Outlook for the Agri-Food Sector in West Bank and Gaza Strip:

Obtaining Higher Value from the Horticultural Subsector

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EXECUTIVE SUMMARY

This report examines ways to obtain the best returns from the land, water, and people in the horticultural subsector in the West Bank and Gaza Strip (WBG). The report is a direct response by the Market Access Program (MAP) to a request made by the U.S.-Palestinian Bilateral Committee to assess the agricultural sector. The general orientation of the report was developed after consultation with Minister of Agriculture Sayidi and his staff in Gaza City and Ramallah.

The Market Access Program, financed by the U.S. Agency for International Development, is designed to increase the competitiveness of the Palestinian private sector. Development Alternatives, Inc. (DAI) selects sectors for assistance by the Market Access Program based on comparative advantages to develop and strengthen competitiveness in global markets. Currently, the Market Access Program works in the trade sector, tourism, information technology, pharmaceuticals, and stone and marble. The agricultural sector, the focus of this assessment, is an important sector to the Palestinian economy in employment, productivity, and potential. DAI assesses the opportunities for growth in each sector and develops a new growth strategy geared to global markets. DAI's consultations with private and public sector representatives during this assessment are critical to developing consensus for a new growth strategy and cooperation for its effective implementation.

The report does not recapitulate the basic information on WBG agriculture that is provided by recent conferences and reports (See the Bibliography and Annex A, which contains the World Bank's "Agriculture Strategy Note.") The analysis of the unique security and logistic features that are faced by the subsector assumes the shifts in the power relationship between the Palestinian Authority and Israel will be incremental. Specific proposals are made where there appear to be technical ways to reduce the logistic costs and product damage caused by security controls. However, the general approach is that the security features of WBG must be translated into standard technical, economic, financial, and business terms to develop a growth strategy.

The report examines the comparative and competitive advantage positions of the horticultural subsector of WBG from the perspective of its closest neighbors, Israel and Jordan, and from WBG's regional competition. The report recommends a sector growth strategy built on the following four elements:

1. Opening channels to markets, with an initial concentration on direct exports through the Rafah Airport. Although the volumes will be small, the leverage on export terms with the Israeli private and public sectors is important;

2. Greater focus on higher value products because WBG is running out of agricultural water and the time to generate return from irrigated crop production. In Gaza, this means migrating to greater production of cluster and cherry tomatoes, strawberries, cut flowers, and herbs, and the addition of ornamentals. In the West Bank, this means an initial focus on extra-virgin olive oil exports;

3. Improving productivity, with an early emphasis on improvements in postharvest handling and cold chain development for direct fresh exports and domestic wholesale markets; and

4. Improving the policy and the regulatory environments to address key issues of phytosanitary inspection, pesticide traceback, crop forecasting, agricultural and food manufacturing good practice codes, market information, crop forecasting, and agricultural law. Assistance from the U.S. Department of Agriculture and other U.S. federal agencies is needed for these activities.

DAI presented the findings of this study and the draft strategy to joint public and private sector workshop hosted by the Ministry of Agriculture in Ramallah on November 18, 1999. A program of technical assistance, training, and strategic investments to achieve the commercial and economic results was identified in this strategy. Workshop participants agreed in general with the approach and made suggestions, many of which have been incorporated into this report. The thrust of their comments was that the general agreement needed to move quickly into implementation.

The strategy implicitly acknowledges the special security concerns that exist and the constant need to seek ways to facilitate the free movement of goods, services, and people while maintaining security. The Wye River Accord allocates resources for investment in infrastructure and technology investments that go beyond the scope of the Market Access Program. In the early stages of implementation, DAI will assess opportunities and possible investments for USAID and other donors that would address the security concerns. These investments may be essential to raise Israeli confidence that increased and faster flows of products through the Rafah Airport or border crossings can be managed with good security.

The total flows the program would affect would be $62 million in products. The increases in value of the products directly attributable to the program would be $6.2 million annually. The Market Access Program is well placed to implement the activities recommended in this report using its sector growth committee model. The Market Access Program should establish a horticultural subsector growth committee to help guide and support the implementation of the strategy. This committee would serve as the vehicle for close coordination of effort between the WBG private and public sectors.

COMPARATIVE ADVANTAGE AND COMPETITIVE POSITION

By any standard, the West Bank and Gaza is unique from historical, political, geographic, and economic perspectives. Its unique features include its status as the Holy Land of three faiths, the inter-graded administrative control (Zones A,B,C, and settlements) of land, water, people, and goods that is dominated by Israeli security concerns; the non-contiguity of territory; and the huge influence of Israeli and, to a lesser extent Jordanian, macro- and micro-policy on Palestinian economic, financial, and commercial institutions and their operations. These features can be translated into standard financial costs that are borne by the fresh and processed produce of the West Bank and Gaza, whether sold on local or international markets. The politics of the situation, which may block the movement of people and products from the West Bank and Gaza for short or long periods, still translate into an average cost impact over any given season or year. Internal politics and policies also affect costs.

This report will look at the horticultural industries of the agri-food sector from the perspective of what the Market Access Program terms " WBG Inc." In this case, we are concerned with the Horticultural Division of a "company" that has two main units, one in the Gaza Strip and the other in the West Bank. After examining the comparative advantages and competitive positions of WBG Inc.'s Horticultural Division, with its two geographic units, we will look at internal and external policy issues.

The comparative advantage of Palestinian produce is being studied by a number of parties using domestic resource cost (DRC) and benefit/cost approaches. They provide a good base for understanding the current situation. All contain the caveat that water costs are under-estimated. Additional caveats should be added about the statistical database. It may be only after the planned agricultural census in 2000 that comprehensive ranges can be established for costs and returns for crops in different locations. Table 1 presents net return and DRCs for a range of WBG crops, as developed by the World Bank.

The description of WBG agriculture is contained in those reports and will not be repeated here. Most of the horticultural crops are seen as having a favorable DRC and a positive benefit/cost ratio, using costs and returns from the early to mid-1990s. As the World Bank 1998 "Agriculture Strategy Note" summarizes:

> Agriculture in WBG appears to be competitive in labor-intensive greenhouse production of vegetables, flowers, and strawberries. It also appears to be competitive with Israel in the production of rainfed grapes, olives, and stone fruits, and there may be niches for the development of minor specialty crops such as herbs and medicinal plants. It is not competitive in the production of cereals, and citrus is marginal.

During this study, growers in Gaza indicated that the private returns to citrus have rapidly declined per dunum and per cubic meter of water during that last three years.

Table 1: West Bank and Gaza Strip Net Returns and Domestic Resource Costs for Selected Crops

Crop	Gaza		Jordan Valley		Semi-Coastal Zone	
	Net Financial Margin (NIS/dunum)	DRC	Net Financial Margin (NIS/dunum)	DRC	Net Financial Margin (NIS/dunum)	DRC
Tomatoes, Irrigated, Greenhouse	8630	0.42	5135	0.74		
Tomatoes, Irrigated, Autumn	1364	0.72	1466	0.72		
Tomatoes, Irrigated, Spring			1491	0.72		
Tomatoes, Rainfed					124	1.23
Cucumbers, Irrigated, Greenhouse	6960	0.37	3124	0.65		
Cucumbers, Irrigated, Autumn			796	0.74		
Cucumbers, Irrigated, Spring	1027	0.70			493	0.78
Peppers, Irrigated, Greenhouse			4065	0.69		
Peppers, Irrigated, Autumn	624	0.80				
Squash, Irrigated, Autumn			1027	0.78		
Squash, Irrigated, Spring	124	0.92	1400	0.67		
Squash, Rainfed					243	0.85
Potatoes, Irrigated, Autumn			1166	0.64	635	0.73
Potatoes, Irrigated, Spring	620	0.75	562	0.81	680	0.73
Watermelon, Irrigated, Spring			530	0.77		
Onions, Irrigated, Spring					539	0.66
Cauliflower, Irrigated, Autumn	1302	0.52			587	0.54
Cut Flowers, Irrigated, Greenhouses	8250	0.67				
Grapes, Irrigated			1382	0.69		
Grapes, Rainfed	-200	1.21			614	0.67
Olives, Irrigated	180	0.86				
Olives, Rainfed	29	0.89				
Citrus, Irrigated	978	0.67	1904	0.65		
Bananas, Irrigated			2836	0.57		
Guava, Irrigated	1000	0.73				

Source: World Bank, 1999

The competitive position of Palestinian horticulture is shaped by the fundamental factors of water, land, and labor. Water is the primary limiting factor, with land not far behind. In Gaza, water resources are already overexploited (Jad Isaac and Maurice Saade, 1999), and land is extremely expensive ($100,000-$150,000 per dunum). With declining water availability and quality for irrigation, many people believe there is only a 10 to 20 year horizon for horticultural production in the Gaza Strip. That estimate includes projected use of treated wastewater for some crops. In the West Bank, the maximum surface and groundwater supplies available for agriculture has probably been reached and the irrigable surface area is

close to its maximum extent. Higher rainfall in the West Bank permits rainfed agriculture in the central highlands and coastal zone, which is dominated by olive trees. The topography of the highlands and the unfavorable climate of the Jordan Valley should restrain human settlement in the West Bank and permit sustained agricultural land use for a longer period than in Gaza. WBG and Israeli agriculture both face declining water supply and increased land pressure. WBG labor costs are lower than those in Israel but higher than those in Jordan.

These near-neighbor comparisons are very useful for evaluating the competitive position of the protected horticultural markets in WBG, Israel, and Jordan, but are less useful when applied to markets in the Persian Gulf states, the European Union, and Eastern Europe. There, the competition for market share is worldwide. Table 2 extends the range of comparison to another near neighbor, Egypt, and to a more distant one, Morocco, which both have similar production environments and E.U. and Gulf State export market targets. Egypt and Morocco will face land and water constraints similar to those felt by WBG only after another 25 years or more. The market logic pushes WBG Inc. toward higher value horticultural crops, in much the way that Israel Inc. is being pushed.

Table 2: Competitive Position—Fundamentals of Water, Land, and Labor

	WBG	Israel	Egypt	Morocco
Water	-	-	+	+
Land	-	-	+	+
Labor	$10.00	$14.00	$2.00	$1.30

WBG Inc. has to compete with a producer, Israel, that is also its largest fresh fruit and vegetable export client, and with another producer, Jordan, which is WBG's second-largest produce export client. Israel has a protected domestic market that grants Palestine Inc. special access, but ties the access to rent paid through the purchase of inputs and services that may be obtained less expensively on international markets. In purely economic terms, WBG Inc. has to open new markets and logistic channels so it can negotiate lower rents and obtain better services from Israel Inc.

The pressure comes in the form of competition on export markets. Table 3 shows the effect of location and transport mode on the shelf life of the Daniella red-ripe round tomato in northern E.U. markets. The table provides the total transit time and remaining shelf life for distribution for WBG and Moroccan tomatoes that are available at the same time on the same markets. (More detail on the postharvest handling and transport chain is provided in Annex B.)

Table 3: Comparison of Time and Cost/Kg. of Daniella Long Shelf-Life Tomato Shipments

	WBG-RO	M-Boat	WBG-BG	M-Truck
Total Time	14.1	13.8	2.6	2.5
Shelf Life	21.0	21.0	21.0	21.0
Distribute	6.9	7.2	18.0	18.5
Cost/Kg	$0.25	$0.08	$1.00	$0.29

Key: WBG-West Bank Gaza; M-Morocco; RO- Roll On/Roll Off Vessel; BG- Air via Ben Gurion Airport

The WBG tomato is shipped via the Erez crossing to a transfer area outside Ashdud port, where the tomato is transferred to a refrigerated van that is loaded aboard a roll-on/roll-off vessel to an Italian port, and the van is transferred to another roll-on/roll-off vessel to Rotterdam. In the Moroccan case, pallets of tomatoes are loaded in refrigerated vessels with 800 to 1,200 metric ton capacity in the port of Agadir, stop in Casablanca, and continue on to Rotterdam. The transit time is about the same, and the shelf life is about the same when the tomato enters the distributor's channel in Europe. The market price will be about the same, but the Moroccan shipper benefits from a transport price that is one-third that of his WBG (or Israeli) competitor.

Market prices are higher for tomatoes of high quality and long shelf life because they retain their consumer appeal for longer periods in distribution and on the produce display. A cost simulation is done for Gazan export production transiting the Qarni crossing to permit expedited handling at the Ben Gurion Airport for shipment to a northern European destination. The comparison is made with Moroccan tomatoes loaded into refrigerated truck vans in the Souss Massa Valley that cross the Straits of Gibraltar on ferries and are driven directly to wholesale markets or supermarket distribution warehouses. Both cases deliver a tomato with about 18 days of shelf life, but the Moroccan tomato is transported at 30 percent of the cost of the air-shipped tomato. Now, compare the shelf life and transport costs of the WBG tomato transported by RO/RO vessel with the Moroccan tomato transported by truck. Because of the difference in the shelf life of tomato delivered, a Moroccan round, vine ripe tomato will sell at a wholesale or distributor's premium from US $0.5 to $0.12 cents per kilogram, or more, over the WBG (or Israeli) RO/RO tomato of similar quality.

This is the competitive situation that puts the WBG export tomato in the same boat as Israel, both literally and figuratively, in terms of the E.U. market and North African competitors. The situation requires producers in both countries to increase productivity, move into a higher value product, seek more value on the local market, or move to a country that has a lower cost of production. Israeli producers implemented all of these strategies starting in the late 1980s. They have improved management to increase yields, moved more of their greenhouse production into higher value cherry tomatoes and cluster tomatoes, and improved packaging for the national market. A portion of the industry is sourcing product from Gazan greenhouses, and a few growers have moved off-shore—for example, producing the Desert Sweet cherry tomato as the Desert Glory cherry tomato in Mexico for the U.S. and Canadian markets. Table 4 shows total Israeli exports of tomatoes to destinations other than WBG from 1993 through 1996.

Table 4: Israeli Tomato Exports—All Destinations Except West Bank and Gaza

Calendar Year	-- Value $1000 --				--Quantity (MT) --				Average Price $/Kg.
	1993	1994	1995	1996	1993	1994	1995	1996	
Round	3303	4102	3710	3291	3850	4968	3053	3331	$0.95
Cherry	7781	9188	10300	14246	3197	4069	4133	5430	$2.47

Source: USDA/FAS Report: IS7003. May 25, 1999.

Moroccan Daniella farm-gate prices are about $0.15 to $0.22. Gazan export tomato farm-gate prices are about $0.32 to $0.45 a kilogram. Israeli farm-gate prices are $0.42 to $0.50 a kilogram. The basic conclusion is that WBG producers have a bit of breathing room but must make the transition to higher value products if they are to increase sales in export markets other than Israel. Similar analyses would result in the same conclusion for potatoes, cucumbers, squash, and citrus.

A GROWTH STRATEGY

Getting the best returns from WBG land, water, and people will require a strategy built on opening channels to new markets, producing higher value products, improving productivity, and improving the policy and regulatory environment. This section of the report outlines a growth strategy.

OPENING CHANNELS TO MARKETS

The opening of channels to markets should have the highest priority. Currently, WBG producers are linked only indirectly to most markets outside of areas controlled by the Palestinian Authority. This is true even for some Israeli markets. Some WBG producers make sales to Israel through the WBG wholesale marketing system for transfer to Israeli wholesale markets. Israel is, and will remain, the largest buyer of WBG produce. The negotiating terms for access to the Israeli market, Israeli ports and airports, and crossing points will change only at a snail's pace as long as WBG has no direct access to other foreign markets.

Rafah Airport and Direct Export Channels

The opening of the Rafah Airport in the Gaza Strip to air cargo flights for high value perishables is needed to provide a direct link to foreign markets. Time is short because Gaza will probably run out of agricultural water in the next 10 to 15 years, and because other southern Mediterranean producers with fundamentally lower costs of production are gradually encroaching on WBG's seasonal windows of opportunity in the European Union and the Persian Gulf. The cargo village that has been planned is a good medium-term (5-7 year) answer to the problem, but intermediate solutions should be used to get produce and flowers moving by the 2000/2001 production year.

The objective of WBG should be to double flower exports from 2,000 to 4,000 metric tons and to increase high value fruit and vegetable exports by 5,000 metric tons to a selected set of European destinations over the next three years. To do so, WBG shippers will need to forge new ties to markets for their higher value fruits, vegetables, flowers, and herbs. In the European Union and Eastern Europe, the small WBG output is probably best marketed through a balanced strategy of continued sales through the Israeli marketing and logistic channels and through direct marketing through individual importers and wholesalers in the European Union and Eastern Europe. Few, if any, WBG shippers have European marketing experience, so external help will be needed to develop the direct market links.

Continued Indirect Exports Through Israel

WBG shippers recognize that current channels through Israel to the European Union and Eastern Europe provide a low-cost and relatively secure source of income that cannot be neglected. These channels through Agrexco, the Citrus Marketing Board, and a few independent Israeli exporters rely upon Israeli throughput and marketing muscle to maintain market share and keep down transport and distribution costs. WBG producers are spot and contract suppliers of produce to the Israeli grower/packer/shippers. Israeli exporters already feel substantial pressure to find lower-cost sources of product and to integrate distribution channels in Europe to capture more of the final sales value. They face rising production costs; drastically lowered government subsidies; and rapidly tightening competition from lower-cost suppliers in the southern Mediterranean, Africa, Asia, and Latin America. WBG grower/shippers can benefit to the extent they can produce more cheaply than their Israeli counterparts and maintain quality.

The recent redirection of Gazan produce transfer to Israel from the Erez crossing to the Karni crossing increases the transit costs and the risks of damage of fresh products. The Karni crossing does not have a cold chain that straddles the crossing, nor does it have a system of inspection and pre-clearance in place that reduces the risk of loss to WBG producers and their Israeli clients. The feasibility of a privately managed cool transit tunnel at the crossing should be examined. The analysis should include the potential for handling the higher value exports to Jordan and the Persian Gulf states through the same facility.

Regional Market Perspectives

WBG growers and shippers do not appear to realize the extent of changes in fruit and vegetable production and marketing in the southeastern Mediterranean and Gulf states. True, the devastatingly harsh Israeli security checks on fresh produce have chopped back exports to and through Jordan. However, the fundamentals of supply have shifted enormously over the past decade. The rapid diversification and expansion of production by Turkey, Syria, Egypt, and Jordan itself mean that the Jordanian and Gulf markets look forward to an expanding supply of lower costs fruit and vegetables. WBG shipments into the Gulf are already small and will decline as other origins provide superior products at reduced prices. In addition, Gulf state fruit and vegetable markets are rapidly differentiating. The traditional markets still exist, but they are being replaced by a more modern distribution system that is fed by suppliers from around the world.

The wild card in the regional market is Iraq. Removal of trade sanctions would radically shift the markets for all products with a near-term jump in demand for foodstuffs of all kinds benefiting the nearest neighbors. However, long-distance reefer truck transport prices would probably increase as the current excess reefer transport capacity becomes fully occupied with Iraqi trade. Again, lower cost suppliers in Syria, Jordan, Egypt, and Turkey would probably benefit more than the WBG.

WBG Wholesale Markets and Links to Israel and Jordan

WBG wholesale markets appear to operate efficiently. Analysts differ on whether marketing margins are reasonable or excessive, but most produce—whether WBG, Israeli, Jordanian, Syrian, or Turkish—transits the major wholesale markets. Israeli fruit, potato, and onion producers, packers, and wholesalers appear to have very efficient links to the WBG wholesale markets. West Bank wholesale market cold stores and stands are filled with Israeli fruit. And WBG wholesalers appear to have good links to the Israeli, especially Arab-Israeli, wholesalers. WBG fruit and vegetable distribution is primarily through low-cost daily markets, with little product passing through retail shops. Some WBG fruit producers and some vegetable producers use the larger capacity and lower energy-cost Israeli cold storage facilities to extend the marketing season for their crops in Israel and WBG. Some West Bank grower/packers are trying to enter the higher end of retail markets through consumer packaging of some products. These efforts need to be integrated with a strategy for sale of better-packaged products to Israeli. Then the volume of sales can support the marketing costs to reach the higher-income segments of both West Bank (a small higher income segment) and Israeli (a medium-sized higher-income segment) markets. Although sensitive politically, West Bank grower packers may want to consider investing in Israeli cold stores and packing facilities to reduce costs and improve returns on their sales to both markets.

Table 5 shows the average Palestinian exports in metric tons and percentages to Israel and Jordan from 1990 to 1996. These figures indicate that, on average, Jordan is the larger fruit export market and that Israel is by far the larger vegetable market for WBG. However, the trend is toward an increase in total exports to Israel, as compared with Jordan, as shown in Figure 1. The figure shows an inversion of the trading relationship between WBG and Jordan and Israel over the past seven years.

Table 5: Average WBG Produce Exports to Israel and Jordan, 1990-1996

Category	Israel	Jordan	Total
Fruits (in MT)	35,269	103,286	138,554
%	25.4%	74.6%	
Vegetables (in MT)	59,616	2,000	61,616
%	96.8%	3.2%	
Total Percentage	47.4%	52.6%	200,170 (MT)

When a fundamental change of this type occurs, it is usually accompanied by changes in the marketing channels for individual crops. Some WBG wholesalers, for example, indicated that they are storing more product in Israel. Other indicated they are entering into more contracts with *kibbutzim* for potatoes and onions than in the past. Therefore, the general schematic for WBG fruit and vegetable marketing so admirably put together by Abujarab-Tamimi (1999) and others needs to be adjusted with more detailed attention paid to structure of the linkages between producers and their markets. The broad outline of the adjustments is shown in Figure 2. Flows need to be quantified. The Market Access Program's work to institute Harmonized System codes for WBG exports is an important contribution to the analysis of produce marketing channels.

Figure 1: Palestinian Produce Exports to or Through Israel and Jordan

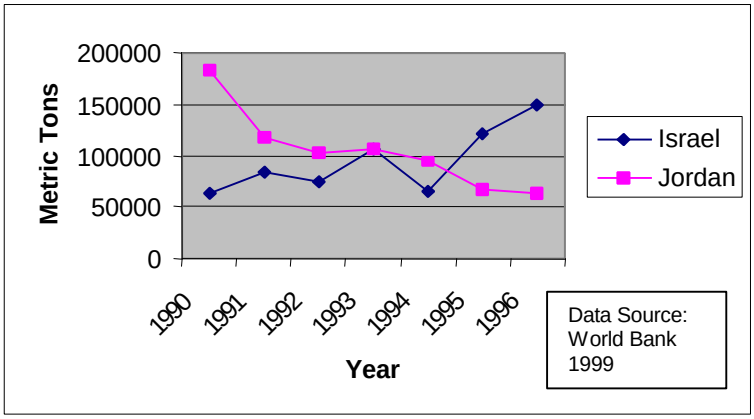
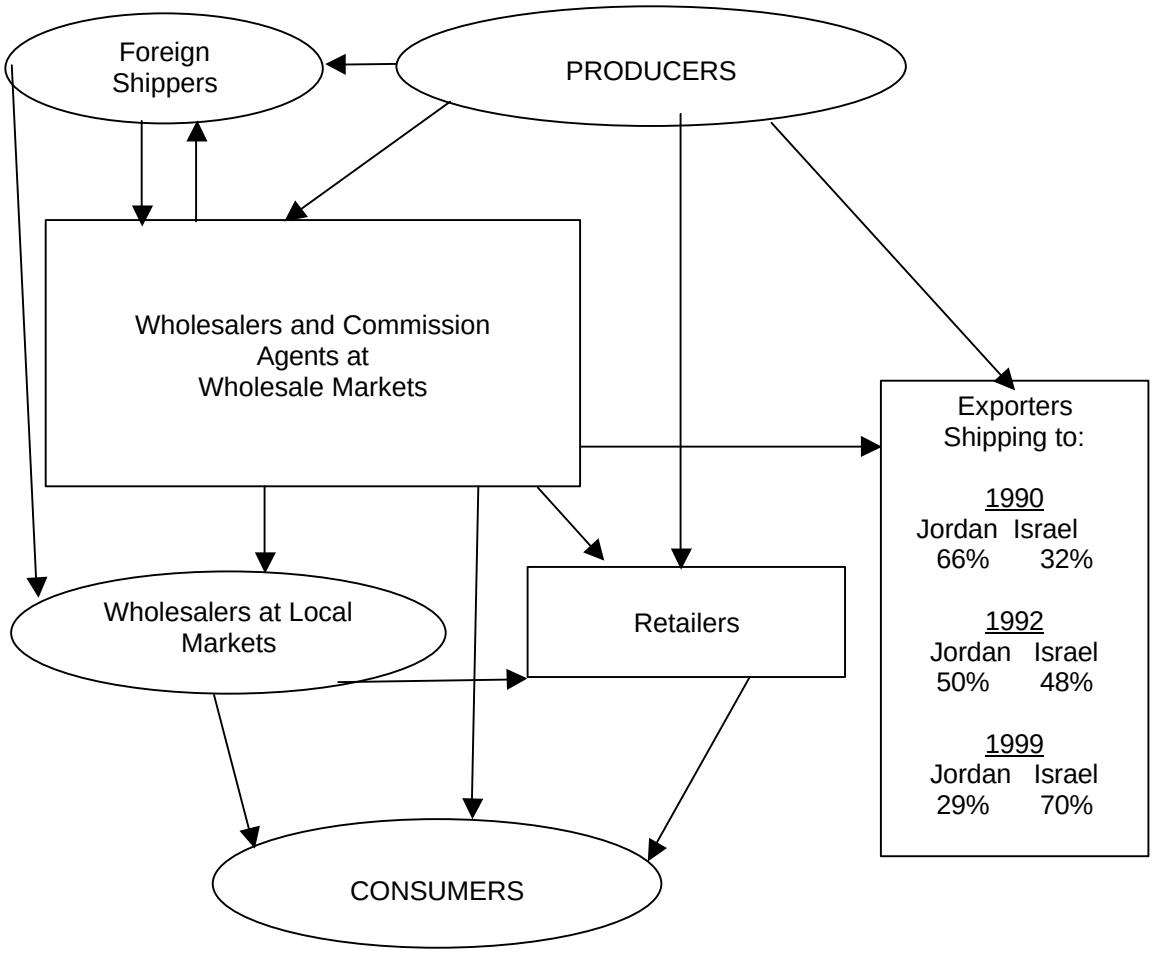


Figure 2: WBG Marketing Channel Outline



This schematic for marketing channels for fruits and vegetables needs to be broken down at least to the level of separating fruits from vegetables and, ideally, to the level of each major crop. Using a 20,000 metric ton production figure as the cutoff point, basic channel studies for fruits would include citrus, olives, grapes, and bananas, with the much smaller strawberry crop thrown in because of its high unit value. Vegetable channel studies would include tomatoes, cucumbers, squash, potatoes, eggplant, and onions, as well as with hot peppers, watermelons, cauliflower, and muskmelons. Finally, a cut-flower channel study is needed because the industry is focused almost entirely on exports. The Ministry of Agriculture and WBG universities have the capacity to do these channel studies.

GREATER FOCUS ON HIGHER VALUE PRODUCTS

Producers, packers, shippers, and processors need to focus on higher value products and on extracting more value from what they already produce. The West Bank's largest standing agricultural resource is the olive tree. There has already been substantial investment made in modern oil presses. However, the value received can be markedly increased through simple improvements in tree yield, harvest and postharvest handling practices, control of the oil-extraction process, bottling and packaging, and the admittedly more complex process of marketing extra-virgin olive oil from the Holy Land.

In the Gaza Strip and Jordan Valley, Palestinian greenhouse producers are in the same competitive boat as their Israeli counterparts, facing increasing costs and reduced water quantity and quality. To stay afloat, they must continue to move to higher value products and begin to capture more of the marketable value. Cherry, cluster, and specialty tomatoes, strawberries, bell and chili peppers, organic vegetables, a more diversified set of cut flowers, culinary and medicinal herbs, and ornamentals should be important elements of the mix.

The demand for organic produce continues to increase in the European Union. Production of organic products requires certification. Although there are regional efforts to develop organic certification, the shortest route to acceptance in key E.U. markets is to obtain certification from services located in those markets.

IMPROVING PRODUCTIVITY

Inability to make direct market links has led to serious under-investment in postharvest packing, storage, and handling facilities. Improvements in packing houses, pre-cooling, cold storage and packaging are needed to support higher value crop production, extend marketing seasons, and add value to marketed produce. Reduction of post-harvest loss is one way of improving the productivity of the subsector.

Investment in the postharvest chain is speeding up as businesses see the potential to reduce losses, improve their sourcing options, and extend the time available to market both imported and locally produced fruits and vegetables. However, technical capacity in pre-cooling, cold storage, and post-harvest handling will need to be externally supplied in the short run. A

good example is in longer-term fruit storage. There is both new investment and consolidation in ownership of private cold storage facilities in WBG. Controlled atmosphere storage is available and used primarily to hold imported apples (including substantial quantities from the United States). Some facilities plan to hold grapes to extend the marketing season. However, no facilities exist for rapid pre-cooling of any product in WBG. One facility in Gaza has the capacity to do the required sulfur dioxide treatments but has no personnel experienced in the intricacies of fumigation. About three seasons are required to develop a competent team to efficiently and economically handle grape pre-cooling and sulfur dioxide fumigation.

WBG growers benefit from access to Israeli horticultural technologies and crop varieties. WBG growers, however, tend to invest less and manage less intensively than their Israeli counterparts. Crop yields and returns from input use need to climb up the productivity curve if WBG is to remain a competitive origin for foreign markets and a better competitor with Israel for the WBG fruit market. Although politically sensitive, closer ties with Israeli training and research institutions, suppliers, producers, and packers are needed. This will be easier to accomplish in the West Bank than in Gaza.

IMPROVING THE POLICY AND REGULATORY ENVIRONMENT

The agricultural policy of the Palestinian Authority is just beginning to take shape and is still dominated by political concerns for understandable reasons. However, a healthy dose of *realpolitik* is needed in the analysis of agricultural investment policy, which, for the foreseeable future, will be tied to the policies and trends of the Israeli agricultural sector. WBG needs a unit that studies the relationships between its agricultural sector and that of Israel, which is the WBG's largest supplier, market, and competitor. The excellent skills of the very few agricultural economists in WBG will need to be augmented for a few years with external help.

To make the best use of this outward look, the WBG needs to build on its already laudable advances in developing its statistical database. Returns would be good to the development of accurate crop and stored stock forecasting and daily wholesale market reporting. The U.S. Department of Agriculture (USDA) and USAID have strong comparative advantages in these areas.

The regulatory environment is an important element of the investment environment. Consistent enforcement of good regulations improves investment opportunity. In many areas, WBG loosely follows Israeli regulations and employs only a rudimentary enforcement capacity. Pesticide residue management, phytosanitary inspections and certification, and enforcement of client market grades and standards for exported products all need urgent attention. Current national and donor programs are putting infrastructure in place and training people. USDA and USAID could provide excellent assistance in a targeted program that focuses on the bottom line—enforcement programs, such as pesticide trace-back programs, phytosanitary inspection, and quarantine procedures for incoming as well as exported products, and grades and standards sampling and survey procedures. USFDA assistance,

coupled with that of the U.S. private sector, could be used to improve food safety and labeling for both national and export markets. Finally, USDA FSIS assistance could be used to address the issues of animal and animal product import survey and inspection.

DRAFT PROGRAM RECOMMENDATIONS

This section provides draft program recommendations based on the strategy described in the preceding sections.

Table 6 provides a summary of the major elements of the draft program, the total value of product flows affected by the program, and net benefits directly attributed to program activities. Net benefits are the improvements in output and value that are attributable to project-financed activities. They average about 10 percent of gross benefits.

Table 6. Component Costs and Returns of the Draft Work Plan for the Horticultural Subsector (U.S. dollars)

Code	Category	Total Product Flows	Net Benefit
0.00	Sector Growth Committee	Distributed	Distributed
1.00	Opening Market Channels	$49,100,000	$4,900,000
2.00	Higher Value Products	$7,000,000	$750,000
3.00	Improving Productivity	$5,450,000	$545,000
4.00	Improving the Policy and Regulatory Environment	Distributed	Distributed
5.00	Cost- and Risk-Sharing Fund	Distributed	Distributed
6.00	Management and New Market Access Program Staff	Distributed	Distributed
All	Summary	$62,150,000	$6,215,000

Table 7 presents a draft work plan for the horticultural subsector. The portion of the work plan that is recommended for priority attention by the Market Access Program is highlighted by the use of bold characters in the figure.

SECTOR GROWTH COMMITTEE AND PRIVATE PUBLIC COOPERATION

The Market Access Program has successfully employed sector growth committees to provide a focus for the development of sectoral business strategies, the generation of consensus, and the establishment of private sector-led organizations. Although the horticultural subsector has individual commodity councils, associations, and cooperatives, none is equipped to deal with the sustained promotion and implementation of a growth strategy with cross-cutting elements. It should be possible to draw from the invitees to the November 18, 1999, workshop in Ramallah to establish the nucleus of the committee during December 1999 and January 2000.

The private and public sectors must cooperate if sector growth is to occur. WBG has layers of overlapping laws and regulatory practices that are holdovers from prior territorial administrations. Strategic choices need to be made in the reconciliation of these older laws with today's development of a new government and new business environment. These

Table 7: Agri-Food Sector: Draft Work Plan

(Recommended immediate priority activities for MAP are italicized)

		Total Flows Affected	Net Benefit @ 0.1	MAP Priorities Bolded and italicized in Detail Section
	Summary	**$62,150,000**	**$6,215,000**	
0.00	**Sector Growth Committee (SGC) and Public-Private Sector Cooperation**	**Spread**		
1.00	**Opening Market Channels**	**$49,100,000**		
2.00	**Higher Value Products**	**$7,600,000**		
3.00	**Improving Productivity**	**$5,450,000**		
4.00	**Improving the Investment Environment**	**Spread**		
5.00	**Cost- and Risk-Sharing Fund**	**Spread**		
6.00	**Management and New MAP Staff**	**Spread**		

ID #	Title	Activity Description	Start	End	Value of Total Flows	Time to Pay-Off
0.00	***Sector Growth Committee***	***Form Committee with Private Sector Lead***	***Dec-99***	***Jan-00***	***Spread***	
0.10	***Public-Private Sector Cooperation***	***Consultations between MinAg and Private Sector***	***Dec-99***	***Dec-00***	***Spread***	
0.20	***Baseline Survey***	***Develop Performance Monitoring Plan/Security Investment Areas***	***Feb-00***	***Mar-99***		
1.00	**Opening Market Channels**					
1.10	***Buyer Identification***	***EU, Poland, Russia buyer ID***	***Mar-00***	***May-00***	***$800,000***	***Feb-01***
1.20	***Rafah Airport - Air Cargo Flights***	***PI=Scheduled+Spot Charter; P2=Charter Contract***	***Feb-00***	***Mar-02***	***$47,500,000***	***Jun-02***
		Obtain PNA Civil Aviation Authority OK	*Feb-00*	*Mar-00*		
		Obtain Joint Security OK	*Feb-00*	*Mar-00*		
		Identify Air Cargo Charter Provider	*Feb-00*	*Mar-00*		
		Business Plan	*Apr-00*	*Jun-00*		
		Contract for December-April + Bank Guarantee.	*May-00*	*Jul-00*		
		Ground Services Phase II -Temporary Solution	*Apr-00*	*Sep-00*		
		Backwards Links to Postharvest Handling Services	*May-00*	*Oct-00*		
		Trace-Back Program -	*May-00*	*Dec-00*		
		BOT Contracting for Phase III - Permanent Solution	*Feb-01*	*Mar-02*		
1.30	Qarni Crossing - Cold Chain Straddle	Secure Continuous Cold Chain Handling	Apr-00	Feb-01	$800,000	Jun-02
		Pre-feasibility	Apr-00	Jun-00		
		Feasibility and Biz Plan	Sep-00	Feb-01		
2.00	**Higher Value Products**					
2.10	***Olive Oil from the Holy Land***	***Extra-Virgin, Virgin, and Organic Olive Oil***	***Dec-99***	***Mar-01***	***$5,200,000***	***Jun-01***
		Identify Cooperators	*Feb-99*	*Mar-00*		
		Market/Buyer Links - U.S., EU, Tourism	*Apr-00*	*Jan-01*		
		Business Plan Development	*Jun-00*	*Aug-00*		
		Olive Oil Import Licensing	*Apr-00*	*Jan-01*		
		Harvest Improvements + Postharvest Improvements	*Sep-00*	*Dec-00*		
		Olive Pressing Roaming Workshop	*Oct-00*	*Dec-00*		
		Olive Oil Testing Program	*Oct-00*	*Jan-01*		
		Olive Oil Label Development USFDA and EU agencies	*May-00*	*Aug-00*		
		Bottles, Seals, Bottling, Packaging	*May-00*	*Aug-00*		
		Olive Crop Forecasting	*Apr-00*	*Apr-01*		
		Organics Certification	*Aug-00*	*Mar-01*		
2.20	Culinary and Medicinal Herbs	Fresh Conventional and Organic Herbs	Mar-00	Feb-02	$2,000,000	Jun-01
		Identify Cooperators	Mar-00	Mar-00		
		Identify Buyers	Mar-00	Apr-00		
		Herb Production and Marketing Pre-feas.	Apr-00	May-00		
		Biz Plan Development & Financial Intermed	Aug-00	Nov-00		
		Organics Certification	Aug-01	Feb-02		
2.30	Organic Vegetable Certification	Workshop and Field Tour	Oct-00	Nov-00	$400,000	Nov-01
3.00	**Improving Productivity**					
3.10	***Technical Audit of Cold Stores***	***Multiclient***	***Mar-00***	***Apr-00***	***$100,000***	***Jul-00***
3.20	***Grape Cooling and SO2 Treatment***	***Extend storage life to capture value locally***	***Jun-00***	***Aug-00***	***$2,000,000***	***Jul-01***
3.30	Sweet Potato Curing and Storage	Reduce waste	Aug-00	Sep-00	$100,000	Apr-01
3.40	Pallet Unit Forced Air Coolers	Increase market shelf life	Mar-00	Mar-00	$400,000	Dec-00
3.50	Fruit and Vegetable Freezing Pre-Feas	Utilize strawberries, beans, etc.	Apr-00	Jun-00	$500,000	Apr-02
3.60	Potato Storage with French Fry Option	Reduce storage losses and transport costs	Oct-00	1-Feb	$1,000,000	Sep-02
3.70	Cold Store Business Plans/Fin Intermediation	Wholesale and service storage (3 locations)	Jun-00	Feb-01	$1,000,000	Dec-02
3.80	Prefeasibility Date Palm Hardening	Improve survival of date palms	Oct-00	Oct-00	$50,000	Dec-03
3.90	Post-harvest Handling and QC	Carnations/Strawberries/Tomatoes/Herbs	Apr-00	Apr-01	$300,000	May-02
4.00	**Improving the Investment Environment**					
4.10	***Phytosanitary inspection and quarantine***	***Procedures and practices***	***Apr-00***	***Nov-00***	***Spread***	**Nov-02**
4.20	***Pesticide traceback program - MRL's***	***Development and enforcement***	***Apr-00***	***Nov-00***		**Apr-01**
4.30	Plant variety registration/protection	Orientation to UPOV and USDA PVP		Dec-02		Dec-03
4.40	***Statistics and Forecasting***	***Focus on a few crops could have major impact***	***Apr-00***	***Apr-01***		Dec-01
4.50	Good Agricultural Practices	USDA/FSIS		Dec-01		Dec-02
4.60	Food Safety and Labeling	USFDA/CFSAN		Dec-01		Dec-02
4.70	Market Regulation and Information	USDA/AMS domestic wholesale and inspection	Jun-00	Dec-02		Jun-02
4.80	Animal Quarantine and Inspection	USDA/FSIS imported livestock and meat		Dec-00		Oct-03
4.90	Agricultural Law Review	USDA		Dec-00		Dec-02
5.00	Cost- and Risk-Sharing Fund	Matching Grant Fund	Jun-00	Jun-02	**Spread**	Jun-02
		New Market Development				
		Technology Innovation and Transfer				
		Investment Risk Reduction				
		Note: Can be funded from $100-$500K				
		Assume financing leverage of 7-11 times				

choices will shape the medium- and long-term competitiveness of the sector. The Ministry of Agriculture has an excellent opportunity to forge a process of policy and regulatory change that is transparent and incorporates the interests of both industry and consumers. The Market Access Program will help structure regular consultations between government and sector participants. The proposed program also incorporates participation by the USDA and other U.S. federal agencies that have well-developed procedures for incorporation of industry and consumer input in the development of administrative law, regulations, and enforcement approaches.

One early step of the proposed work plan will be a baseline survey to arrive at precise indicators for monitoring and evaluation. This survey will be carried out in consultation with industry and government representatives. In the course of the survey, we expect that security concerns will be a constant pre-occupation of both groups. There is a special category of funds under the Wye River Accord that are specifically designated to facilitate the free movement of goods, services, and people across the Israeli and WBG borders. The category focuses on investments in technology and infrastructure investments that go beyond the boundaries of a sectoral assistance program. However, these investments directly affect horticultural and other sectoral market efficiency, and indirectly or directly affect Israeli security issues. DAI will assess opportunities and possible investment areas to address security concerns in which USAID and other donors might invest. The investments will focus on increasing Israeli security confidence to allow an airport, such as Rafah, or other border crossings to be more open to product movement.

OPENING MARKET CHANNELS

This portion of the work plan includes both market development and marketing and export infrastructure support. It carries the highest potential for benefits in terms of 47,500 metric tons of product flows that will stimulate investment in production, postharvest handling, and transportation and will lead to sustained growth with large multiplier effects on other sectors. However, it also carries the highest political and physical risks.

The core of the program is the opening of the Rafah Airport to regularly scheduled air cargo flights. Three phases are proposed and are described in the following paragraphs. The second major infrastructure activity is the development of a high-volume cold chain to straddle the Palestinian and Israeli sides of the Qarni crossing. This activity requires the identification of Palestinian and Israeli partners, a prefeasibility evaluation, and the development of a business plan if it appears feasible to implement.

Rafah Air Cargo Operations (7,500 metric tons of high value horticultural exports)

Phase One could begin immediately for flower, strawberry, and tomato growers who have packing and some cold storage capacity. This phase would test the claim that Israeli security and customs will not interfere with direct air shipments out of the Gaza Strip. It would rely

upon the vastly underutilized capacity of passenger flights, the announced intentions of five carriers to start flights to the Rafah Airport, and access to occasional spot charters to meet peak market price periods. Airport authorities need to agree to the designation of a cargo space to inspect, accept, and assemble loads to meet IATA cargo security requirements. They also need to permit logistics groups to offer freight-handling and ground services for air cargo operations. Both the Palestinian Logistics Service, Inc and Flying Cargo have expressed interest. Terms would need to be negotiated, but in many airports these services are provided through operating leases and a unit-weight processing fee paid to the airport authority. If only passenger flights are used, current baggage loading equipment is adequate for break bulk loading of aircraft bellies. If air cargo charters are organized, container and pallet handling equipment will be needed. Some provision should be made using temporary structures in the to-be-designated cargo area to protect delivered product from inclement weather.

It makes no sense to ship products by air unless there is a buyer. The Market Access Program will need to provide professional assistance in buyer identification in markets that are served by aircraft departing Rafah and in strategic markets for the growth of Gaza exports in the European Union, Eastern Europe, and Russia. Buyer identification can start in January 2000 and should be done by a produce industry marketing specialist who knows and works in the target markets.

Phase Two could operate during the 2000/2001 export year. This phase hinges upon the forward contracting for air cargo lift capacity. Air cargo contract negotiations need to be completed about six months in advance of the first cargo flights. Air cargo charter operators and freight forwarders expressed interest in serving the Rafah Airport contingent upon civil aviation authority and joint security clearance, along with a bank guarantee of about $200,000 and clear terms and scheduling for charter operations. Even small air cargo aircraft would require the positioning of air container and pallet-handling equipment. Initial operations will be facilitated if phytosanitary and customs inspections can be done at packing houses with sealed vehicles used to deliver and hold product at the airport in an in-bond facility until the minimum pre-flight delivery time is reached. Success with large shipments of highly perishable crops, such as strawberries, flowers, and herbs, also requires that pre-cooling facilities be in place at the packing sheds or at the airport. Mobile rapid cooling units could be brought in for the season or small package pre-coolers constructed within existing cold storage rooms could provide a temporary solution. Development of a trace-back system for the detection of pesticide residues will be an important adjunct to the export program. The Ministry of Agriculture in Gaza has the trained people and will soon have a new laboratory with the equipment needed to perform regular pesticide analysis (see section 4.10 on improving the policy and regulatory environment).

Phase Three envisages the build-operate-transfer contracting of one or more ground service operators who will build permanent cargo-handling facilities at the airport. It is likely that this would involve dry as well as perishable cargo, and may extend to cargo import operations. One way of handling this phase would be to announce a design competition with a pre-feasibility study and terms of reference developed with technical assistance provided by the Market Access Program. It should be noted that the UNDP has developed a $26 million

proposal for a cargo village, and the European Commission has indicated it would call upon the GTZ and KfW to develop the facility. This is interesting news, but experience elsewhere suggests that the European Commission can be a very slow implementer of this type of project. However, the consolidation of the European air cargo forwarding industry by Deutsche Post, and the rumored equity swap between Lufthansa and Deutsche Post, may accelerate those plans. However the large cargo investment is made, we strongly recommended that any competition be fully open and international in scope to ensure that air cargo operations professionals are a central part of the process. Perishables operations are usually a small part of overall airport operations and may be financed and managed separately from general cargo.

Gaza cannot afford to wait five years for a solution to its direct export needs. It is the opinion of the consultant that the seaport will not be operational in a time frame that will make a difference to the horticultural subsector. And, the safe-passage road links to the Jordanian surface transit points to the Gulf states also appear to be tied up in a complicated web of policy, political, security, trade, and commercial issues.

Qarni Crossing Cold Chain Straddle (40,000 metric tons of a mix of moderate and high value horticultural products)

The November closure of the Erez crossing to Palestinian truck convoys was estimated to have cost $2.5 million in loses according to industry sources. The Israeli closure at the beginning of the run-up to the pre-Christmas peak in produce and flower prices in both the Persian Gulf and the European Union could be catastrophic if it is maintained. The Qarni crossing is the designated alternative to Erez. Qarni is designed to provide nearly absolute security to Israel. Many types of products are exchanged in both directions at Qarni. Customs and crossing fees are paid in a secure facility located between import and export sections. Product from the Israeli side transits relatively quickly because it is unloaded from Israeli trucks by forklifts and moved onto roller conveyors that pass through a concrete wall to the Gazan side, where forklifts reload the products on Palestinian trucks. Products from Gaza move through a similar system, but with the addition of x-ray machines. The dimensions of the x-ray machines require unitization that adds costs and slows product flow because the x-ray machines can scan only the equivalent of half a pallet of product. Scanning for explosives is also done at the facility. The crossing bears an uncanny resemblance to an airport cargo facility, but with tighter control of the movement of both people and goods. Unfortunately, there is no way to ensure the rapid handling of highly perishable products under refrigerated conditions. Every item of produce that crosses the border is damaged to a lesser or greater extent by the warming of product during delays and the physical damage that occurs from rough handling procedures.

The tight security at the Qarni crossing may, ironically, provide an opportunity to streamline the export handling of Gazan produce through Israel. Since substantial volumes of export perishables will continue to be shipped through Israel, it is worth examining the feasibility of a packing and/or cold storage facility at Qarni. The Gazan side of the crossing would abut the transit point and feed into a cold storage facility on the Israeli side of the border.

Phytosanitary, health, customs, and security inspections could be centralized there. A retooling of the scanning capacity on the Israeli side would enable full-sized air and sea pallet scanners to be put in place, and enable customs and phytosanitary sealed in-bond transit to occur to seaports, the Ben Gurion Airport, or the border crossings to Jordan. This step should eliminate the need for additional security checks at Israeli ports and airports.

The facility would need to involve WBG and Israeli partners who would lobby their respective governments to implement a sensible set of procedures. There are some indicators that commercial pressures are slowly bringing changes to the security procedures. For example, two years ago WBG flowers were being held up at Ben Gurion for up to 24 hours and no WBG produce could be carried on passenger flights. Last year, these delays were cut back to fewer than 8 hours, which is within the range of the advance delivery requirements of international airlines that operate in the Middle East. Also, WBG flowers were being carried on passenger flights from Ben Gurion Airport, according to major freight forwarders. Direct and indirect exports of WBG products through Israel contribute to the volume of produce shipped, improving the ability of Israeli shippers to forward contract for shipping space. The contribution is small but significant, ranging from 5 to 15 percent of Israel's total produce exports to the European Union. The relative importance of WBG products to the maintenance of unit transport contract prices should increase, however, as Israeli subsidies are withdrawn from agricultural producers. Freight forwarders and transporters are well aware of this dynamic and appear willing to participate in an efficient and secure facility at Qarni, if they can avoid negative political fallout in Israel and WBG.

HIGHER VALUE PRODUCTS

Olive Oil from the Holy Land (1.3 million liters or 5 percent of the crop)

The West Bank's largest single standing agricultural resource is the olive tree. It covers 837,568 dunums (83,757 hectares). Although there are many problems in WBG olive production, including the past three years of drought that has severely reduced the crop, the olive tree is remarkably resilient. The international expansion of olive oil consumption has also created new olive oil marketing channels. And, by definition, the olive oil from WBG has a unique characteristic—it is from the Holy Land. Further, Palestinians have already made substantial investments in modern oil presses. More than 50 1-metric-ton per hour presses have been installed among the 284 presses in WBG. However, such factors as the relatively high costs of harvest labor, poor handling of the harvested olive, questionable extraction procedures, and poor post-extraction handling combine to make olive oil expensive on local markets. Imported vegetable oils sell at one-tenth to one-eighth of the price of local olive oil ($3.70 per liter).

The high local price is often cited as a reason not to export olive oil. But the value of the extra-virgin olive oil is higher on export markets than on local markets. One strategy to increase the marketed value of the crop is to import lower-cost olive oil to meet local demand and to export extra-virgin olive oil (less than 1 percent acidity) at high prices. This approach

can reduce the average price paid by consumers while increasing the returns to olive oil producers.

This report suggests a program that would target 5 percent of the 24,000 metric ton (average of two production year pairs to even out the alternative bearing of olive trees) olive oil production. This is 1,200 metric tons, or about 1.33 million liters, to be marketed as a specialty oil from the Holy Land in the European Union, the United States, and to the tourism industry, with subsidiary sales at the upscale supermarkets in WBG (as a competitor to Greek-bottled olive oil). Also, West Bank producers may want to obtain organic certification for a portion of their production. There is a number of marketing channels for this type of highly differentiated olive oil.

During our workshop in Ramallah, several participants felt that the tourist channel would buy large volumes of an appropriately packaged olive oil. Our analysis suggests otherwise. The tourism industry is probably the smallest volume outlet for sales. Preliminary estimates made during this study suggest that only about 20,000 25-centiliter bottles could be sold annually to tourists in the first two years of a focused program. Even if this volume grew by 10 times, it would represent only 45 metric tons of oil, the equivalent of 4.5 hours work of one modern olive oil press. As the Holy Land receives about 2.5 million tourists each year, a growth to 10 times our initial projections would mean that 6 percent of tourists would buy a small bottle of olive oil. Experience in other countries suggests that specialty food products generally represent less than 5 percent of the take-home purchases made by tourists. The Latrun monastery has the longest record of sales to the tourist market in the Holy Land. A final sizing of a tourism-oriented strategy should study the monastery's experience as well as that of PARC in Nablus and the Carmel Mizachi Winery in Israel. The advertising value of small volume sales to tourists could, however, be important to the success of sales through other channels.

More likely volume channels for Holy Land extra-virgin and organic extra-virgin olive oil are the specialty shops, fancy food, and organic food outlets of northern Europe and North America. These market channels take olive oil packaged primarily in 0.5 to 0.75 liter bottles of attractive glass designs and top quality labels. The total volume target from the West Bank would represent less than 1 percent of annual olive oil imports into the United States.

The keys to market access are to produce a consistent quality of extra-virgin oil in attractive packaging for a shelf-price of about $10-12 a bottle for either the 0.5 or 0.75 liter sizes. The pricing point is higher than the mass marketed, refined olive oils from Italy, Spain, or Greece but below the highest prices paid for the very top estate-bottled oils from Italy and Spain. A large part of the costs of bottled specialty olive oils is the glass container. WBG producers would have to import empty bottles and export them filled, essentially paying twice for the transport of glass. The high price of Palestinian oil may mean that initial bottling and labeling may be done more inexpensively in the final market than in the West Bank. This approach also permits greater flexibility in the final selection of bottle shapes and sizes and in label design than would be possible in the West Bank.

Control of the quality of olive oil starts with the olive harvest and extends through critical control points in transport, pressing, storage, and packaging. The proposed program would deal with these issues in Nablus, Hebron, and Jenin, three zones of concentrated olive production and pressing. The Market Access Program would identify collaborators in December 1999 and January 2000, and assist in the market contacts and development of a business plan by June 2000. The business plan would include the importation and distribution of olive oil. Ideally, USDA assistance could be obtained about the time of olive flowering and fruit set to install an olive crop-forecasting program that would guide Palestinian Authority officials in its decisions about olive oil import licensing.

Working with the Ministry of Agriculture district olive specialists and the WBG Olive Council, the Market Access Program would help develop a two-part extension program. The first part would target improvement in the speed of harvesting and improved postharvest handling of olives. The effort could be launched to coincide with the start of the olive harvest in fall 2000. Securing the needed quality of raw material is the first step in the success of the program. The second part would consist of a roaming workshop to instruct press operators in raw material selection, proper control of grinders, water temperature, mixer residence time, flow pump rates, centrifuge management, and protective storage programs to optimize production of extra-virgin oil. The Italian manufacturer of the olive oil presses may be a collaborator in the workshop. The Market Access Program would work with the private sector promoters of the project to examine bottle selection, labeling, bottling, and packaging options in the process of business plan development. The feasibility of organic certification would be explored ahead of the 2000 harvest season with E.U. and North American certification agencies. Depending on the marketing option selected, the first product would be bottled in January or February 2001 for the spring and summer marketing period.

Culinary and Medicinal Herbs

Culinary and medicinal herbs are a small part of the WBG landscape. Growers in both the West Bank and the Gaza Strip are interested in expanding production if they can get the market access needed to pay for investments in small postharvest packing and cooling facilities. This activity would help identify collaborators and buyers to develop a business plan and provide financial intermediation for private producers in WBG.

Neighboring Israeli producers already have an extensive network of fresh herb production and packing. As the varieties and production techniques have already been proven by the Israelis, they are the obvious first source for technology transfer. Culinary and medicinal herbs such as thyme, oregano, basil, chives, rosemary, mint, and others are also being differentiated by organic certification in markets in the European Union and North America. A 2,000 metric ton objective seems achievable based on current production patterns.

Organic Vegetable Certification

Organic certification is a way for producers to add value to a common product. There is now an international code produced by IFOAM members that is substantially followed by a number of consuming countries. As cost pressures push WBG producers to seek higher value products, organic certification procedures should be explored. A workshop and field tour could be used to kick off the development of the organic vegetable subsector. This activity could draw on IFOAM and European certification agencies such as ECOCERT. A 4000-metric-ton objective seems achievable based upon current production patterns.

IMPROVING PRODUCTIVITY

Improvements in packing houses, pre-cooling, cold storage, and packaging are needed to support higher value crop production, extend marketing seasons, and add value to marketed produce. Reduction of post-harvest loss is one way of improving the productivity of the subsector and deserves rapid attention by the Market Access Program. The following activities could be executed during 2000 with rapid pay-off.

1. **Technical Audit of Cold Stores by a U.S. Cold Chain Specialist**. New and not-so-new cold storage facilities are operating below their optima. A multi-client audit could be done early in 2000 to work with cold store managers to reduce their current rate of product loss in storage.

2. **Grape Cooling and SO2 Treatment**. Grape producers in Hebron and Gaza bemoan their large annual losses as a result of rots and molds and ill-adapted cold stores, and the costs of storing some fruit in Israel. Payoffs would be high to a transfer of skills from Californian specialists in pre-cooling and sulfur dioxide fumigation of grapes for longer-term storage. The Gaza location of the first potential site for this work rules out Israeli assistance.

3. **Sweet Potato Curing and Storage**. Producers in Gaza are attempting to extend their marketing season for sweet potatoes through cold storage. However, producers and cold store operators have no knowledge of sweet potato curing requirements and practices. The practices are relatively simple ones and can be quickly transferred.

4. **Pallet Unit Forced Air Coolers**. One reason for high loss rates in fruit and vegetables in WBG is the total absence of rapid cooling capacity. As an interim measure for direct air shipments from Gaza, the demonstration of pallet-mounted forced air coolers within existing cold storage facilities could be used to bridge the gap until permanent retrofits can be made.

5. **Fruit and Vegetable Freezing Pre-Feasibility Study and Business Plan**. Highly perishable products such as strawberries and green beans seldom yield more than 50 percent of fresh exportable product. Generally, another 25 percent can be sold on the local

market, and the remainder is processed. Freezing provides another outlet for these and other perishables. Gaza has one facility that is considering the launch of a frozen products line, but has not developed a market and product mix. This study would determine if a profitable mix could be identified.

6. **Potato Storage with a French Fry Option**. Current potato storage practices result in high losses and poor fresh French fry quality. A prefeasibility study would determine if a specialized potato store and French fry unit would be profitable and competitive.

7. **Cold Store Business Plans and Financial Intermediation**. A number of wholesale markets in WBG do not have cold stores, have broken down cold stores, or have outgrown their storage capacity. There are at least three opportunities for substantial cold store investments that could draw on IFC financing lines. The Market Access Program could help develop and intermediate the financing for these projects.

8. **Prefeasibility Study of the Hardening of Date Palm Seedlings**. The red palm weevil is reducing the date palmer of WBG and neighboring countries. While USAID is supporting cooperative regional work on pest control measures, there may be a commercial opportunity to accelerate the repopulating of date gardens. In vitro facilities in Israel appear to be producing true-to-type clones of high value date species, and a WBG producer is interested in developing a hardening facility to improve the survival of vitro-plants used in WBG.

9. **Postharvest Handling and Quality Control**. The current postharvest handling and quality control knowledge and practices of Gazan producers of flowers, strawberries, specialty tomatoes, and herbs are limited by their lack of exposure to modern packing and handling channels. In support of direct air shipments from Rafah, U.S. assistance to identify and help implement step-wise improvements would be useful in heading off quality and shelf-life problems that will occur during 2000 and 2001.

IMPROVING THE POLICY AND REGULATORY ENVIRONMENT

The USDA and USAID could provide excellent assistance in a targeted program that focuses on the bottom line—enforcement programs, such as pesticide trace back programs, phytosanitary inspection, and quarantine procedures for incoming and exported products, and grades and standards sampling and survey procedures. There are several benefits to this approach because WBG is already targeting some exports to the United States that have been grandfathered under the regulatory and enforcement regime of Israel.

Red tomatoes are a case in point. WBG producers who grow the tomato varieties already approved for export as red tomatoes and export via Israel have access, and have been exporting, to the United States. In similar cases elsewhere (Spain and Morocco), producers and governments have spent four to five years and close to a million dollars per country to get USDA approval of red tomato exports under far more restrictive conditions. Once WBG

begins exporting its products directly, whether to the United States or the European Union, it will face additional scrutiny as a new origin with a new enforcement capacity.

WBG faces regulatory and enforcement challenges it cannot meet when it moves into a direct export mode. The following assistance is recommended to help WBG address these challenges.

1. **Phytosanitary Inspection and Quarantine**. The Ministry of Agriculture's Department of Plant Protection and Inspection provides pest control and extension services, pesticide registration, licensing, and residue control services, and plant quarantine and inspection services. It has well-trained staff and is rapidly building its capacity. Its quarantine and inspection programs follow the general guidelines of the Israeli Ministry of Agriculture. Its management interacts regularly with European Union, Persian Gulf states, and U.S. government departments. The Department of Plant Protection and Inspection faces a major challenge in the West Bank, where the discontinuous nature of the territory controlled by the Palestinian Authority presents real challenges to phytosanitary inspection both on imports and exports. Also, producers, packers, and wholesalers in WBG are not as aware of phytosanitary and quarantine procedures and requirements as they need to be for exports or imports. Some of the exporters interviewed did not know what a phytosanitary certificate was. As WBG does more direct exporting, the need for more systematic and rigorous phytosanitary inspection on both imports and exports will be become quickly apparent. USDA's Animal and Plant Health Inspection Service International Service (USDA/APHIS/IS) and APHIS' Plant Protection and Quarantine Service (APHIS/PPQ) could provide essential support to improving the current service in the form of an audit of current practice and a workshop with inspectors on sampling and inspection procedures for exports and imports. The APHIS/IS' regional office in Rome is headed by Joan Sills, who has already worked with the Ministry on Mediterranean fruit fly issues, along with Dr. Bob Mangan of USDA's Agricultural Research Service. In other countries in the region, the USDA has called on recent retirees from APHIS/PPQ to carry out the longer audit and training assignments that full-time staff cannot. Although the recent retirees are more expensive because their time and travel expenses must be paid for, they do enable USDA to avoid conflicts between its official role as a regulator of foreign agricultural relations and the interpretation by foreign governments of technical assistance as an official sanctioning of its regulatory enforcement procedures.

2. **Pesticide Traceback Program**. There are no requirements for farmers to track the pesticides that are applied to crops and no systems in place to track lots of produce through the packing and shipping process to trace the origin of pesticide residue problems back to their source. The lack of even a basic traceback program that can identify the source of a packaged lot of produce poses a real threat to the viability of WBG's plans to export directly. It also means that organic certification programs would be put at risk because there is no independent system for verifying the origin of packed produce. The Ministry of Agriculture's Department of Plant Protection and Inspection is expanding its pesticide residue detection capacity, but does not have a plan for sampling that would permit identification of the source and correction of problems such as illegal application of unregistered pesticides or violation of Maximum Residue Limits. The USDA and the

FDA's Center for Food Safety and Nutrition (FDA/CFSAN) could provide assistance with the full chain of issues that need to be addressed. Farm and packinghouse traceback program services are also available from the U.S. private sector.

3. **Plant Variety Registration and Protection**. As WBG growers accelerate their climb up the productivity curve, they will need advanced varieties, including registered and patented crop varieties that carry license fees, royalties, and propagation fees. Currently, WBG growers depend upon the Israeli licensees to obtain these varieties. As final status negotiations advance, the legal status of WBG for protection of plant breeder rights (and probably intellectual property more broadly) will shift. It will not be a practical problem as long as Israeli seed companies and nurseries will be the guarantors of royalty, license, and propagation fees for WBG producers. However, the Ministry of Agriculture and the industry does need to prepare strategically for the day when WBG producers find they cannot obtain the plant varieties, particularly fruit trees and flowers, that they need to stay competitive. The USDA Office of Plant Variety Registration and Protection or the International Organization for the Protection of Plant Breeders Rights (UPOV) could provide the necessary assistance. USAID's Applied Biotechnology for Sustainable Productivity (ABSP) Project, managed by Michigan State University, frequently provides audit and workshop assistance in this arena as well.

4. **Crop Statistics and Forecasting**. The Palestinian Central Bureau of Statistics is the only official statistical service in the country. With the agricultural census in 2000, the basic framework for production statistics will be improved. However, there is a need for a basic crop forecasting service for a few major crops: olives, citrus, grapes, tomato, cucumber, potato, eggplant, and onions would cover the horticultural sector needs. Besides their value for private market formation, the forecasts would serve as important tools for policy makers as they sort out issues of import and export policy, import licensing, and the orientation of investments in research and extension. The USDA's National Agricultural Statistics Service (NASS) and Economic Research Service (ERS) are both good sources of field-oriented techniques for crop forecasting. Purdue University also has extensive experience in the building of national agricultural statistics and analysis capability in collaboration with USDA's Foreign Agricultural Service International Cooperation Division (USDA/FAS/ICD). Linkage to the Ministry of Agriculture's Directorate of Agri-Extension, Publicity and Applied Research and the district offices is recommended. A program of short-term visits could be established to take two or three crops to develop the frameworks and seasonal yield scouting procedures used to do whole territory forecasting.

5. **Good Agricultural Practices**. The concern of both domestic and foreign consumers for safe food has increased sharply over the past decade. Increasingly, farmers and packing sheds, as well as feedlots, dairies, and poultry house operators, are asked to demonstrate that the practices they use to produce crops and livestock will result in food products that do not carry human diseases, parasites, or environmental contaminants. In both the United States and Europe, there have been highly publicized instances of food poisoning from fresh and frozen fruit and vegetables carrying Salmonella, Cholera, Listeria, and E. coli, as well as food poisoning from E. coli and Campylobacter and death from

haemorraghic E. coli strains on poultry and ground beef. As WBG producers begin to use treated wastewater or begin to produce and package certified organic produce, they will need to follow codes that are grouped under the title of Good Agricultural Practices. The USDA has been a leader in the development of good practice codes. The Food Safety and Inspection Service (USDA/FSIS) is currently instituting programs in the United States and regularly collaborates with foreign governments via the USDA/FAS and FDA/CFSAN in this area.

6. **Food Safety and Labeling**. Earlier USAID projects in WBG have initiated work in Good Manufacturing Practices (GMPs), Hazard Analysis and Critical Control Points (HACCP), and ISO 9000 quality assurance management certification for food processors. The rapid evolution of food safety and labeling requirements since the early-1990s has led to a profusion of different definitions, labeling requirements, and enforcement procedures in North American, European Union, and the Gulf CCC states. It is inevitable that the Ministry of Agriculture, the Ministry of Industry, and the Palestinian Standards Institute will get involved in the regulation of export commerce to address food safety and labeling concerns. The olive oil initiative, for example, will run into issues in the United States concerning nutritional labeling, but will encounter a very different set of requirements on olive oil standards in the European Union. The FDA/CFSAN can provide assistance in education of the concerned official bodies and the industry, and audit the current regulatory procedures that affect food safety. Private sector alternatives exist for this assistance, but this is strategic assistance to assist the Palestinian Authority.

7. **Market Regulation and Information**. There is substantial debate in WBG about the regulation of the fresh produce industry—specifically, the introduction of grades and standards to differentiate products on the national wholesale markets. Proposals to adopt E.U. grades and standards for general application are being discussed. It is important to distinguish between market regulation for export and market regulation for national consumption. The basic rule is that whatever is exported must meet its destination requirements. When more than one export market is targeted, it is never possible to adopt a single standard for exported fruits and vegetables and their packaging. On national markets, market regulations that increase basic product costs without delivering any perceivable benefits to consumers almost always prove to be unenforceable. National wholesale produce markets tend to evolve grades, standards, and commercial practices that fit what the market will bear. All wholesale markets have produce standards that are commercially applied, even if they are not codified in law. These standards change with time and the structure of fresh and processed product demand. One of the most effective and low-cost ways to accelerate the differentiation of commercial grades and standards on national wholesale markets is to develop a daily market reporting service in key locations. This enables producers and buyers to pick up the price and supply signals that permit the development of product differentiation strategy. The United States has the most timely and publicly transparent fruit and vegetable market price reporting system in the world, and probably the least expensive. The USDA's Agricultural Marketing Service (USDA/AMS) administers the Market News Service. Although their full-time staff is generally unavailable for overseas assignment, part-time and retired staff have a track record of successful installation of low-cost market reporting services in North Africa and

Eastern Europe. For WBG markets, it would take about two full production cycles (two years) of consulting help to design a public reporting system and train market reporters from both the central Marketing Department and the district headquarters of the Ministry of Agriculture.

8. **Animal Quarantine and Inspection**. The main focus of this report is the horticultural subsector. However, the issues of live animal imports, slaughter, processing, and marketing of livestock came up throughout the consultant's visit. The border inspection issues on livestock imports and exports are similar to those for crops and feed into policy and regulatory development by the Palestinian Authority. The USDA/FSIS is the principal U.S. agency involved in livestock, meat, poultry, and processed meat and poultry quarantine and inspection issues. An audit of current practice and a design for the development of inspection and quarantine practices for the WBG non-contiguous territory would be very useful.

9. **Agricultural Law Review**. The Ministry of Agriculture recently completed the draft of its agricultural law in Arabic. The Market Access Program will translate the law into English. It would be helpful if the USDA would perform a broader review of this law than is normally performed by the USDA/FAS agricultural attaché, who is normally charged with determining whether national laws offer opportunities or pose special concerns for the export of U.S. agricultural commodities to a particular countries. A broader review would include examination of foreign investment provisions, regulatory issues that would shape the capacity of the Palestinian Authority to respond to U.S. enforcement concerns related to food safety, and phytosanitary and animal health issues of exportable products. Depending upon the scope of the law, FDA review may also be indicated.

COST- AND RISK-SHARING FUND

The WBG horticultural subsector is high risk. Producers, packers, wholesalers, and shippers are reluctant to innovate because the potential for losses is high. Some risks cannot be anticipated. In similar settings, the use of a cost- and risk-sharing grant fund has been used to stimulate new market development, technological innovation and technology transfer, and new investment. This type of fund is best associated with a technical assistance program that is oriented to work with the private sector. Banks tend to be too conservative in the management of such funds, using them as loan guarantees to cover their risk rather than as innovation funds to cover investor risks. The consultant's own experience in North Africa shows that every dollar spent leverages private sector financing by 7 to 11 times.

The private sector in WBG is receptive to the idea of such a fund, primarily because it would help them overcome current financial institution reluctance to lend to the agricultural sector. The fund could be established for a design cost of about $20,000 and capitalization at the $100,000 to $500,000 level.

PROGRAM MANAGEMENT

The activities described above will require program management located in WBG to be effective. The Market Access Program has an established track record with the agri-food sector and has personnel in place in Gaza with good private sector connections in agriculture. Another agricultural staff person will be needed for the West Bank. Additional support staff would be needed to implement the full program.. The geographic concentration would be about 60 percent Gaza and 40 percent West Bank, primarily because of the urgent need to develop direct exports from Gaza.

Options for USDA and other U.S. federal agency participation in the program are a PASA with USDA/FAS management, indirect acquisition of federal agency services through regional programs such as MERC, USAID direct acquisition of federal agency participation on a work order basis, and management through a field contractor or NGO. Whatever option is selected, the Market Access Program seems best suited to play a coordinating and supporting role in federal agency work in WBG.

Table 8 shows how the proposed work plan relates to the Market Access Program results framework. The indicators to be used in work plan management will be refined during the baseline survey to be completed in the first quarter of 2000.

Table 8: Relationship of the Proposed Program to Market Access Program Objectives

MAP Component	Program Area	Representative Performance Milestones	Indicative Results
Services Delivery Component	1.0 Opening Market Channels	▪ Israel/regional market maps completed ▪ E.U./U.S. market maps completed ▪ Market representation points established ▪ Rafah Airport open to air cargo charters ▪ Qarni crossing enhanced to handle produce	▪ Increases in sales in local, regional and export markets of strawberries, cut flowers, etc ▪ Increases in the local, regional, and export markets of olive oil, herbs, and ornamentals
	2.0 Higher Value Products	▪ Increases in numbers and types of market linkages on both firm and sector levels ▪ Increases in numbers and kinds of marketed products	▪ Increases in number of cross-sector and/or cost-shared services ▪ Increases in revenues generated from services
	3.0 Improving Productivity	▪ Increases in productivity at firm and sector levels	
	5.0 Cost and Risk Sharing Fund	▪ Increases in numbers of services and users ▪ Increases in investments in sector activities ▪ Percent of Market Access Program resources leveraged with donor financing	
Organizational Development	0.0 Sector Growth Committee	▪ Strategic growth committees in place ▪ Baseline surveys carried out	▪ Number of new sector investment opportunities identified
	0.1 Public-Private Cooperation	▪ Sector private/public sector working groups established ▪ Other donor security investments identified	▪ Private/public sector policy committees established ▪ Reduced delays at border crossings
Policy Management	4.0 Improving the Policy and Regulatory Environment	▪ Private/public sector policy committees established ▪ Phytosanitary and quarantine enforcement strengthened ▪ Wholesale market information systems in place ▪ Pesticide residue enforcement enhanced	▪ Number of new policy Initiatives at sectoral and macro levels ▪ Number of policies, laws, and/or regulations changed/developed ▪ Number of policy, legal, and regulatory papers delivered ▪ Number of people educated through participation in policy workshops and dialogues

Note: Numbers refer to the strategic elements of the work plan shown in Table 7.

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ANNEX A

WEST BANK AND GAZA
AGRICULTURE STRATEGY NOTE

Please insert a copy of the World Bank report here.

ANNEX B

TOMATO EXPORT CHANNEL COMPARISON— GAZA AND SOUSS-MASSA, MOROCCO

Tomato Export Channel Comparison—Gaza and Souss-Massa, Morocco

Red Ripe Long Shelf Life Tomato - 21 day shelf life

	Time	Gaza		Time	Time	Souss-Massa		Time
	0.17	Harvest		0.17	0.17	Harvest		0.17
	0.04	Transport		0.04	0.04	Transport		0.04
	0.25	Packing		0.25	0.17	Packing		0.17
	0.04			0.04				
	0.21	Erez	Qarni	0.08	0.08	Agadir	Truck	0.42
	0.08	Convoy to Ashdud	Transfer to Ben Gurion	0.08		Port	Tangiers	
	0.13	Unload/ Reload	Maman Clearance	0.33	0.50	Break-bulk loading	Ferry to Algeciras	0.13
	0.33	Ashdud Port Load	Load Aircraft	0.08			Algeciras-Perpignan	0.33
	5.00	RO-RO to Italy	To EU Airport	0.21			Hamburg	0.75
	6.00	RO-RO to Rotterdam	Clear Port	0.50	11.00	Rotterdam	Clear Terminal	0.33
			Deliver	1.00			Deliver	0.33
	1.00	Clear Port			1.00	Clear Port		
	1.00	Deliver			1.00	Deliver		
Total	**14.08**			**2.63**	**13.79**			**2.50**
Shelf Life	**21**			**21**	**21**			**21**
Days to Sell	**6.92**			**18.38**	**7.21**			**18.50**

ANNEX C

WORKSHOP PRESENTATION MATERIALS

Outlook for the Agri-Food Sector in Palestine

(Higher Value Horticulture Sub-sector)

Don Humpal, Senior Agriculturist
Market Access Program
DAI
USAID

1/11/2002

Objectives of the Workshop

- Present findings
- Obtain feedback on the validity of findings
- Determine if there is public and private support to use the Rafah Airport for cargo
- Determine if there is support for regulatory change

Getting the Best Returns from Land, Water, and People

Higher Value Products
Improving Productivity
Opening Channels to Markets
Improving the Investment Environment

Vision Statement

- Gaza - growing and shipping high value products from air and seaports
- West Bank - improved marketing channels with greater returns from a more productive agriculture

Objectives

- Gaza - 2000 MT of flowers, 5000 MT of fruits and vegetables by air in three years
- West Bank - Increased value from vegetables and fruits

Strategy

- Gaza - Act now to open the air channel to build market presence and improve negotiating position with Israel
- West Bank - Improve productivity of selected products and accelerate regional market integration

Gaza Air Cargo Example - Strawberries, Cutflowers, Cherry Tomatoes, Herbs, Ornamentals (and olive oil by land?)

- European Union and Eastern European Markets, North American Markets, Gulf State Markets
- Option to use a temporary export infrastructure at the airport while building cargo facility
- Improvements to existing post-harvest infrastructure

Competitive Position - Water, Land, Labor

	GWB	Israel	Egypt	Morocco
Water	-	-	+	+
Land	-	-	+	+
Labor	$10.00	$14.00	$2.00	$1.30

Competitive Position - Transport Time of Daniella LSL Round Red Tomatoes

	WBG-RO	M-BOAT	WBG-BG	M-TRUCK
Tot. Time	14.1	13.8	2.6	2.5
Shelf Life	21	21	21	21
Distribute	6.9	7.2	18	18.5
Cost/kg	$0.25	$0.08	$1.00	$0.29

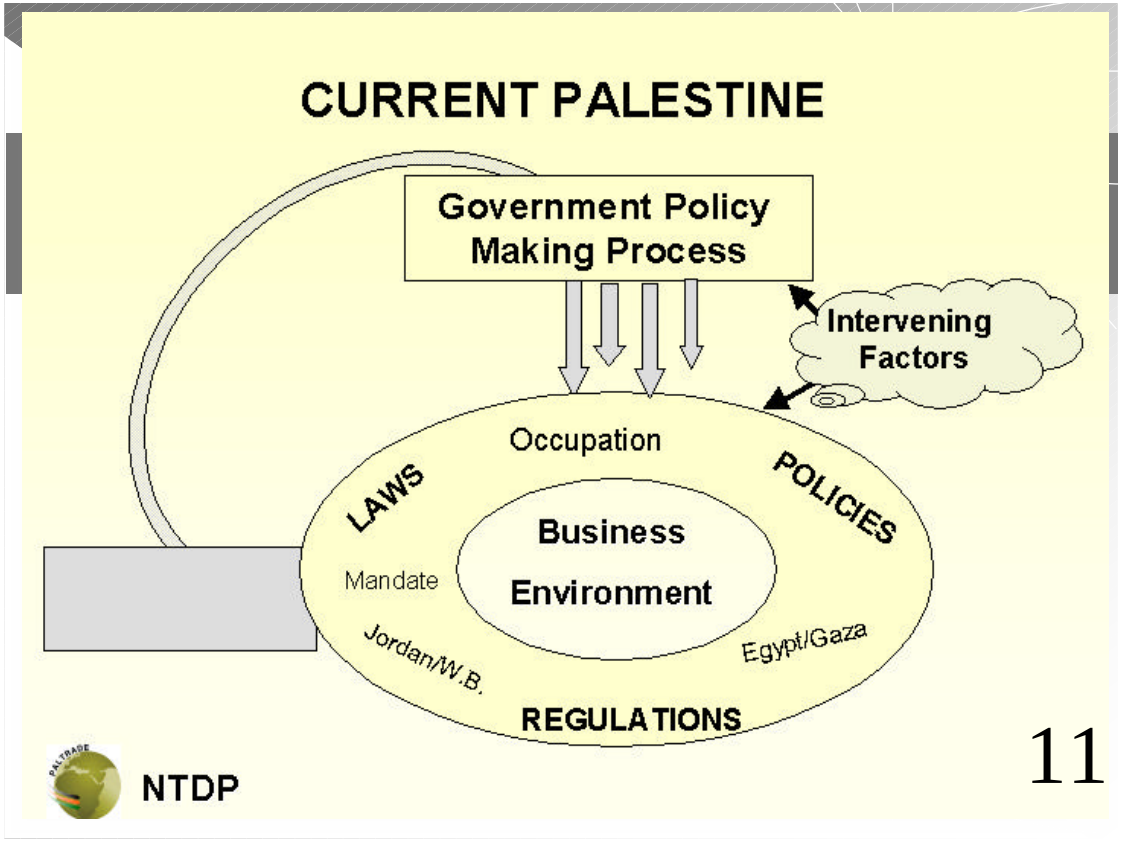
Legend: WBG -West Bank Gaza; M-Morocco; RO-Roll On/Roll Off; BG-Air via Ben Gurion;

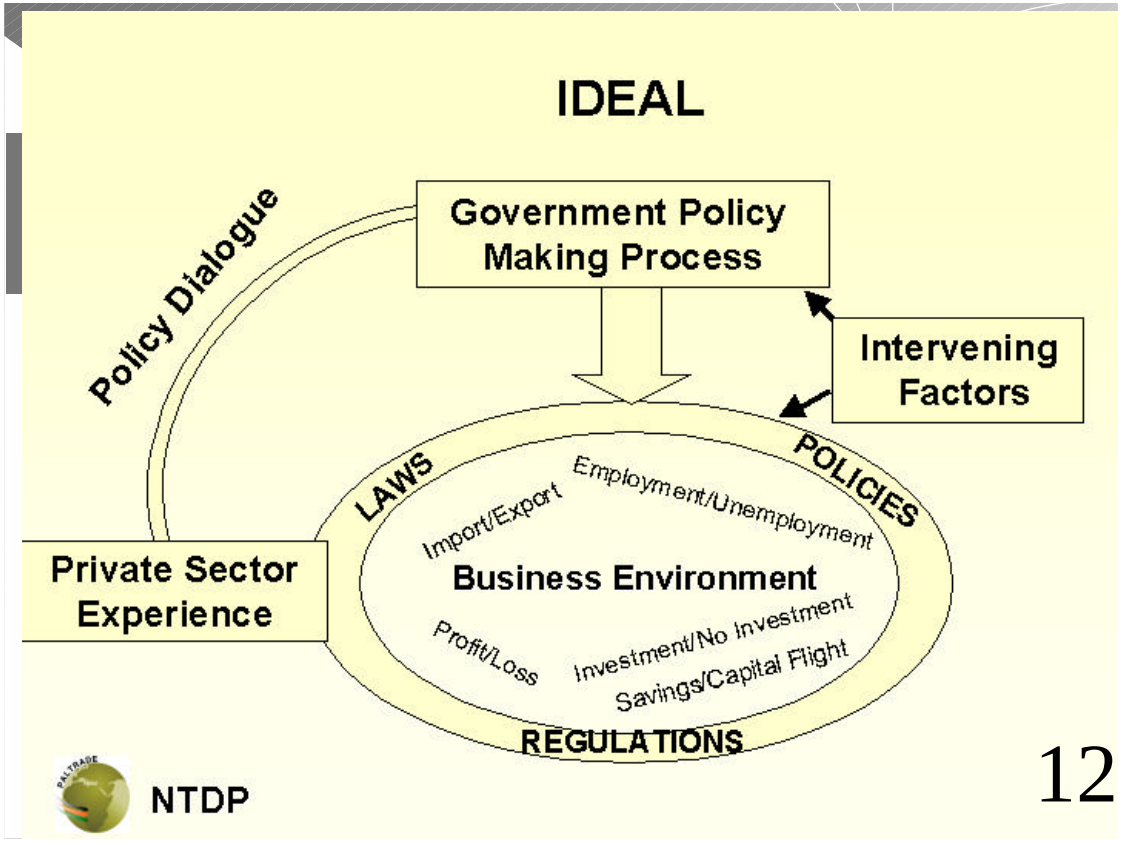
West Bank - Extra Virgin and Virgin Olive Oil Exports

- European Union - “Fair Trade” and Organic
- North American Market
- Harvest, pressing, and handling improvements

Policy and Regulatory Environment

- Israel-PNA negotiations (study the competitor)
- GATT and Euromed Agreements shape the competitive environment
- National policy and regulatory positions - investment, technology transfer, regulatory control


CURRENT PALESTINE
Government Policy Making Process
Intervening Factors
Occupation
LAWS
POLICIES
Business Environment
Mandate
Jordan/W.B.
Egypt/Gaza
REGULATIONS
NTDP


IDEAL
Government Policy Making Process
Policy Dialogue
Intervening Factors
LAWS
POLICIES
Import/Export
Employment/Unemployment
Business Environment
Profit/Loss
Investment/No Investment
Savings/Capital Flight
REGULATIONS
Private Sector Experience
NTDP

USDA, USFDA - potential roles in assisting agri-food regulatory systems

- Phytosanitary inspection and quarantine
- Pesticide Regulation (MRL's)
- Plant Variety Protection
- Animal Quarantine
- Food Safety and Labeling
- Statistics and Forecasting
- Market Regulation

Questions for Workshop Participants

- Are the findings valid?
- Is public and private support for the short-term strategy to use the Rafah Airport for cargo
- Is there public and private support for regulatory change, e.g. for pesticide residue management?