

**AGENCY FOR  
INTERNATIONAL  
DEVELOPMENT**



**DEVELOPMENT ASSISTANCE PROGRAM  
FY 1975**

**JORDAN**

**DEPARTMENT  
OF  
STATE**

FEBRUARY 1975



JORDAN  
DEVELOPMENT ASSISTANCE PAPER

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I. Program Rationale

U.S. economic assistance to Jordan rests essentially on three interrelated propositions. Firstly, Jordan's continued existence as a moderate, relatively stable, and reasonably pro-U.S. Arab state is central to U.S. interests in the Middle East, particularly during the current period of uncertainty and negotiation. Because of its geographic position, moderate policies in Jordan contribute to stability in the area, and are of importance to the security of Israel and to a lesser extent that of Saudi Arabia as well. The pronouncements of the Rabat conference notwithstanding, Jordan's future relationship with the West Bank is still unclear, and Jordan may well play a significant role in the continued negotiations.

The second proposition is that because of Jordan's narrow economic base it must depend on outside sources for a significant portion of its annual budget and trade deficit. It is doubtful that Jordan could maintain its current policies in the face of a deteriorating economic situation. Total financial dependence on the Arab donors, too, would limit Jordan's ability to maintain its moderate stance in the area.

Finally, if Jordan is to reduce and ultimately eliminate its fiscal dependence on the U.S. and other donors, it must develop its economic potential. Under favorable conditions and with suitable economic policies Jordan could achieve at least budgetary independence in perhaps five to ten years.

In the short term, the level and to an extent the nature of U.S. economic assistance will be chiefly a function of U.S. political objectives vis-a-vis Jordan in the Mid East peace negotiations. Within the limits imposed by our political interests, however, we should change the focus of AID assistance from budget support to developmental aid, and also increase the portion of the overall aid burden to Jordan's oil rich neighbors.

It is very difficult to predict the political and security implications for Jordan of the evolving negotiations and, therefore, the pace at which we can move towards a developmental strategy. Although the next few months may produce a clear picture of inter-Arab alliances and relationships, we would sketch out the following contingencies over the next year or so for planning purposes:

- a. Worst Case: Full scale war with Israel or increased threat of war beginning GOJ pressures for massive increased in military equipment and sophisticated equipment and resulting in major increase in GOJ defense expenditures at the expense of Jordan's economic development.
  - b. Best Case: Formal and firm Mid-East peace with reasonably free movement of resources within the region, but continued GOJ pressure for a credible military deterrent against Syria and Iraq.
- [REDACTED]

- c. Median Case: No immediate breakthrough to formal peace, but with "peaceful" conditions for the next two or three years, continued importance to U.S. of moderate Jordanian policies and GOJ pressure to improve its military stance.

## II. Economic Projections and Implications

### A. Best Case

The analysis of this paper focuses primarily on the more favorable set of circumstances that might be expected in the region. It therefore may be somewhat unrealistic. However at the other extreme, the costs and implications of full scale war are almost impossible to calculate and this paper makes no attempt to do so. It seems useful to try to establish the upper limits of Jordans economic performance to determine if there is any hope for Jordan (pre 1967 borders) ever being reasonably being independent of donor assistance. The analysis then, suggests the minimum levels of U.S. economic assistance that can be expected in the next 5 to 10 years and provides a kind of base for AID longer range planning purposes.

The following analysis assumes the current Mideast situation will continue for perhaps a couple years, but toward the end of this decade the negotiations, while perhaps short of a final settlement, will have contributed in an important measure to the prospects for real peace in the region. More specifically the projections also assume that:

- a. something reasonably close to the pre 1967 economic relationship between the East and West Banks
- b. border procedures will not prevent or significantly reduce the potential movement of tourists between Israel and Jordan.
- c. GOJ defense expenditures can be kept at roughly current levels.
- d. prices will remain high for Jordan's fertilizer exports for the next several years falling gradually by the late 1970's but not to the low levels of the early 1970's.

#### 1. Economic Growth

Under these assumptions real growth of GDP for pre 1967 Jordan could be expected to average as high as 8% a year for the next 5 to 10 years.

VALUE ADDED BY SECTOR  
(JD MILLIONS)

	<u>1972</u>	<u>1977</u>	<u>1982</u>
Agriculture	40.3	50.0	64.0
Manufacturing mining and Electricity	26.3	90.0	130.0
Construction	11.5	18.0	30.0
Services	161.4	225.0	310.0
Total - GDP	239.50	383.0	534.00

The agriculture sector certainly will lag behind other sectors of the economy but important developments still are possible. Wheat yields can be potentially increased between 2 and 3 times. With improved extension and capital projects currently underway agriculture production in the Jordan Valley shows real promise. Based upon past experience agricultural output could be increased by as much as 4 to 5% a year on the average over the next 5 to 10 years with proper GOJ agricultural policies and programs.

It is the minerals sector which offers the greatest potential however. The value of phosphate production rose rapidly this year and if prices fall off only gradually over the next couple years Jordan's expanded output could raise value added in mining from about JD3.4 million in 1972 to JD 55 to 60 million as early as 1977. Beyond this period prices surely will fall thus offsetting to some extent further increases in phosphate production. Even assuming potash exploitation does go forward it will probably not be developed in time significantly to affect these figures.

The other components of the manufacturing, mining and electricity categories should also grow faster than GDP but bring the overall annual growth rate of the sector down to the 15% to 20% range still a very impressive performance.

Residential housing starts currently are high in part as a result of postponements during the 1967-1971 period. Until major construction begins on the Yarmouk dams sites, growth in construction of 10% to 12% a year on the average might be expected.

The growth of the service category is largely dependent upon the increase in defense expenditures. If these increases can be held to a minimum, the growth rate of the other services should exceed that of the overall economy with the average for all service items projected at 7 to 8% a year.

## 2. Savings and Investment

As shown in the following Table these rates require a doubling of the 1972 level of Gross Investment by the early 1980's. The Table also reveals that Gross Domestic Savings satisfy domestic investment needs by around 1980.

<u>SAVINGS AND INVESTMENT</u>			
<u>(JD MILLIONS)</u>			
	<u>1972</u>	<u>1977</u>	<u>1982</u>
Private Consumption	192.0	280.0	395.7
Private Savings	37.2	53.0	76.7
Government Domestic Revenues	40.2	80.0	120.0
Government consumption	69.75	90.0	111.6
Government Saving	- 29.7	- 10.0	+ 8.4
Gross D. Investment	37.4	54.9	75.4
<u>Δ</u> in stocks	5.2	-	-
Gross Savings	+ 7.5	43.0	85.1
Def. on current Account	- 66.8	- 41.2	52
(Transfer to Government)	(59.1)		
(Transfer to Household )	( 9.1 )		
GDP	239.6	383	534

With the substantial increases in tax and profits from phosphates, and to a lesser extent from the growth of tax revenues resulting from the rise in GDP, domestic revenues could increase at a striking pace. 16% to 17% a year between 1972 and 1977, and 12% to 13% on the average for the 10 year period. With minimal increases in defense outlays, perhaps government consumption could be held to about 8% a year on the average. If so, savings in the government sector could occur around 1980 implying minimal budget support requirements at about that time.

## 3. Balance of Payments

The Balance of Payments gap however could be expected to continue beyond the period of this analysis:

BALANCE OF PAYMENTS

(JD MILLIONS)

	<u>1972</u>	<u>1977</u>	<u>1982</u>
Export of Goods	17.01	76.8	105.00
Domestic			
Agricultural	(5.07)	( 7.8)	( 12.00 )
Mineral	(3.71)	(55.5)	( 68.00 )
Other	(8.23)	(14.5)	(25.00 )
Imports of Goods	- 94.88	- 140.1	- 215.00
Trade Balance	- 77.87	- 63.30	- 110.00
Net Service Exports	8.88	22.00	60.00
Remittances	(7.41)		( 25.00 )
Travel (net)	- (2.97)		( 30.00 )
Other (net)	(4.44)		( 5.00 )
Balance on Goods/Services	- 68.99	- 41.20	- 50.00
Financing the Deficit			
Transfers to Households	9.15		
Government transfers	59.14		
Net loans	- 10.70		
Errors and Omissions	- 1.79		
In Foreign Assets	+ 7.81		

The primary reason for Jordan's improving Balance of Payments situation is the very rapid increase in the value of mineral exports. Basically this results from a tripling of phosphate prices, assumed to fall only gradually over the next couple years, but also from GOJ plans to expand output to 5 million tons or better by the early 1980's. With suitable attention to the Jordan Valley, fruit and vegetable exports from this region could enable significant increases in agricultural exports as well. (The percentage growth appears high because of the very small 1972 base).

Earnings from services also could be increased at a very healthy rate. Workers remittances should continue to rise, certainly from the early 1970's when they were adversely influenced by the civil strife in Jordan. Pre 1967 estimates of the tourist potential in Jordan too suggests as much as JD 50 million to 70 million could be expected from this source with reasonably secure conditions in the area. Net service exports then could reach JD 22 million by 1977 and as high as JD 60 million by 1982 making a major contribution towards improving Jordan Balance of Payments situation.

With effort perhaps the growth in imports could be held to 8 to 9%. A much stricter policy than currently exists would be necessary but without such restraints it is difficult to see the end of a Balance of Payments deficit. Under these rather optimistic assumptions it falls to about JD 35 million by the early 1980's. A reduction in the deficit by 50% in ten years would indeed be impressive. Unless potash production however provides a surge in exports during the 1980's Jordan will face balance of payments difficulties for many many years.

#### 4. Employment

The above described economic developments would go far in reducing unemployment in Jordan by the early 1980's. The population is growing at estimated 3.2% a year and would reach over 3.4 million by 1982 at this rate.

#### Population and Employment (East and West Banks)

	<u>1972</u>	<u>1977</u>	<u>1982</u>
Population	2,500,000	2,900,000	3,420,000
Labor Force *	600,000	715,000	850,000
Employment *	530,000	640,000	800,000

Assuming a gradual increase, the labor participation rate reaches 26% by 1982. The labor force would be expected to grow somewhat more rapidly than over all population. At 3.5% a year it would reach about 850,000 by 1982. Employment grew at slightly less than 3% a year from the mid 1960's to 1972. This was a very abnormal period however and one would expect a higher rate in the future. While the planned expansion in the minerals sector is not particularly labor-intensive, employment generated from tourism and developments in general could increase employment about 4% a year on the average for the period. At 800,000 in 1982 employment would still fall somewhat short of the labor force but the unemployment rate under these circumstances declines from 12% in 1972 to 6% in the 10 year period.

These projections imply then very little capacity to absorb new refugees from outside Jordan without simply adding to the unemployment figures. One major qualification is in order however to such a conclusion. This paper abstracts from the question of payments in settlement of Palestinian property claims in Israel. If an overall settlement was achieved including a provision for these claims Jordan's economic situation clearly would be benefit. They would provide a further stimulus to growth and thus employment. Most importantly the Balance of Payments situation would be significantly improved.

\* Seasonally adjusted

## 5. Assistance Implications

Under these somewhat optimistic political and economic circumstance the need for U.S. budget support gradually declines and conceivably could be eliminated in a five year period. The figures however suggest a continuing Balance of Payments deficit and while Arab donors could easily fill this gap U.S. political interests might well argue for continued AID assistance, although presumably at less than current levels.

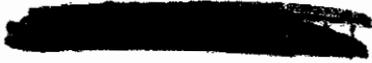
The U.S. perhaps could move fairly rapidly under these circumstances towards a developmental rationale. Our aid should be designed to cover the foreign exchange costs of various projects with particular emphasis on agriculture-especially in the Jordan Valley - mineral development and infrastructures for tourism.

Improved administrative capacity also is an objective that would warrant priority attention. The major constraints on achieving this performance (given the assumptions) do not appear to be financial, a scarcity of physical capital, nor shortages of skilled labor. While considerable investment will be needed, domestic and/or foreign funds are likely to be available. Instead, administrative, management and institutional limitations are likely to be the more important impediments to achieving these targets. Suitable economic policies must be clearly defined, various plans developed and implemented, decisions reached, people trained, all in a timely fashion. The overall performance of the economy from the late 1950's to the mid 1960's suggest the government can perform as required. Its performance of the last couple years however has not been overly encouraging.

The capacity - in terms of reasonably well-trained and qualified staffs - exists in nearly all government offices to plan and implement the need economic development program. Performance currently falls short of desired and possibly needed standards for cultural, historical, and political reasons. Unwillingness to delegate and coordinate decisions, strong family ties and obligations with limited national identity and loyalty, and long periods of insecurity, etc. impinge upon governmental actions and decisions. These behavioral patterns will only change slowly. However with progress toward a mid-east settlement, the King and the government perhaps would, or can be encouraged to devote a greater share of their time and attention to economic development matters. With the addition of greater high level interest and pressure to perform, our experience suggests the needed improvement is possible.

### a. Technical Assistance

Beside simply discussing the need for better government performance, the U.S. might also consider assistance in improving GOJ and U.S. understanding of the problem, and help in drawing up plans for addressing the problem. On a very limited basis we may also wish to consider assigning U.S. personnel in key sectors to play a more operational role than is currently AID policy.



Technical assistance in limited amounts too would be useful in other areas. The GOJ Agriculture extension and research program is weak yet essential to significant increases in output in the highland as well as the Jordan Valley. Sector planning capacity also could be improved.

b. Title I PL 480

A periodic need for Title I Wheat and flour will exist even under these more favorable conditions. Domestic production, while increasing, will vary greatly from year to year and will not satisfy domestic needs for most of this examination period. There also is a Balance of Payments case for Title I Wheat. We should however encourage the GOJ to modify its pricing and purchasing policies. Higher farm prices would encourage production and the private dealers can be expected to make wheat available to urban markets much more effectively than the government.

c. Title II PL 480

The analysis suggests a continued need for Title II resources but on a declining basis. No clear statement of the nature and extent of the nutrition problem exists. Recently expressed GOJ interest in a nutrition survey should be encouraged and supported to provide the framework for our feeding programs.

d. UNRWA

With only a gradual absorption of refugees in the economy, UNRWA programs too will probably also be required, but on a declining basis into the foreseeable future.

B, Medium case

Under median political assumptions, economic development in general probably will proceed more slowly than under the best case circumstances, postponing the date when a major shift from budget support to developmental assistance is feasible, and adding to the overall U.S. assistance requirements.

Political uncertainty and **insecurity** adversely affects the development process by discouraging investment and tourism, and diverting governmental attention from the problems of development. Also as long as our assistance levels are determined predominantly by political circumstances, with little or no regard for development or other needs, we forgo any **leverage** on defense and development expenditures as well as on the budgetary process itself. Considerable budgetary discipline is needed in order for Jordan to achieve its growth potential.

Under these conditions any effort to achieve our economic development objectives by and large will require funds over and above current levels, at least until towards the end of the decade. Some capital project financing in the Valley and in other key sectors seems warranted. Technical assistance, even beyond current plans, in agriculture, minerals and possibly in tourism should be considered. We could also assist in the preparation and/or evaluation of key sector plans. On a limited scale we might offer day to day assistance in the implementation of essential projects as well.

These efforts would not produce striking developmental benefits in the short run, but they could set the stage for a more serious developmental programs a few years from now. The median case probably adds slightly to Title I, Title II, UNRWA requirements described above.

Under median case assumptions, rising defense expenditures becomes the most important determinant of budget support requirements and to a lesser extent the GOJ's economic development effort. If they cannot be contained, it is difficult to see the end of our budget support. The U.S. will need to examine carefully the extent to which we can use our influence to keep these costs in line.

U.S. grant financed military assistance, of course, potentially adds to the defense expenditures and the budget support requirement as well. To the extent new equipment replaced old, costly-to-maintain items, as opposed to increasing total stocks, O&M costs conceivably could be reduced. This issue deserves our continued review.

FMS credit financing, too, has its economic developmental implications. While the foreign debt burden currently is small and seemingly permits additional foreign borrowing, FMS adds to Jordan's future balance of payments problems. The current capacity to absorb additional foreign debt might best be used for more economically productive activities. Unless, of course, such loans are underwritten by third countries rather than Jordan, FMS credit should be kept to a minimum.

Beyond the defense expenditure the U.S. might usefully reconsider our position toward the entire GOJ budget and its preparation. Despite the magnitude of our economic and military assistance, we are kept at considerable distance from the budgetary process. Official figures provide inadequate insight into the budget's real meaning. Even though political rather than economic considerations essentially determine budget support levels, greater knowledge of "real" needs would be most helpful. Unless political circumstances permit simply arbitrary reductions in budget payments, setting minimal future requirements will be next to impossible without greater understanding of the budget and the basis on which budget decisions are made.

In sum, both the level of our assistance to Jordan in the next few years, and the pace at which we can shift from budget support to a program of economic development will be chiefly a function of our political interests, in particular the results of the current Mid-East negotiations. Based upon the median case assumptions, the more likely set of conditions, our FY 1976 FBS recommends \$60 million in SA budget support in FY 1976, and \$55 million and \$50 for FY 1977 and 1978 respectively. To offset the decline in SA it proposes \$10 million in DL in FY 1976, \$15 million in 1977 and \$20 million in FY 1978. The FBS also proposes Title I wheat of around 30,000 tons a year on the average, and Title II commodities of \$500,000 to \$600,000 annually based upon proposed Voluntary Agency programs for the next few years. We foresee some increase in the technical assistance portion of our program if we are to move in the direction of a developmental strategy. To respond to requests for assistance in minerals, and possibly in agriculture and tourism as well will require about \$1.7 million in FY 1976 with smaller amounts perhaps needed thereafter.

### III. AID GUIDELINES AND JORDAN'S DEVELOPMENTAL STRATEGY

In our judgement the Congressional mandates and worldwide AID program guidelines seem less directly applicable to Jordan than perhaps to other countries. The GOJ faces and will continue for sometime to encounter sizeable budget and balance of payments deficits. While budget support, and other aspects of our program, indirectly do serve agency humanitarian interests, our prime program concern presumably should be to lessen the need for U.S. direct budget financial support as soon as possible. Unless political circumstances change, permitting unilateral reductions in our budget payments we can minimize the requirement most effectively by encouraging Jordan's overall economic development. As discussed earlier, budget self sufficiency seems possible in 5 to 10 years, but only if the GOJ takes maximum advantage of the potential growth in agriculture, minerals, and tourism. We believe AID should support these GOJ efforts.

In the area of agriculture Jordan program interests coincide very well with AID directives. A significant potential for development exists and the GOJ places high priority on this key sector. We currently assist in the expansion of Jordan's most important crop, wheat. Our capital projects in the Jordan Valley too will help increase agricultural production, and contribute generally to the well being of thousands of farmers returning to the valley now that security conditions permit.

Relative to other countries most government services and programs in Jordan cover all regions of the country and affect rather large numbers of the rural and low income population. Education and Health for example account for about 20% of the current budget. Primary Schools are available to virtually the entire population, in large measure even to the beduin.

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Enrollments have grown steadily and now approximately 80% of the primary school age population attend what appear to be reasonably adequate schools. Secondary school enrollment while lower nevertheless stand at about 30% of the secondary school age population. University enrollment now approaches 4500 with new faculties added each year, and the quality of instruction probably compares favorably with the best found in the LDC's. Education problems do not appear to be a major constraint to development.

Similarly medical facilities are widespread. With few exceptions Jordanians need not travel excessive distances for at least minimal medical attention, and reasonably well staffed and equipped hospitals are within at most one to two hours journey for almost everyone. AID placed considerable emphasis on education and health in the 1950's and 1960's. The current organizational structure, staffing, and countrywide programs of the Ministries of Health and Education to a great extent reflect the success of AID s-past efforts.

The GOJ too has confidence in their capacity to move forward in these areas without further U.S. assistance. With the exception of limited participant training the GOJ has not asked us for help. It considers itself willing and technically able to extend and improve its educational and health programs, and rural development activities in general. The GOJ considers budget constraints as the most important limiting factor.

In our view these programs suffer to some extent from administrative and institutional limitations. Sector planning could be improved. Cultural patterns interfere with "efficient" management and program implementation. On balance greater emphasis should be placed on economic and social development by the King and cabinet. These conditions nevertheless do not justify, nor provide the ingredients for, major U.S. program interest.

We currently are discussing with the GOJ the possibility of a nutrition survey. A study limited to the rural areas of the Amman govern-  
orate is underway and the GOJ expresses growing interest in expanding the study to include other regions as well. We have encouraged this development and together with CARE offered assistance in furthering these efforts.

Similarly we continue to follow family planning activities in Jordan, passing along information, offering training opportunities, and indeed expressing at the highest levels of the government our hope that a more forthcoming government policy on this issue will be possible. While we foresee no major change very soon, some progress, albeit small, has been made in the last couple years.

Our strategy then is to look for targets of opportunity in the areas of education, health, nutrition and family planning consistent with AID's guidelines. We do not envisage proposing major projects in these areas. Short term TDY assistance is probably all that will be required.

Further we believe such assistance should be over and above current and projected program levels and emphasis. AID contribution to overall economic development not only should reduce the budget support requirements over time, but serve our humanitarian and rural development objectives as well. More rapid economic development adds significantly to employment opportunities, and in Jordan, this perhaps contributes more to the well being of those persons at the bottom of the economic scale than any other program option.

IV. Economic Projections and Assistance Implications of the West Bank and Gaza

With the recent decisions at the Arab Conference in Rabat the time perhaps has come also to consider the economic implications of a Palestinian State comprising the West Bank and Gaza. A paper included as Annex A reviews the recent economic experience of these areas, and also attempts to assess their future economic prospects and possible foreign assistance requirements in the context of a mid east settlement.

While the Bank of Israel publishes what appears to be reasonably good data on the "Occupied Territories" it is still rather difficult to draw implications for the future from the data covering the 1968 - 1973 period. The effects of the 1967 War, major population shifts, severance of commercial and financial ties between the East and West Banks, etc. greatly distort the meaning of the West Bank/Gaza experience in the post 1967 period. How much of the "growth" during the period for example was merely recovery from the aftermath of the War? What little pre War data exists on the West Bank includes East Jerusalem, while Israeli data consider the entire city as part of Israel. Thus pre war/post war comparisons are extremely difficult to make.

Future prospects essentially are determined by the assumptions one makes concerning the relations between a Palestinian State and Israel and Jordan. This study however tries to establish the most favorable circumstances we might reasonably expect setting perhaps an upper limit on economic performance and possibly a lower limit on economic assistance requirements. It assumes that:

- a. political conditions will permit reasonably close economic relationship with Israel regardless of which party has de facto political control of the West Bank (i.e. Jordan, Israel or some Predependent Palestinian Authority).
- b. minimal barrier to trade with the East Bank
- c. limited border restriction on movement of tourists
- d. minimal defense requirements
- e. the return of a limited number of Palestinians.

A. CONCLUSIONS AND IMPLICATIONS

Under even these rather optimistic circumstances, the West Bank and Gaza probably would require foreign assistance for a good many years. Their economic situation, however, would be considerably better than many of the developing countries. It certainly is not impossible to conceive that they could exist without donor support at some future date.

A need for both budget and balance of payment support would exist, the balance of payments gap being the larger of the two requirements. Excluding East Jerusalem, the deficit on foreign exchange would approximate IL 400 million (\$88 million) in the next couple of years, rising to IL 800 million (\$180 million) by the early 1980's.\* Budget support requirements of IL 100 million (\$22 million) and IL 150 million (\$33 million) are projected for the same period. With this assistance, overall economic growth of the West Bank and Gaza could approach 8-9% a year on the average and maintain an unemployment rate of around the current rate of 2%. These figures accommodate only minimal expenditures on defense. Nor do the figures provide for a major return of Palestinians to the West Bank. By and large such numbers would add to the ranks of the unemployed. Whatever financing UNRWA and governments currently contribute to their support probably would have to be added to the above estimates if refugees were resettled in the new State.

Perhaps more importantly, however, the balance of payments analysis does not reflect payments in settlement of property claims in Israel. Presumably, resolution of this issue would be an integral part of any overall mid-East settlement. Such payments, besides immediately providing foreign exchange holdings, would possibly offset the projected trade deficit for several years and therefore, might well substitute for significant amounts of donor assistance.

Without the payments for lost properties or discovery of oil, the assistance requirements are fairly sizeable, at least relative to this economy. In relation to the amounts of assistance potentially available to a moderate Palestinian state however, they seem rather insignificant.

Admittedly the assumptions underlying this analysis and these conclusions are optimistic. However the contrary assumptions i.e. serious political tension and major restriction on the flow of resources in the region - seems equally if not more unrealistic, given the economic consequences.

\* All projections are expressed in 1972 prices and converted at 4.5 pounds to the dollar, the recent devaluation will distort the analysis in Annex A and therefore all figures are expressed in Israeli pounds.

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West Bank relations with Jordan and Israel are of overwhelming economic importance. They determine its access to the world, or at least the economic price it must pay for transit rights. West Bank exports of goods, tourism, employment earnings, its defense posture and therefore its budget deficit, depend upon its foreign policy. Economic considerations narrow the range of West Bank foreign policy options or at least substantially raise the price of certain policies. To the extent it rejects good relations with Jordan and Israel, it adds significantly to its economic problems and becomes proportionately even more dependent upon others for financial support.

In the near term, and politically difficult as it may be to accept, a Palestinian state's relations with Israel are far more important economically than they are with Jordan. The East Bank simply offers no alternative to the Israeli employment opportunities and, of course, earnings. Nor can Jordan substitute for the growing Israeli markets for industrial exports. The link to Gaza too depends upon Israeli good will, as does access to the West through Gaza. Real transportation costs through Jordan exceed those through Gaza and Israel. A port at Gaza could be important in this regard offering a less costly alternative to Aqaba and Beirut through Syria and Jordan. The price to the West Bank of returning to pre-1967 relationships with Jordan and Israel is very high.

For the U.S., the analysis suggests the possibility of economic assistance although probably not on any large scale. Arab donors easily could, and possibly would, finance the amounts mentioned above, if not much higher levels. Further, whatever contribution Israel and/or the U.S. make in settling property claims potentially reduces the assistance requirement. The U.S. perhaps could provide its economic assistance in this form.

There probably would be a need for limited technical assistance from some source in economic and sectoral planning. It would be useful for the U.S. to identify Israeli reports and data, and possibly have them translated for later use. Studies on the agricultural sector and water availabilities are particularly important. Additional information of this nature also would facilitate the refinement of the rather crude analysis included in this paper as well.

A new government also is likely to encounter some difficulty in identifying capital projects and in preparation of the necessary papers for donor review and support. In addition to projects related to the Yarmouk Dams and West Ghor Development, a possible port in Gaza and connecting link, other projects too, might warrant consideration:

████████████████████

1. Expansion of Jerusalem airport
2. Improvement of Hebron-Jerusalem-Nablus road
3. Improvement of water system in various municipalities
4. Review telecommunication requirements (Israelis have already made some improvements)
5. Electrical transmission link to Jordan
6. Improvement in Vocational education
7. Teacher training

The analysis does not justify more detailed comments on U.S. assistance, and indeed at this juncture they seem premature.

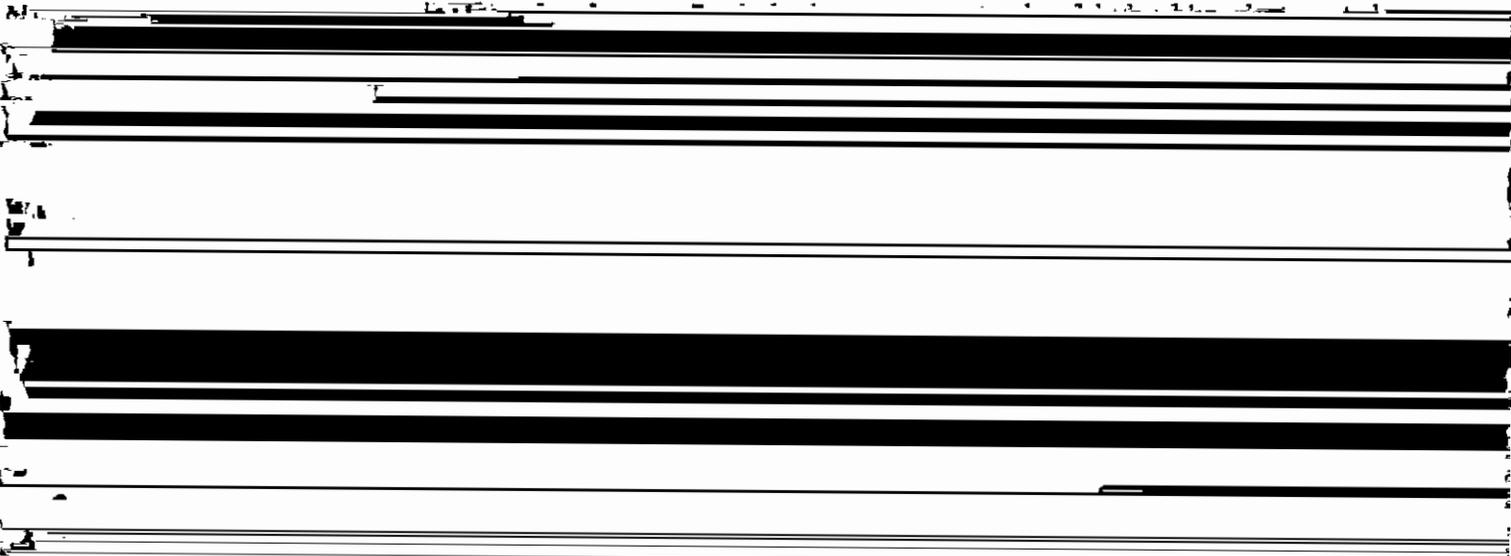
If it appears a separate state will be formed out of the West Bank and Gaza, the issues and projections in this paper obviously should be reviewed and a more comprehensive planning document prepared. Such a study probably would have to be conducted in Tel Aviv to have access to the needed data.

B. IMPLICATIONS FOR EAST BANK

When the GOJ releases economic data on the East Bank only, an analysis similar to the West Bank analysis should be prepared. Hopefully we can obtain it in coming months. Conceptually one should be able to subtract the West Bank from the figure for Jordan as whole, but in fact this proves impossible, Jordanian data includes East Jerusalem, excluded by the Israelis. Adjusting the two series for relative price charges and the proper foreign exchange rate too would be extremely difficult.

The longer range economic prospects of the East Bank however probably do not differ greatly from the analysis of the pre 1967 borders. Obviously the absolute numbers change but the conclusion on budget support and balance of payments needs in a general way would still be valid.

With reasonably close economic relations, allowing the East Bank to share in the tourist potential, East Bank economic development perhaps is only slightly affected by the separation of the West Bank. The most difficult adjustments already have taken place. Developments in mining, the single most important source of potential growth, and agriculture could proceed roughly as projected.



While the net effect of this is difficult to determine both banks will experience trade deficits for many years.

The extent of population shifts from the East to West Bank after separation also is unclear. Few gainfully employed persons likely to leave the East Bank, but to the extent refugees return West Bank unemployment would rise accordingly.

V. Agricultural Development Strategy

No recent comprehensive review of the agricultural sector in Jordan has been made. Annex B however does provide a general description of its structure, problems, and background for USAID program consideration.

The review indicates there is both an important need and a potential for agriculture sector development. It also confirms that our current agriculture related projects are of very high priority to this development.

Jordan's development planners have allocated a considerable amount of development capital in irrigation, and other facilities, in the Jordan River Valley because (1) in the short run the land production potential in that specific area can generate more income and employment than other agricultural investments and (2) the specific, technological, production problems are apparently less severe than in the cereals sector.

AID's recent project type assistance has been supportive of these efforts. It is felt that these efforts should continue in order to maximize returns on prior investments and to bring to full realization the potential of the valley. Beyond the Yarmouk dams, the irrigation, roads and drainage infrastructure clearly needs to be completed, and the social overhead infrastructure requirements, while perhaps less obvious as candidates for AID assistance are likewise needed. Planners for the valley are concerned with providing settlement incentives to induce a pattern of health, education and agricultural services which are consistent with land use objectives. USAID subscribes generally to this approach.

To realize the overall growth potential in the agricultural sector the national planners will, of course, soon have to look beyond the Jordan River Valley for growth points, since that area is sharply limited in land area and, hence, it will reach its potential in a relatively short time.

Through the project for demonstrating wheat production technology, the GOJ and USAID have begun to reveal a considerable amount of production potential for the cereals sub-sector and this general area may be the next logical extension of assistance efforts.

The cereals sector contains the bulk of small farmers and their contribution to the economy through grain and livestock products is substantial.

As repeatedly pointed out above, the institutional and technological constraints in the cereals sub-sector are also substantial - at least for the small farmer. To determine more precisely the nature of the constraints, and what, if anything, can be done about them the GOJ will need to analyze (either formally or otherwise) the cereals sub-sector. USAID would subscribe generally to the need to assist the GOJ in identifying future courses of agricultural investments. We also feel the Faculty of Agriculture with AID support can play an important role in addressing various scientific and institutional restraints to development in the Jordan Valley, cereals, and in the agriculture sector in general.

More specifically the proposed strategy is to:

- 1) Complete various types of infrastructure in the Jordan River Valley.
- 2) Assist in agriculture planning for the Valley and,
- 3) Analyze what assistance might be useful for the cereals sub-sector.

The efforts would lead to specific project proposals in the cereals sub-sector.

APPENDIX "A"  
 DEVELOPMENTS AND PROSPECTS OF THE WEST BANK  
 AND GAZA

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1968 - 1973 experience

The Israeli data suggests a striking degree of development occurred on the West Bank and in Gaza since 1968. As shown in the following Table GNP increased from IL 595 million to IL 1251 million in the 1968 to 1972 period (in 1971 prices) representing an average annual increase of about 20%. These figures appear much less dramatic however upon closer examination. The growth essentially is the result of factors other than investment and technological change within the occupied areas.

TABLE I  
 GROSS NATIONAL PRODUCT AT FACTOR COST  
 (IL MILLION, AT 1971 PRICES)

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	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
Agriculture	196	244	229	296	379
Industry	42	52	57	63	75
Construction	20	36	42	41	66
Public and Commercial Services	103	107	127	133	138
Transport, trade and other services	217	216	256	247	284
Total Domestic Product	578	655	711	780	942
Net Factor Payments from Abroad	17	67	117	203	309
Total Gross National Product at factor prices	595	722	828	983	1251

The year 1968 was an abnormally low base from which to measure real growth. The 1967 war almost totally disrupted the economy of these areas. Approximately 300,000 persons left for the East Bank, GOJ salary payments were cut off, bank deposits were frozen, East and West Bank trade was severed - all of which resulted in a reduction in output in 1968 from pre war levels. As best one can judge pre 1967 income levels were not reached until about 1971.

According to Israeli estimates the West Bank GNP per capita approximated \$215 in 1966 for about 850,000 persons including East Jerusalem. In 1971 it is estimated at about \$280 for a population of 619,000 excluding East Jerusalem. However the many thousands who left the West Bank in 1967 by and large were 1948 refugees thus tending to lower the 1966 figure. Price changes too would substantially narrow the real gap between the 1968 and 1971 figures. On the other hand, the 1971 figure probably would be somewhat higher if East Jerusalem

were included. The subject deserves further study but this comparison suggests at most a slight increase in the real per capita income as late as 1971 from pre war levels, for those persons who remained on the West Bank.

The growth rate also reflects abnormally good agricultural years in 1971 and 1972. Rainfall was unusually high and evenly distributed, with a record output of tree crops. A large number of trees were planted just prior to the 1967 war and they began to bear in 1971. The record olive crop also gave rise to the expanded industrial output shown in Table I, as olive oil processing alone accounts for 1/3 of the output in this sector.

The other major reason for the growth in income since 1968, and by far the most important stimulus since 1970 is employment in Israel. Income earned by West Bankers and Gazans working in Israel (Net Factor Payments from abroad in Table I) account directly for 35% to 40% of the overall economic in the last few years. The average annual growth of Gross Domestic Product (income earned within the boundaries of the West Bank and Gaza) was only 60% of the growth rate of GNP (income earned by "nationals" of these territories regardless of where they were employed).

Further, these earnings from Israel gave rise indirectly to much of the growth in the territories themselves. The expansion in construction shown in Table I is largely residential construction apparently financed by this income to a substantial extent. Other sectors too have been stimulated as well. Perhaps as much as 2/3 of the overall growth in the last 2 to 3 years can be explained by the rapid rise in income earned in Israel.

The significance of this employment source also is reflected in the following population and employment figures.

TABLE II  
POPULATION AND EMPLOYMENT  
(1968-1972)  
(000)

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
A. <u>Total</u>					
Population(Thousand)	939.9	956.3	973.9	996.4	1021.2
Labor Force(Thousand)	146.4	173.1	180.8	181.6	191.1
Participation rate(percent)	15.5	18.1	18.6	18.2	18.7
Employed(Thousand)	127.4	162.8	173.3	176.5	188.7
(In Israel)	5.0	12.0	20.6	33.8	52.4
Admin areas	150.8	152.7	142.7	142.1	136.3
Unemployed (Thousands)	19.0	10.3	7.5	5.1	2.4

After a sharp jump in 1969 total employment rose steadily. There was a major shift however in the location of this employment. Employment in Israel increased to about 52,000 in 1972 (estimated at 59,000 in 1973) while employment in Territories themselves actually declined by almost 15,000 after 1969.

The increase in GDP and the decline in employment in the West Bank and Gaza implies a major rise in productivity. Some improvement undoubtedly occurred. However the data underestimates (as does the Jordanian data) the contribution of women to total output. By and large women are not included in the labor force as defined by official statistics even though they are a major factor of production in the agricultural sector. Also there is evidence that men employed in Israel work at least part time on their own land and are building their own homes. This part time employment however would not be reflected in the above figures.

A meaningful measure of the change in productivity simply is not possible from available data. Nevertheless the likelihood of a small change is further substantiated by the relatively low rate of investment that occurred during this period.

TABLE III  
RESOURCES AND USES IN THE ADMINISTERED AREAS  
1968-1972  
(1971 prices)

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
All administered areas					
Private consumption	629	753	832	875	1,104
Public consumption	84	96	113	123	132
Gross investment	42	98	93	121	201
Total domestic uses	755	947	1038	1119	1,437
Imports	385	495	516	614	826
Exports	233	276	349	507	694
Import surplus	152	219	167	107	132
Gross national product	603	728	871	1012	1,305
Total resources	755	947	1038	1119	1,437

From 1968 through 1971 Gross Investment accounted for only about 13% of GNP, far below the 18% to 20% of "countries" with similar per capita incomes. And, about 1/3 of this investment was residential construction. A major increase occurred in 1972, but this too was largely the result of expansion in housing. Public sector investment also was relatively small (4% of GNP) and grew very little in real terms since 1969. With such limited increases in "productive" investment one would not expect, nor indeed could one easily explain major increases in productivity. All this is simply another way of making the point stated early - i.e. output in these administered areas grew largely as a result of the employment in Israel since 1970/1971 rather than because of fundamental changes within the areas themselves.

Balance of Payments figures also illustrates the importance of employment in Israel.

TABLE IV  
BALANCE OF PAYMENTS  
1969-1972  
(IL MILLION - CURRENT PRICES)

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
<u>A. All Administered Areas</u>				
TOTAL	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>
Credit	417	538	762	1100
Debit	417	538	762	1100
Goods and Services	<u>(166)</u>	<u>(155)</u>	<u>(104)</u>	<u>(64)</u>
Credit	212	294	506	834
Debit	378	449	610	898
Goods	<u>(167)</u>	<u>(187)</u>	<u>(216)</u>	<u>(319)</u>
Credit	138	161	253	360
Debit	305	348	469	679
Services	<u>1</u>	<u>32</u>	<u>112</u>	<u>255</u>
Credit	74	133	253	474
Debit	73	101	141	219
Labor <u>a/</u>	<u>44</u>	<u>102</u>	<u>200</u>	<u>401</u>
Credit	54	114	218	422
Debit	10	12	18	21
Other <u>a/</u>	<u>(7)</u>	<u>(33)</u>	<u>(59)</u>	<u>(96)</u>
Credit	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>
Debit	7	33	59	96
Private and GOJ UNRWA				
Transfers	<u>123</u>	<u>140</u>	<u>114</u>	<u>63</u>
Credit	129	158	144	125
Debit	6	18	30	62
Government of Israel				
transfers	<u>76</u>	<u>86</u>	<u>112</u>	<u>141</u>
Credit	76	86	112	141
Debit	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	
Net Capital movements, errors and omissions.	<u>(33)</u>	<u>(71)</u>	<u>(122)</u>	<u>(140)</u>
Credit	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>
Debit	33	71	122	140

a/ Non-add since included in services.

As shown above the overall Balance of payments situation of the administered areas improved steadily from 1969 onward. The deficit on goods and services fell to only IL 64 million by 1972, (in current year prices) a figure more than offset by private and official transfer payments. This favorable performance was largely due to the rapid growth in earnings of labor working in Israel. The increases from IL 54 million in 1969 to IL 422 million in 1972 practically offsets the rise in the imports of goods during the same period.

Exports of goods also grew rapidly, but the figures to some extent are misleading. 1969 is an abnormally low base year and, record agricultural output in 1971 and 1972 permitted unusually high exports of fruits and olives. Not surprisingly the limited 1973 data shows an actual decline in the exports of goods. Labor earnings from Israel on the other hand seem to rise slightly in 1973.

Besides the dramatic increase in earnings from Israel, other major changes also occurred in the trade pattern of the West Bank and Gaza. Nearly all manufactured goods are now imported from Israel along with 50% of the area's agricultural imports. Industrial exports also flow primarily to Israel. On the other hand 80% to 90% of the agricultural exports apparently continue to go to traditional arab and other markets. While some shift from melons to tobacco and other vegetables occurred to supply Israeli markets the West Bank/Gaza agriculture sector by and large competes with, rather than complements, Israeli production.

As shown below Trade with Jordan is minimal. Imports from Jordan are practically nil. Agricultural exports have increased steadily during the period but still are rather small. Clearly Israel is the dominant trading "partner".

TABLE V  
TRADE BALANCE OF THE ADMINISTERED AREAS,  
1968-1971  
(IL MILLIONS, CURRENT PRICES)

	<u>1968</u>		<u>1969</u>		<u>1970</u>		<u>1971</u>		<u>1972</u>	
	Exports	Imports								
All administered areas										
Overseas	16	39	22	38	25	44	57	69	59	84
Jordan	54	18	69	25	60	13	81	14	121	19
Israel	54	189	52	261	76	291	101	356	182	576
Total	124	246	143	324	161	348	239	439	362	679

The above comments would not be significantly affected were they describing solely the West Bank. Because of its relative size the West Bank experience dominates the combined data shown above. Agricultural growth has been less rapid in Gaza than the West Bank, and conversly Gazan

industrial output expanded in percentage terms at a faster rate primarily because there was practically no base at all in 1968/1969. Finally, employment in Israel was even more important to recent developments in Gaza than on the West Bank.

As for the economic interrelationship between these two areas very little can be said in the absence of trade data. However there is little reason to expect much economic interaction. Both areas are net importers of food and their agricultural crops tend to be competitive. Neither does the limited industrial output in each area particularly relate to the demand of the other. Their recent economic experience appear to have occurred independent of each other with both regions greatly influenced by the economic ties to Israel.

#### Prospects of the future

One issue of overriding importance stands out in assessing the economic prospects of the West Bank and Gaza. Surrounded by Israel and Jordan the West Bank has access to the world only through one or the other. Politically painful and difficult as it may be, any government on the West Bank simply has to face up to this reality. The assumption one makes concerning its relations with its neighbors essentially sets the pace and direction of West Bank economic performance in the near term.

This paper assumes only minimal restrictions on the flow of resources between these adjacent areas. Admittedly this is optimistic if not unrealistic. However it is very difficult to define a middle ground, and the assumption does permit some estimate of the "best" economic performance that could be expected together the minimum levels of outside assistance likely to be required. Certainly the economic costs of breaking relations with Israel, the other extreme, are exceedingly high. In the short run there simply are no alternative sources of foreign exchange earnings and employment at these magnitudes, and tourism would be adversely affected as well. Too, a Palestinian government might find total dependency on the East Bank as a channel to the outside world rather unattractive.

The paper essentially abstracts as well from the question of defense. Perhaps this is not too unreasonable since it is hard to visualize a settlement permitting a sizeable military force on the West Bank. In any case the analysis clearly shows the importance of both these assumptions. To the extent one considers them unrealistic one can modify the projections and conclusions accordingly.

Using 1971 and 1972 as a kind of base period the paper makes a five and a ten year projection of economic performance all in 1972 prices. No attempt is made to specifically estimate GNP and the other economic indications during the initial period of transition. A government administrative structure is in place, and functioning. Israel administers the occupied areas through the GOJ civilian structure and personnel on the West Bank, and apparently the former Egyptian system in Gaza. A new government could take control of this structure rather easily. Opening the borders to Jordan would quickly open up trade, freeing the Arab banking system, and generally stimulate the economy. Unless the government abruptly severed trade with Israel the transition to local rule should not prove particularly disruptive. However, there inevitably will be year to year fluctuations not dealt with in this paper. The analysis merely provides some insight into the economic trends.

One final point, the projections all exclude East Jerusalem. Were it possible to adjust the data for this experience the effect probably would be to improve the overall economic picture but probably not sufficiently to alter the basic conclusions.

Overall and sectoral growth

As shown in the Table below, after a short transitional period the West Bank and Gaza could attain an average annual growth in GNP in the range of 7% to 9% given the above assumptions. Sustaining such a rate would be quite a respectable achievement. The upper limits of the range while possible would require a certain degree of good fortune in addition to wise economic policies.

TABLE VI  
TOTAL GROSS NATIONAL PRODUCT AT FACTOR COST IN  
THE ADMINISTRATIVE AREAS  
(IL MILLIONS)

	<u>1972/73</u> <u>average</u>	<u>1977</u>	<u>1982</u>
Agriculture	460	587	749
Industry	102	180	317
Construction	103	182	320
Public and Communal Services	205	330	532
Transportation Trade and other services	305	491	791
Total Domestic Product	1175	1770	1918
Net Factor Payments from abroad	435	801	1477
Total Gross National Product at Factor Prices	1610	2571	3395

Significant growth in agriculture production will be difficult to achieve, particularly over the peak years of 1971/1972. Nearly all available land outside the Jordan Valley already is under cultivation with only a few small irrigation schemes possible. Jordanian agriculturists believe increased yields certainly are possible but the gap between existing and desired practices is more narrow on the West Bank than on the East Bank, and therefore perhaps more difficult to close.

The greatest potential for agricultural growth exists in the West Ghor. Water from the Yarmouk potentially would irrigate about 35,000 acres in the Damiya and Jericho area. Completion of this irrigation scheme however is not likely to occur in time to significantly effect these projections. On the other hand both Israelis and Jordanians state that considerable underground water exists in the West Ghor area. If these judgements are correct additional land (perhaps significant amounts in the West Bank terms) could be brought into production rather quickly.

The Gaza strip faces a similar problem. Perhaps some additional land is cultivatable but the Gazans already overpump underground water sources and salinity is rising. Some improvements are possible in the utilization of this scarce input but significant change in the Gazan agriculture sector probably will require linking it to the Israeli water network. The contrast between the Gaza and the Israeli area just to the north is marked. With water and improved practices perhaps important changes are possible.

With limited data it is difficult to determine the net effect of these considerations. It is hard to see however how real growth in agricultural output could exceed 4% a year over this 10 year period. Based upon the experience of other countries even this rate may be optimistic.

Industrial production is now relatively small. Some import substitution should be possible and the small textile and handicraft industry should respond to an expected increase in tourism. Good and cheap labor, offer opportunities for production for export to Israel. Furniture, construction materials, and other products now are being produced for Israeli consumption. If politics permit, further expansion seems possible. With a comparatively small base perhaps industrial growth of 10 to 12% a year is possible.

A similar growth rate in construction is projected. A construction boom currently exists and housing needs will grow along with the increase in population. A new government can be expected to construct new offices and an influx of diplomatic officials would add to the demand in this sector. Public sector investment also will add to demand in this sector. One would expect growth in construction to be higher than the average in the first few years and then taper off.

The Public and Commercial Services sector grew very slowly in recent years reflecting the absence of a significant development effort on the part of the GOI. A Palestinian government would certainly adopt a different policy. Growth is estimated at 8% to 10% a year in this sector. Here too the gains in the first few years after "independence" would probably exceed the 10 year average considerably.

Growth in Transportation, Trade and other services basically will be dependent upon the overall growth rate, with the exception of tourism, the discussion of which occurs in the Balance of Payments section. Perhaps a growth of 8% to 10% could be expected in this sector.

#### Investment Requirements

To achieve the overall growth projected above annual investment would need to rise to about IL 320million by 1976 and perhaps IL 420 million by the early 1980's. Throughout most of this period the GNP/ Investment ratio should reach 18% to 20%, considerably higher than the average of recent years. These calculations assume a capital output ratio of 3, slightly higher than the corresponding ratio for the East Bank based upon existing data.

#### Employment and productivity

Insufficient data makes it particularly difficult to project gains in employment. More important however is one's judgement about the employment opportunities in Israel. It now accounts for upwards of 30% of the total labor force of the Administrative areas! While economic factors in Israel and the occupied areas will effect future levels political considerations are of overriding importance. This paper very arbitrarily assumes the numbers will remain at about 1972/1973 levels. This projection generally is consistent with the underlying assumption of this paper, i.e. minimal restrictions on the flow of resources to and from both Israel and the East Bank.

The West Bank and Gaza would encounter a major problem in absorbing a large decrease in this employment. Many would return to their farms becoming in a sense underemployed, others would add to unemployment rolls. As the figures below indicate the economy will **create** new jobs only roughly equal to the natural increase in the labor force. Loss of employment in Israel adds greatly to the areas economic difficulties in coming years.

TABLE VII  
EMPLOYMENT AND POPULATION  
(000)

	<u>1972</u>	<u>1977</u>	<u>1982</u>
Population (Thousands)	1021	1155	1307
Labor Force(Thousands)	191	231	261
Employment(Thousands)	140	170	207
(In Israel)	(52)	(59)	(59)

Based upon past experience the current population residing in the West Bank and Gaza can be expected to grow at least by 2.5% a year. The return of refugees could add to this rate perhaps substantially. This paper however makes no attempt to estimate what such a number might be. Independent of the repatriation issue population would reach over 1.3 million by 1982 through natural increases. With some increase in the labor participation rate, perhaps to 20%, the labor force would exceed 260,000 by 1982.

Output and labor force figures imply remarkable increase in labor productivity since 1968. As discussed earlier this figure reflects the return to prewar output levels, employment data which fails to account for large numbers of women in the agriculture labor force, as well as the dual employment of many in Israel and in the administer areas. There is little basis for estimating real changes in labor productivity.

If output per worker rises 4% to 5% a year for the ten year period - an optimistic rate - the annual growth of GNP of 7% to 9% would expand employment opportunities at 3% to 4% a year. As shown above, upwards of 70,000 jobs would be created as employed reached 200,000 to 210,000. A new government can be expected to add to current civilian rosters, for better or for worse, but these projections provide for only a token military force. The numbers in a standing army can simply be added to the above employment figures.

One of the consequences of the creation of some sort of Palestinian state on the West Bank would presumably be the return of some proportion of the refugees now scattered in Jordan, Lebanon, Syria, etc. These projections indicate rather limited capacity to employ them however. Yet its human resources would be a distinct advantage to a government on the West Bank. They are dynamic and well educated, and Palestinian who return from its Gulf State will bring with them invaluable experience. One would not anticipate serious shortages of skilled workers.

In sum however the jobs created appear to approximately equal the natural increase in the labor force. Sizeable reductions in employment in Israel or a major influx of refugees will be exceedingly difficult to absorb.

#### Government revenues and expenditures

Limited Israeli budget data on the West Bank and Gaza exists but for only the 1969-1971 period. It excludes of course salary payments made by the Jordanian government to Civil Servants, and presumably whatever payments Egypt is making in the Gaza, if indeed it has continued this financial support. Such payments however would be an expense of any new government in these territories. Israeli data also excludes revenues accruing to the GOI from custom duties on imports from Israel. This omission is puzzling. It clearly is a government revenue. With customs schedules and detailed information surely available on the imports from Israeli one could quite accurately estimate this figure. In any case it would be a most important source of revenue to any local government in these areas and therefore included in this study.

TABLE VIII  
REVENUES AND EXPENDITURES

	<u>1971</u>	<u>1976</u>	<u>1982</u>
Revenues	150	250	450
Expenditures *	220	375	600
Deficit(Budget Support)	70	125	150

With imports of goods of about of IL 469 in 1971 and arbitrarily assuming duties on the average of 15% to 20%, about IL 70 million in revenues would be generated from this source. This estimates is extremely crude but at least accounts conceptually for this revenue source. Total 1971 revenues then are estimated at IL 150 million.

Israeli Balance of Payment data indicate GOJ salary payments approximated IL 40 million in 1971. When added to the Israel expenditures it gives a total governmental expenditure of IL 220 million. Israel subsidized flour, sugar and other commodities in 1971 in unknown amounts over and above the above figure. However these subsidies in general were lifted in recent months and therefore can be ignored without distorting the projections.

The estimated 1971 deficit was financed by the Jordanian IL 40 million contribution and IL 30 million (plus subsidies) from the GOI.

With effective monetary and fiscal policy, revenues to the government should rise at a somewhat faster rate than the growth of GNP. Assuming an 11% a year increase over the period, a few percentage points greater than the estimates of overall growth, revenues would reach the equivalent of about IL 250 million in 1976 and perhaps IL 450 million by the early 1980's.

After an initial period of more rapid growth government, expenditures perhaps could be held to 10% a year on an average for the 10 year period. With no provision for defense expenditures the deficit then would approximately double over the period, but fall from 30% to about 25% of total expenditures. Unless revenues rise more rapidly elimination of the deficit by 1982 would require the increase in expenditures be held to about 7% a year, an unrealistically low rate.

Relative to total revenues and expenditures the deficit looms rather large. In absolute terms however it is not a sizeable budget support requirement.

\* Excludes subsidies on flour etc. removed during 1974.

BALANCE OF PAYMENTS

Recent experience provides little insight into future Balance of Payments prospects. The abnormally low 1968/69 base period, and the abrupt change in Trade relationship essentially account for the very high growth rates and the pattern of this trade. The return to pre war levels of production, and the assumption of a relatively free flow of resources within the region, suggests a different pace and pattern will evolve in the future.

TABLE IX  
BALANCE OF PAYMENTS  
(IL 000,000 - 1972 prices)

	<u>1972</u>	<u>1977</u>	<u>1982</u>
Goods			
Exports	360	530	850
Imports	680	1300 (1000)	2000 (1750)
Services			
Exports	477	680	880
Labor	422	450	450
Tourism <sup>1/</sup>	34	150	300
Other	21	80	130
Imports	219	280	400
Private Transfer payments	63 <sup>2/</sup>	10 <sup>3/</sup>	15 <sup>3/</sup>
Gap	+1	300 (-)	670 (20)

- 1/ Includes some cash (private transfers) given to relatives
- 2/ Primarily UNRWA and GOJ salary payments individuals transfer included in Tourism
- 3/ Any salary support considered part of gap

Agriculture exports represent about 40% of the exports from the West Bank and Gaza. With the limitation on agricultural growth, discussed earlier, a 5% average annual increase in agricultural exports is probably the maximum rate one could expect. Conceivably exports of industrial goods could continue to rise at a relatively rapid rate, if Israeli markets are kept open. Cheap labor gives the Administered areas an advantage in the production of light manufactured and certain semi-processed goods. A comparative advantage also exists in construction materials. An annual growth of as much as 12% appears somewhat optimistic but it need not prove out of reach, politics aside. Total exports of goods then would rise close to 10% a year reaching IL 530 million by 1977 and IL 850 million by 1982. Obviously however there will be considerable year to year fluctuation from this average.

Export earnings on service items depends almost solely upon the prospects for employment in Israel. As mentioned before the paper assumes the level of this employment and the earnings will remain at approximately 1972/73 levels.

With "peace" in the area, tourism also provides a potentially important source of foreign exchange from Israel, the West, as well as the Arab World. The major share however probably would accrue to East Jerusalem, excluded from the analysis. Prior to 1967 a study on Jordan's tourist potential estimated the Jerusalem-generated tourist earning conservatively at \$150 million to \$200 million a year in todays prices with promotion, necessary investment, secure conditions, and minimal restrictions at borders. With about 15% of this figure going to the East Bank and 50% - 60% to Jerusalem, the West Bank itself might expect to earn a 30% share on nearly \$45 million (IL 200 million) by 1982). Together with other earnings it would bring service earnings to about IL 750 million at that time.

The Israeli data includes repatriation of earnings from non Israeli sources in its tourist receipts. With the Arab banking not functioning this income flows to the West Bank and Gaza in the form of cash carried by visitors, and there is no seperate estimate of the amount. It cannot loom very large however given the limited figure for the entire tourist category.

Apparently only those minimal amounts needed to support family members are transferred with savings being held in Amman and elsewhere. An Arab government on the West Bank and Gaza would improve the prospects for these payments in the future, to some extent at the expense of Jordan.

Rapid increases in imports can be expected in the future but not at the abnormally high rates of the post '67 period. Both the West Bank and Gaza are net importers of food which accounts for 25% of their non service imports. Perhaps these could be held to annual increase of 5% to 6% in coming years with policies. The territories import nearly all their manufactured goods. And, pressure to import industrial items will mount with rising incomes, and greater government emphasis on development. They will do well if they can keep the growth rate of these goods at no more than 12% to 13% year on the average for the period, bringing total imports of good to about IL 1300 million and IL 2000 million in 1977 and 1982 respectively.

Service imports primarily reflect the expenditures of residents travelling and studying outside the West Bank and Gaza. This figure too will rise and is estimated to reach IL 400 million by the early 1980's.

In 1972 Private transfer payments shown above consist of UNRWA contributions, GOJ salary payments, and nominal amounts from other private institutions. (Individual transfer payments appear in the Tourist category for reasons mentioned previously). With "independence" any future support from Jordan will become part of the Official transfer payment category and be considered as a form of foreign assistance. UNRWA payments too are a form of outside assistance and for purposes of this analysis are considered as part of the gap to be covered by all official donors. The projections of private transfers shown in the above Table are illustrative figures then representing contributions only from private institutions.

The net result of these projections indicates the West Bank and Gaza would probably encounter mounting Balance of Payments problems. This is not too surprising. They traditionally have been deficit areas and would have faced serious problem in the last few years had it not been for the sizeable earnings of those employed in Israel. This paper may well underestimate this income in the future, but it seems most unlikely that even under the best of circumstances these earnings could continue to offset the increases in the importation of goods.

If the increase in imports of goods could be reduced to 10% on the average the gap largely would be eliminated. Perhaps such a target is possible but it would require the new government to considerably restrict the import of consumer manufactured goods in order to satisfy its development needs. This policy might prove difficult.

Including East Jerusalem in the figures too might reduce the Balance of Payments gap. Its tourist earnings together with its light industry exports probably more than offsets the cities imports. This matter warrants much closer review if the necessary Israeli data is available.

Even more importantly, no attempt has been made to estimate the size and timing of payments in settlement of Palestinian property claims in Israel. Such payments offer an immediate source of foreign exchange holdings, and perhaps would even eliminate the Balance of Payments deficit for many years. This too should be looked at very closely.

Obviously, a major discovery of oil would also alter the analysis and conclusions.

Annex B

Agricultural Sector Statement

- I. INTRODUCTION
- II. STRUCTURE OF THE AGRICULTURAL SECTOR
  - A. LAND USE
  - B. LAND TENURE, RISK, AND INCOME DISTRIBUTION
- III. RECENT SECTOR PERFORMANCE
  - A. OUTPUT AND GROWTH PATTERNS
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  - A. GENERAL
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## Agricultural Sector Statement

### I. Introduction

The objective of this summary statement on the Jordanian agriculture sector is to provide background information for formulating a proposed U.S. assistance strategy given: (a) the structure of, and constraints within the sector (b) basic GOJ policy and program issues, (c) the role of other donors (d) intersector relationships and (d) USAID's policy and programming options.

Since no recent, formal, or comprehensive assessment, survey, or analysis has been made of the sector, either by the government, USAID or other agencies, the proposed program should be considered tentative and it is recognized that in the course of project development the nature of proposed programs could well take on different dimensions.

As will be observed by the reader, the data base is weak. No recent Agricultural census exists of East Bank Jordan. Considerable range land, which is occasionally farmed, is not registered or titled and detailed productivity data is scarce. As a consequence the findings are general in nature and of necessity contain more than the usual degree of subjective judgements. All of the data, descriptive material, and program implications refer to the area east of the Jordan river -- i.e., no West Bank data are included. If political settlements change the land under GOJ jurisdiction, the programs would, of course, have to be revised accordingly.

The major livestock sub-sector is not addressed. Livestock expansion is, to a large extent, dependent upon improvement in cereals/range/feed interrelationship and the sector is receiving considerable attention from non-U.S. assistance groups.

### II. Structure of the Agricultural Sector Land Use

Jordanian agriculture consists of four major commodity sectors, (1) cereal sub-sector, mainly wheat, barley and lentils, (2) vegetables, (3) a fruit and "other crops" sub-sector, mainly olives, grapes, citrus and tobacco and (4) the livestock sub-sector. This Statement on Jordan's agriculture will focus mainly on the cereals and vegetable sub-sectors. The total Agricultural sector now accounts directly for about 19% of the gross domestic product and 30% of employment. Some 40% of exports (\$14 million) originate in the sector although agricultural products are in a serious trade deficit position. About \$100 million annually worth of agricultural products have made up about 28% of all imports during each of the past two years.

Table I shows the distribution of cultivated land among the two major farming areas. The Ghor refers to a narrow land rift along the length of the Jordan river and some tillable areas at the southern end of the Dead Sea. The uplands consist of the high plateau areas just east and about 3200 feet above the Ghor area. The plateau area contains the bulk of the cereals and tree crops as well as range for livestock. The areas further east are open range and scattered barley and wheat plantings. At present the Ghor is about half-irrigated and there are plans to bring it nearly all under irrigation. It is basically a frost-free area and highly productive, if properly managed. The uplands are nearly all rainfed with the exception of about 4100 ha. which are irrigated by deep wells and some partially irrigated (hand-watered) gardens and commercial tomato patches. Throughout this paper two distinct areas will be addressed. One, the uplands or rainfed cereals sub-sector, and two, the irrigated Jordan River Valley which produces mainly vegetables and citrus.

The agricultural structure by area and in farm gate value terms, is presented in Table I and Table II. To show a representative picture the Table II uses 1972 production, as 1973 was a disaster year for production, and uses the 1973 price series as it is the most current price series.

TABLE 1

STRUCTURE OF THE AGRICULTURAL SECTOR, BY AREA AND MAJOR CROPS, 1973 (In Hectares)

<u>TYPE OF CROP</u>	<u>R E G I O N</u>			
	<u>Upland</u>	<u>Total Ghor</u>		
<u>FIELD CROPS</u>				
Wheat	234,307	9741		
Barley	51,999	999		
Beans, Peas	31,661	161		
Other	<u>12,773</u>	<u>250</u>		
	(330,746)	(11,143)		
<u>VEGETABLES</u>				
Tomatoes	3,537	8,826		
Watermelons and Melons	8,778	2,700		
Cucumbers	611	1,181		
Eggplants	23	1,937		
Other	<u>749</u>	<u>3,892</u>		
	(13,698)	(18,436)		
<u>TREE CROPS</u>				
Olives	32,244	133		
Grapes	3,674	61		
Citrus	71	1,711		
Tobacco	3,350			
Other	<u>4,701</u>	<u>450</u>		
	(44,040)	(2,355)		
<b>TOTALS</b>	<b>385,179</b>	<b>92%</b>	<b>31,934</b>	<b>8%</b>
	=====		=====	
<b>GRAND TOTAL</b>			<b>417,113</b>	
			=====	

Table 2

CROP PRODUCTION AND VALUE

<u>Field Crops</u>	1972 000 M.T. Production	1973 JD/M.T.	Million JDValue	Million \$ Value	%
Wheat	211	38.1	8.039	25.001	
Barley	34	32.4	1.102	3.425	
Lentils	22	79.6	1.751	5.446	
Vetch	9	35.3	.317	.088	
Peas	2	76.3	.152	.473	
			<u>11.351</u>	<u>35.334</u>	27
<u>Vegetables</u>					
Tomatoes	153	26.7	4.085	12.705	
Egg Plants	33	28.4	.772	2.402	
Melons	63	16.7	1.052	3.272	
Cucumbers	18	16.8	.302	.940	
Broad Beans	5	46.6	.233	.725	
Potatoes	1	25.0	.025	.078	
Onion/Garlic	1	19.9	.020	.062	
Cauliflower/Cabbage	13	6.8	.218	.679	
			<u>6.707</u>	<u>20.863</u>	16
<u>Tree Crops and Other</u>					
Olives	35	140.0	4.900	15.239	
Apples, Pears	2.9	55.3	.160	.498	
Almonds	1	64.0	.064	.199	
Figs	2.2	26.1	.057	.178	
Bananas	6.7	75.3	.505	1.571	
Citrus	20.9	40.3	.842	2.619	
Pomegranates	2.3	24.0	.055	.171	
Grapes	18.2	40.1	.730	2.270	
Tobacco	1.1	250.0	.275	.855	
			<u>7.588</u>	<u>23.600</u>	18
<u>Livestock and Poultry Products</u>		3	<u>16.800</u>	<u>52.248</u>	39
TOTAL			<u>42.446</u>	<u>132</u>	

Jordanian Dinar = 3.11 U.S. Dollar

In addition to the crops the livestock sub-sector is very important in the economy. The sheep and goat herd was estimated at 1,351,000 head and the cattle and camel herd at 645,000. In addition, there is a poultry flock of about 3.5 million. The livestock product value was around 16.8 million JD (\$52 million in 1972).

#### Land Tenure, Risk and Income Distribution

The structural characteristics of the sector in regards to number of farms, tenure class and size of operations is hard to determine. There has not been an agricultural census since 1965 and that one is reported to have had a systematic upward bias regarding the number of farms. Since that time there has been a large influx of families from the west bank of the Jordan River and some of these families have taken up farming. Some sub-divisions of old farms has also taken place since 1967. Irrigation in the Jordan Valley and deep wells drilling have also helped establish new farms. GOJ officials estimate that there are considerably more farms today than in 1965 when there were 38,000 farms in the East Bank area. Sources of new farms since 1965, for the East Bank, are about 2,500 from newly irrigated land in the GHOR and 274 from well development in the uplands. In addition, there are the sub-divisions of old farms. GOJ officials estimate there may be now as many as 60,000 farms or more while a low "firm" figure may be 41,000. The number will also vary sharply upward if one counts, as a farm, the holding of a few livestock even though the household has no farm land.

A recent survey in the Ghor area shows that there are now over 4600 farm units there and that they cultivate about 3.4 hectares each. About 59% are full tenants, operating at least partially on 50/50 share crop lease. Only 4% of the full tenants had cash leases. Part owner/part tenants are 6% of farmers and they farm 14% of the area. Full owner operators constitute 35% of the farms. The Jordan Valley may have a higher tenancy rate than in the cereals area but data is inconclusive on this. A UN/FAO survey in a cereal area near Amman also shows that 54% of the land area to be share cropped and 26% of the farms were full tenants, 23% full owner operatorships and 15% mixed tenure. The average size of a farm was 21.5 ha and had four separate plots of land.

It is reported that areas with less population pressure have less tenancy but it is clear that a significant portion of the land throughout the nation is share tenanted. Given the risk and uncertainty factors in grain production, this tenant structural is probably not conducive to adoption of modern technology.

In the cereals sector, traditional share tenancy spreads the risks and returns, nevertheless, it may not be very conducive to assuming the additional risks inherent in high input technology if: (1) if either party to the lease feels returns will be disproportionate to his costs,

(2) if either lack of confidence in the technology or, (3) if the absolute volume of expected returns are small and are discounted as being "not worth the trouble" of ironing out equitable rent agreements.

In the irrigated vegetable sector, with its high labor component and high variance in product prices, the problem of equitable returns to the tenant becomes difficult to calculate even though physical production may be more stable than it is in wheat or barley production. It may be expecting a lot for a poorly educated share tenant to commit a great deal of his own, and hired, labor in the face of production, market and labor supply uncertainties which presently exist in the vegetable sector.

Another predominant feature of the cereals sector is that a large percentage of the farm operations are performed on a hired basis. Many tenants hire custom operators to do their plowing and combining. Owner operators of farms also hire commercial operators and are themselves custom operators. This is an effective way to reduce capital costs in farming. Unfortunately, in any given areas, there does not appear to be enough good machinery units and operators available to enforce competition in the system and, therefore, get a proper and timely job of tillage. Of course, custom operators always want to get over as much land as they can in as short a time as possible. Some GOJ officials estimate that 50-60% of the major wheat farming operations are done on a hired basis.

The very high risk factor in growing field crops in the uplands is a predominant structural feature of Jordan agriculture. It stems from the variability in rainfall, its timing and the manner in which the land is presently farmed. The following table illustrates the variation in rainfall from year to year on sites only about 40 miles apart and both in major cereal areas.

It is clear that variations from the average are more meaningful, in risk terms, than is the "average" rainfall pattern. The farmer has responded by adopting a low cost type of farm operation, with corresponding results in average yields. The farmer's recent experiences (including 1974 which was one of the "good" years but not shown in the Table) indicate a crop failure in about three out of seven years so his method of coping in such a situation is a common one of minimizing expenses and praying for rain.

In the Jordanian context this means waiting until the late fall/early winter rains make the land relatively easy to plow, broadcast seeding early, if the rains appear abundant, or waiting till late winter to seed, if rains are late. This type operation also lets weeds germinate before final plowing. Some land will be left idle if the rains appear poor and other land quickly put in if the rains appear reasonable. In either event, the land is prepared as a function of current weather rather than to cope with anticipated uncertainties of the weather. One could employ

TABLE 3RAINFALL AND YIELD VARIATION, WHEAT

<u>YEAR</u>	<u>IRFID</u>	<u>AMJAN</u>	<u>NATIONAL YIELD</u>	
			<u>BU/ACRE</u>	<u>M.T./Ha</u>
	<u>(in inches)</u>			
1973	31.4	10.3	7	.47
1972	17.6	15.9	15	.93
1971	17.2	11.5	11	.69
1970	13.5	6.9	4	.25
1969	12.7	24.7	16	1.00
1968	9.4	16.1	7	.47
1969-1973 Average	13.5	14.2		
1931-1960 Average	14.1	12.6		

better tilling methods, use pre-emergence weed killer and seed before the bulk of the rains come, thus utilizing, to the maximum, the available rainfall. The capital and managerial requirements are obviously much greater in the latter operation.

#### Income Distribution

As is the case with most countries, the returns to farming does not equal that of other sectors. In Jordan, it appears from the national accounts data that non farm income is about twice that accruing to the employment effort in agriculture. Within the farm sector the income is further skewed but the data is not adequate to indicate by how much.

Because no census has been taken, subsequent to division of the country, data by number of farm operators, size of operation, land owned and concentration of ownership is not available.

Recent surveys in the heavily populated vegetable producing Jordan Valley and grain producing Baq'a Valley near Amman indicate that considerable pressure exists to rent land out on share tenancy. In addition to these tenants, there is the ever present group of landless laborers who are generally at the bottom of the income scale.

While the above indicators would tend to show the presence of inequity in distribution of income there are also some indicators from the Baq'a Survey that excessive ownership concentration by a very few owners, may not be a major problem. The Baq'a Survey shows that the average ownership unit is only 9 ha while the average size of operating units is 21 ha. In that area, mixed tenure farms and full tenant farms were also larger than the owner operator farms. The system had, in effect, consolidated some very small absentee owned plots into larger than average sized operating units.

In summary the structure of the cereals sector, with its inadequate and variable rainfall patterns, tenure structure and population pressure have led to a situation wherein it is difficult to adopt modern production techniques. This will be discussed further under the "constraints" section. In the Ghor, water is not a problem but as discussed earlier, getting labor inputs may be a problem.

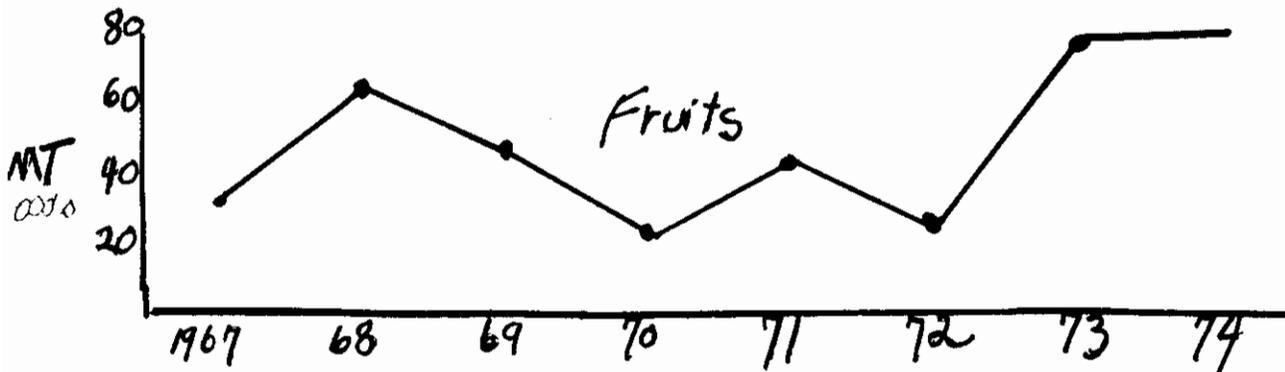
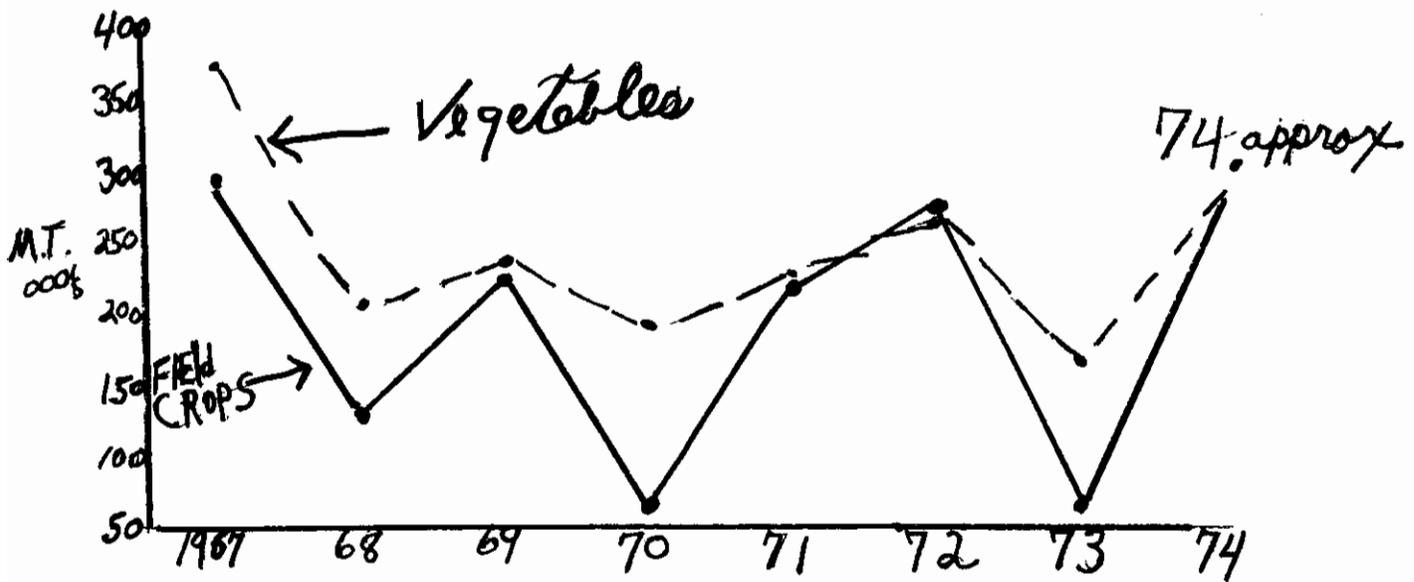
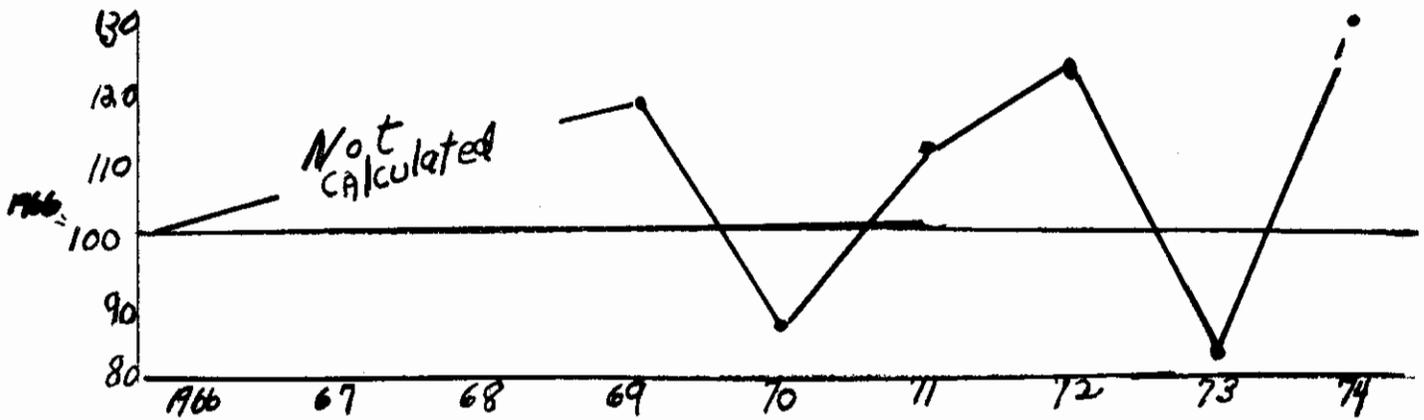
### III. Recent Sector Performance Output and Growth Patterns

While the sector performance in many respects is satisfactory, even remarkable, in view of external and internal political disturbances, it has, as a consequence of these factors, and the weather pattern, exhibited an erratic growth pattern. Such patterns give rise to considerable effort to improve production. But because wheat is the national staple considerable reliance has also been placed upon imported wheat. Currently wheat and sugar are being subsidized to maintain stability in the consumer sector and this leads to additional pressure to increase local output.

The basic production statistics for 1972 were shown in Table 2 and are shown graphically in Chart 1. Jordan is currently a net importer of all major agricultural products, including fruit, vegetables and nuts. This situation, vegetables and fruits, and to a lesser degree in oil, could change as more irrigated land is brought into production and as the new plantings of fruit trees and olives began to mature. The grain situation could also improve, but it will take considerable farmer effort and improved management to cope with the risk and uncertainty factors.

10B  
CHART I

SECTOR GROWTH AND PERFORMANCE



The Grain Gap

During the past four years the value of the wheat and wheat flour gap has amounted to about \$16 million annually. While domestic stocks were depleted in 1973 the heavy imports of 1973 and a better than average crop in 1974 should lower immediate requirements from the recent import level. However, the GOJ estimates "domestic" shortfalls (i.e., Jordanians minus refugees being fed UNRWA rations) to rise from 35,000 M.T. in 1974 to 85,000 M.T. by 1980 unless improvements in yields are rapidly realized. The refugee requirements (with no natural or other increase) represent a potential market for 115,000 tons of wheat, and, depending upon political settlements in the area could represent a requirement for the Jordanian economy.

At current prices of around \$200-250 per ton, the average domestic grain gap would be about \$13.5 million and nearly \$40 million if one adds the refugee population requirements.

Other Food Gaps

Net imports of other food requirements, which unfortunately is little apparent short run relief, are as follows:

Table 4  
Non Cereal Food Gaps

	<u>Million of \$</u>		
	<u>1971</u>	<u>1972</u>	<u>1973</u>
Live Animals	2.2	3.3	9.2
Dairy Products and Eggs	6.0	9.1	10.3
Rice	3.7	3.6	4.3
Sugar	6.1	14.5	5.5
Coffee, Tea, Cocoa and Spices	5.8	5.5	7.8
Animal and Vegetable Oil	1.3	2.2	4.3

### Major Constraints in the Cereals and Vegetables Sub Sectors

The vegetable sector is constrained primarily by the growth in irrigation facilities and the ability to demonstrate market potentials and the realization of these potentials by the vegetable producer. The realization of profits by the grower and his continued interest in producing is conditioned by his tenure arrangements, seasonal labor supply, technical inputs (which appear reasonable adequate) and reasonable social service infrastructure. The Jordan Valley Commission has a set of plans to deal with these constraints and they will be mentioned in the following section.

While water is a constraint in both the cereals and vegetable sub-sectors the manner in which the constraint in approach is considerably different and with subsequent differences in program implications for the sub-sectors. While marketing problems exist in the cereals sub-sector they are relatively simple because there appears to be an assured national market, the commodity is easily stored and the issue is primarily one of production, and avoiding glutting the market at harvest. In vegetable production the water problem is to be solved by bringing water to the fields and intensively cultivating a limited land area. For cereal production the approach is one of adopting technology to the given rainfall conditions, which means, in effect, providing a package of techniques as substitutes for lack of better distributed rainfall.

Large scale land and capital intensive (per unit of labor) wheat and barley operations in the U.S., Canada and Australia are successfully practiced on semi-arid land similar to Jordan's. These farms have been viable in those economies when wheat and barley was about \$66 (JD20) and \$47 (JD14) per metric ton, (\$1.80/bu and \$1.15bu). It required, however, that each farm have about 700 tilled hectares, half of which was carefully fallowed each year. To secure respectable (money making) yields, the rocks are cleared from the fields, seedbeds are carefully prepared, uniform depth of seeding is practiced, fertilizers applied, weed and insect control practiced and harvesting and all other operations are done at the time, and in the manner needed to conserve and utilize the limited moisture. Grain varieties are bred for a wide spectrum of characteristics including drought tolerance, fertilizer responsiveness and disease and rust resistance.

The above described type of farming has been demonstrated in Jordan and it is estimated that yields in the Irbid district can be increased about 60% through these practices - which contrast with present farming of stony land, under ill-timed and roughly prepared seedbeds, hand broadcast seed and casual fallow practices and with little or no application of fertilizer. Present yields are around .9 tons/ha (14.5 bu/acre)

and improved yields would be about 1.5 tons/ha (24bu/acre). At the current support price of wheat, 55 JD/M.T. (\$171MT or \$4.65/bu) it would appear to be a very attractive proposition to adopt modern technology. The costs of production are estimated at 34.5 JD/ha with a break even yield point of .627 M.T./ha (10 bu/acre). The needed break-even yield is less than half of what could be expected over the long-term average and it was nearly obtained on demonstration plots in the disaster year of 1973. Of course, anticipated yields would result in high profits in years of above average rainfall.

A more normal price relationship is wheat at 30 JD/M.T. or \$93/M.T. or \$2.54/bu. (This is about what consumers are paying for farm gate wheat, although they buy it in the form of subsidized bread. The government is subsidizing the difference between both the imported grain and local grain prices and consumers price.) At 30 JD/M.T., the farmers break even yield point would be 1.15 M.T./ha and while this is still below the hoped for 1.50 M.T./ha average yield, it is not much below and it is considerably above results which might be expected under farm conditions in a drought year. This narrow spread may be sufficient to deter adoption of "modern" technology.

Assuming the GOJ follows "high" price support programs and can resolve the financing of such a program, either by absorbing costs within the government budget or shifting them to consumers, the all important constraints of farm management and adoption of modern technology still remain.

The key to sustained, profitable yields, lies in the farm operators management of his available technology since the basic land resource and the rainfall patterns are given. It is the other factors which are subject to manipulation. Assuming the prime wheat area farms are 50% larger on the average than those in the Baq'a Valley, about 75% of the farms would still be under 53 ha (130 acres) in size with 50% being under 20 ha (49 acres). Even the larger farms - up to 90 ha (222 acres) would have difficulty justifying a complete line of modern machinery required to "properly" till Jordanian grain farms. The European equipment tends to be too light and the U.S. equipment, while heavy enough, it is too large and contains degrees of sophistication not required under Jordanian conditions.

If the farmer hires field work he experiences serious difficulty in getting: (1) proper plowing other tillage operations, (2) timely services, (3) low cost services and (4) proper seeding. (If these tasks aren't done right the margin for profit falls rapidly and the farmer may (and does) opt for low cost (traditional) technology. Particularly if his lease does not encourage

cost sharing; or labor intensive activities such as rock gathering, close observation and control of weeds and insects, or, if the farmer is only a "part time" farmer. In short the generalized issue of "appropriate technology" appears a very relevant issue for Jordan, as elsewhere, significant improvement in grain varieties and demonstration trials notwithstanding.

There does not appear to be any new production technology or much effort for barley. Tillage practices are generally the same as for wheat and there may be improved varieties and different fertilization practices which might be tried. There are efforts mentioned in government programs to remove some marginal areas out of wheat production and plant them exclusively to barley or leave them in open range. This appears to be a good idea but better knowledge is needed on the barley production potentials and alternative livestock/crop mixes.

In the olive and stone fruit sub-sector, the programs are moving ahead as rapidly as nursery stock can be developed and land sites are prepared. The program appears generally satisfactory. It is even reported that a "gray" market exists for olive seedlings.

As mentioned above irrigation for the Ghors is the major constraint in the vegetable sector and inputs are "reasonably" adequate with the present cultivated area i.e., at least the vegetable sector has already demonstrated the capacity to physically produce high land yields sufficient to glut the local market with tomatoes, egg plants, etc., if farmers over estimate the market at any given time. This is not to say the production pattern is anywhere near optimal, nor if the alternative land use pattern was tried farmers would not run into serious capital constraints as well as technical knowledge constraints - there being many unknowns as to plant/soil relationships regarding negative, neutral, or beneficial effects of given crop rotations; fertility maintenance of soils; insect and disease control, etc. etc. These problems will be compounded as new land is brought into production, and most importantly: (1) market analysis is needed for vegetables since the demand structure varies widely by commodity as does the perishability and storing/processing costs of any commodity. (2) In order to maximize productivity the incentive/tenure structure may also pose a serious constraint. It is reported that tenants (who farm nearly 50% of the land) much prefer cash leases and landowners prefer share cropping. The result is a share cropping pattern which may not provide the necessary incentives for the labor required to properly maximize returns to the national economy or to farmers themselves. It might be noted that the share cropping pattern persists even in the face of the 1967-1974 exodus from the valley when one would expect labor to be in a strong bargaining position.

Initial USAID sponsored linear programming models for the irrigated Ghor are indicative of very large differences in productivity which can be obtained under alternative land use patterns. They also reveal capital as an early constraint to achieving higher income patterns. The ability of these type models to represent the real world is, of course, dependent upon assessment of markets, prices, costs, farmer's ability and incentive to engage in the optimal cropping pattern, etc. The models are nevertheless usefull in pointing out further information requirements and providing planning insights. They indicate the potential for recovering the development investments planned for the area. The models also indicate, quantitatively, how low returns are also possible if land is extensively used.

In addition to specific sub-sector constraints there are two other major constraints which pervade the entire sector, these are:

1. Trained personnel with an intimate knowledge and experience in Jordanian farming.
2. Credit institutions to effectively serve the small farmer.

Unfortunately, a formal assessment has not been made of manpower requirements by type and by time period needed. It is fairly apparent, however, from the size and complexity of the various enterprise sub-sectors, the agro-business service sector and the government and quasi government agricultural service sector that a substantial number of trained people are needed if development goals are to be realized. Since the source of professional manpower (in the short run) will not come from farms, specialized training, as well as classroom training, may be required to equip students with basic agricultural knowledge and technical understanding of the environment in which farming is carried out.

Tom Stickely and Marwan Hayek in their paper for the Spring Review on Small Farmer Credit point out the need for more credit and better terms and types of credit to trigger small farmer productivity. However, additional knowledge is still required on the precise nature of capital constraints, means by which the credit institutions can recover their capital and the nature and extent of present indebtedness before one can assume modern production techniques can be facilitated by credit.

#### IV. Inter Sector Relationships

##### A. General

Jordan's planning and investments have been largely made without recourse to intersectoral analysis or use of formalized planning techniques.

The investments appear to have been based upon pragmatic considerations which were conditioned by obviously needed infrastructure, a limited natural resource endowment, a chronic shortage of all food commodities, a rather extensive land area, dispersed and low (absolute) population density and politically imposed divisions and dislocation which required opening communications networks in various directions at various times. As can be seen from Table 5 the current capital investment plan appears reasonably balanced and would seem to focus on areas where the country has a comparative advantage.

However, most of the investment is of a service nature rather than capital investment per se. Service type investment is, of course, required but it does not generate as much new productive employment as would greater efforts in light manufacturing or local agro-industries.

#### B. Agro-Industries

The details of the investment plan show the efforts in industry and mining/chemical/glass sub-sectors, including the expected private investment. Other than the UN assisted tomato canning plant and discussions about improved vegetable marketing, there does not appear to be any significant, organized, effort being made to encourage private investment in small-scale industries which could cut down the import of finished food products.

Given the small nature of the domestic market, but also given the principle plan objective of increasing employment, it would appear worthwhile to study the costs and benefits of further curtailing imports of cheese, eggs, meat, milk and other food products which are produceable locally. While more feed would have to be imported for more egg and meat production, it would have the advantage of using local labor in the production venture and the industry by-products may offset freight differentials of importing feed versus finished products.

As the local capacity to produce increases and political stabilization enables the GOJ to levy much heavier taxes on imported food it would have the advantage of encouraging greater local production efforts and boosting internal revenue.

Assuming freer trade will soon exist in the Middle East it would be advisable that Jordan assess its inter-sector and inter-regional comparative advantage since there are some advantages it has as a vegetable producer, a tourist center, and as a phosphate supplier.

If boarder restrictions are all removed, Jordan might want to concentrate its agricultural development even more on high value crops relative to efforts in cereals.

It should be recognized that import substitution industries - agricultural or otherwise - are high cost at the outset and to the extent that Jordan can develop absolute advantage in commodities these should obviously be pursued. In the interim, it would appear that a reasonable balance of investments and diversification of effort exists.

Table 5

Three Year Plan Investments by Sector

(JD 000)

(\$ million, 1 JD = \$3.11)

	Total			Public Sector Investments	Private Sector Investments
	JD Investments	\$	%		
1) Agriculture	13,620	40.8	7.2	8,937	4,683
2) Irrigation	14,636	45.5	8.2	14,638	-
3) Industry and Mining	26,130	81.2	14.6	5,310	20,810
4) Tourism and Antiquities	7,170	22.3	4.0	2,105	5,065
5) Electricity	9,781	30.4	5.5	5,700	4,081
6) Transportation	35,812	111.4	20.2	27,812	8,000
7) Communications	6,712	20.1	3.7	6,712	-
8) Trade	775	2.4	0.4	125	650
<b>Total of Economic Sectors</b>	<b>114,026</b>	<b>353.8</b>	<b>63.7</b>	<b>71,837</b>	<b>42,189</b>
9) Education and Youth Welfare	10,914	33.9	6.1	7,673	3,241
10) Health	1,480	4.6	0.8	880	600
11) Social Affairs and Labor	1,455	4.5	0.8	1,395	60
12) Housing and Government Buildings	34,890	108.5	19.5	3,420	31,470
13) Municipal and Rural Affairs	14,758	45.9	8.2	14,103	650
14) Aquaf	1,214	3.9	0.7	-	1,214
15) Statistics	263	.8	0.2	263	-
<b>Total of Social Sectors</b>	<b>64,974</b>	<b>202.1</b>	<b>36.3</b>	<b>27,739</b>	<b>37,235</b>
<b>Total Investments</b>	<b>179,000</b>	<b>555.9</b>	<b>100.0</b>	<b>99,576</b>	<b>79,424</b>

### V. Principle Government Programs and Foreign Assistance

The major agricultural development programs are presented in Table 7. The principle one, in terms of immediate outlay, is the expansion of the Jordan Valley irrigation system. The basic engineering work is the responsibility of the National Resources Commission and the general plan and agricultural development is coordinated by the Jordan Valley Commission. As can be seen in Table 6 below, the project is important in terms of new farm units to be developed as well as land to be irrigated. Considering the nature of intensive agriculture in the area there will likely be an equal number of "service unit families" which will derive a livelihood from the newly developed area.

Table 6

#### DEVELOPMENT PLAN FOR THE JORDAN VALLEY

<u>Year</u>	<u>No. of Farm Units</u>	<u>Irrigated Area (Ha)</u>
1973	4673	16,098 Canal and Pump Service
1975	5106	17,398 Under Development
<u>1977</u>	<u>7052</u>	<u>20,238</u> Under Development
1979	7052	20,238 In Place
<u>1980</u>	<u>10,634*</u>	<u>30,990*</u>

\*Dependent upon Maquren Dam up stream on Yarmouk River, costs not included in Table 7.

Table 7

SUMMARY OF GOJ AGRICULTURAL PROJECTS

	(JD 000's)			Total	\$Million
	1973	1974	1975		
1. Agricultural Economic Studies	5	10	10	.025	.08
2. Regional Dryland Farming Development	421	290	290	1,001	3.113
3. Wheat Project	85	82	78	245	.761
4. Maize	28	11	11	50	.160
5. Fruit Trees in Drylands	1,450	1,450	1,460	4,360	13,560
6. Afforestation and Soil Conservation	500	497	538	1,525	4,742
7. Ghor Land Improvement	190	190	182	562	1,748
8. Tobacco Growing and Grading	83	161	-	244	.759
9. Livestock Projects	1,335	1,221	283	2,839	8,830
10. Research and Extension Projects	909	451	457	1,817	5,650
11. Agricultural Marketing Projects	290	62	-	352	1,094
Total	5,296	4,415	3,309	13,020	40,497
12. Jordan Valley Irrigation				13,100	40,741
13. Faculty of Agriculture				260	.809
GRAND TOTAL				JD 26,380	82,047

Source:  
From GOJ Three Year Development Plan

Several sources of external assistance are being used to develop the valley. USAID is extending capital assistance for road construction, 18 km of canal extension and sprinkler irrigation for 5100 ha. above the canal. The Kuwait Fund will finance the Zerka Dam, the World Bank is planning to finance the development of side Wadis and land improvements in the Northern Sector of the Valley and West Germany will finance certain aspects of the southern section of the Valley. A feasibility, cum preliminary design, study needs to be done for the Maquren Dam as that structure is necessary to provide firm water for the full development of the valley.

Even though the planned investment in irrigation will create a substantial number of non-agricultural jobs, as well as farm opportunities, and will provide infrastructure for the next 10,000 hectares tranche of irrigation, the developmental costs will necessitate intensive land use to justify the investment. Fortunately, O & M costs should be relatively low as it is primarily a gravity system; and, of the area covered by sprinkler systems, about 30% is fed from small side-stream dams with sufficient head to distribute the water or have low-power requirements. The creation of a viable production and marketing system should accompany the physical infrastructure investments, and planning for such a system is underway by the GOJ.

The other agricultural development projects as listed in Table 7 are:

1. Agricultural Economics Studies, a USAID assisted effort in national, regional and farm level planning, with training elements, project analysis, and linear programming, the project produced the first L.P.'s for Jordan Valley. Scheduled to phase out in FY 1975.
2. Regional Dryland Farming, a FAO/WFP assisted project in land development, aerial surveys, land use studies and with some production effort, confined to Karak district, 40% of budget is WFP, 26% aerial survey, 22% UNDP and balance GOJ.
3. Wheat Project, a USAID aided project to demonstrate modern wheat production and the use of new technology among farmers. The demonstration phase is considered essentially complete, the project was scheduled as a three year effort beginning in FY 1973.
4. Hybrid Corn Project, a trial effort to produce corn from hybrid seed on irrigated land in the Ghor.
5. Drylands Fruit Tree Project, a WFP assisted project to develop and plant 18,000 ha to olives, grapes and stonefruit; about a third of the budget value is from WFP and half from farmers; balance GOJ.

6. Soil Conservation and Afforestation, general effort to develop nursery stock for forests and to install soil conservation practices, or forest cover, on 37,500 ha of land. Near East Foundation (NEF) is providing assistance in nursery stock.
7. Ghor Land Development, a government assisted farm land improvements (field canals, land leveling) in the Ghor. The government matches farmers' contributions.
8. Tobacco, a FAO and West German project to assist in production, grading, and curing of tobacco.
9. Livestock Projects,
- Dairy Cattle at Ghor's Agr. Exp. Station - Mennonite Assisted
  - Range Improvement/Forage/Animal Husbandry - UN assisted
  - Poultry
    - a. Commercial Egg Production - Primarily private capital
    - b. Farm Flock Development - training and demonstration project and supplying stock to small farmers. NEF assisted.
    - c. Sheep Feeding - a planned effort to fatten lambs
    - d. Veterinary Services - a West German and FAO assisted program in Vaccine production, diagnostic services, control of disease outbreaks.
10. Research and Extension - various facility development and research specific projects totaling \$5.6 million over three years:
- Ghor's station development \$2.4 million (4 stations)
  - Amman and Irbid stations \$1.6 million
  - Seed and Plant Protection laboratory \$36,700
  - Crops Research projects \$365,000
  - Training farm youth in irrigated farming \$868,000  
UN/FAO assisted

11. Agricultural Marketing, a UNDP/FAO assisted effort to (a) organize and activate three marketing centers in the Ghor and one national center (b) process tomato paste and other vegetables and (c) conduct feasibility studies on other crops which may be processed. The counterpart agency is the Agricultural Marketing Organization. Total 1973 and 1974 costs, \$1,094,720.

12. Faculty of Agriculture, a part of the University of Jordan's \$6.9 million expansion program, USAID assisted, purpose is to establish an agricultural college.

## VI. Basic Issues and Implications for U.S. Assistance

### A. Cereals Production

Being just on the edge of the semi-arid margin where cereals can be profitably grown, and with the structure of the agricultural economy, Jordan is faced with critical decisions as to making additional investments in the cereal sector - and which investments to make - if decisions are made to continue encouragement to that sub-sector.

Although it might change, the present rate of adoption of "modern" production processes has not been too encouraging. About 75% of the farmers have their farms disk-plowed by tractor power, but it is a poor job of plowing due to carelessness of the operator, stony fields and ill-timed operations. Fallow practices are poor. Only a few large farmers seed properly with drills. About 2 to 3% use fertilizer. Chemical control of weeds is catching on and use of this technology varies by degree of weed infestation, crop prospects, growth of grain and weeds and cost/price relationship of chemicals and hand-weeding.

Because wheat is an important item in the economy, because new technology is available, and because farmers have grown some wheat for several centuries, there appears to be an underlying assumption among policy makers that it is advantageous to continue (a) wheat price supports to farmers (b) investments in production programs and (c) bread subsidies to the consuming public. These are obviously costly ventures and it is possible that wheat could, in the long run, be imported at lower costs than it can be grown locally, and that full costs might be borne by consumers and the saved government expenditures channeled to areas other than wheat production.

For a number of good and sufficient reasons, some farmers on the lowest rainfall margin apparently grow wheat and barley almost more as a "catch" crop than a profit maximizing commercial venture (i.e., as a low-cost, emergency crop, designed to minimize losses, or make a profit if rain and other factors fall into place). Among the bulk of cereal farms the enterprise is clearly a commercial operation, but production processes are basically traditional.

Notwithstanding the present adoption rates of new technology (or possible economic gains of concentrating investments in ventures other than cereals), it is likely that GOJ efforts in wheat will continue. It is also likely that it is in the U.S. interest to assist. This is because few other economic alternatives exist for the bulk of farmers, and technically it has been demonstrated that both production and income can be enhanced by use of new methods. The basic issue is how to accelerate the use of methods which will increase productivity of cereal farmers.

The implication for foreign assistance at this stage might be to organize an in-depth analysis of both the technology and the farm environment in which the technology is expected to operate.

It will be necessary to get at the determinants of adoption of technology. Such an analysis might try to answer questions such as:

- what are likely returns from adoption of single elements of the technology or combinations thereof?
- are sufficient incentives present for any given tenure class or size of farm and does the farmer comprehend the technology and the critical nature of any given aspect of the package?
- are there input constraint problems or lack of incentives within the service sectors?
- are there engineering adaptations possible in the technology?
- what is the nature and degree of custom operations, what is the feasibility of effectively expanding such operations given the structure of the sub-sector?

Without more knowledge than presently appears available, it will be difficult to determine what type of substantive assistance would be the most useful in the cereals sub-sector.

There are also additional technological research topics which may require assistance in design, execution and analysis. Some of these are:

- evaluation of new varieties of both wheat and barley;
- summer fallow and other tillage practices;

- fertilizer response experiments and field trials;
- chemical weed control;
- management of irrigated wheat and its role in irrigated agriculture; and
- barley production.

#### B. Vegetables

Vegetables appear to be a sector which offers substantial opportunities to increase the number of job opportunities. This would be through intensive land use in newly irrigated areas. However, the realization of these objectives will depend heavily upon market analysis and corresponding cropping patterns which depend upon economic incentives to farmers (particularly share croppers) and timely technological advice in production and marketing. Fortunately, the issue of "appropriate technology" (in the sense of adaptation of machinery to land holdings) does not appear to be as critical an issue as it is in cereal technology. At least high physical productivity is already demonstrated on existing small farmer holdings.

What is lacking -- and this is an area where external assistance may still be required -- is the further development of alternative land use plans and identification of factors which likely will impede or accelerate productivity as new land is brought into production. Since the new land is scheduled for water within two years, it would seem imperative that farm and regional planning studies be carried out as soon as possible and that such studies have enough accurate detail to provide realistic guidance to farmers and to the service sectors which provide the farm inputs and market the commodities.

The Jordan Valley Commission estimates land use is presently at about 106% of tillable area but will need to be increased to about 150% to yield a rate of return of 12%. Although experience will ultimately prove where the most critical constraints are, it is very likely that early analysis of resources, their potential use, and the programming of investments can improve small farmer productivity in the area.

#### C. Agricultural Development Planning

Jordan's rapidly changing economy and its statistical series has made the job of economic planning generally difficult.

The lack of consumption data, estimates of external markets, farm price and costs series has made the task of agricultural planning even more difficult. Personnel trained in advanced analytical techniques are scarce and those who are available are overburdened with many tasks necessary to the development process but for which other persons should be trained. The agricultural statistical series needs to be further developed. More economic analysis is necessary for development planning.

USAID's recent assistance efforts in developing a series of linear programming models for the Jordan valley represent a useful example of technical assistance even though the models at this stage may raise more questions than they answer. They do serve a very useful purpose in demonstrating the need to understand the importance of the cropping patterns, and ways to approach land use improvements are brought into better focus.

More efforts are needed in several diverse areas of statistical improvement, cost and price analysis, farm management, regional and national planning, commodity production and marketing analysis. Yet trained and experienced personnel are scarce and are already holding responsible jobs. As a consequence, the capability to take on more work -- and external assistance -- becomes a difficult resource allocation problem in itself. Because economic analysis is in critical proximity to policy determination and is relevant to issues raised in both the cereals and vegetable sub-sectors, it would seem appropriate to explore what further work AID might do in this area either on a general basis or more narrowly focussed on specific problems.

#### Trained Personnel and Credit Constraints

For research and agricultural leadership, the programs of the GOJ seem properly guided in training as many people locally as can be accommodated by the expanding university facilities. Key staff which can be spared from work are also being trained abroad. It should be recognized that the AID project to assist the development of agricultural training and research facilities will not have immediate effects among small farmers. It is primarily an institutional development effort necessary for long-run, sustained performance of the agricultural sector, and the implications for assistance are also long-range.

While credit, as usual, is cited as a constraining factor in agricultural development, very little specific information seems to exist about the precise nature of the capital items needing

financing or how they may be financed. If preliminary proposals for small farmer credit are developed by the GOJ and AID assistance is requested, it would seem reasonable to review the proposals in light of what is known about capital requirements, performance of credit institutions, and the potential for developing small farmer productivity and the institutions which serve him.

#### Agricultural Development Strategy

Jordan's development planners have allocated a considerable amount of development capital in irrigation and other facilities in the Jordan River Valley because (1) in the short run the land production potential in that specific area can generate more income and employment than other agricultural investments and (2) the specific, technological, production problems are apparently less severe than in the cereals sector.

AID's recent project type assistance has been supportive of these efforts. It is felt that these efforts should continue in order to maximize returns on prior investments and to bring to full realization the potential of the valley. The irrigation, roads and drainage infrastructure clearly needs to be completed and the social overhead infrastructure requirements, while perhaps less obvious as candidates for AID assistance, are likewise needed. Planners for the valley are concerned with providing settlement incentives to induce a pattern of health, education and agricultural services which are consistent with land use objectives. USAID subscribed generally to this approach.

To realize the overall growth potential in the agricultural sector, the national planners will, of course, soon have to look beyond the Jordan River Valley for growth points since that area is sharply limited in land area and, hence, will reach its potential in a relatively short time.

Through the project for demonstrating wheat production technology, the GOJ and USAID have begun to reveal a considerable amount of production potential for the cereals sub-sector and this general area may be the next logical extension of assistance efforts.

The cereals sector contains the bulk of small farmers and their contribution to the economy through grain and livestock products is substantial.

As repeatedly pointed out above, the institutional and technological constraints in the cereals sub-sector are also substantial, at least for the small farmer. To determine more precisely the nature of the constraints, and what, if anything, can be done about them, the GOJ will need to analyze (either formally or otherwise) the cereals sub-sector. USAID would subscribe generally to the need to assist the GOJ in identifying future courses of agricultural investments in the sub-sector. More specifically, the proposed strategy is to:

- 1) complete various types of infrastructure in the Jordan River Valley;
- 2) assist in agriculture planning for the Valley; and,
- 3) analyze what assistance might be useful for the cereals sub-sector.

The efforts would lead to specific project proposals in the cereals sub-sector.