of water supply could possibly be as follows:

1. Improve the management of the sector. This includes bringing private management into system operation.
2. Invest in reducing system losses in both municipal and irrigation systems.
3. Upgrade wastewater treatment facilities and put in place incentives to reuse treated wastewater where appropriate.
4. Implement major investments for new supply.
5. Help farmers in the Jordan valley switch to higher-value, less water-incentive crops.
6. Control extraction from aquifers to reduce it to sustainable levels.
7. Exploit all opportunities for well-regulated private investment in water development, including price incentives.

The World Bank has understood the grave nature of the water problem and is effectively engaged in solving it through the following possible ways:
1. Partnership with government in putting together the strategy and plans to address the water challenge.
2. Provide initial funds for improving sector management and doing feasibility studies of specific projects.
3. Finance specific projects with loans and guarantees.
4. Help mobilize other official assistance for investments and technical assistance.

World Bank and Power and Oil in Jordan

The World Bank has financed several power and oil/gas exploration projects in the past. Now it is helping the government through an $80 million energy sector adjustment loan, to improve the efficiency
of energy sector organizations, improve their services, bring private investors into the energy sector, and enhance energy conservation. Specifically, the loan supports the government’s strategy featuring energy prices that cover economic costs and satisfy commercial goals; an independent and transparent regulatory framework; a level competitive playing field between public and private firms; autonomous and commercially-oriented publicly-owned firms power and oil/gas, and improved environmental framework, and improved energy conservation measures.

The government is encouraging private investment in electric production and energy development under a new electricity law enacted in 1996. Jordan electricity authority has moved from traditional public enterprise status and now operates under the private sector companies’ law. A separate independent body to protect the public interest will regulate the entire sector. Most new power investments are expected to be privately finance, freeing up public funds for other uses.

Although Jordan’s geology makes oil and gas exploration more risky than in several neighbouring countries, the World Bank has financed such exploration with some success. Recently, the state owned oil and gas authority became a public shareholding company and entered into production-sharing oil exploration agreements with four international oil firms, effectively graduating to reliance on private financing. Private investments are also planned to take advantage of Jordan’s attractive location for refining. A 1996, $205 billion oil refinery
agreement, involving foreign and Jordanian private investors, offers the prospect of major job creation and foreign exchange earnings.

The World Bank's latest energy loan also, supports improved environmental regulation and energy conservation. Many energy conserving regulations and practices affecting the transportation sector, households, and other sectors have been put in place. In addition, studies are being carried out on tariff restructuring measures to improve electricity demand management. Finally, discussions are underway for a major grant from the bank-administered global environment fund to encourage private initiatives in solar power generation.

Jordan Transportation and World Bank

Jordan's locations make it a transportation crossroads and transportation is a major sources of income (11% of GDP), employment (8.5% of all the jobs) and foreign exchange (about US $ 380 million in 1995), mostly through transshipment services via the port of Aqaba and overland routes). The road, rail and air infrastructure is good, but it faces the dual challenges of expanding to meet the demands of the emerging regional market, and keeping existing infrastructure in good condition. With its heavy transit and mining traffic, the network is under great pressure, and domestic funding has not been adequate to meet both construction and maintenance requirements.
To help address the maintenance requirements the road infrastructure, the World Bank has provided a $80 million transport project. This project is rehabilitating and upgrading several major roads, including the main north-south highway that links the port of Aqaba to the economic centers and transit corridors in the northern region. This highway is a critical artery for foreign trade, and will need to carry much more than the domestic and regional economic growth. The project is also improving construction standards to reduce future maintenance costs, and preparing plans for a user-based system of raising funds for the road maintenance.

The government and the World Bank are planning a new project to implement many improvements developed under the current one. As road rehabilitation and construction work progress, the government is planning to introduce regulatory reforms to improve competition and secure the financial health of the transport industry. Road maintenance will improve as road users begin contributing through a modest fuel surcharge to a fund dedicated to keeping roads in top condition. And the overstretched public transport system in the greater Amman area, on which many low-income families depend, will be upgraded and a new road network is planned to allow transport to the city center.

The World Bank in May 1999 through the Jordan Amman Ring Road Project proposes to raise $45 million through IBRD in assisting the Jordanian government to develop an urban ring road for the Greater
Amman Area (GAA) which has no bypass or ring road to handle regional as well as urban traffic. The proposed ring road is anticipated to have an overall positive environmental impact associated with the support it would provide for the planned special development of the Amman region. The target population for the ring road component of the project is primarily the people living in GAA or over 2.5 million people. The Amman Ring road in addition to reducing urban congestion and pollution will also benefit regional traffic between the West Bank/Gaza, Iraq and Syria by allowing such traffic to bypass built up areas in Amman.

Jordan's rail infrastructure and equipment are well adapted to their main need, carrying rock phosphate to Aqaba for processing and export. The operational efficiency of the Aqaba railway corporation and its equipment maintenance need to be improved, however, a new rail line to carry expanded output from the Shidia phosphate mine is urgently needed. The World Bank is helping the government to attract private financing, as part of an agreement under discussion for private operation and maintains, for this line.

Tourism in Jordan and World Bank

The government and the World Bank are working on possible cooperation in expanding and modernizing Jordan's airports, serving Amman and Aqaba, and the port of Aqaba, to deal with expanding tourist traffic and goods trade. This is an area where the world bank offers
technical advice, linkage with other sources of official financing, and help in developing ways to bring in private participation, rather than direct financing, to ensure that the infrastructure is designed, financed and operated in the most efficient way possible.

Jordan's unique religious and historical sites, its beautiful recreational areas, its archeological treasures, and its sunning natural landscapes combine with a rich cultural heritage to drew the interest of tourists from around the globe. The magnificent carved stone structures of Petra and roman ruins of Jerash, the coral reefs of Aqaba, the natural majesty of Wadi rum, and the imposing castles of the grusades are provide Jordan with some of the most wonders of the world.

Quite naturally tourism is one of the Jordan's major industries. In 1990's tourism accounted for approximately 10% of Jordan's GDP. The potential for growth in tourism is enormous. If properly managed, an expanded tourism industry can create thousands of new jobs while attracting hundreds of millions in investment dollars and annual income. Recognizing the still untapped potential of tourism, the government has begun work on a series of projects aimed at providing investment in hotels, restaurants, resorts, and recreational facilities. These will expand the capacity at Jordan's most popular tourist areas and provide travelers with the five-star comforts available to them elsewhere in the Mediterranean.
In order to help tourism industry its full potential, the government is accelerating the privatization process to attract the investment necessary to upgrade facilities and accommodations, while it improves roads, highways, and addresses environmental issues. Jordan's most popular tourists' sites - Petra, Aqaba, and the dead sea - possess fragile ecosystems, and the government is mindful that growth and development within the tourism industry need to be accompanied by sound environmental management and planning.

To help meet these needs, the World Bank is working with the government to develop a tourism project that will support the growth of competitive sustainable and environmentally sound tourism. The tourism development project will have three basic components;

1. Assisting in the formulation of policies and regulations that will increase the role of the private sector within the industry.

2. Implementing a priority action plan for Petra, Wadi Rum, Aqaba and the Dead Sea that includes infrastructure investments and environmental protection measures and.

3. Providing resources to encourage private investment and development in the Dead Sea tourist area.
Human Resources in Jordan and the World Bank

Human resource constraints effect Jordan in several ways:

1. The lack of adequate academic and vocational preparation of their staff is a major impediment to firms in achieving international competitiveness.

2. Inadequate access to affordable and high quality health care, including health security, imposes additional costs on workers and employers, and many also delay the reduction of population growth.

3. High population growth imposes a costly burden on the physical environment and on the public exchequer, diverting funds which might be used for productive investment into the social overhead of schools, health clinics etc. required for the growth students population; and

4. In the public sector, an inadequate system of managing tasks and motivating people creates considerable waste and well-known burdens on the private sector. The strategy would address each of these four problem areas.

Although Jordan is well endowed with university graduates, their skill mix and the nature of their pedagogical training have resulted in shortage of managerial and several modern skills, and a lack of innovative problem-solving orientation among graduates. There is no
strategy to link the allocation of resources in public university program to the needs of the labour market, nor is the higher education system required to manage its resources cost-effectively. These problems of quality and efficiency at the university level affect Jordan's international competitiveness as well as the level of public funding available for the larger pre-university public education system. The World Bank is studying these and other issues, and subject to its findings and availability of other sources of support, the next World Bank involvement in education may therefore, be at the post-secondary level. In the health sector, the most pressing need is for competitive, efficient financing mechanisms appropriately mixing public and private sector roles to improve Jordan's generally high public and clinical standards in a fiscally sustainable way. Sector work now underway would identify such mechanisms, and future lending would support their introduction. The goals would be to create a universal health insurance system, and to strengthen the capacity of the government to provide (or contract for the provision of) services which are of sustainable high quality, yet affordable to the poor on population issues, the goals would be to create universal health insurance system, and to strengthen the capacity of the government to provide (or contract for the provision of) services which are of sustainable high quality yet affordable to the poor.
On population issues, the bank would use three types of intervention: ongoing project support to improve clinical care for mothers family planning services and data on family health our ongoing health sector study, mentioned above and a persistent and well-informed dialogue with the government on the need to accelerate family planning efforts. In public sector management, World Bank efforts would be spread throughout the assistance programme. Most loans would improve the managerial quality of the public sector, and several would also shift its orientation from controlling to assisting the private sector.

World Bank Strategy for Jordan Economy

World Bank's assistance has changed both in the scale and scope through the years of IDA lending (FY 62-78). IBRD lending began in 1979, and quickly became large enough to effect domestic investments and other donor assistance. It averaged $44 million p.a. during 1979-83 and $104 million p.a. during 1984-98, when other donor assistance had fallen sharply. During the 1980's the World Bank's strategy emphasized education, power, water, and urban investments. These finance important infrastructure as well as institutional improvements.

With the advent of serious macroeconomic problems in 1988 the bank's strategy changed in 1989 toward helping the government design and implements a growth oriented adjustment program. This process
began with the Industry and Trade Policy Adjustment Loan (ITPAL) in 1990. The ITPAL supported initial trade reform, price liberalization, and subsidy reduction. While ITPAL supported reforms were being implemented, the bank supported reforms in other key sectors. Energy sector adjustment loan (ESAL) supports sectoral restructuring, private participation, market-oriented pricing and environmentally sound energy development. In the context of the ESAL the government has decided to set up an independent and transparent regulatory system and to increase power tariffs in line with commercial operating principles, sending a positive signal to potential private investors. But the complexity of the institutional reform issues combined with political considerations on timing of tariff increases has delayed the actions required for the release of the second trench. Agriculture sectors adjustment loan (ASAL) supports prices-based irrigation demand management to economic on the use of Jordan's scarce water resources, agricultural market liberalization, and competition. The government took the difficult decisions to increase irrigation tariffs in the Jordan valley to cover operation and maintenance costs, eliminate import monopolies, and allow market-based pricing. Pressure from farmers and some internal resistance in affected line ministries have led to a few lapses in implementation of the reforms, but the overall program is processing satisfactorily. Now the government is ready to extend its reforms programme over the next 3-4 years along a broad front, including the trade and investment regimes, the financial sector, the regulatory
environment and the role of the public sector, with new support from the bank and other official financiers.

While adjustment operations have been under design and implementation, the bank has continued in recent years to support investment projects in priority areas of infrastructure (water, transport, telecommunications) and human resources development (education, health). The World Bank concurrently used its economic and sector work to provide an analytical basis for reforms to enhance efficiency in trade, finance, public expenditure and administration, the social safety net, the labour market, and the use of water resources, and to help the government plan for the impact of peace. And as investment and growth following the post-Gulf crisis, the World Bank took the lead in helping the government mobilize external concessional financing.

World Bank and Local Participation in Jordan

Building local participation and partnership in the World Bank’s work in Jordan is an essential element of the proposed strategy. Local participation and partnership enhance the effectiveness of the other instruments by bringing the local knowledge, building local analytical capacity, and most important, enhancing local ownership. This has become more important since 1989, when the economy was in crisis, adjustment lending began, and the first elected parliament took office, making intensive dialogue with the government towards new adjustment
measures essential. Particularly as the adjustment operations deal with areas where sensitivities regarding political interference and economic interests run high, it is important to make a good case for these operations with potential public opponents, and build into their content as much local input as possible. Greater local participation is also useful in increasing local ownership of investment projects, thus reducing the number of projects dropped well into preparation and in improving the response to Economic and Sector Work (ESW).

The World Bank would tailor its actions in building local participation and ownership to the stakeholders, the government, parliament royal court, and private sector. With our most direct counterparts, government official, we would continue the practice of regularly reviewing our lending and ESW programme, seeking greater inputs by the government in early definition of future plans diversifying high-level dialogue to include the economic council of the cabinet, and sharing analytical tools and data. We would make greater use of Jordanians as members of project preparatory would and ESW teams.

With Parliament, and the support of the government, this has been positive reactions to the World Bank’s outreach efforts, and would plan to continue the dialogue. It seeks opportunities during senior management visits to ensure similar interaction with the royal court. With the private sector, It has very good dialogue on questions of policy as well as on design of specific projects, and the World Bank would broaden and deepen this by several means, including:
1. Mobilizing support for the creation of one or more economic policy research institutes to produce policy analysis, enlist private opinion leaders in support of reform efforts, and improve aid coordination.

2. Holding open to the public where bank research of local interest is presented and discussion invited.

3. Widening the local people get contacts with NGOs and academics to ensure both the World Bank and the most accurate information possible on issues shared concerned.

4. Continuing to seek the views of project shareholders early in the design of each project.

5. Developing regular contracts with the local news media to ensure that bank policies and positions are well reported there.

Sustainable growth relies on greater inflow of productive private investment, and certain key investment is so large that private investment is essential to supplement donor and government funds. The World Bank has already demonstrated, through its first partial credit guarantee can attract private of funding on longer terms and at an attractive cost. Jordan’s bond their first borrowing in the capital markets, was heavily oversubscribed by international investors. In selecting future recipients of bank guarantees, the main criterion would not be simply an entity’s need for long-term foreign financing, but rather the impact of the guarantees in bringing about sectoral reforms.
Consistent with the expectation of private financiers: institutional streamlining, private participation and competition, and market-sensitive investments and pricing. Use of the World Bank partial risk guarantee would also be explored to complement our private sector projects associated with government commitments to take action or adhere to policies, which are critical to project success. The World Bank has begun to develop opportunities for partial credit and partial risk guarantees in number of sectors, including water, power, transportation and agriculture. It is also exploring the use of guarantees to support regional infrastructure projects.

Since independence in 1946, Jordan has invested heavily in the development of human resources. Education and health care were made accessible to the general public, and the foundation was laid for transforming Jordan into one of the most professionally advanced nations in the region. New schools, universities, clinics, and hospitals have been built, and dramatic improvement has taken place in virtually every indicator of human well-being, life expectancy, literacy, and school enrollment rates have been risen to among the region, while infant mortality has fallen to among the lowest.

The accomplishments that followed independence have been substantial and ensuring. In spite of these achievements, however, the economy has undergone periods of “boom” and “bust”. Although Jordan is not an oil-exporting country, the oil boom years 1973-83 were profitable for Jordan because oil-exporting neighbors were generous in
the provision of grants and soft loans and in generating employment for Jordanians. This helped spark a period of unprecedented economic growth. From 1973 to 1983 Jordan’s GDP grew in excess of 10% per year, while per capita income approached an all-time high of $2,250 in 1987.

The steep decline in oil prices that hit the region in 1983 caused a significant economic slowdown in the oil-exporting states, causing grant assistance and income to decline in Jordan. The growth of the boom years was not self-sustainable due to excessive reliance on foreign assistance and foreign labour markets, and after a few years of accumulating costly foreign commercial debt, Jordan began to experience successive years of weak and negative growth. By the time the economic crisis bottomed out, per capita income had declined from the $2,250 peak of the boom years to $1,080 in 1991. The process of recovery was greatly retarded by the 1991 gulf war, which witnessed the return of more than 300,000 Jordanian from Saudi Arabia and Kuwait, and caused unemployment top soar to 25%.

Jordan has rebounded in remarkable fashion, and recent economic performance has been impressive. Real GDP rose by 16% in 1992, 5.9 in 1993, 5.8% in 1994, and 6.4% in 1995, fueled by a construction boom, rapid increases in exports, strong rebounds in several other sectors from the recession of 1990-91, and a major expansion of remittances from Jordanians returning home as a consequence of the Gulf War. These successive years of strong growth are a direct result of
the government's economic adjustment programme and improved political situation in the region, which are stimulating increased and more efficient investments. These are creating jobs at a rate, which has cut unemployment in half from its Gulf crisis peak.

Present Needs and Future Concerns

A healthy private sector driven by market-oriented principles is essential to maintain long-term economic growth. The government is responding to this need with reform policies that reward the professional and entrepreneurial talents of the Jordanian people. An expanding private sector is stimulating job creation and building the production base that is essential to future prosperity.

Dependence on regional labour markets and official assistance create unnecessary vulnerability to political and economic shocks. As recent events in Jordan have demonstrated these shocks can wreak economic havoc. Jordan is responding to this lesson by developing its export trade the export of goods and services rather than people.

Peace and political stability are prerequisites for long-term economic development. The wars that have rocked the Middle East have deterred private investment and encouraged capital flight, while necessitating some of the highest capita military expenditures in the world. This has had a crippling effect on all of the economies of the region. The peace process has laid the foundation for the establishment
that has the potential stable, business-friendly environment that has the potential to reverse the debilitating trends of the past. By initiating policies designed to attract private capital while gradually reallocating resources away from national defense to more productive ventures, Jordan is laying the basis for an economic renaissance.

Jordan's impressive recent economic performance owes to the government's demonstrated commitment to its adjustment program, which has centered on three main areas since 1989.

Stabilization through resolution of the external debt problems and mobilization of domestic resources to restore balance in external and internal accounts. This has major tariff and tax reforms and expenditure controls to reduce the budget deficit, a flexible exchange rate policy following the 1998 devaluation, adoption of a flexible interest rate policy in 1994 to maintain foreign exchange reserves, and extraordinary efforts to reduce the foreign debt.

Efficiency improvement through a door open trade regime, improved financial intermediation and a lighter and less discretionary regulatory framework. The government has reduced tariff protection and improved the trade incentive regime, and decontrolled nearly all prices including interest rate.

Market orientation through gradually reducing the role of the public sector in commercial activities and ensuring a competitive level playing field for the private sector. This has been approached on several
fronts, including structural reforms and steps towards privatization in the energy and agriculture sectors, allowing limited private competition with public companies in power and telecommunications, taking preliminary steps towards eventual privatization of royal Jordanian airlines, and strengthening institutional support for export development.

In mid-1994 the government began preparing a range of new legislation, much of which was enacted in 1995. Recognizing that Jordan's low domestic saving rate, limited potential for greater external official financing, and even more limited potential for substantial new external debt offer no alternative means to support a high growth rate, the government intends to improve the business environment to attract significant private foreign investment. The agenda for creating this enabling environment for private sector based and outward-oriented growth was outlined broadly in the government's economic and social development plan 1993-1997.

**Future Economic Prospects**

The most likely scenario is one of the steady relatively high growths, based on a continuation of progress in stabilization and an acceleration of the structural reform process. Priority would be given to maintain stabilization and an acceleration of the structural and sectoral adjustment would progress in such areas as tariff reduction, investment-licensing and leasing financial markets, monopolization. And
privatization, this would require bold decisions— with some challenges to vested interests—to which the government is committed. This would help set Jordan apart from most of its Arab neighbors as a good place to do business, a site for relatively high-value-added production aimed at wider world market, a base for production aimed at the region (for which the benefits would be magnified by adjustments leading to higher growth elsewhere in the region) and a magnet for joint ventures with regional investors. Under this scenario, GDP would rise by about six% annually through the end of the decade, reflecting primarily the greater investment efficiency that would result from the reforms in trade, finance and the regulatory environment. Per capita incomes would rise by an average of a little under 3% per year. Saving incentives are expected to result in a major increase in gross domestic savings between 1995 and 1999 (from 5.6 to 10.6% of GDP). During the same period, the current account deficit would fall steadily, from 9.8 to 5.8% of the GDP. Exports of goods, starting from lower a base, would grow at an average of 8.5% per year through 1999, while imports would rise at an average of half that rate. Debt service indicators would improve, depending on the mode of financing new investments. The opportunities opened by peace and euromed initiative make this an entirely feasible scenario. This based case high growth performance of GDP and trade is well within Jordan’s capacity and best performance in the past.

Achieving the above economic targets depend an adequate external financing. In 1995-97, the current account deficit (excluding
grants) was projected at an average of about 8.5% of GDP. This deficit, along with scheduled amortization of loans and a major build-up of reserves, would raise Jordan's gross financial requirements to an annual average of about US $ 1.3 billion during 1995-97. Based on the new incentives, foreign direct investment would rise from less than 2% in 1995 to 4% of GDP by 1999. This, together with disbursements of loans and grants that have already been committed and other private capital inflows, would cover most of the gross total financing requirements. But even with the debt rescheduling agreed in 1994, the need to rebuilding reserves to prudent levels would underlie a financing gap (excluding bank adjustment lending, fund disbursements and their co financing) of about US $ 180 million for 1997.

The proposed objectives of the World Bank's country assistance strategy are based on the same central theme as that of the government to promote rapid and sustainable, growth needs to be private sector based and environmentally friendly. The strategy aims to establish a business-friendly policy and physical environment in which private investors guided by market signals will determine the sectoral direction of growth. The growth theme would be supported by three objectives, in order of priority:

1. Assisting the government, in collaboration with the IMF for introducing in trade and financial market regulatory and public enterprise reforms and privatization measures necessary to establish
the enabling environment for sustainable growth, and hence to reduce poverty and unemployment.

2. Assisting the government to address critical infrastructure constraints—particularly water—with special efforts to induce the private sector to participate in such environmentally sound investment;

3. Assisting the government to address human resources constraints more efficiently in education, health care, family planning, and protection of the poor during adjustment.

In agriculture many of the most serious problems stem from poor marketing organization and infrastructure, which forces farmers to accept prices largely controlled by the powerful consignment agents and wholesalers. The World Bank and IFC would consider providing private sector-based for agricultural export market and other essential agricultural services. In tourism development, while IFC provides long-term financing for commercial hotel development, the World Bank would address the lack of adequate physical infrastructure supporting the government in providing the trunk connections, in the context of a policy-oriented investment loan to help reduce the unnecessary regulations retarding the industry. Finally, the need for housing and housing related infrastructure benefiting particularly the poor is of special interest to the government, and the challenge is of special interest to the government, and the challenge is to satisfy the need in a way which is fiscally
sustainable and efficient. The approach of IFC is to pursue supports for privatization of the now-public service of housing infrastructure development and limiting the public role to policy formulation, enforcement of standards, and slum upgrading activities which are not of interest to the private sec
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WORLD BANK’S CONTRIBUTION TO JORDAN’S AGRICULTURE SECTOR

WORLD BANK and AGRICULTURE

The importance of agriculture, which has always been self-evident at, times, grows much more with the opening up of the economy. The globalization and liberalization and the new terms of World Trade Organization (WTO), has made the World Bank to implement an integrated programme of research and capacity building, to enhance participation of developing countries in the WTO 2000 negotiations in agriculture, the program plans an integrated projects of research policy analysis and capacity build in to enhance the participation of the countries in negotiations for agriculture in the WTO 2000.¹

For the World Bank the question arises why does it want to encourage countries to participate in the continued process of multilateral trade liberalization and agricultural policy reform? According to the World Bank (2000) “agriculture remains an important sector for many developing economies. While trade patterns diversify with development, developing countries will make even more use of agricultural markets, as exporters and importers. The future of the world trade system for agriculture will be a lifeline to development for many of poorer parts of the world. Also the World Bank points that
there are many distortions in the market due to a range of domestic policies which will slow down the export capacity of the developing countries. Also to access food security it will be important to import from the world market supplies and build an efficient food systems. The World Bank project will prepare a handbook on agricultural trade issues for policy makers and negotiators that will provide information in the agricultural issues likely to dominate WTO 2000 agenda in agriculture. On 11 April 2000 Jordan became.

Agriculture Investment and Efficiency

Although agriculture is a modest contributor to the national income relative to many other countries, it remains important to about one fifth of the Jordanian populations who rely on it as a major source of income. The government has three basic objectives for the agricultural sector, namely:

1. To conserve basic agricultural resources and protect the environment.

2. To increase the return on agricultural investments and improve farmer and farm laborer income sufficiently to discourage rural-to urban migration.

3. To increase the net income and growth rate in agriculture to a proposed 7.8 % and thus contribute greater share of national income.
The expansion of irrigated areas is expected to be a major contributor to the achievement of these objectives. In support of agriculture, the irrigation sector's basic goal is to increase the irrigated land to the extent available water resources permit. This would be achieved through improved water efficiency and increased water resources development. The completion/expansions of additional infrastructure (including credit and marketing institutions) and of agricultural research/extension are expected to be major contributing factors in achieving these objectives.

Agricultural investments are concentrated in resource conservation, irrigation, research/extension and infrastructure. Despite the investments proposed a coherent strategy and policy initiatives address these objectives, but they are basically reactions to events rather than a set of positive actions, which are mutually reinforcing and focused on a defined set of objectives. The sector urgently needs a policy planning and analysis capacity to analyze and propose policy options. The government has attempted to create incentives and favorable environment to encourage private sector investments, particularly in cereal and red meat production. These incentives have primarily been through premium output prices for cereals and subsidized input prices for livestock feeds. Other price policies have, in a practical sense, focused on income support. Agricultural production policy has addressed some surplus commodities through area controls.

Noticeably lacking, however, are policies, which focus on improving productivity to make Jordanian agriculture more
competitive. Organizational support to agriculture includes continuing to back credit facilities and to encourage cooperatives and farmers associations. Marketing support is provided through two institutions so that it can do the following:

1. To develop exporting market.

2. To provide market regulations and information.

The government has been very successful in attracting both bilateral and multilateral external resources to assist in financing agricultural and irrigation investment. The investment programs proposed in the 19986-1990 five-year plan continue to rely substantially on these extra-budget resources. Some 63% of the irrigation/dam investments in the previous plan were externally financed, and a similar proportion is anticipated in the current plan, including 53% of the agricultural investments.

The highest priority investment in the irrigation sector has been redirected to the Al-Wehidah dam, following the agreement between Jordan and Syria. As a large portion of its financing will be external, the dam's higher priority and accelerated investment will increase the proportion of externally financed investments, although much of the expenditure will be in the post-plan period. The largest expenditure proposed for agriculture is for the ongoing 10 years program for the development of the Zarqa River catchment area. This project accounts for about one fourth of the proposed development expenditure for agriculture, of which 90% are expected to be provided by external agencies.
There are employment and equity benefits to be gained from expending the irrigable land base in the Jordan valley, but the costs of increasing production via this option are high relative to the costs of intensifying land use.

Irrigation and Water Efficiency in Agriculture.

Water is important for agriculture and the World Bank is trying to make important contributions in Jordan’s agriculture. Water is one of Jordan’s scarcest resources. About 80% of the country are steppe and desert where water is only minimally available. Most of the municipal water supply systems and industry in Jordan presently depend upon ground water and springs. Surface water resources exist on the north of Jordan. Exploitation of surface water for municipal and industrial water supply has not so far occurred to any great extent due to sporadic flow patterns, proprietary use for irrigation, and relatively long distances to population centers. Because groundwater use is reaching the limit of its available yield, this pattern of water use is expected to change soon.

The limited availability of land and water are serious constraints to agricultural growth. The low cropping intensities suggest that water is more limiting than land. Both rainfed and irrigated agriculture will be forced to use existing resources more efficiently through:

1. Introducing more water efficient crops in both rainfed more widely.
2. Applying water conservation/ water harvesting practices more widely.

3. Improving the major delivery systems to eliminate canal leakage losses.

4. Continuing conservation to more efficient farm delivery systems (from open canal to pressure pipe) and farm use (drip pipe/ plastic houses).

5. Applying water at economically optimum rates.

6. Using more municipal waste water.¹

Land suitable for agriculture is in short supply, and land holdings are generally small and fragmented. Where rainfall is, on average, sufficient for arable agriculture, it is highly variable; further land topography, rocky out crops, and poor soils limit the areas that can actually be cultivated. Given the limited land base, extensive cereal-dominated cropping systems can’t be justified if rainfall is sufficient to produce a horticultural crop. Rangland is more extensive and degradation have occurred and although rehabilitation efforts have been initiated, the lack potential for both greater crop and livestock expansion. However, there is potential for both intensive management, including less following and more forage production.

The priorities for investment in land and water development should be determined by constraints to increased production; resources use efficiency; the cost of improving efficiency and/ or expanding availability, and most importantly the net benefits from the investment. This issue is complicated as these investments involve a
seasonal element. Some investments increase water availability when it is relatively abundant, while others increase the availability during periods of relative scarcity.

Investments to improve water efficiency appear to be economically efficient and are being addressed by irrigation conservation projects, which will help reduce losses. But some incremental land development for irrigated agriculture in the Jordan Valley may be necessary to effectively use the water that is relatively more abundant in water. Investments in resource conservation are appropriate to preserve production capacity for future. Irrigation development in the highland is basically by the private sector. Therefore the government's role is one of supervision rather than investment.

Several studies carried out in the past have assessed the country's water resources and water requirements. A comprehensive review was carried out by the World Bank's 1987 water sector mission. The results and recommendations contained in the mission's report "Jordan water resources study" focusing on the irrigation in the Jordan Valley and the issue of increasing water prices have been given briefly.⁵

Irrigation in the Jordan Valley

Prior to the introduction of irrigation facilities, the Jordan valley was of minor agricultural significance. Development of its potential started in the early 1960's and gained momentum after the
establishment of the Jordan valley authority. Government investments in water and land development and irrigation project have increased the total irrigated area to 22,800 ha. The introduction of modern technology- drip irrigation, plastic culture, improved seed, pesticides, and fertilizers- increased yield for fruits and vegetables 4-6 fold over those obtained in 1973. The valley was transformed from a cereal-producing to horticultural-producing area. Vegetable and fruit production increased by 150% and 57% respectively.

The irrigation facilities in 1966 was just an intake constructed near Adasiye diverted the natural flow of the Yarmouk River into the East Ghor Main Canal (EGMC), which is the main conveyance facility for irrigation in the valley. The Canal has been lengthened three times and it is around 110 km long, covering the entire Jordan valley. In addition, five storage dams, eight diversion weirs, and the Mukheiba well field have been constructed to augment the water supply. The storage dams, from north to the south, are identified as Wadi Arab, Wadi Ziglab, king Talal on Zarqa River, Wadi Shueb and Wadi Kafrein.

The present irrigable area of 22,800 hectare would have increased to 28,800 hectare with the commission of the last extension (14.5 km) of the Karma, some 12,400 hectare of the irrigated are under surface irrigation networks, and the remaining 16,400 hectare have piped supply and drip irrigation.

The operation and maintenance (O&M) directorate is responsible for the irrigation system up to the farm turnout. The losses from the main conveyances are large and overall efficiencies are
much lower than comparable systems elsewhere, indicating that (O&M) could be improved. Estimated spills and losses from canals amounted to about 39%, 43% and 40% of the water that entered the KAC in 1985, 1986 and 19987 respectively. ("Spills" represent inflows surplus to current irrigation demand. Losses represent inefficiencies, which can be reduced or, theoretically, even eliminated). Conversion to pressurized pipe systems will eliminate losses from open distribute channels and improve on-farm efficiency. These conversion projects, however, will not improve the conveyance efficiency of the KAC. Substantial losses take place in the first 70-km length of the canal. JAV carries out service/maintenance of facilities and equipment on an "as-needed" basis, but a better, organized program for preventive maintenance is necessary.

The 28,800 hectare equipped with irrigation facilities will required irrigation water in excess of existing and future water resources availability. An effort is underway to convert all valley irrigation systems. The potential for increasing all average cropping intensity in the currently irrigated area is limited by the availability of water. There will, therefore, continue to be a competitive demand for water, exacerbated by expanding the irrigated area in the valley.

The major sources of the water supply are the Yarmouk and the Zarqa River, which, historically, have supplied the valley with about 72% and 12% of its water, respectively. In addition, the Jordan River east bank sides Wadis contribute about 16%. The average surface water supply to the valley, however, has been decreasing. This decline is primarily due to Syrian withdrawals from the Yarmouk,
but groundwater extractions that directly affect the base flow of the Wadis have also increased.

The lack of an effective method for measuring the water delivered to farmers introduces an element of uncertainty to these statistics. Nevertheless, the data confirm the conclusion that “crop water requirement for the current design and cropping pattern are well in excess of water delivered”. It is unlikely, even under the most optimistic assumptions, that additional water supplies will become available to meet the irrigation requirement in the Jordan valley.

An approach to irrigation water pricing would be to introduce a block tariff structure similar to that employed for the nationally accepted domestic and industrial water tariff structure. Such a block tariff structure would allow policy makers to increase average water users. In numerable block tariff structures could be formulated.

Some argue that without cheap irrigation, farming in the Jordan valley will die which will result in a massive social upheaval, a rural-urban shift, which will have serious economic consequences. Experience on the West Side of the Jordan River suggests the opposite. There, increased water price has caused the volume of water used per hectare to be halved over the past decade. At the same time productivity has increased tremendously in relation to crop water requirement over the years in the last few decades. This has come about through the strict metering and billing of water through computerized irrigation application according to real-time calculation of evapotranspiration needs, through the introduction of drought
resistance varieties, and through the introduction of same drip and plastic mulch systems as used in Jordan. Similarly, in the Jordan valley itself, where drip irrigation and plastic mulch has been introduced productivity and production has increased significantly. For example, vegetables yield increased over 250% in the 20 years from 1973 to 1992 with the introduction of advanced agriculture practices. There is no doubt that farming in the valley can thrive on less water.

The possible farmers reaction to increase in water prices could be as follows:

1. by appealing to government that they are being driven out of business, that market prices are artificially low, and that farming is a special case for subsidy. These arguments can't be supported in the face of the severe constraints on the economy through lack of water. Before reacting to pressure, government should prepare crop and farm budgets to demonstrate that farming, particularly in the Jordan valley has been heavily subsidized by the rest of the economy and that crop returns can indeed pay higher prices for water.

2. Also farmers will react by attempting to conserve water, to use less and to increase the productivity of their water. The rational behavior of farmers will be to substitute other inputs for higher costing water: especially inputs such as management (more frequent and smaller applications of water, geared to crop-specific needs) or capital (more efficient irrigation system). Investment to increase efficiency can be simple and inexpensive—repairing
leaking delivery pipes- or costly, such as replacing furrow irrigation with drip and plastic mulch. Government should give the highest priority to assisting farmers to improving water use efficiency. Research and extension advice on water saving techniques and easy access to credit should also be made readily available to farmers.

**Agricultural Sector Technical Assistance Program (ASTAP) and Agricultural Sector Adjustment Loan (ASAL).**

ASTAP a program of the World Bank has been requested by the Jordan government to help in the implementation of Agriculture Sector Adjustment Loan (ASAL) policy reforms and to provide support to farmers in getting the best out of the process of adjustment. The ASTAP would be implemented directly by government agencies and would provide funds for specific actions in the water sector. Some of the World Bank ASTAP programs have been in the area of Jordan's agriculture sector technical assistance project, water-related features, and irrigation improvement and water management.6

Water management one of the sub components will improve water measurement and management in the Jordan valley, and introduce higher irrigation water charges. In order for this increase to be fully effective, it is necessary to complete the ongoing programme for installing secure meters and water flows control devices on all irrigation turnouts. The project of US $ 4.7 million for water management will therefore, finance the rehabilitation of 2,150...
improved farm turnouts, including about 3,450 water control advices (outlet pressure regulators, flow out less in three areas covering 7,500 hectare in the Jordan valley (i.e.; Zarqa triangle, 18 km extension and northeast Ghor). the JVA has already prepared draft bidding documents for procurement of equipment and installation for farm turnouts. The JVA will supervise the dismantling of existing farm turnouts and the installation of new ones, which will have protection boxes, steel cover, locks and foundation works. To improve the capacity of JVA laboratories to carry out water and soil testing, laboratory-equipment and vehicles will be provided. The project will also support JVA to improve O&M efficiency in the Jordan valley by providing urgently needed O&M equipment. This sub component will also include training for JVA staff and provision of technical assistance to evaluate its monitoring program, laboratory equipment requirement and needed studies.

Further a part of the adjustment program Jordan’s government is adopting a sustainable withdrawal program for groundwater national wide, and implementing a full management programme to mete and control all groundwater production supply and usage. This sub-component of US $ 2.8 million for ground water basin control will, therefore, support monitoring and control currently being carried out by WAJ through its 10 Basin Protection Units (BPU). The BPU are the field management arm of the Water Authority of Jordan (WAJ), which is responsible for groundwater control, and have been set up specifically to improve monitoring and control groundwater abstraction. The project will finance the purchase and installation of
2,300 flow meters of tube wells and 30 automatic groundwater level
recorders and 25 electric water level meters to improve monitoring of
groundwater level, 20 portable conductivity meters and PH meters to
improve monitoring water quality, 5 global positioning systems to
assist in rapid determination of tube well coordinates, 15 PC and
laptop computers and miscellaneous equipment, office furniture, the
Basin Protection Units (PBU), and 12 field vehicles. WAJ has
furthermore identified an urgent need for a small number of water
tankers to improve water conveyance efficiencies to high areas of
Amman during peak periods of summer months. In accordance with
the objective of improving efficiency of water use and delivery, support
will be provided under ASTAP in the form of ten water tankers.

Three projects of the World Bank and CIDA would finance an
institutional restructuring study for the water sector from September
1993. According to the draft terms of reference, the study would be
executed in three phases

1. Review of water policy and institutions (MWA, JVA and WAJ) and
   proposal for restructuring options.

2. Detailed restructuring program and recommendations for water
tariffs, cost review and other financial items.

3. Technical assistance for implementation.
ASAL and ASTAP on Water Conservation

Principle environmental issues in the agriculture sector relate to ground and surface water quality, its monitoring and management. Current lack of water allocation for ecosystems as wetland, pesticide use and its control, degradation of rangelands, and soil loss due to unsustainable agricultural practices.

ASAL and ASTAP proposal are, in general, likely to be environmentally beneficial, but it is recommended that the following environmental issues be emphasized within the existing program:

1. Clear identification of legal, regulatory, and enforcement responsibility for effective ground and surface water quality monitoring and management.

2. Prioritization of water conservation initiatives so as to minimize the effects of water resource depletion on the biodiversity of ecosystems that rely on them, and

3. The proposed removal of feed subsidies should be overgrazing on rangelands.

Two additionally priority issues are proposed for incorporation into the ASAL agenda:

1. The need to bring review and update the existing regulatory framework in order to bring about effective control of the sale and use of pesticides and their levels in food crops, and

2. The need to halt rangeland tenure and user rights.
ASAL and ASTAP proposes a number of initiatives, which are primarily aimed at encouraging water use efficiency in the agriculture sector and, ultimately, bring about a reduction of water consumption towards level, which are sustainable. Additional environmental concerns relating to the monitoring and management of ground and surface water quality, and the impacts of water supply, should also be addressed through the adjustment process and associated technical assistance program.

Actions proposed for ASAL are designed to bring about metering of water usage and control of groundwater extraction. Specific relevance to groundwater quality management are:

1. The proposed preparation of a national water policy which is to include a strategy for protecting water quality and demand management and

2. The review of the formal mandates or WAJ, MWI and JVA whose respective roles in management of the nations water supplies currently overlap and require better definition.

The ASTAP project "groundwater basin control" would hasten effectiveness of WAJ's ongoing basin protection program by providing additional flow meters, office and field equipment, by extending the existing monitoring program, improving the monitoring of groundwater quality and water table levels, and training staff.

ASAL and ASTAP on Soil Conservation
Action proposed by ASAL and ASTAP which may have an impact on soil conservation include: removal of cereal and vegetable producer subsidies, agricultural price and trade liberalization, irrigation water price increases, controls on ground water extraction, establishment of a private export marketing agency, and increases in land lease periods/allow free sale of land in the Jordan valley. Collectively, these are expected to enhance the shift towards higher value tree crops. The anticipated adjustment in cropping patterns is slopping area. However, since the establishment of tree crops necessitates short-term loss during the first few years before harvesting commences, farmers may be slow to adjust to changes in relative prices and new incentives.

To support the above, it is important for Ministry of agriculture to follow objective criteria, according to which projects are prioritized, Economic Rate of Return ERR (especially for large and even medium projects, regardless whether they are financed by donors or not), employment generation, foreign exchange earning or saving, environmental impact, poverty reduction, and other social criteria.

In any case it is proposed to move towards full cost recovery of services which are provided either free or at nominal cost (seeds, seedlings, veterinary services, vaccines, laboratory tests, etc) on the basis of a time bound plan. More focussed role for public extension to supplement and supervise rather than to compete with private extension should be given consideration. Contract research should be seriously explored which could be more cost effective in some areas than public research.
The national agricultural development project has been quite successful in providing the needed physical infrastructure. In order to make the large investments in research more effective, it is proposed to make the research programme demand driven, adopt a farming system approach, and forge stronger links. With extension following the recent separation of these functions. NCARTT needs to carefully decide where scarce public funds are required, and in any case spending justified to complete research, which is, or could be undertaken and/or funded by the private sector.

As a result of the adjustment programme in agriculture (removal of subsidies, market and trade liberalization, improved water management), there is greater need to manage translation to more efficient sector. This could be achieved through the provision of adequate resources to disseminate technical packages, especially to the more vulnerable groups such as crop and small livestock farmers, in rainfed areas, improved range management, water harvesting and saving techniques, changes in the crop mix, and export market development.

The Monitoring and Evaluation Program of ASAL

The ASAL entail significant restructuring of the agricultural sector that will affect the population gaining its livelihood from agriculture. It will require careful monitoring to assess progress in implementation and the effect and impact of policy change over time. This will include assessing changes in crop budgets, cropping
patterns, farm and household budgets. Of particular importance’s the monitoring of poverty, since the rural and agricultural population of Jordan is at particular risk of poverty.

Reliable and cost effective monitoring of ASAL will require strengthening the collection and analysis of agricultural information. ASAL therefore, provides the opportunity to develop further the agricultural statistics system in Jordan.

Monitoring and evaluation of the ASAL needs to be carried out at several different levels. The following minimum programme is proposed.

1. Implementation of legal covenants and enactment of policy changes.
2. Movement of macro-economic and sectoral indicators.
3. Effect and impact on agricultural production and income.
4. Impact on household income of agricultural population.

Monitoring will be done over an initial four years period in order to capture effect and impact of policy change. The information needed for ASAL monitoring is in many instances already part of the government’s statistical report system. Most aspects of monitoring can therefore, be managed through already established reporting channels in the ministry of planning, department of statistics, ministry of agriculture, and ministry of water and irrigation.
In order to monitor the effect and impact of the ASAL on agricultural production and household income, three types of information are required over two or more points in time:

1. Agricultural production and farm income.
2. Household income
3. Qualitative information on causal relationships and household coping mechanisms.

It found that 60% of the entire farm household in Jordan are depending on non-farming activities and more than half of the poor live in rural areas and that include those who are employed in agriculture.

The government of Jordan is embarking on a structural adjustment in the agricultural sector. The main objectives of which are to determine the potential impact of adjustment under ASAL on farmers income. Within the scope of specific objective are:

1. The change level of the farm incomes on the various agricultural sub sectors.
2. The change in the price level of the agricultural products.
3. Improving the information systems in the agricultural sector.
4. The impact of the transition on the agricultural section.
WORLD BANK LOANS TO JORDAN'S AGRICULTURE

Some of the major loans that have been received by Jordan government in the area of agriculture and allied areas have been discussed below.\(^9\)

A. Jordan- Agricultural Sector Technical Assistance Project

The World Bank in March 1994 prepared a project with the implementing agency being Jordan's ministry of water and irrigation and Jordan's ministry of agriculture. The broad objective of the above project under the agricultural sector adjustment loan (ASAL) is to assist the Jordan government in the implementation of policy adjustments, and improve services to support the farmers and exports of agricultural products. The project is to provide technical assistance for building up capacities in agricultural institutions, make improvement in marketing access for export and strengthen producer services to agricultural product and livestock producers, especially those who are weak and vulnerable during the process of policy adjustment.

The project involves work in the areas of irrigation improvement, horticulture market development and agricultural support services. In the area of irrigation improvement Horticulture market development and agricultural support services. In the area of irrigation improvement the propose of ASAL to make fully effective. To increase water charges in order to improve operation and maintenance in the Jordan valley. There would be installation of 3000 water control devices in the Zarqa triangle, 18-km extension and
northeast Ghor. Further there will be 2,300 flow meters in the highlands to monitor tube well abstraction. Further studies will be carried out on the water and soil quality and the environmental impact as well as water quality-monitoring programme will be established.

In the Horticultural Market Development, the ASTAP is to support the policy measures, which are in the ASAL to move towards greater market liberalization and also diversification to different countries besides the Gulf markets. The ASTAP is also to support the establishment of an entirely private sector, open membership Export Management Agency (EMA). The EMA would initially get the support of the World Bank and international consultants but subsequently after 4 years it is to be operated and fully owned by the Jordanians.

Further the project is to provide technical assistance, equipment etc. to strengthen research and extension, specially the focus to be on the poor and marginal farmers who suffer during any structural adjustment.

The total budget for the project including contingencies has been calculated at $26.8 million. The World Bank is financing $10 million and the remaining amount is to come from grants of bilateral donors etc. The project is to be implemented over a period of 4 years. The project will be implemented by the ministry of water & irrigation through their specialized agencies within the coordination of a project implementation facility.

A major criticism of most of the World Bank project or in fact any economic and industrial or agricultural project is assumed to be
environment unfriendly. This is not case with the project, the technical assistance programme is designed that a water quality monitoring project is established. It also aims to integrated pest management to bring down the use of pesticide. The project carries within it certain benefits and some risks.

The project is expected to raise the productivity of the land and increase the income of the farmers. It is also expected to improve the quality of the agricultural product as well as the price of these products. The risk that could be there is that the involvement of the farming could be low and well owners may resist the metering of water, further trained personal of the project may leave or be shifted just after the training period. Thus there could be a possible shortage of trained personal, which is very essential for the success of any project. Overall it is expected that it would help in the productivity enhancement and incomes of the farmers.

6. Jordan-Agricultural Sector Adjustment Loan

The World Bank in March 1994 decided to implement an ASAL project in Jordan in the area of agriculture and natural Resources. The objective of the project is to promote policy adjustment for support during the transition period towards a more sustainable and efficient use of the available resources specially water. Further the objective is to build up a free market structure so that there is more investment from the private sector to produce and trade.
The components of the proposed project are the best possible use of the natural resources in Jordan. To support the process of the optimal use of water and land resources, a national inter-sectoral water policy is to be adopted, groundwater exploitation will be reduced and controlled, water metering to be extensively used and water charges will have to be increased. It is also proposed to deregulate the internal and external markets. The incentive for the farmers will be set up through removal of subsidies and lifting of price control, for more free market movement of goods and the lifting of monopolies on the agricultural products by the few.

It is also proposed that there will be efficient public investment and providing of services where it is necessary. But to request and help private investment where there is an advantage.

The major problem that is perceived is the limited resources base especially in the content of water. Groundwater levels are already dangerously low at may place at which water can be renewed and the other problem is that the quality of water is going down. The establishment of a free market economy in agricultural produces is also a problem with the regional export market in the government's intervention very influenced by any advice of the political and economic developments.

Also the incentive structure has been build up in agriculture that it encourage the production of low value cereals and tomatoes, instead of moving up the value chain of agricultural produces.
Despite the above problems there are in-built and hidden potentials that are not very low at times only 40% in some areas. The cropping intensive can also be improved which is possible in the high potential area of Jordan valley. There are possibilities of increasing value by the diversification of new agricultural products and developing new markets. There is the possibility to produce new higher value products and substantial scope to increase productivity and profitability within the recent natural resources.

The project by the World Bank's assistance from the ASTAP and they will help in the implementation of the proposed policy adjustment and develop necessary infrastructure for the services of the farmers. The World Bank contribution is around $60 million.

C. World Bank Investment through IFC with Modern Agricultural Investment Company (MAICO) in the Area of the Food and Agribusiness

The proposed project for a board date of July 1998 is a good example of cooperation within Jordan including mix of private sector and public sector as well as Israel's involvement through technical support provided by Mashav, a government of Israel's unit for international cooperation. The project is situated in the Fifa region, 40 km from Dead Sea on the Jordan side. The project presently occupies an area of approximately 35 ha, and if successful will be expanded to total area of around 200 ha. The Jordan valley authority will pipe the water for irrigation to the site.
The project involves private Jordanian investors, the P,D,I company jointly owned by I.C.C. of Jordan and the koor group of Israel, the inter Arab fund backed by OPEC, Jordan investment corporation and the IFC.

The project has been started by building on an IFC finance feasibility study and successful pilot project. It was also decided to establish Modern agricultural Investment Company (MAICO) which will be engaged in post harvest, extension and production activities. With the full development of the site, MAICO would have its author, special production sites, which will be possible to operate as hubs for other satellite farmers who will be selected and associated by MAICO through contract farming.

The overall objective of MAICO is to become the market and technology leader for the other's to follow. MAICO would be working in full cooperation and complementing with the government of Jordan and IBRD's actions to help diversity and upgrade the range and combination of different crops and the irrigation methods being used. This is expected to develop a modern export sector for the agricultural produces. These would thereby minimize the profits on the cost especially on irrigation water and therefor rationalize the overall consumption its use.

The main developmental impact on agriculture in particular and generally on the Jordanian economy is the generation of foreign exchange. With a vibrant and modern agriculture system as an example through MAICO.
There would be an increase in export, which will lead to generation of foreign exchange. There will be diversification in the products being produce and exports will lead to development of brand names for these Jordanian products. An important improvement through this project will be the improvement in the farmer’s life through increase and stability of income and the creation of employment in MAICO. Further employment will increase in the project are of Jordan valley and the establishment of agricultural support services. There is the prospect of modernization of farming system through the technology transfer from Israel. A very important development will be the demonstration effect on other farms in Jordan, which will want to modernize the technology on their own farms to increase productivity.

The environmental issues and problems have also been checked so that any environmental degradation meets the minimum standards. The soil quality and water supply issues were seen where the project was being concerned and JVA has indicated that it will be able to provide regular supply of water according to the demand that will be done at the minimum possible to avoid wastage through the use of high tech drip irrigation technology. Thereby will be minimum discharge of chemical effluents with solid waste will be either recycled when it is plastic greenhouse materials and any organic waste will be composed or fed to livestock. A regular monitoring of chemical residents will be done and personnel will be trained to address health, safety and environmental management principles.
The first phase of the project is budgeted to cost $5 million; IFC is contributing $1 million for a minimum of 20% of share capital in MAICO.

D. World Bank, Jordan- Amman Water and Sanitation Management Project

The World Bank realizes the importance of water resources in June 1998 proposed to improve the efficiency, management, operation, and delivery of water and wastewater services in Amman. It also proposed to increase the involvement of the private sector in the overall management of these services. As water resources are very limited, and the distribution systems and the services efficiency is low due to the high unaccounted-for water. Inadequate maintenance and delayed investments has led to services losses. Unaccounted for water in greater Amman and across the country exceeds 50%.

The project objectives is to improve the efficiency of the delivery of water, would consist of the following competent. A private sector company is to be established under a performance base management contract, which will manage the water and wastewater services in Amman governorate. The company will be provided with funds and technical assistance.

The estimated project cost is being estimated at $149.2 million of which IBRD financing will be around $55 million. It is expected that the introductions of a private sector operate to manage
and operate water and wastewater services will imply sound financial management and will also improve cost recovery.

The project is expected to support the government's programme to increase private participation and also to improve and protect the environment. Most of the low-income group will also benefit by having reliable piped water supplies. The project will save water supply due to leakage repairs, repairing or replacing meters and thereby increased revenues. There will be improvement in the service delivery with increase in the supplies of piped waters, the project also does not envisage any advance environmental impact. In fact there is the possibility of improvement in environment through expansion and improvement in the management of water and sewerage systems.

Besides the World Bank loans to agriculture and associated activities like water management, the World Bank has given to Jordan in different areas which can be indirectly linked to agriculture management. World Bank loans to areas of export development project, Jordan economic reform and development and training and employment support, these are generate project in important areas of much needed economic reforms and will have a bearing on the improvement agricultural and irrigation management.

The World Bank has given three Economic Reforms and Development loan starting in 1994, the second in 1996 and the third in 1999. The first loan was of an amount of $80 million, the second loan was of an amount of $120 million which the third loan consisted of $
to support trade and investment policy adjustment and these loans have imperative achievements through the world bank adjustment operations in the energy and agricultural sectors. The ERDL is to support a set of government actions towards the path of free trade with other neighbor and the European Union.

The most important objective is to solve the problems, which constrains its long-term growth in agriculture industry and trade. A way to achieve this will be through close integration with international markets and the establishment of an investment friendly environment. The ERDL will reduce and restructure tariffs, equalize domestic taxes on imports and domestic products, which will be helpful to agricultural produces.

The ERDL-2 is for maintaining macroeconomic stability and maintains the basic structural and sectoral reforms, extending trade liberalization and greater integration into the world economy. An important part of the reforms is to ensure that they are politically and socially in the short term. The energy sector adjustment loan and an agricultural sector adjustment loan support the medium term adjustment and structural reform programmes.

The ERDL-2 is to support trade and investment policy reforms, which would further integrate it with the world market. It is to improve banking competition and efficiency and to improve financial
viability. It is to encourage long-term savings and promote new financial instruments, modernize business laws and improve opportunities for individuals and the private sector. All these broad economic reforms will have a positive impact on all agricultural sector and its production and export.

The World Bank gave the ERDL-3 after the successful competition of ERDL-1 and ERDL-2. The key objective of ERDL-3 is to further support the government's reform programme for sustaining high growth through increasing the role of exports policy direction will be removal of remaining trade and investment burdens, closer trade relations with EU and the membership for the WTO. The economy would be more privatized to increase level and efficiency of investments in different sector of the Jordan's economy.10

The Government of Jordan initiated in 1996 the social productivity programme (SPP) which is to address social assistance, physical infrastructure, and micro finance to support self-employment and training for wage employment generation. These are important objectives and very important for developing a modern and profitable agricultural sector. The World Bank TESP is part of SPP and is to finance short-term training and related employment services. The TESP is being thought of as financing skills in the Jordanians. Thus it is to increase social productivity through training activities. The training activities would be related to agriculture sector where modern farming techniques and management are imported for developing necessary skills to increase farm productivity. This will go a long in reducing poverty in the country. The TESP will be overseen and
closely monitored by SPP programme coordination and support unit. The project is aimed at the unemployed particularly from poor families so that they can increase their skills. The social benefit is to improve equity and access for the poor to jobs and increase the level of employment.

E. Agricultural Sector Adjustment Loan (1996).

The objectives of the ASAL for this particular loan are:

1. To promote transition to a more sustainable and efficient use of resources, particularly water.

2. To free up markets and enable the private sector to invest, produce and trade in line with Jordan’s comparative advantage in agriculture.

The ASAL components are:

1. Efficient natural resources use to support the transition to an optimal use of water and land resources. Within an inter sectoral water policy framework, the ASAL supports comprehensive reforms to restructure water sector institutions and promote efficient use of existing water resources through demand management and also establish control of over-exploiting groundwater resources, lastly is the prioritize public investments in water.

2. Market liberalization, including removal of subsidies, price controls and liberalization of external markets in agricultural produce.
3. Institutional development, including changes in research, extension, rural credit and cooperatives

After receiving appropriate assurance from the government, the Bank declared the ASAL effective in May 1995. The January 1996 joint World Bank/KFW mission found the first tranche programme largely on track. Water charges have been raised as agreed, and groundwater extraction is being largely managed in line with the programme. The government has implemented a substantial programme to liberalize agricultural markets, remove subsidies and withdraw government interventions. Progress towards privatization of agricultural marketing and processing company (AMPCO) and the Shafa tomato processing plant is promising. A low cost, rapid and effective system has been set up in the ministry of agriculture to monitor the effective of adjustment on farmers and farming; and results for the first year under adjustment should be available shortly.

Although it is still early in the adjustment period, there are already some signs of positive impact of adjustment in the water sector. An increasingly integrated approach to water management is evident, abstraction of non-renewable groundwater appears at least to be stabilizing, the Deir Alla pipeline is fully utilized, and there are some first signs of growing efficiency in the Jordan valley. Farming efficiency is being promoted by price signals that reflect the scarcity of resources and by competition from imports.

Similarly with the liberalization agenda, the positive impact are already beginning to show in such different ways as more security
for tomato producers through contract farming, reduced government fiscal outlays, and parastatal losses turned into profit. Consumers are benefiting from better prices and quality, and producers are being pushed to efficient husbandry of water, the nation’s scarcest resources. However, weak export market development to data represents a very serious constraint and evidently a major effort are required to assist growth in this area.

It was also requested that the draft baseline report on impact of adjustment, and the 1995 comparative figures be sent by May 15, 1996.

Within the bank, the mission recommends that a short analytic paper be prepared examining the theoretical and practical case for the further increase in Jordan valley water charges.

AGRICULTURAL EXTENSION

Agricultural extension in Jordan has during its 40 years existence contributed significantly to agricultural growth. However, Jordanian agriculture is facing a challenging period with water quality and quantity issues to be resolved, local and between sophistication and subsistence.

Three trends are relevant for extension in Jordan, first, the rapid population. Twice as many need to be fed 25 years from today. Second from one in five in 1975 to one in twenty in 1990, although an increasing number is employed in related businesses. Farmer is an ambiguous term in Jordan. Farms who get all of their income from
agriculture are in a minority. Third, employment figures in agriculture differ by gender. Women only represent 11% of the officially reported labour force but they are proportionally stronger represented in agriculture.

There are about 100,000 farmers in Jordan. In terms of their information needs, they can be grouped into six categories, each having particular priority needs for information and technology. Needs vary from advice on IPM, water efficiency, marketing business skill and quality control, for irrigating farmers, to tree cropping, flower production, post harvest technology, off-farm income possibilities, minimumillage and fodder systems for other, livestock owners need advice on the use of by-product, plant cover development, communal grazing management and range improvement, for instance.10

The number of agricultural engineers in the private sector, working extension, is larger than that of the public extension services. Farmers organizations tend to serve the better off, better educated farmers. NGOs focus on resources poor rural peoples. Some have an environmental agenda, some a gender one. Advice is part of promoting- often through subsidies- rural development projects. Commercial extension comes as part of input and as a fee-based. Most common are advice on the seeds, fertilizers and pesticides. Private veterinarians also provide advisory service to farmers. A number of irresponsible suppliers operate whose aim of maximizing sales shapes their advice to farmers. The result is serious overuse of fertilizers and pesticides.
There are four major issues in extension in Jordan:

1. Farmers, particularly the poor ones, hardly participate in extension planning, implementation, and monitoring, while extension lacks a strong farmer orientation.

2. There is insufficient government commitment to extension.

3. The roles of the public and the private research and extension are unclear, while the linkages between farmers, research, extension, and education are underdeveloped.

4. Jordan’s considerable resources for extension are used below their potential, because of compartmentalization within services and a lack of coordination between them.

**World Bank and Agro Industry**

World Bank has supported the Agro Industry through ASAL, since it has more than 15% of the workforce and around 6% of G.D.P. Most of the products are directed to G.C.C, Lebanon, Europe, and USA.

The Agro Industries has two categories.

1. Those which depend on local raw materials.

2. The other one depends partly or fully on imported raw materials.

The main important of the Agro Industry is Tomato paste, where (AMPCC government company) hold the Monopoly of
marketing, processing and prices of raw materials. Other enterprises are canning broad beans, chickpeas and other vegetable products as well as olive industry.

As to the strategy for development of the agro industry it is recommend that the role of the government should be able to establish a framework and an environment, which will create an atmosphere conducive to investments and competitiveness of Jordanian enterprise. The creation of agro industries and their development as to production and marketing should be undertaken by the private sector including cooperatives and joint ventures. The market forces should be left to decide what products should be produced and marketed and what prices as long as the activities meet the overall objectives of the development strategy.

The accesses to credit seem adequate and tax and customs duty exemptions for pioneering projects work well in particular for medium and larger size. To support the development of agroindustrial enterprises government should alleviate the present constraints:

1. Abolishing government monopolies (on the production of tomato paste) withdraw from production and trading, and discontinue intervention in price setting for agro industrial products).

2. Review of duty rates on spare parts and raw materials needed by the local industry.

3. Abolish the monopoly of the airfreight handling to ensure exporters rates.
4. Remove the restrictions on the licenses for export and simplify import-licensing procedures.

5. Regulations and procedures in the free zones and also in the port of Aqaba.

Non-traditional product development one project aiming at export to Europe (the Export Management Agency (EMA) of fresh fruit and vegetables and cullflowers) is under negotiation under the ASTAP program.\(^{13}\)

Recommended new agro industrial products for development include Oils, essence and extracts from plants and herbs for various industries, dates, Pistachio Nuts, Olive Oil based on imported olives outside the season for Jordanian Olives and Cheese based on imported Milk powder.

**Criticism of World Bank Objectives**

The World Bank funding have been also criticized due to various reasons of being anti poor and not caring for the environment. The policies of the World Bank with its emphasis on private sector, increase in prices of products and setting up of industry. Disregarding environment has received wide spread coordination in many cases. In fact now the world bank also emphases the environment factor and carries out due diligence of the impact on the environment regarding any particular project. According to some the World Bank structural adjustment program have increased to rising income but also to wealth inequality. Due to its policy of cutting down on a government...
expenditure, privatization and opening up of a country's trade to foreign investment in fact deepens poverty among the poor sections of the society. In fact at times repayment of loans becomes a problem and countries have got into debt problems because of the huge interest and principle repayments that have to be trade.

At times with government spending coming down and emphasis on exports of agricultural products small farmers have had to switch from growing food for family consumption to crops for exports. An activity which at times is not economically viable for the small farmers. Also along with increase in prices of other inputs-water, fertilizers etc. it leave them much poor than they were before the structural reforms of the world bank are under process.

The fact in Jordan there has been some environmental opposition recently to the Jordan Gateway industrial zone. The world bank through the IFC is considering a $15 million loan for the structure of an industrial estate along the Jordan river. This site is to connect another Israeli site via a new bridge. Critics point out that constriction began before an environmental impact assessment was done and
References


CONCLUSION

In any economy the component of agriculture has always been very important. The importance of agriculture through the increase in agriculture productivity and the increasing output comes first though supplying of food products to the people and as raw materials to the sectors of the economy. It provides a marketable surplus and thus an investible surplus of savings to support investment in the economy. Also the marketable surplus will increase the economic activity in the rural areas for products from the industrial sector. Further there is always the possibility of exports of the agricultural products thereby earning foreign exchange for the country. Thus agriculture makes a very important contribution to each and every sector of the economy.

The emphasis on agricultural development is important not only for its linkages with the other sectors of the economy but for the fact that of its own absorption of labour and thereby increasing employment. Further because of the agricultural production there is an increase of real income among the rural population. In fact to decrease unemployment, modern economics activity has to come to rural areas. A good agricultural strategy is to build up infrastructure, relevant technology and the basic resources available in the rural areas. Surplus of the farm products should be a major concern and developing of linkages between the different sectors of the economy.

In agriculture, the biological production process depends upon
solar energy, rainfall and soil. It must be spread out in time and space. Technology is not simply transferable, but must be adapted to the peculiar conditions of individual locations. Production is seasonal and each worker must be skilled in different skills. The production process is only partly subject to human control and management requires the ability to cope with randomly variable exigencies of local weather and other growing conditions. Agricultural production is normally done by a large number of individual farmers for whom it is a livelihood. A small mistake can be very costly and thereby the introduction of any innovative practice is not easily accepted by individual farmers.

The great variables in agricultural production make it difficult to derive an operational useful concept of agricultural development. This is due to some of the reasons as discussed. Firstly the physical conditions of production in agriculture changes from place to place. Because of changes in space the transformation of input into output changes very much. Different regions may face different price and income elasticities for the agriculture output. The strategy of modernizing agriculture and therefore its role in development will differ significantly in different geographical regions. Secondly agriculture production takes place over small independent units. The farmers differ in ability, capacity, and training for farming. Thirdly any planned development largely depend on what happened to the past. Any effort to be taken and innovations to be implemented have to modify economic, institutional, cultural and also physical environment for agriculture, which is difficult to achieve in a short period. When new varieties of seeds and techniques of production remain limited to few
regions and farm income does not depend on the number of people but on the area of land than it may not be possible that any new technology will be a stabilizing influence. Any growth, which is not equitable, will be destabilizing. The basic thrust is to device and implement agricultural production strategies which are not confined to only a single objective of increasing output at low cost but are efficient in terms of a number of objectives. Any strategies for development of agriculture that is efficient should be contributing to the overall rate of economic growth and the process of structural transformation. Another objective would be to achieve reasonable rate of increase in farm production at minimum cost. This can be done through encouraging innovations in technical change depending on the regions factor endowments. The third objective should be a broad-based improvement in the welfare of the rural population. Lastly, it should also facilitate the process of soci-economic development in terms of health, education and attitudinal and behavioral change.

Jordan’s main agricultural products are cereals, fruits and vegetables. Products yield varies widely depending on prevail weather conditions. Record high yields of agricultural produce in a good rainfall year like 1974 for wheat and barley in 1974 were in the subsequent years it reduced due to drought. The growth rate of the agricultural production has fluctuated between a negative rate of 43.7% in 1973 to a positive rate of 77.9% in 1980. This wide fluctuation in agricultural output leads to problems in planning long-term output strategy. The introduction long term output strategy. The introduction of new technologies in irrigation is very necessary specially drip irrigation and
agriculture under plastic covers. This to some extent will be able to control the wide fluctuation in the output. The strategy for agricultural development is to achieve a balance all the different sectors of the economy.

The Jordan valley is by far the most important irrigated area. This is the region in which agricultural production can be dramatically increased. This area has seen some of the largest builds up of agricultural infrastructure and trying to meet the domestic demand for agricultural products. The Jordan Valley Authority (JVA) was set in 1973 to be in charge of development program in the valley. Building up infrastructure facilities, extending irrigation canals, reclaiming new areas and constructing housing facilities.

The climate of Jordan is basically a Mediterranean climate characterized by dry hot summers and mild wet winters and extreme variability rainfall within and among years. The rainfed area in Jordan is essentially fixed resources and any future. Additions to the cropped demand must come either from conversion of natural grazing lands or from reclamation of areas that are at present not used for agricultural production.

Dry land regions of Jordan are characterized by low and highly variable rainfall. The challenge facing farmers and policy makers in Jordan is how to raise productivity of the dryland farming areas of the country. The area that could be targeted for the cropping system is to manage soils to conserve moisture and fertility and a better integration of livestock and crop production.
A well-organized program for the development of rainfed and arid areas is essential economic and social benefits. Investments should be made in these areas as soon as possible so that progressive erosion resulting in loss of soil and soil productivity does not take place. Also there are threats of possible that low farm income will lead to migration of the poor rural population. Soil survey and land classification project should be implemented as well as agricultural research on different aspects of rainfed agriculture. Agriculture extension service should be attempted through training of qualifies staff.

The World Bank, which consists of the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA), has one overreaching goal, helping its borrowers reduce poverty. It is a partner in strengthening economies and expanding markets to improve the quality of life for people everywhere, especially the poorest.

The IBRD and IDA make loans for projects and program that promote economic and social progress by helping raise productivity so that people may live better lives. Along with these loans, the World Bank provides advice and technical assistance. The International Finance Corporation (IFC) which works closely with private investors and investors and invests in commercial enterprises in developing countries- and the Multilateral Investment Disputes (ICSID) shares the World Bank's objective of promoting increased flows of international investment by providing facilities for settling disputes between foreign investors and their host countries. Collectively, these five institutions
are the World Bank group.

With this reorientation of objectives, the basic philosophy behind the World Bank's operations became to develop the resources and productive capacity of the world, with special reference to the less developed countries. The World Bank was to borrow on World markets and lend to countries short of foreign exchange for reconstruction and development. The prime objectives of such lending were to finance investments in developing countries that would contribute to their economic growth and well being.

The World Bank's poverty reduction strategy, first outlined in the World Development Report (WDP) 1990 involves policies and institutions to

1. Promote broad-based labour-demanding growth.
2. Improve poor people's access to basic education, health and nutrition, and
3. Create effective safety nets for those who are cannot take advantage of income-earning opportunities or who are heavily risks prone.

In the fiscal year 1998 the World Bank published its new rural strategy paper and selected rural development as one of the top size areas of emphasis for the next few years. Nearly three quarters of poor people in developing countries live in rural areas so it is essential to focus on rural economies if poverty is to be reduces. Effective rural development also contributes to food security and helps protect the environment by making land and water use more efficient. This is
critical if the world is to feed a rapidly growing population. Estimates suggest population could grow by 45% over the next thirty years.

The revitalization of the World Bank work on rural development is showing demonstrable results. The Operations Evaluation Department (OED) evaluation show that projects are now performing much better than in recent years, with 72% of completed projects being judged satisfactory in fiscal years 1995-97 compared with just 52% in 1989-91. The goal is to achieve an 80% satisfactory rating by 2002.

The central objective of World Bank's assistance to Jordan is to promote rapid and sustainable outward-oriented growth. Three subobjectives support this overall theme:

1. To support the macro economic transition taking place and assist the government as it builds a market-responsive private sector capable of creating thousands of new jobs, while offsetting the temporary social adjustment likely to occur as Jordan continues its process of trade liberalization, privatization, and financial and regulatory reform.

2. To help the government address infrastructure constraints while encouraging environmentally sound investment practices by providing investment loans and other forms of assistance in key sectors of the economy such as water, energy, telecommunications, tourism, agriculture and natural resource management.

3. To support the government's attempt to reduce poverty through targeted investments and continue its excellent track record ensuring
quality access to education and health care for all Jordanians

Jordan and the World Bank group have enjoyed an ongoing partnership since 1962, when the International Development Association (IDA), the group soft loan arm, was invited to assist the government in financing a water and sewer project for Amman. Since supporting that initial investment in Jordan's economic well being, the World Bank and IDA have provided assistance as partners in 55 projects. Total lending commitments through mid-1996 approach $1.4 billion, with about $600 million committed for ongoing projects.

These funds have been used to help the government finance investments in priority areas of infrastructure development such as energy, water, mining and transport, as well as in human resources development through program in education, vocational training, and health.

The proposed objectives of the World Bank's country assistance strategy are based on the same central theme as that of the government to promote rapid and sustainable outward-oriented growth. To be both rapid and sustainable, growth needs to be private sector based and environmentally friendly. The strategy aims to establish a business-friendly policy and physical environment in which private investors guided by market signals will determine the sector direction of growth. The growth theme would be supported by three objectives, in order of priority:

1. Assisting the government, in collaboration with the IMF, in introducing the trade, financial, regulatory, public enterprise
reforms and privatization measures necessary to establish the enabling environment for sustainable growth, and hence to reduce poverty and unemployment.

2. Assisting the government to address critical infrastructure constraints—particularly water—with special efforts to induce the private sector to participate in such environmentally sound investments.

3. Assisting the government to address human resources constraints more efficiently in education, health care, family planning, and protection of the poor during adjustment.

The objectives of ASAL are to promote transition to a more sustainable and efficient use of resources, particularly water, and to free up markets and enable the private sector to invest, produce and trade in line with Jordan’s comparative advantage in agriculture.

ASTAP has been requested by government to help in the implementation of ASAL policy reforms and to provide support to farmers in getting the best out of the process of adjustment. The ASTAP would be implemented directly by government agencies and would provide funds for specific actions in the water sector.

ASAL and ASTAP proposals are, in general, environmentally beneficial, but it is recommended that the following environmental issues be emphasized within the existing program. A water policy should ensure clear identification of legal, regulatory and enforcement
responsibility for effective ground and surface water quality monitoring and management and also prioritization of water conservation initiatives so as to minimize the effects of water resources depletion on the biodiversity of economic systems that rely on them. Further, any proposed removal of feed subsidies should be announced and phased so as to minimize the impacts of overgrazing on rangelands.

Although agriculture is a modest contributor to the national income relative to many other countries, it remains important to about one-fifth of the Jordanian populations who rely on it as a major source of income. The government of Jordan has three basic objectives for the agricultural sector.

Firstly, to conserve basic agricultural resources and protect the environment. Secondly, to increase the return on agricultural investments and improve farmer and farm laborer income sufficient to discourage rural-to-urban migration. Thirdly, to increase the net income and growth rate of agriculture to a proposed 7.8% and thus contribute a greater share of national income.

The expansion of irrigated areas is to be a major contributor to the achievement of the above objectives. In support of agriculture, the irrigation sector's basic goal is to increase the irrigated land to the extent available water resources permit. This would be achieved through improved water efficiency and increased water resources development. The completion/expansion of additional infrastructure (including credit and marketing institutions) and of agricultural
research. Extensions are also expected the limited availability of land and water are serious constraints to agricultural growth. The low cropping intensities suggest that water is more limiting than land. Both rainfed and irrigated agriculture will be forces to use existing resources more efficiently through introducing more water efficient crops in both rainfed and irrigated areas as well applying water conservation/water harvesting practices more widely. Further improving the major delivery systems to eliminate canal leakage losses, and continuing conversion to more efficient farm systems (from open canal to pressure pipe) and farm use (drip pipes/houses) also applying water at economically optimum rates and using more municipal waste water.

Land suitable for agriculture is in short supply, and land holdings are generally small fragmented. Where rainfall is, on average, sufficient for arable agriculture, it is highly variable, further land topography, rocky outcrops, and poor soils limit the areas which can actually be cultivated. Given the limited land base, intensive agriculture must be practiced to the extent possible. Extensive cereal-dominated cropping systems cannot be

The priorities for investment in land and water development should be determined by constraints to increase production, resources use efficiency, the cost of improving efficiency and or expanding availability, and most importantly the net benefits from the investment. This issue is complicated as these investments involve a seasonal element. Some investments increase water availability when it is relatively abundant, while others increase the availability during
periods of relative scarcity. Investments to improve water efficiency appear to economically efficient and are being addressed by irrigation conversion projects (e.g. the Wehdah Dam) continue to receive priority until existing agricultural land is fully utilized. But some incremental land development for irrigated agriculture in the Jordan valley may be necessary to effectively use the water that is relatively more abundant in winter. Investments in resource conservation are appropriate to preserve production capacity.

The overall goal is to promote efficient farming. This could be done through exploiting Jordan’s comparative advantage of a warm winter a time of year when prices are high and when Jordanian farmers should aim to produce their harvest. It should also maximize returns to the scarcest resource (i.e.; water) and identify and exploit niche markets (e.g.; cut flowers, and trees crops) and the world bank and other donors are working with the government to stave off the potential for a future crisis by taking steps today to promote water conservation, development, and an equitable distribution of this scarce resources.

Dimensions of the problem

1. Per capita water supply is among the lowest in the world, and falling rapidly as population rises. By 2025, it will be only 17% of its level in 1960.
2. Most aquifers are seriously overused, highland aquifer extraction is almost 80% above natural recharge. Saline intrusion and higher pumping costs are serious problem.

3. Significant losses of water (54% in urban systems, 45% in the Jordan valley).

4. Water quality, especially of wastewater, is poor and declining causing losses on farms in the central Jordan valley and elsewhere.

5. The cost of new water and wastewater is high and rising faster than the GDP.

Elements of a solution

1. Improve the management of the sector. This includes bringing private management into system operation.

2. Invest in reducing system losses in both municipal and irrigation systems.

3. Upgrade wastewater treatment facilities and put in place incentives to reuse treated wastewater where appropriate.

4. Implement major investments for new supply.

5. Help farmers in the Jordan valley switch to higher-value, less water-incentive crops

6. Control extraction from aquifers to reduce it to sustainable levels.

7. Exploit all opportunities for well-regulated private investments.
The World Bank's Role

1. Partnership with putting together the strategy and plans to address the water challenge.
2. Provide initial funds for improving sector management and doing feasibility studies of specific projects.
3. Finance specific projects with loans and guarantees.
4. Help mobilize other official assistance for investments and technical assistance.

The Jordan government took the difficult decisions to increase irrigation tariffs in the Jordan Valley to cover operation and maintenance costs, eliminate import monopolies and allow market-based pricing. Pressure from farmers and some internal resistance in affected line ministries have led to a few lapses in implementation of the reforms, but the overall program is proceeding satisfactorily. Now the government is ready to extend its reform program over and investment regimes, the financial sector, the regulatory environment and the role of the public sector, with new support from the bank and other official financiers.

The World Bank recommended a strategy for agro industrial policy supported by ASAL. The agro industrial sector is characterized by a large number of small enterprises, employing more than 15% of the workforce. The agro industry accounts for some 6% of the GDP. The vast majority is based on supplying the
domestic market. Where export occur, the Gulf countries account for almost all foreign sale, whereas only a fraction is directed to Europe, the USA and other non-traditional markets.

Agro industries in Jordan can be grouped into two categories, enterprises of which the production is based on processing of local raw materials and enterprises of which the production is based partly or fully on imported raw materials. Manufacture of tomato paste is that the most important agro industry within processing of fruit and vegetables.

Several enterprises are canning broad beans, chickpeas and other vegetables products prepared according to the taste of the domestic market.

The olive oil industry is well established. The annual production of olive oil fluctuates substantially and Jordan is usually not self-sufficient. There is high local demand for Jordanian Olive and viability seems to be good.

Major constraints for development of agro industries are the scarce resources and in particular arable land and water. Priority should be given to promotion of agricultural and agro industrial products, which offer the best economic, return on these resources. Another constraint is Jordan's export structure. The domestic market is too small for dynamic industrial growth.

In Jordan, where three separate semi-government agencies exist to disburse credit to the agricultural sector are the agricultural Credit Corporation (ACC), the Jordanian Cooperative Organization
(JCO) and the Jordan Valley Farmers Association (JVFA).

The ACC, JCO and JVFA appear to have different areas of responsibilities, the ACC concentrates on the building up of live stock reserves, the JCO on the provision of basic foodstuffs such as wheat and barley, and the JVFA on vegetable crops. The lines of responsibilities are not, however, so clearly defined for example the JCO and ACC can both lend money for the purpose of purchasing machinery. This raises the possibilities of the farmer receiving a loan for the same purpose from more than one source and making an insufficient increase in profit to allow him to make the necessary repayments.

Those who receive loans and the manner in which loans are disbursed are other problem areas for the agencies in Jordan. The ACC lends to individual farmers, the JCO to co-operatives and the JVFA to farmers who are members of the problems of lending to the rural community is that it is an expensive sector to service, small transactions cost as much in administration as large ones, high expenses lead to reduced available capital and this, combined with low interest rates, actually reduces accessibility to credit. The JCO advocates lending to co-operatives, hence reducing costs. However, the co-operatives then pay out to the individual, taking commission on the loan.

The general aim of establishing a credit agency to service the rural sector. These are to provide investment to promote innovation and efficiency, and to reduce the poverty of farmers.
There can be added other general aims for example, ensuring food security in the nation.

However, the stating of general aims does not constitute a strategy for dealing with the problems of agricultural sector in the third World. It can be argued that the provision of cheap and accessible credit is a useful tool for development but only where it forms part of an overall strategy to lead to improvement in the performance of the agricultural sector and therefore, to the generation of income for farmers.

The effective of the government intervention in agricultural pricing of products depends on an interrelationship among agricultural prices and resource allocations, incentives, income distribution and employment. In fact the potential of government intervention in terms of price charges should not be overlooked. Usually there is a tendency to suppress economic incentives by pricing agricultural products below competitive market equilibrium prices relative to the cost of inputs. Under valuation of agriculture’s contribution to growth and development is derived from the misunderstanding that agricultural production is a backward sector and is not at all open to innovations. Also the government does not let the market mechanism work out the prices on the presumption that middlemen will exploit the small farmers and the poor urban consumers.

Building local participation and partnership in the World Bank’s work in Jordan is an important element of financing in
Jordan. Local participation and partnership enhance the effectiveness of the other instruments by bringing to bear local knowledge, building local analytical capacity, and most important, enhancing local ownership. This has become more important since 1989, when the economy was in crisis, adjustment measures essential. Particularly as the adjustment operations deal with areas where sensitivities regarding political interference and economic interests run high, it is important to make a good case for these operations with potential public opponents, and build into their content as much local input as possible. Greater local participation is also useful in increasing local ownership of investment projects, thus reducing the number of projects dropped well into preparation and in improving the response to our economic and sector work (ESW).

The World Bank would continue the practice of regularly reviewing the lending and ESW program, seeking greater inputs by the government in early definition of future plans, diversifying high-level dialogue to include the Economic Council of the Cabinet, and sharing analytical tools and data. The World Bank is to greater use of Jordanians as members of project preparatory and ESW teams.

The following questions should be adequately settled if agriculture were to achieve high and steady growth:

1. Can modern marketing be institutionalized?

2. Can more Jordanian labors shift to agriculture to replace imported labour and without sharp rises in wages?
3. How can agriculture become economically rewarding to the producers with a minimum risk of losses?

4. What incentives are needed to encourage expansion in domestic production of real meat and wheat?

5. How can we revive agricultural institutions and coordinate among them without facing the same problem every time as if it were new?

The government of Jordan has embarked upon a broad-based program of economic adjustment and reform that is designed to transform Jordan's considerable potential into reality. As a small country with limited natural resources, Jordan's future prosperity will depend upon the creation of an investment friendly economy with a strong export base. Fortunately, Jordan's over four million people are among the most educated in the region. This talented workforce is Jordan's greater assist. As the government's economic reforms improve the climate for business activity, the professional and technical skills of the workforce can be applied to increase Jordan's productive capacity and competitiveness. At the same time, this combination of business investments and skilled workforce can develop the physical infrastructure necessary to sustain a vibrant private sector-led economy.

In term of globalization and WTO it is important to realize what should be the continued role of agricultural trade. Even country in the new trade regime will have to look at some of these basic issues and which will be true of Jordan also can a country attempt to grow through further specialization in agriculture or should the
concentration shift to non-agricultural sector. What happens in the long run, whether rapid growth can be achieved by depending on agriculture. Also, whether short-term fluctuation in price of agricultural products interfere with overall development efforts of the country.

The main purpose of this study was to find out the impact of World Bank group on agriculture development of Jordan with special reference to field crop, vegetables, and fruits, in this regard we rechecked this conclusion that role of World Bank is positive and therefore we except the hypothesis and we also find out some ways, means and clues to make its role more effective.

Some of the suggestions that come out the study and bears important implications for the agriculture in Jordan are as follows:

1. The government should pay more attention for agricultural development for the welfare of farmers by supporting the price of agriculture inputs, raw materials, subsidies and applying modern technology.

2. To boost up the agriculture economy of Jordan by support the infrastructure, marketing, transportation, information facilities etc, essential.

3. Agriculture should be integrated and developed in the creation of additional income for agricultural workers and small agricultural holders.

4. Programmes should be developed for increasing participation through cooperatives and agricultural bodies.

5. Increasing productivity by modern techniques should not lead to alienation of the small and the poor farmers.
6. Turing agriculture production towards commodities where Jordan enjoys relative advantages and at the same time keeping national food security into consideration.

7. To create a strategy stocks of foodstuffs and complete the infrastructure.

8. Soil conservation and fruit tree planting on lands unsuitable for cereal production.


10. Pricing of irrigation water which does not harm the small farmers.

11. Improving canal leakage and improvement in drip irrigation.

12. Development of agriculture extension and agroindustry to benefit all the sections of farmers so that private initiative does not leave them out.

Thus the present study documents comprehensively the role of the World Bank in the agriculture development of Jordan. The study emphasizes the fact that local participation is very important in the overall development of the economy and the fact that the World Bank also releases this fact.

Agriculture program could be recommended pattern of development and of public expenditure are a definite period of years providing for the implementation of an integrated set of policies, measures and projects to the attainment of goals and target for food and agriculture which is consistent with the objectives of the national economic development plan. Agricultural programming consists of statement of the objectives of agricultural development within the
overall development objectives of the country. After that the target and a details statement of the policies and list of special projects with justifications. Also the long-range needs agriculture should be made inclusive of organizational changes needed to implement the program.

The problem in agriculture is not merely a business cycle one, but how to ensure steady and noticeable growth in agricultural income to meet the country's needs, and potentially to become a net exporter of food items.
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