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 ... so 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 focussed 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 19986-19990 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 99% 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.\(^4\)

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” focussing 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 Shūeb 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 structural 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 of 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 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 the 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.

B. 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 many places 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 built 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 produced 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 area 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 composted 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 governate. 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 though 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.  

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 intersectoral 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 term 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 are 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 (AMPCO 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.\(^\text{13}\)

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 polices 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 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


