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Final Report
on

Agricultural Development Strategy for Syria

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- Opinions and judgments expressed are the authors' only. FAO proposes the text as basis for starting the discussion among scholars and policy makers on the issues related to the subject of the study.

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Abbreviations

AA	Association Agreement
ACB	Agricultural Co-operative Bank
EU	European Union
GOCGM	General Organization of Cotton Ginning and Marketing
GOCPT	General Organization for Cereals Production and Trade
MAAR	Ministry of Agriculture and Agrarian Reform
SAC	Supreme Agricultural Council
SMP	State Ministry of Planning
WTO	World Trade Organization

EXECUTIVE SUMMARY

Past and Present Agricultural Strategy and Policies.

The major development paradigm, that has governed Syrian development policy in general and agricultural development in particular since 1970, has been that of state-led import substituting industrialisation. The consequences for agricultural strategy, of this overall development strategy were the following. First, a strategy of self-sufficiency in major food staples was adopted. Second the state undertook a major role in production and trade, especially with respect to the major products and inputs. Third, foreign trade became almost completely a state monopoly. Fourth, several publicly owned industrial plants were established for food and other agro-processing activities.

If the oil sector is exempted, it can be said that the economy of Syria is primarily agricultural based. The main long-term objectives of the current agricultural sector strategy are the following:

- *achieving a high level of self sufficiency in the main food staples*
- *optimal utilisation of the natural agricultural resources and improving their productivity*
- *securing the raw material requirements of the domestic processing plants*
- *increasing agricultural exports*
- *enhancing investments that are considered as one of the tools for comprehensive development*
- *improving the rural living standards and containing rural-urban migration*
- *generating employment for rural labour*
- *improving the food consumption in both rural and urban areas*

The basic instrument for implementing agricultural policies is the annual production plan for agriculture.

Agriculture and the Macroeconomy.

In 1999, agriculture was the largest productive sector, accounting for 27.3 percent of official GDP. Despite fast GDP growth in the early 1990s, in 1999, according to calculations based on official statistics, the real per capita GDP stood at a level 2.5 percent lower than that of 1980, having fallen by 4.4 percent from the previous year, because of the extended drought. Real per capita private consumption expenditures have exhibited stagnation since 1985, never having surpassed the level of that year during the last fifteen years. Real per capita public investment has increased considerably, while real per capita public consumption has declined almost steadily in the 1990s. The average annual growth rate of total real investment in agriculture during the period 1990-99 has been the lowest of all sectors and was negative for the recent period 1995-99.

The inflation in food prices, at 5.5 percent annually during 1990-99, has been much lower than that of non-food items, which was near 9 percent annually during the same period. Labour force employed in agriculture in 1999 amounted to 17.6 percent of the estimated active labour force. The recent drought affected negatively those poor households that depend of agricultural wages for part of their income.

Public enterprises receive more than two thirds of total bank credit. During 1994-99, ninety percent of credit to the public sector was allocated to the two largest public companies, which are both agriculture related, namely the General Organisation of Cotton Ginning and Marketing (GOCGM), and the General Organization for Cereals Production and Trade (GOCTP). The banking system offers meagre incentives for private formal savings. As real

interest rates have been negative for much of the last two decades, the private individuals have found other ways to utilise their savings. This has deprived valuable financial resources from the formal financial sector.

Syria's external position has improved substantially in the last few years. The major factor in this development was the increase in oil related exports, while private exports have remained steady. A number of incentives to stimulate private sector exports were introduced during 1996-99. Imports have gradually been liberalised. Syria has implemented a system of multiple fixed exchange rates. Recently considerable unification and liberalisation of the foreign exchange market has occurred, but considerable restrictions remain. The parallel market exchange rate has stayed nominally constant, for the last few years, and in real terms appreciated.

Structural Aspects of Syrian Agriculture Relevant for Policy Formulation

During the last two decades there has been a considerable increase in the total number of holders and a decline in the average size of each holding. More than a third of all holdings have an area of 2 ha or less. Among holders with land, 29 percent have another job than farming as a main occupation. Absentee holders include those holding large areas, who do not have time to cultivate their land, as well as those with small amounts of land that cannot earn enough income on that land to support a family. The educational status of holders is very low. More than 83 percent of all holders have education less than or equal to elementary, and a large share of those (44 percent) are illiterate.

The basic characteristic of the Syrian land tenure system is the co-existence of formalised systems of tenure side by side with customary institutions. About half of all cultivated land is registered state land. The bulk of pastures consist of unregistered state land. Since the late fifties 858 thousand ha of original and land reform land have been distributed to farmers with a possibility of redemption after 10 or 20 years. Another 947 thousand Ha have been rented out. A total of 99 thousand households have benefited from distribution of original and land-reform land, while another 69 thousand households currently rent a total of 969 thousand Ha of state land. All these areas are subject to restrictions on production and transfer. A considerable tenure problem involves squatters on both public and private land.

A large number of holders (23.4 percent of all holders with land) plant only fruit trees. This proportion is much larger among small size holdings.

Larger holdings are generally more capital intensive than smaller sized holdings. The higher capital intensity seems to hold for all capital types and for family labour, which is the prevalent type of labour in agriculture in Syria. The generally lower capital intensity of smaller farms implies that the opportunity cost of family labour is lower for smaller holdings, compared to large ones. This is consistent with excess supply of labour by smaller holdings.

Irrigated agriculture has increased steadily in Syria over the last decades.. The water resources of Syria are very limited compared to the needs of the country. The overall water balance for the country is currently negative, with only three out of the seven water basins of Syria having a positive annual water balance. The magnitude of the deficit of the Al Khabour basin is especially large. Most of the aquifers have been overexploited, and water tables have significantly declined. Half of the total farm holdings in Syria utilised some kind of irrigation in 1994. The bulk of the increase in irrigated areas has come from wells, most of which have been dug in the Al-Khabour basin. The larger holdings use disproportionately more wells as their main irrigation source, and irrigate the bulk of their area from them.

The Agricultural Co-operative Bank extends loans to all types of agricultural producers. Each farm household must have a crop license as a prerequisite for obtaining credit and even for cash purchase of inputs if credit is not needed. The emphasis has been mostly on short term lending. The interest rates are quite low, and until recently were negative in real terms, with the result that there has been an excess demand for credit. Loan recovery is tied to the sales of strategic crops to public agencies. The enforcement mechanism is effective and repayments are generally satisfactory except in times of poor rainfall and drought.

Despite considerable liberalisation in recent years, the state in Syria still heavily intervenes in the marketing of strategic agricultural products. Currently the state maintains the monopoly of purchasing for cotton, tobacco, and sugarbeet, and significant shares in the marketing of the other strategic crops. The remainder of production in these products is traded by private traders and brokers. Farmers, and private traders have to obtain certificates of origin to be able to transport their production to the nearest collection. The private sector has been always free to trade in fruit and vegetables as well as livestock and livestock products, at all levels of the market chain. Price monitoring and controls exist at the wholesale and retail level for most food products.

Performance of the Agricultural Sector

Agricultural Production increased constantly throughout the period 1981-99 except for drought years. The increases were both in plant as well as in animal output. However, the pattern of growth has been uneven. Fruit and industrial crop production have grown the most, while the production of vegetables has declined since 1985. Nevertheless, self-sufficiency has been achieved in terms of the strategic crops and exportable surpluses have been produced in some products. In the last ten years there have been significant average yield increases for barley, cotton, sugarbeet, and chickpeas, while there have been no major yield changes for wheat, and lentils.

Over the last ten years there have been substantial changes in the allocation of cultivated area among crops. Summer crops have increased their area, while summer vegetables have reduced it. Within summer crops the area increase has been almost totally in irrigated area. Similarly within winter crops, there has been a large increase in the area of irrigated crops, while there was a major decline in the area of rainfed crops. Also the area of fruit trees has expanded considerably. The major pattern has been a substantial increase in irrigated areas.

There have been substantial differences between the areas planned and the areas that have been ultimately planted. For all the strategic crops other than tobacco, the areas that are estimated to have been planted under irrigation are on average above those actually planned. Yields per hectare, on the other hand, have tended to be substantially over-estimated in annual plans in the period from 1989 to 1999 for all the strategic crops other than cotton and tobacco. Yields in irrigated areas have varied considerably from year to year, and their variation is similar to the yield variation in rainfed areas. This might be due to farmers reallocating the inputs received and their labour among crops.

***Food security,** has been one of the most consistent objectives of government policy. In earlier years, when there was a shortage of financial resources for food imports, food security was interpreted as food self sufficiency. Recently the concept has been redefined to mean increasing production of products that enjoy comparative advantage, so that exports of these products can be used to secure the currency needed to import other commodities. Nevertheless, when the economy is growing, both concepts imply increasing food consumption per capita. Estimates, based on official data, however, indicate that for many of the key food commodities, the per capita domestic apparent consumption has declined*

during the last decade. This holds for cereals, and in particular for wheat, for legumes, for fruit, and for milk, while per capita consumption has increased only marginally for red meat. The only commodities for which major increases are indicated within this short period are cotton, maize, and sugarbeet. None of these, however, constitute the major food consumption items.

The impact of exchange rate and price policies, can be measured by an index of the aggregate Market Price Support (MPS). Such aggregate estimates were made using three different exchange rates. The official exchange rate as well as the trade weighted exchange rate indicate that agriculture has been protected all throughout the decade of the 1990s, (at relatively constant rates when the official rate is used but at declining rates when the trade weighted exchange rate is used). The neighbouring market rate indicates a very different story. It suggests that until the mid-1990s, Syrian agriculture was effectively taxed. It is only in the last few years, namely since 1997, with the devaluation of the exchange rates that Syrian agriculture has been effectively subsidised. In 1999 the rate of support reached an average of 7 percent of the gross value of agricultural output, which implies a heavy load on the budget.

*Concerning **finance for agriculture**, the total amount of lending to agriculture, while increasing until 1995, has declined considerably since then. The bulk of the loans have been of short-term nature. The biggest share of loans disbursed to agricultural producers has been for production loans for wheat and cotton. Loan disbursements for capital investments have been very low. The number of beneficiaries of ACB loans in 1999 was only 54 % of the number in 1994, and one third of the total number of beneficiaries in 1989. The average size of loans has been increasing and is presently 1.32 times the size six years ago. The higher average size of loan is suggestive of a movement toward larger farmers. The formal credit system, in spite of subsidized interest and unrestricted fund availability at low cost may not currently be reaching out to smaller farmers.*

Review of the budgetary expenditures for agriculture, revealed that next to the operating costs for the MAAR, the expenditures for land reclamation, afforestation and forest improvement, along with expenditures for rural road maintenance were the most important. If the total expenditures of the Ministry of irrigation are added to those of the MAAR for land reclamation and irrigation, then the total expenditures of the two ministries devoted to irrigation activities amounted in year 2000 to 69 percent of all expenditures on agriculture. At the same time it is notable that the agricultural research and especially the extension system receive only very limited financial resources (10.7 percent of all non-operating costs of the MAAR in 1999-2000). However, in 2000 expenditures for both research and extension increased considerably.

The cost of agricultural producer price subsidies, as well as consumer subsidies is large. The estimated losses of the three public establishments involved in the markets for wheat and flour, cotton, and sugar, amounted in 1999 to about 4.5 percent of GDP. This is larger than the deficit of the Public Stabilisation Fund (PSF), which amounted in 1999 to 2.3 percent of GDP. However, the PSF estimates omit the cost of running the wheat reserve.

Surface irrigation is the prevailing irrigation system in Syria covering 95 percent of the irrigated area. Basin irrigation is the predominant technique used. Irrigation field efficiency is reportedly low, often below 60 percent. The average consumption per irrigated hectare for the whole of Syria is 12434 m3 per year, and in the Euphrates basin it is 16750 m3 per year. This is a huge quantity that necessitates a serious reconsideration of the current irrigation methods, and indicates the urgency of shifting to modern water saving irrigation systems.

Deterioration of the Syrian Steppe (al-Badia) has been documented in many reports. In addition changes in the composition and abundance of plants have been noted, particularly the increasing dominance of less palatable species and disappearance of the more desirable plants. These reports suggest that degradation is caused largely by overgrazing, but other causes of degradation include removal of shrubs and use of motor vehicles. The herdsmen have gradually been obliged over time to use more concentrate feeds, as substitutes for declining rangeland resources. The lack of property rights over the land in Al Baddia provides no incentive for long-term management and leads to a classic 'tragedy of the commons'. This situation is exacerbated firstly by the provision of increased numbers of wells which enable sheep to remain on the Baddia longer into the summer, and to return earlier, than was historically the case, and secondly by the provision of subsidised feed that enables the maintenance of stocking densities above that which could be supported by the natural environment alone.

The soils of Syria suffer from water and wind erosion, salinisation and chemical pollution. Wind erosion effects the greatest area, with 17.3 percent of Syria's land having been affected by some form of degradation. Problems of salinisation are accentuated by the insufficient and inefficient drainage that exists on most cultivated land. There is no specific policy for the soils of Syria. Soil degradation is occurring because of the impact of policies related to water use on cultivated areas, and resource management of the Badia. Soil conservation is an important long-term issue for Syria.

Syria, historically, was far more forested than it is presently. The causes of natural forest loss include extensive land clearing for human settlements and agriculture, grazing by goats, sheep and other animals, illicit felling, burning for charcoal production, fires and inappropriate agricultural practices. Substantial afforestation and reforestation programs have been launched in recent decades to increase forest areas. These measures have been sufficient to slow, but not arrest deforestation.

Issues Relevant to the Establishment of an Agricultural Sector Strategy

Of major importance to the design of agricultural sector strategy is a view concerning the question of whether the agricultural sector should be subsidised or taxed at this level of development of Syria. The design of the previous agricultural development strategy was influenced considerably by a closed economy mentality. This has considerably changed in recent years, and the efforts towards signing an Association Agreement (AA) with the European Union (EU) as well as signing regional trade agreements and joining the World Trade Organization (WTO) imply considerable trade liberalisation of the economy.

Current agricultural policies, despite the considerable support they have given to agricultural products, do not seem to have eliminated large income disparities, or poverty among rural households. Results from a farm household survey in year 2001 suggest that for about half of agricultural households their incomes are not enough even for the bare necessities of life, and another 38 percent feel that their incomes are only sufficient for these bare necessities. On the other hand, larger farmers cultivate larger areas in wheat and cotton, and also utilise larger irrigated areas. Hence the benefits of subsidies for strategic products, as well as for irrigation and inputs seem to accrue disproportionately on larger and wealthier farmers.

The survey revealed that a large number of farmers do not obtain licenses even though they cultivate land larger than 0.5 Ha, namely the size below which a license is not required. Furthermore, it was revealed that among farmers with large farm sizes, the proportion that obtain licenses is much larger than among farmers that cultivate small areas. As the license

entitles a farmer to obtain subsidized loans, and inputs, as well as to sell his strategic products at the government prices, which are highly supported, it appears that the licensing system tends to be utilised to a greater extent by those with larger cultivated areas. This is consistent with the notion that the various support measure of the government tend to confer the bulk of their benefits on the larger farmers.

Of the people that obtain a license, the survey indicated that only about half of those who obtained licenses complied with the terms of the license. This suggests that despite the punitive mechanisms in place for complying with the licenses, and the continuous surveillance of areas planted by extension agents, there is widespread non-compliance. The proportion not complying with the licenses is much larger among larger farmers. Hence, the larger farmers not only are the largest license recipients so as to take advantage of the government subsidies, but also that they are the largest violators of the licenses.

A major issue in the design of agricultural policies in Syria has been the notion of self-sufficiency in a number of so-called strategic food crops, like wheat, barley, lentils, sugarbeet and chickpeas, as well as in a number of other staples. The conclusion of GATT, and the current multiplicity of supplying countries in the world staple foods markets, imply that the conditions that dictated self-sufficiency in the past do not exist and will not exist in the foreseeable future.

Comparison of producer and international parity prices suggests that Syrian producers currently receive prices above those dictated by international markets, except for lentils and chickpeas. This makes these products not competitive in world markets. While current world prices for staples are low because of developed country domestic support policies, estimates suggest that the likely depression of world prices due to such policies is small (of the order of less than 10 percent) and do not justify the considerable degree of protection afforded to Syrian strategic agricultural products.

In Syria the government, via the planning mechanism and the direct monitoring of production at the farm level, tries to control area planted and production, while at the same time it also sets the prices at which it will purchase the strategic crops. This policy of setting both prices for producers, as well as quantities to be produced, is against fundamental economic laws, and produces inconsistencies that lead to non-compliance, as well as non-fulfilment of plans. One of the hidden costs of the planning system involves the enforcement mechanism through the extension agents. The bulk of extension agents' time is spend making sure the farmers conform to the plan, rather than for training farmers and other production enhancing activities.

Concerning water, because farmers are not charged for use, water has to be distributed between them administratively. The need for this indirect system of regulation of water usage is a major justification for the Government's current system of agricultural production planning. However, this system does not ensure efficient water use since it only controls each farmer's theoretical potential water requirement. In practice, farmers can utilise more than the amounts that the Government assumes to be optimal without penalty. For this reason, water table levels have been falling throughout Syria, and water from dams is not used as efficiently as it could be.

The policy of the MAAR to substitute traditional with modern water saving irrigation techniques is appropriate. However, the plan of the MAAR also envisions an expansion of irrigated areas. Projections of water balances under this scenario, indicate that, if the modernisation plan is effective, during the four initial years of the policy a large reduction of the deficit is obtained. However, from the 5th year onwards the deficit starts to increase due

to the development of the new irrigated areas. At the end of the planned period a water deficit still obtains, which is only 20 percent smaller than the initial value. This shows that in spite of the substantial impact that could be obtained with the modernisation programme the expansion of the irrigated area has a marked counterbalancing effect. Other scenaria simulated, that combine modernisation of irrigation systems but slower expansion of irrigated areas, show that it is only if modernisation is coupled with slower irrigation expansion, and especially so in critical basins, that there is a possibility of obtaining a positive water balance in the medium term.

Analysis of the Current "Orientations to the Agricultural Development Strategy" by the MAAR

Analysis of this recently (end of 2000) produced document of the MAAR, suggests that all the general objectives as well as the required modifications for modernisation are defined in very general and broad terms, and give considerable room for alternative policies.The most important underlying assumption of the proposed plan is that the current system of planning will be maintained, and that the MAAR has direct control over areas planted and yields.

Constraints and Opportunities

The report highlights several constraints to Syrian agricultural development. External constraints include the developments in the international relations of Syria, which imply considerable pressure to change the current agricultural policies, the evolution of the world markets for products of importance to Syrian agricultural trade, and the allocation of the water of the Euphrates basin between Turkey, Syria and Iraq.

Macroeconomic constraints include the developments in the domestic labour market, the availability of general investment funds, and the allocation to agriculture-related public investment activities.

Environmental constraints involve the physical loss of soils which appears to be the most urgent issue to be resolved, followed by depletion of groundwater, salinisation of soils and the loss of Steppe grazing.

Concerning allocation of land to strategic crops, while over the long term there is considerable scope for changing land use, in the short term a large proportion of the land under annual crops will need to continue to be planted to wheat, barley and cotton. This, in turn, means that the profitability of these crops, may need to be maintained artificially. The need to support wheat and cotton currently creates two distinct problems. First it has a high fiscal cost for the government; and second it requires a mechanism for delivering the support.

Savings mobilisation has been largely neglected in Syria, and poses a severe constraint in terms of available domestic investment funds. Also severe marketing constraints exist, given the current organisation of marketing infrastructure and markets in general.

The high rate of annual population increase, puts much pressure on natural resources. The high dependency ratio caused by the high ratio of younger age brackets puts much pressure on the heads of the family, but also results in large supply of young labour.

The average size of holdings is small and has been decreasing over time. 38 percent of all holdings with land were smaller than 2 ha in 1994. The partitioning of a large number of farms into a number of separate parcels bars the efficient utilisation of land resources and the efficient use of mechanical equipment. While this structure has been the result of lengthy

land reform policy, it nevertheless, is rigid, because of the legal environment that inhibits land exchange. The consequence is that much land remains fallow.

Apart from the various constraints mentioned above, there appear to be several areas of unexploited potential. Such areas are:

- *Considerable levels of technical expertise in the public sector in various aspects of agricultural administration, research, extension, irrigation, marketing, and planning.*
- *A large number of young entrants to the labour force.*
- *Some potential for intensifying land use under supplementary irrigation conditions in rainfed lands.*
- *Significant room for improving the efficiency of water use in currently irrigated areas, as well as in areas under supplementary irrigation.*
- *Climatic conditions that favour the production of high valued crops under irrigation (such as several fruits and vegetables).*
- *Potential for increasing yields of rainfed crops.*
- *Proximity to markets for products of comparative advantage to Syria. Such markets are the Arab countries, as well as other middle-East countries.*
- *An apparent capacity of private farmers to adapt quickly to changing conditions.*

The Basic Elements of a Proposed New Agricultural Development Strategy

The considerable and binding resource constraints suggest the following ***vision*** *for the future of Syrian agriculture.* ***Agricultural development in Syria should aim at an agricultural sector that is efficient and productive as well as sustainable in its use of resources, competitive in terms of external orientation, and providing adequate incomes to a large number of holders with equitable distribution of incomes and benefits.***

Given this vision, a new strategy should aim at an agricultural sector that satisfies the following ***objectives,*** *all of which are compatible with previously articulated objectives, as well as the directions of new policy initiatives.*

- *Promote self-reliance for the agricultural sector and the economy via greater reliance on comparative advantage;*
- *Utilise fully and improve productivity of natural agricultural resources, especially those of land and water;*
- *Increase labour productivity in agriculture;*
- *Achieve equitable levels of income distribution, satisfactory targets of poverty alleviation in rural areas, and contain rural-urban migration;*
- *Secure adequate levels of employment to the rural labour force;*
- *Securing adequate food consumption of low income urban and rural populations;*
- *Provide adequate supply of raw materials at reasonable prices to domestic processing plants;*
- *Increase the value of agricultural exports;*
- *Promote private investments as a major instrument for achieving economic development;*
- *Develop and expand economic relations with foreign countries, with a view to promoting exports, acquiring new technologies, and becoming a regular member of international organisations, such as the WTO;*
- *Achieve better utilisation of water resources for irrigation and other uses;*
- *Maintain environmental balance;*

The basic proposed ***strategic principles, namely the key ingredients or philosophy of the strategy,*** *on which Syrian agricultural development could develop in the near and medium term are the following:*

1. ***Agricultural development in Syria should be based on intensification of current production structures and methods, along lines of comparative advantage, coupled with more efficient, conservation minded, and labour intensive production methods.***
2. ***Any planning of production or resource use should be based on providing to farmers appropriate incentives, and not through coercive mechanisms.***
3. ***The orientation of agricultural and food production should be organised within a context of an open and export oriented agricultural sector.***
4. ***Agricultural development should be seen as part of an overall rural development, and labour employment strategy.***
5. ***The organisation of production, marketing and processing of agricultural products should allow in the short and medium term, both private as well as public agents to participate in a non-discriminatory way in all aspects of the agrofood chain.***
6. ***The role of the public sector should be gradually redefined to include correction of market failures, regulation (not control) of markets, and redistribution.***
7. ***The process of adaptation and transition to a more market oriented but regulated agricultural sector should proceed at a fast pace.***

Policies to Implement the Proposed Strategy

*Specific recommendations of policies to implement the above strat****egy*** *are based on a* ***fundamental principle of policy design****. This is that* ***the best effectiveness of policy instruments obtains when each policy instrument is designed to deal with only one policy objective****. A corollary to this principle is that* ***the government needs at least as many policy instruments as objectives.*** *In other words there could be more than one policy instrument that targets a given objective, but it is not possible to utilise one policy instrument to target two or more dissimilar objectives.* ***Another fundamental aspect of policy design is that a policy instrument should try to operate directly on the target that it seeks to affect, and not indirectly****.*

Given that it is of fundamental importance to the proposed strategy that the current system of area and price controls for strategic products is redesigned, the report examines several options for policy in this area for the near and medium term. It suggests ***a transformation of the current system of agricultural production, which is based on a license to produce, to a system of agricultural production based on a license to sell for the main strategic products****. The proposed system involves guaranteed prices for given amounts of production, tradable licenses, and allocation of the licenses on the basis of water and other environmental constraints. The proposed system is described in detail, including the gradual transition from the current to the proposed system. It is shown that the proposed system is both compatible with the current planning system, so that it can be used, after proper redefinition of tasks, in conjunction with existing planning practices, as well as that it has several advantages over the current system. It is shown that over time it could easily be utilised to evolve towards a more open and market oriented production and marketing system.*

The report also examines two additional alternative instruments for water control, in case the above system is deemed not sufficient. The first one involves ***introducing on non-metered irrigation systems, per-hectare water charges****, the rates of which are a function of the*

estimated water requirements of the crop grown, and which are also functions of the scarcity by water basin. The ***second option, which could be combined with the sale licensing system proposed above, is that for each region a water discount charge would be levied on the sale of products with a sale license issued in that region.***

It is shown that ***the sale licensing system proposed is very much like a contracting system between factories or marketing organisations and farmers****, and could easily evolve towards such a system.*

Concerning ***pricing policy for the strategic products****, it is recommended, that the government considers as a* ***benchmark for the setting of domestic supported prices a mixture of domestic cost of production estimates together with a moving average of international parity prices****. The domestic cost of production calculations, however, should be based on farm management field surveys of actual production practices and costs.* ***It is recommended that such a baseline survey is first done, so as to obtain a valid benchmark for one year, and then for every subsequent year, smaller surveys of actual costs are done in the various regions.***

Concerning non-strategic products, it is recommended that the government utilises only trade controls for indirect regulation of the markets*. Such controls could include tariffs, export taxes or subsidies, but not import or export bans.* ***It is recommended that all current quantity controls and price regulations for the marketing or pricing of these products are simplified and expressed in terms of one tariff equivalent or subsidy equivalent.***

The best ***strategy on inputs****, in the context of the proposed overall strategy, is to* ***allow private sector to import and distribute fertilisers and other inputs, alongside the public entities similarly engaged, and to abolish any import restriction on imports****. This policy can be implemented in the short term, and in fact should be adopted very soon.*

There are three major strategic suggestions that are made to improve the ***rural financial situation****. The first concerns the* ***development of micro-finance groups****. The second idea that can be promoted at the same time as the micro-finance groups, is the promotion of* ***rural savings and loans associations along the Raiffeisen model.*** *The third suggestion concerns* ***the restructuring of co-operatives to make them more like farmer marketing and input delivery associations.*** *Finally it is suggested that in order to improve savings mobilisation, the government institutes a* ***scheme for mobilising the gold that has been saved by rural and other households.***

Concerning the ***enhancement of foreign investments*** *the recommendations are the following:*

- *Create and implement an autonomous Syrian Agency for Private Investment (SAPI) instead of the current Investment Office.*
- *Simplify the application and authorisation process for investment projects under Law No.10.*
- *Investors should be given legal access to foreign currency, especially for input procurement, profit remittances and capital repatriation in case of projects producing for the domestic market.*
- *The current regime of time periods allotted for construction and for tax exemption should be replaced by a tax credit system, applicable to all investments made in the project at any time.*

- *Steps must be taken to simplify and made more clear and transparent the conditions to obtain State-owned land on lease or freehold for the purpose of building facilities for investment projects.*
- *Land for industrial investment projects should be pre-allocated in industrial zones near important cities, with provision of basic services (industrial-strength electricity, telephone, water, sanitation, roads or railways). Any project licensed under Law No.10 should be given easy access to industrial zones.*
- *Eliminate any requirement for private companies to request authorisation for changing the price of items that do not carry a fixed official price, or are not specifically regulated for some reason. 8.8 Export promotion*

*Concerning **export promotion**, the major macroeconomic constraint for exports is the **foreign exchange market**. This market **should be fully legalised and gradually liberalised**. An export strategy must be combined with a reasonable import policy. The aim should be to **establish a simple tariff system**, with relatively few categories of goods. **All quantitative or otherwise non-tariff restrictions should be converted into tariffs. Export licenses should be abolished,** and also most import licenses. It is also recommended, and of paramount importance, to establish a **reliable system of grading and standards**. It is further recommended to complete as soon as possible the Association Agreement with the EU.*

*A production organisational method that is conducive to increasing agroindustrial exports, that is deemed particularly applicable to Syria, and has been applied in several countries is for **a (generally multinational) company to organise a large number of small farmers to produce under contract on their own (the farmers') land specific qualities of a raw material (e.g. tomatoes, or asparagus, etc.), which in turn are processed or marketed to specific external markets. It is recommended to study the laws and institutions needed to facilitate such a system.***

*A final recommendation on export promotion concerns **the institution of a Syrian export promotion organisation.***

*The strategic areas for action in the **land sector** are the following:*

***Distribute the state land currently under rental agreement to farmers in the same fashion as before, namely with ownership like contracts. The land should be distributed in a way that after the farmers have paid for it they can obtain a full title, with full transfer rights**. **On public land rented out, or sold but not yet paid, allow more freedom of farmers to plant whatever they want, subject to the system of sale licensing proposed earlier**. Finally the government should **restore full ownership rights, including the right to transfer, of former state or land reform land that has been fully paid by the beneficiary**.*

*Concerning **marketing of agricultural products**, first, **the monopoly role of State marketing organisations for any agricultural products must be abolished**. **The role of the public marketing organisations should be on the one hand to guarantee prices for certain maximum amounts, as outlined earlier, and at the same time to act as buyers of last resort (at much lower prices) for unlicensed amounts**.*

*Another recommendation relevant to proper marketing, is to **design a system for collection, clearance and public dissemination of market information for agricultural and food products**, with the exception of those products where official mandatory pricing systems exist. It is also recommended, that **the MAAR, in conjunction with the Ministry of Supply and internal Trade work towards abolishing relatively soon all price controls at the retail and wholesale levels for all agricultural and food products.** As co-operatives can play an*

important role in agricultural marketing, ***it is recommended that a thorough study of the reorganization of the co-operatives, and the laws governing the operation of co-operatives is undertaken.***

Concerning ***food subsidies****, the key concept is* ***better targeting****.* ***It is recommended that a study of a new system of subsidy delivery, based on detailed national household surveys, is made before any changes to the existing system.***

A major part of the general strategy for agricultural development should be considerable emphasis on further technological improvement in agricultural production and practices, so as to improve yields and decrease production costs. Hence ***it is recommended that as a matter of priority for agricultural research as well as price policy the MAAR undertake a thorough study of comparative advantage of the currently produced products in Syria under different technologies and irrigation structures.*** *It is also recommended that* ***the current thrust of the government towards emphasising agricultural research is continued and enhanced****. In light of the recommended strategy, which advocates a much more export oriented agribusiness sector, it is further recommended that* ***a study on medium term agricultural research strategy be done in the near future****.*

It is also recommended that ***the recent increase in resources devoted to extension continues and is further enhanced.*** *Furthermore, in light of the proposed strategy of export promotion, it is recommended that* ***a study is done on the reorganisation of the extension functions, tasks, and training, with the objective of recommending a reorientation of the activities of extension agents towards more export oriented products, and water saving and cost reducing production techniques.***

Concerning rural development, the major strategy proposed, which has been tried successfully in many other developing countries, is to ***promote the establishment and operation of rural based non-agricultural small-scale companies****. In this context it is recommended that* ***a study is done on the possibilities, prospects, and institutional needs for the promotion of rural non-agricultural based small-scale activities.***

Finally concerning the allocation and overlap of responsibilities between the MAAR and other ministries, it is recommended that a study is carried out in the near future, focusing on the types of responsibilities of the MAAR in relation with other ministries, with a view of identifying areas where more efficient decision making can be pointed out. Such a study will be much more effective if the strategy and policies of the MAAR are clearly set out, and the areas where MAAR decisions affect sectors where other ministries have a voice are clear. It is, therefore, recommended that such a study is carried out only after the type of strategy and policies that are to be followed in the next ten years in the agricultural sector are identified and adopted.

A matrix for the actions needed for the implementation of the strategy in the next few years is indicated in the next pages.

Matrix for the Implementation of the Proposed Agricultural Sector Development Strategy for Syria

Vision. Agricultural development in Syria should aim at an agricultural sector that is efficient and productive as well as sustainable in its use of resources, competitive in terms of external orientation, and providing adequate incomes to a large number of holders with equitable distribution of incomes and benefits.

Objectives

- *Promote self-reliance for the agricultural sector and the economy via greater reliance on comparative advantage;*
- *Utilise fully and improve productivity of natural agricultural resources, especially those of land and water;*
- *Increase labour productivity in agriculture;*
- *Achieve equitable levels of income distribution, satisfactory targets of poverty alleviation in rural areas, and contain rural-urban migration;*
- *Secure adequate levels of employment to the rural labour force;*
- *Securing adequate food consumption of low income urban and rural populations;*
- *Provide adequate supply of raw materials at reasonable prices to domestic processing plants;*
- *Increase the value of agricultural exports;*
- *Promote private investments as a major instrument for achieving economic development;*
- *Develop and expand economic relations with foreign countries, with a view to promoting exports, acquiring new technologies, and becoming a regular member of international organisations, such as the WTO;*
- *Achieve better utilisation of water resources for irrigation and other uses;*
- *Maintain environmental balance;*

Principles and Philosophy of proposed strategy

1. *Agricultural development in Syria should be based on intensification of current production structures and methods, along lines of comparative advantage, coupled with more efficient, conservation minded, and labour intensive production methods.*
2. *Any planning of production or resource use should be based on providing to farmers appropriate incentives, and not through coercive mechanisms.*
3. *The orientation of agricultural and food production should be organised within a context of an open and export oriented agricultural sector.*
4. *Agricultural development should be seen as part of an overall rural development, and labour employment strategy.*
5. *The organisation of production, marketing and processing of agricultural products should allow in the short and medium term, both private as well as public agents to participate in a non-discriminatory way in all aspects of the agrofood chain.*

6. *The role of the public sector should be gradually redefined to include correction of market failures, regulation (not control) of markets, and redistribution.*
7. *The process of adaptation and transition to a more market oriented but regulated agricultural sector should proceed at a fast pace.*

Program	***Actions until end of 2003***	***Actions between 2003-2005***	***Actions between 2005-2010***
Introduce a system of licenses to sell for strategic products	*Complete study of the proposed system of sale licensing, with design of the types of licenses that are to be issued, the regional differentials, water charges, and all administrative details. Design of a monitoring and evaluation system*	*Pilot implementation of the proposed system in one or two water basins. Implementation of the monitoring and evaluation system in the same regions. Study of the outcomes, and adaptations and corrections as needed.*	*Implementation of the full licensing system, as well as the monitoring and evaluation systems, on a national basis.*
Introduce on non-metered irrigation systems per-hectare water charges	*Complete study of region and basin specific opportunity costs of water. Design and propose alternative pricing formulas*	*Pilot implementation of per-hectare water charges in certain regions. Monitor and evaluate, in order to adapt.*	*Implementation of full system*
Revise formulas for setting domestic support prices for strategic products.	*Design and conduct baseline farm management survey in all producing regions. Determine actual costs for each product under different agroecological and technological production systems. Implement study of border prices*	*Implement mixed system of pricing*	
Price policy for non-strategic products	*Conduct product-specific studies to estimate the tariff equivalent of all current policy interventions.*	*Substitute a tariff as the single instrument for pricing policy of each agricultural product, and abolish the other interventions.*	*Adjust tariffs towards a unified overall tariff rate.*
Export promotion	*Fully legalize the holding of foreign exchange.* *Abolish export taxes and export*	*Gradually liberalize foreign exchange market, by allowing freer convertibility of domestic currency.* *Implement system of grading and*	

	licenses. *Design system of grading and standards* *Conclude Syria-EU trade agreement.* *Design and pass law to allow multinational or national firms to produce under contract with farmers.*	*standards* *Organize and start and export promotion organization.*	
Development of microfinance groups	*Create on pilot basis rural savings and loan associations. Also implement pilot project on microfinance groups.*	*Adopt savings and loan association model on a large scale. Same with microfinance groups.*	
Restructure co-operatives towards marketing and input delivery.	*Implement study on co-operative restructuring, and propose and adopt new law.*	*Pilot restructuring of some co-operatives.*	*Restructuring of co-operatives on large scale*
Establishment of more transparent agricultural land rights	*Restore full ownership rights, including right to transfer, of former state or land reform lands that have been distributed to farmers and have been fully paid.*	*Introduce system of licenses to sell on all these lands.* *Distribute state land currently under rental agreement to farmers, with ownership like contracts.* *Establish in each Mohafaza center of legal land related information.*	
Marketing of agricultural products	*Abolish monopoly marketing of public organizations.* *Design a system of collection, organization, and public dissemination of market information*	*Institute role of public organizations as buyers of last resort.* *Abolish all import bans, and liberalize both imports and exports, subject only to tariffs.*	

	for agricultural and food products. *Abolish all price controls at the retail and wholesale level for all agricultural and food products*		
Consumer subsidies	*Conduct national household survey of expenditures, and incomes.*	*Design targeting mechanisms for the poor*	*Implement targeted subsidies through food coupons*
Technological improvement	*Conduct thorough study of comparative advantage of all Syrian agricultural products, under different technologies and irrigation structures.* *Conduct study of medium term agricultural research strategy.*	*Implement results of agricultural research strategy.* *Redefine role of extension, and reorganize in light of transition from the current state planning mechanism to a sale licensing system.*	
Allocate responsibilities between relevant ministries	*Conduct study of responsibilities of ministries, in light on new strategy*		

I. INTRODUCTION

This report is written within the framework and objectives of FAO project GCP/SYR/006/ITA "Assistance in Institutional Strengthening and Agricultural Policy in Syria". The Terms of Reference (TOR) for this part of the project are exhibited in Annex 1. The project for this consultant envisioned six visits to Syria. The first visit took place in the two-week period from September 10, 2000 until September 24, 2000. The second visit took place during the period October 24 to November 4, 2000. The third visit took place from January 26 to February 8, 2001. The fourth visit took place from April 3, 2001 to April 10, 2001. The fifth visit took place between September 13 and September 17, 2001.

During these missions, the consultant had extensive discussions with the Deputy Minister of Agriculture, the National Project Director (NPD), the Chief Technical Advisor (CTA), and the national project co-ordinator (NPC). He also had extensive discussions with personnel from the Ministry of Agriculture and Agrarian Reform (MAAR), other ministries, private sector entities, and farmers. In addition, the consultant met and had extensive discussions with most of the FAO consultants who worked on various topics relevant for the agricultural sector strategy. As part of the project, the consultant made field visits to several regions in Syria. During these field visits the consultant had many discussions with the staff of the MAAR, agricultural and irrigation research centers, farmers, and private sector operators. In addition the consultant collected and reviewed several studies relevant to the agricultural sector in Syria, as well as appropriate data. Finally, the consultant organised a small survey of 100 farm households that was conducted by 10 trainees of the National Agricultural Policy Center in Damascus. The lists of the many people met throughout the project have been attached in the appendices of the first four mission reports.

The consultant would like to thank the many people who have helped the work underlying this report. In particular the consultant would like to thank Mr. Arfan Alloush, the Deputy Minister of Agriculture, Mr. Atieh El-Hindi, the National Project Director (NPD), Mr. Emad El-Hawary, the Chief Technical Adviser (CTA), Mr. Ciro Fiorillo, the project agricultural economist and current CTA, Mr. Nassouh Keilani, the computer specialist, and the project trainees who conducted the survey (Widad Shehadeh, Almuhannad Melhim, Yihia Dehesh, Bashar Nahas, Samir Jrad, Hajar Baghasa, Akram Shhaideh, Mayyada Hammoud, Majd Abdullah, and Rola Diab). He is grateful to the other FAO consultants who worked on the various reports, on the results of which much of this report is based. He is also very grateful to the two project translators Ms. Rola Diab and Ms. Asma Mattar. He would also like to thank the two project drivers Mazen Boukai and Suhail Maila. Finally the consultant is grateful to the many Ministry of Agriculture specialists and employees, as well as the many public and private sector people, including many farmers, met in the course of the project.

This report is the second part of the consultant's overall report, and contains the recommendations of the consultant. The first part of the overall report, which is a self standing report, contains an extensive analysis of the structure and performance of Syrian agriculture, as well as an analysis of several issues of importance to strategy formulation. The main conclusions and points of that analysis will be highlighted below. The main purpose of this report is to discuss and propose a strategy for the agricultural development of Syria for the short and medium term, namely a period spanning about ten to fifteen years from now. The purpose also is to suggest specific policies towards realising this strategy.

II. MAIN FINDINGS AND CONCLUSIONS

1. Past and Current Agricultural Strategy and Policies

The factors that shaped the agricultural strategy and policies of Syria from 1960 onwards were the land reform and the external political environment of the 1950s and 1960s, namely the international alliances dictated by the cold war, the insecurities imposed by the Middle East developments, and the uncertainties inherent in the international trade system.

The major development paradigm, that has governed Syrian development policy in general and agricultural development in particular since 1970, has been that of state-led import substituting industrialisation. Socialism, which was the driving paradigm in the late 1950s and 1960s was redefined in the 1970s to mean increasing industrial employment, an expansion of the role of the public sector, and at the same time an activation of the private sector via productive but non-exploitative investments. Economic development and self-reliance, was the key to national strength, and development was understood to mean fast growth and modernisation. Syria was to cease being an agricultural economy, and become a mainly industrial one. Lack of indigenous technical capabilities was to be compensated for by importing complete, turnkey projects, and financing was to be secured by means of increasing the exports of oil, foreign borrowing, and Arab aid.

The consequences of this overall development strategy for the agricultural sector were the following. First, a strategy of self-sufficiency in major food staples was adopted. Second the state undertook a major role in production and trade, especially with respect to the major products and inputs. Third, foreign trade became almost completely a state monopoly. Fourth, several publicly owned industrial plants were established for food and other agro-processing activities.

Before the mid-1980s the Syrian economy was centrally planned. With the 6th five-year plan (1986-1990) a process of gradual move towards indicative planning was started, through a process of decentralisation. However, the government maintained its role in input distribution, while enhancing the role of the private sector in agricultural production and marketing.

With the exception of the oil sector is exempted, it can be said that the economy of Syria is primarily agricultural based. Apart from the basic agricultural production, the bulk of exports are agriculture based, the bulk of manufacturing is based on agroprocessing, a large share of trade and commerce is based on agriculture, and many services are linked to agricultural production. Furthermore, a large share of employment is provided by agriculture. Therefore, one cannot separate the overall strategy for agricultural development from the overall economic situation and macroeconomy.

The links between agriculture and the macroeconomy can be summarised as follows. First, while agricultural production is almost totally privately based, and carried out by a large number of relatively small farm units, the bulk of marketing and processing for the main strategic products (wheat, cotton, tobacco, and sugarbeet), as well as fertiliser distribution, are publicly controlled. Via the process of public control of the upstream and downstream activities relevant to agriculture, the government can exercise considerable control on production and distribution of the agricultural products, especially those deemed as strategic ones[1]. It can also generate considerable income through explicit and implicit taxation, as well as foreign exchange earnings through exports or import substitution. It can also use its control of agriculture to conduct domestic welfare policy, especially as it concerns food subsidies. The foreign exchange through official channels has always been severely limited, and hence control of trade in

[1] Currently strategic products include wheat, barley, cotton, tobacco, sugarbeet, lentils and chickpeas.

strategic agricultural products implies that the government can capture much better the implicit tax involved in the overvaluation of the currency. It thus appears that a major factor in the orientation of agricultural sector strategy and policies in the past was the severe lack of foreign exchange, and the importance of agriculture in generating foreign exchange or saving foreign exchange via import substitution.

The main long-term objectives of the current agricultural sector strategy are the following[2]:

- achieving a high level of self sufficiency in the main food staples
- optimal utilisation of the natural agricultural resources and improving their productivity
- securing the raw material requirements of the domestic processing plants
- increasing agricultural exports
- enhancing investments that are considered as one of the tools for comprehensive development
- improving rural living standards and containing rural-urban migration
- generating employment for rural labour
- improving food consumption in both rural and urban areas

The highest authority responsible for agricultural policies and planning is the Supreme Agricultural Council (SAC) which was established in 1975. The SAC is chaired by the Prime Minister, with the Chairman of the Economic Committee as Vice Chairman. Its members are Ministers concerned with agricultural and rural development, the Chairman of the National Farmers Bureau, and the Chairman of the General Federation for Farmers. SAC is the only central authority that has the right to approve agricultural annual production plans, determine prices for major agricultural products and agricultural inputs, and the policy for agricultural finance. MAAR acts as secretariat for SAC and follows up the execution of its resolutions and decisions.

The agricultural policies until the mid-1980s had the following features:

- Mandatory determination of areas planted for strategic crops both at the governorate and district levels
- Official pricing and marketing of a large group of agricultural products (all the strategic crops, some vegetables (such as onions, tomatoes and potatoes), broilers, eggs, milk, and others)
- Subsidisation of agricultural inputs
- Easy access to land and water resources through regulations involving land reform and distribution and rental of state property
- Investment programs
- Provision of loans to agricultural producers

Since 1985, these polices have undergone the following changes:

- Limiting official pricing to the strategic crops

[2] These objectives are stated in the most recent statement on agricultural development strategy. See Syrian Arab Republic (2000), Orientations to the agricultural development strategy in the Syrian Arab Republic, Ministry of Agriculture and Agrarian Reform, Damascus.

- Shifting from mandatory to indicative planning
- Limiting monopolistic public marketing to the strategic crops processed by public processing plants (cotton, tobacco, and sugarbeet), and opening marketing and processing of other products to the private sector
- Opening the export of all agricultural products (except wheat, cotton, and tobacco) to the private sector
- Promoting private investments in agro-processing and agricultural marketing under the investment law 10 of 1991
- Exempting exported fruit and vegetables, olive oil, and cotton and its products from agricultural production taxes
- Increasing the volume of agricultural loans
- Increasing the investment budget of the MAAR

The basic instrument for implementing agricultural policies is the **annual production plan** for agriculture, which is formulated as follows. The indicative figures for the production of crops, livestock and fisheries, especially major crops, are determined in co-ordination with MAAR and the State Ministry for Planning (SMP), based on studies for prospective demand and production possibilities, along with follow up reports on the execution of previous plans. This is undertaken according to the following steps:

- MAAR states production objectives at the governorate level based on the indicative figures, resources and production possibilities for each governorate;
- Each governorate agricultural council formulates its own plan on the basis of the directives received from MAAR, and village level consultations;
- MAAR unifies the plans received from all governorates, after discussion and scrutiny;
- The plan proposal is then presented to SAC including measures and arrangements for plan implementation, identifying the role to be played by different public sector institutions, along with a summary follow-up report on the previous plan;
- Costs of production for different crops are estimated by a special committee and presented to SAC for approval and determining product prices and declare them to the farmers before the beginning of the season.

The **investment plan** is confined to the public institutions. Investment programs for the ministries of agriculture and irrigation, including planned projects, their material and financial requirements as well as time span for execution, are discussed with the Department of Agricultural Planning of SMP with a view to determining priorities. Agreement is reached on the total amount of investment required, after discussing projects completed and under completion as well as new project proposals, taking into consideration financial and execution possibilities.

2. Agriculture and the Macroeconomy[3]

In 1999, agriculture was the largest productive sector, accounting for 27.3 percent of official GDP, with wholesale and retail trade second at 21 percent of GDP, and mining and manufacturing third at 18.5 percent. Mining, mainly oil and gas, accounted for 40 percent of the

[3] This section is a summary of the most important conclusions of a similarly titled section in the first part of this consultant's report, see Sarris (2001).

mining, manufacturing and utilities GDP, or 5.8 percent of total GDP. The growth rate of the various sectors has been quite uneven, with substantial growth during the last decade exhibited by the mining and manufacturing, the agricultural, the transport and communications sectors, the private services, and the finance and insurance sectors, while the other sectors have grown at much smaller or even negative rates.

Fast population growth, however, has resulted in a mixed pattern of growth of per capita GDP. Real per capita GDP in 1995 was lower than that of 1985 or 1980, but improved substantially since 1995. Nevertheless, **in 1999, according to calculations based on official statistics, the real per capita GDP stood at a level 2.5 percent lower than that of 1980**, having fallen by 4.4 percent from the previous year, because of the extended drought. This highlights the importance of agriculture in the overall economy.

Real per capita private consumption expenditures have exhibited stagnation since 1985, never having surpassed the level of that year during the last fifteen years. Assuming that income distribution has not changed much, this suggests an increased number of families with low incomes. Compared to 1985, the real per capita private consumption in 1999 was 12.7 percent lower, while it was 23.4 percent lower compared to the figure in 1980.

While real per capita private investment exhibited considerable growth during 1990-95, most likely due to the passage of law 10 of 1991, its growth turned significantly negative during 1995-98, for a negative average annual growth rate for the decade of the 1990s (-1.4 percent). On the other hand, real per capita public investment has increased considerably, while real per capita public consumption has declined almost steadily in the 1990s, undoubtedly due to the efforts of the Syrian government towards stabilisation.

The share of total investments devoted to agriculture has decreased considerably in the last ten years, after a major increase in the 1990-91 period. Total real investment in agriculture has not increased by much, despite increases in overall investments, because of a decline in the share of total investments going to agriculture. In fact **the average annual growth rate of real investment in agriculture during the period 1990-99 has been the lowest of all sectors** (at 0.17 percent annually), and was negative for the recent period 1995-99. This has obvious implications about the long run growth performance of agriculture.

The **inflation** in food prices, at 5.5 percent annually during 1990-99, has been much lower than that of non-food items, which was near 9 percent annually during the same period. This must have been due to the government policy towards food subsidies. Inflation, which was substantial during the period 1990-95, appears to have slowed down considerably during the last few years, with the general retail price index growing at only 2 percent annually, and the food price index growing at only 1.1 percent annually during 1995-99. In 1999 in fact, the general retail price index fell by 2.1 percent, while the food price index fell by 4.1 percent.

The **labour force** in Syria is estimated at around 4.7 million persons. The relatively low labour force participation rate is accounted for by the very low labour force participation rate of females (3.8 percent), compared with the high male labour force participation rate of 49.4 percent. These rates, however for 1999 are much lower than those reported for 1998 in the 1999 Statistical yearbook, which are 18.4 percent for females and 80.3 percent for males. If the figures are correct, they suggest a substantial decline in employment in 1999, a major drought year, and highlight the importance of agriculture for employment in the economy.

The average activity (namely participation) rates in 1999 seem to be higher in rural areas (42.1 percent) compared to 24.5 percent in the urban areas (in 1998 the rates were 53.1 percent and 48.3 percent respectively). It is interesting that a very high 51.1 percent of the female active

labour force in 1998 was occupied in agriculture and forestry, while the corresponding proportion of the male labour force was only 23.2 percent. If we take these percentages, and combine them with our estimates of the labour force, then it can be estimated that the total **labour force employed in agriculture in 1999 was equal to 818 thousand people** (114 thousand female and 704 thousand male). This amounts to 17.6 percent of the estimated active labour force, and compares with 1081 thousand in 1998 and 918 thousand people in 1991, or 28.2 percent of the total employment then. The significant decline of agricultural employment in 1999 by 23.5 percent, and which was mostly accounted for by declines in female agricultural employment is interesting. Women in Syria account for a large share of seasonal agricultural workers, who in turn largely come from low-income households. The large decline in that type of employment suggests that **the drought must have affected considerably those poor households that depend on agricultural wages for part of their income**.

All financial institutions in Syria are currently state owned. The Agricultural Co-operative Bank (ACB) finances all agricultural production activities, deals directly with farmers, and organises the distribution of inputs to farmers according to detailed plans drawn by the Ministry of Agriculture and Agrarian Reform (MAAR). Credit policy is conducted mainly through an annual credit plan formulated by a ministerial committee, that establishes credit ceilings for the central government, the public enterprises and the private sector

Public enterprises receive more than two thirds of total bank credit. **During 1994-99, ninety percent of credit to the public sector was allocated to the two largest public companies, which are both agriculture related, namely the General Organisation of Cotton Ginning and Marketing (GOCGM), and the General Organization for Cereals Production and Trade (GOCTP)**. In 1999 the GOCGM accounted for 40.9 percent of the total outstanding credit to public enterprises, 23 percentage points more than its share in 1995. The GOCTP, whose share of total credit to public enterprises declined by more than 20 percentage points over 1995-99, still had over 50 percent of the outstanding credit to the public sector. By contrast total credit to the agricultural sector in 1999, the bulk of which is ACB loans to farmers, amounted to only 16 percent of the total credit to these two organisations. This situation implies that the marketing and price policies towards cereals and cotton, accounting for three of the seven strategic crops, and the corresponding marketing organisations, have significant monetary implications for the economy, as well as implications about the availability of credit to the rest of the economy. Diminished requirements for credit to these two sectors will most likely release considerable amounts of credit for use by other public and especially private sectors.

The share of **currency outside banks** in total broad money stock has been on a declining trend since 1994, but still accounts for more than 40 percent of the total, indicating a low degree of financial intermediation, and that cash is the principal means of payment in Syria's payment system, as the bulk of deposits is by public enterprises. This is characteristic of financially repressed economies. The computed per capita currency outside banks declined in real terms (deflated by the retail price index) between 1994 and 1997 by 12 percent, but then recovered during 1997-99. Still in 1999 the real per capita currency outside banks was 3 percent below its peak (between 1994-99) in 1994. As this indicator is a proxy for domestic economic activity, and should increase when economic activity is growing, its decline in real terms suggests that the Syrian economy has been in stagnation for the past few years.

The other major feature of the banking system is the **meagre incentives it offers for private formal savings**. As real interest rates have been negative for much of the last two decades, the private individuals have found other ways to utilise their savings. These include investments in gold, investments in land, investments in agricultural operations (by the so-called

"entrepreneurs" that will be analysed later), overseas deposits , etc. This tends to deprive the economy of much needed formal capital for domestic investments. It is clear that formal private savings mobilisation has still a long way to go, and substantial room to grow in Syria.

Syria's **external position** has improved substantially in the last few years, with both the current and capital accounts exhibiting surpluses in 1998 and 1999. The major factor in this development was the increase in oil related exports, while private exports have remained steady.

On the **export** side, crude oil accounted for 63 percent of total exports, with fruit and vegetables second at 10.7 percent of exports, and raw cotton third at 4.5 percent of exports. About 82 percent of total exports are accounted for by primary products, a very high ratio by world standards. The bulk of non-oil exports are agricultural raw materials or based on agricultural inputs.

A number of incentives to stimulate private sector exports were introduced during 1996-99, such as the permission to import a larger number of inputs used in export production, the depreciation of the neighbouring countries' exchange rate used to value the surrendered portion of the non-agricultural export proceeds, and the removal of the tax on exports of many agricultural products. However, these incentives have not been sufficient to generate significant growth of exports, because exporters are still constrained by cumbersome administrative procedures, the absence of a duty drawback scheme for imports used in export production, the inability to import goods that are produced domestically at higher cost (such as cotton yarn), and the 25 percent foreign exchange surrender requirement. The European Union (EU) is Syria's main export market, accounting for more than half of total exports, consisting mostly of oil and non-agricultural products. Agricultural exports are directed mainly to Arab countries. There seems also to be considerable border trade with Lebanon and other neighbouring countries that is unrecorded.

Imports have gradually been liberalised, and this along with the increased availability of foreign exchange due to workers remittances and loans, has led to a surge in imports, especially private ones, that amount to 62 percent of the total. Foodstuffs accounted in 1999 for 19 percent of all imports. The main source of imports (30 percent) is the EU. The other major sources of imports were the former CMEA countries, China and Yugoslavia (17 percent). However, these shares do not consider the large volume of informal trade with Lebanon.

The **exchange rate system** has undergone considerable changes in the last decade. Generally, Syria has implemented a system of multiple fixed exchange rates. For agriculture, separate exchange rates were specified for the imports of agricultural inputs, for the imports, and for the exports of agricultural commodities. However, in many cases these were accounting rates only. Furthermore, the use of foreign currency has been restricted by controls. During the most recent period Syria has made substantial progress in reducing the exchange rate distortions. The respective policies consisted of a unification of the various exchange rates, and secondly, a devaluation of all exchanges rates, thereby, bringing them closer to the prevailing market exchange rate.

The unification of exchange rates has resulted in the reduction of the gap between the market exchange rate and the neighbouring countries' exchange rate. If one considers the trade weighted official nominal exchange rates, then a substantial nominal devaluation seems to have occurred in the past five years. Because of relatively moderate inflation rates the substantial nominal devaluation which has been implemented during the last years appears to have resulted also in a real devaluation of the exchange rate. However, the various official nominal exchange rates do not reflect the underlying fundamentals in the foreign exchange market. One rate that is considered as more representative of the market situation is the Beirut exchange rate, which is

the same as the Damascus black market rate. This rate has remained largely constant since 1994. Given the differences between the inflation rates in Syria and EU or other trade partner countries, the IMF has estimated that this open market exchange rate has appreciated between 1994 and 1999 by something like 9 percent, and this gives an opposite picture to the one suggested by an analysis of the real nominal effective exchange rate.

An interesting puzzle is why, given the inflation rate differentials between Syria and most of its (officially) trading countries, such as the EU and the Arab countries, the open market exchange rate has stayed nominally constant, and in real terms appreciated. If the parallel market reflects unobserved supply and demand forces for foreign exchange, then the parallel rate should, under balanced supply and demand for foreign exchange, have depreciated. An explanation may be that while most calculations of real and effective exchange rates consider as trade weights those indicated by official trade statistics, the existence of a large parallel market may suggest trade weights that are markedly different from those recorded officially. Given that Lebanon may be the largest unofficial trade partner of Syria, and given that the exchange rate in Lebanon has been overvalued, as estimated by the IMF, then the Beirut rate may in fact reflect an exchange rate between two overvalued currencies, and hence may not reflect the true fundamentals. Hence real effective exchange rates computed on the basis of the Beirut "free market" rate may not in fact reflect the real free market. This is, nevertheless, a hypothesis that needs further investigation.

Concerning the **trade regime** before 1985 all import and export operations were controlled by the state. Since 1985 substantial reforms were implemented in an attempt to liberalise Syria's trade regime. Today trade for some agricultural products such as fruits and vegetables is dominated by private traders. Trade in strategic crops, particularly, cereals cotton, tobacco, and sugar, remains widely in the hands of state organisations.

Imports of agro-food commodities are subject to two types of **tariffs,** a 'product-specific import tariff' which varies widely across products, and a 'general import tariff'. This is in the range of 6-35% and increases positively with the level of the product-specific import tariff. **Non tariff import constraints** for agricultural commodities abound in Syria, with the most obvious example that of import bans, which, although diminished are still in effect, especially for several agricultural and processed products.

The current government's growth strategy is to develop private initiative while maintaining a strong public sector. The strategy is to maintain a gradual pace of reforms consistent with Syria's social and political systems. Of particular importance is private export growth, driven by exports of agriculture, a sector where the government considers that Syria has comparative advantage. Nevertheless, despite considerable efforts to liberalise the economy in recent years, the economy is still characterised by a large but stagnant public sector, a resilient but constrained private sector, a cumbersome regulatory regime, continuation of many state controls, and a complicated trade and exchange rate system.

3. Structural Aspects of Syrian Agriculture Relevant for Strategy Formulation[4]

The figures of the agricultural censuses of 1981 and 1994 show that during this period there has been a considerable (26 percent) **increase in the total number of holders**, or farmers, from 485691 in 1981 to 613657 in 1994. Given that the total cultivable land has not changed by much during this period, the inevitable conclusion is that there has been considerable fragmentation and subdivision of farms, despite laws and regulations that explicitly forbid it.

[4] This section is a summary of the most important conclusions of the similar titled section in the first part of this consultant's report, see Sarris (2001).

This must have been the consequence of population growth coupled with long standing social norms in Syria that dictate the roughly even subdivision of land among a family's children.

Among holders with land, 29 percent have another job than farming as a main occupation, while among those without land the proportion is 44 percent. Absentee holders include those holding large areas, who do not have time to cultivate their land, as well as those with small amounts of land that cannot earn enough income on that land to support a family. Absentees either hire others to cultivate, or rent their land under some form or sharing or rental agreement. There exist several conflicts between owners and share tenants over tenure, due to inadequacies of the tenancy laws that give rise to many oral agreements, which can later result in disputes. Part time farmers enjoy all the benefits of full time farmers in terms of government services and subsidised inputs.

The **educational status of holders is very low**. More than 83 percent of all holders have education less than or equal to elementary, and a large share of those (44 percent) are illiterate.

While the total number of farm holders with and without land is known, there are many categories within these broad groups. It is possible to group households partaking in farm operations, and agricultural production in general, into many overlapping functional categories. These are:

(i) landed holders whose main occupation is not farming (mainly absentees);

(ii) landed holders with farming as a main occupation, i.e. owner-operators;

(iii) landless holders whose main occupation is not farming (mainly absentees);

(iv) landless holders with farming as a main occupation, i.e. owner-operators without land;

(v) sharecroppers and tenants on private land having a written or oral agreement with the owner of the land;

(vi) land reform beneficiaries and state land distribution beneficiaries that do not yet fully own their land. These are owners like possessors of holdings assigned to them, for which they pay a yearly fee up to concurrence of one fourth of the value of the assigned land;

(vii) tenants on public land, renting in lands belonging to the old state land establishment or to the expropriated land reform areas not distributed to beneficiaries;

(viii) squatters on public land -a category of workers aiming at becoming legal tenants and for which regularisation is on-going;

(ix) squatters on private land, who are mainly sharecroppers whose contract has expired and whose rights are awaiting arbitration;

(x) labourers in state farms, joint ventures or larger private farms with a permanent contract, which is a very small category as most contracts are for short term casual labour;

(xi) landless and near landless labourers, mainly descending from small owner or sharecropping households with inadequate land base to redistribute to children.

(xii) Agricultural entrepreneurs, these operators rent or own large areas of land, especially in the Northeast part of the country.

However, these groups can be overlapping. For instance one household's members may be owner operators in one holding and sharecroppers in another, or farm labourers. That is, the groups are not discrete and also their interests often overlap. From the management point of view, apart from absentee owners in categories (a) and (c), and categories (j), and (k), who are

permanent and casual labour working under instructions, all other categories function as farm operating households with different degrees of independence from the ultimate owner of the land.

Along with the increasing number of holdings **the average size of holding has been declining**. The bulk of holdings are small in size and traditional in system of management with more than a third (37.7 percent) of all holdings having an area of 2 ha or less. These holdings account for only 4 percent of the total area operated. On the other end of the spectrum 2 percent of holdings cultivate more than 50 Ha of land and account for 23 percent of the total area operated. Tartous and Lattakia are characterised by size distributions concentrated on small holdings, while Aleppo, Al-Rakka and Al-Hassakeh are characterised by distributions that are markedly skewed toward larger size classes.

The basic characteristic of the Syrian land tenure system is the co-existence of formalised systems of tenure side by side with customary institutions ("*urf*"). A strong emphasis on legal structures is traditional in Syria as in other Mediterranean countries, but there is a long history of tenure systems.

Registered state land includes areas registered under state property prior to the land reform of 1958, out of which some were distributed, with land use rights, or rented to individual operators. These are also referred to as original state lands (as opposed to the land reform areas expropriated from private owners and put under state control for reallocation). Registered state land also includes areas expropriated from private owners above ceilings defined by the land reform of 1958 and later amendments, and subsequently distributed, rented or transferred. Registered state land consists of 3789 thousand ha, of which 2399 thousand is original state land, and 1390 is land confiscated through land reform.

Unregistered state land, which amounts to 7675 thousand ha, includes communal resources for general use of the population and not registered against an individual or collective name. Within this general category are included areas open to the whole population, such as lakes or rocky areas as well as pastoral and grazing areas.

The land reform law gave the beneficiaries owners-like possession but no right of sale, and tied them to government pronounced cropping systems. The size of distributed plots was related to size of households. The holding was expected to remain one undivided management unit, but no mechanism for compensation between heirs of the household was foreseen. With respect to land ceilings established by land reform, as of early 2001, they legally exist and exceptions to ceilings in operation are possible only for joint ventures. Ceilings apply to ownership and not to operation and therefore there is no legal obstacle to establishment of larger scale operations, except that the short duration of contracts for land leasing has implication for insecurity and high transaction costs, if the terms of the contract have to be frequently renegotiated.

Since the late fifties, of the 2399 thousand Ha of original state land, 303 thousand ha have been distributed to farmers with a possibility of redemption after 10 years of registration. This took place mainly in rainfed, lower quality land areas of zone 4. Of the remainder another 491 thousand Ha has been rented to farm operators. The rest is being used by the public sector largely for agricultural and non-agricultural activities or is vacant wasteland. Of the 1390 thousand Ha of land obtained through the land reform, 555 thousand Ha were distributed to farm operators, and could be redeemed after twenty years of registration. These lands were mainly in better agricultural areas in zones 1,2, and 3. Another 5.7 thousand Ha were sold, and 448 thousand Ha has been rented out. A total of 99 thousand households have benefited from distribution of original and land reform land, while another 69 thousand households currently

rent a total of 969 thousand Ha of state land. Currently some of the land owned and operated by the twelve state farms (that occupied a total of 112420 Ha) is being distributed to farmers.

The land market involves both fully owned land but also land that has restrictions of sale, such as land reform land. Given the restrictions, sales of land reform land tend to be oral and at lower prices than for fully owned land. The consequence of land sales restrictions is that many agreements take the form of long term use rights rather than outright sale. This, however can restrict the type of investment undertaken on such lands.

A considerable tenure problem involves **squatters on both public and private land**. Of the 69 thousand families that rent state land, about 23 thousand are estimated to be paying squatters, namely holders whose contracts have ended and await renegotiations. There are also a considerable number of squatters on private land.

Agriculture employs considerable numbers of workers. The total number of family members employed in private agricultural holdings is 1.94 million, of which the overwhelming portion (96 percent) is unpaid family labour. This number constitutes about 40 percent of total Syrian labour force, but does not consider the fact that many family members are only partly employed in the family holding. The average number of family members per holding is relatively stable over different land size classes, at about 3.7. Hired labour of all types accounts for only about 88.5 thousand full time equivalent person-years, of which permanent workers constitute 58 percent. The reason is that while there are 1.6 million temporary workers employed by all holders, the average number of days each temporary worker works is only 5.9. There are a considerable number of landless rural households, which make their labour available for seasonal farm work.

The scarcity of land, coupled with insecurity of income, creates a tendency among workers to occupy land permanently whenever possible. Labourers want to become sharecroppers, who are more difficult to evict, while all employers like to continue using casual unprotected labour, employed for short periods only and for specific tasks only for the very purpose of preventing any possibility for them to settle on the land and claim any right to it.

The number of holders that plant only crops is relatively small, only 46.5 percent of the total. The rest plant crops and/or also have livestock. However, the proportion is much larger among the large holdings. In the largest size class, namely those with area larger than 50 ha, 78 percent plant only crops, while in the lowest size class, namely those with an area less than 0.5 ha, only 27.4 percent plant only crops. In the next smallest size class, namely those with land between 0.5 and 2 ha, only 33 percent plant crops only.

A remarkable structural observation is that there appears to be a **large number of holders (23.4 percent of all holders with land) that plant only fruit trees.** This proportion is, however, much larger among small size holdings (53 percent of the smallest size class (those with less than 0.5 Ha), and 37.6 percent in the next smallest size class (those with land between 0.5 and 2 Ha)). This indicates that for most small holdings fruit trees are a profitable activity. It might also indicate that trees, which requires relatively small amounts of labour except during harvesting are an appropriate activity for many smallholders that do not have enough land to support a family, and hence work only part time in agriculture. This is corroborated also by the observation that among small land holders a large share (about 40 percent) do not own any animals, an activity that is particularly labour intensive.

The same pattern emerges in the case of holders that have only greenhouses, or greenhouses along with non-greenhouse cultivation. This suggests that policies relating to fruits and

vegetables (most greenhouses produce vegetables) impact on small holdings, while policies for crops impact more on larger holdings.

Concerning **machine ownership**, water raising pump ownership, seeder, modern plough, thresher, and tractor ownership are all heavily skewed, in terms of the proportions owning, toward the larger holdings, while sprayers seem to be more evenly distributed. However, the number of machines owned per owning household is very even, and close to one for most types of machinery. In other words, it appears that, while it is mostly larger holders that own machinery, for most holdings owning machinery, one piece of machinery is enough. This suggests, in turn that there might be considerable inefficiencies in machine use in smaller holdings, as both smaller and larger size holdings seem to utilise on average the same number of machines, whenever they own them, while the land they operate is vastly different. On the other hand, this is also consistent with the reported pattern, whereby machine owners that have surplus capacity make them available for hire to other holders.

Analysis of the number of machines owned per Ha of operated land, reveals an inverse relationship between the farm size class and the number of machines per ha, namely that **there appear to be more machines per Ha among small holdings than among large holdings**. Assuming that those with excess machine capacity make them available to other farmers of the same size class, the numbers suggest that either there is considerable capital intensity in smaller farms, or that there are inefficiencies in machine use for smaller sized farms.

If the prices for labour and capital faced by different types of farmers are the same, then the capital labour ratios, namely the so-called **capital intensities** should be similar across different types of farms. The analysis of census information indicates that they are not, with larger holdings being generally more capital intensive than smaller sized holdings. The higher capital intensity seems to hold for all capital types and for family labour, which is the prevalent type of labour in agriculture in Syria. However, it does not seem to hold for hired labour, where an inverse pattern seems to hold for water pumps, and a more even pattern seems to emerge for the other types of capital. This is evidence that while the prices faced by farmers of different size classes for capital and labour in the open markets are similar, they are not similar for prices imputed for family labour. The generally lower capital intensity (or equivalently higher labour intensity) of smaller farms, implies that the **opportunity cost of family labour (the so-called shadow price of labour) is lower for smaller holdings, compared to large ones**. **This is consistent with excess supply of labour by smaller holdings.**

Irrigated agriculture has increased steadily in Syria over the last decades, with a doubling of the irrigated cultivated area since 1985. This increasing pace was followed in order to comply with the nation's food self-sufficiency policy objectives and thus satisfy the food production needs of an increasing population. The **water resources of Syria are very limited** compared to the needs of the country. The **overall water balance for the country is currently negative** with a deficit of 3104 million m^3/year varying distinctively across basins. In fact, the balance per basin shows that only three out of the seven water basins of Syria, namely Euphrates, Coastal and Al Badia have a positive annual water balance. The remaining basins have considerable negative annual balances. The magnitude of the deficit of the Al Khabour basin is so large that it will be difficult to correct it without special and severe measures. Given that of total uses, irrigation requirements comprise 83 percent, agricultural development and irrigation policies will have important effects on the different basins.

Most of the aquifers have been overexploited except for the Coastal and Al Badia basins, and water tables have significantly declined. Total irrigated area by wells is 715509 Ha of which 314050 Ha (44%) are in Al Hassakeh (Khabour basin) and the estimated total number of wells

is 201359 out of which 53078 were not licensed in 1999. Total irrigated area by surface is 560559 ha of which 396518 ha (71%) correspond to public irrigation systems and the remaining 164041 ha are private. Water consumption in surface irrigated areas is reported to be in the order of 15000 to 16000 m3/ha in the Euphrates basin, which is very high. The reported costs of developing new areas are in the range of 200000- 250000 SP/ha and they are recovered through charges to farmers over a period of 30 years. As water resources are very limited in Syria the construction of dams has received considerable priority. In the last decades construction reached a total of 154 dams but only three of them represent 87% of the total storage capacity.

Half of the total farm holdings in Syria utilised some kind of irrigation in 1994. The largest average irrigated area per holding is in the Al-Hassakeh mohafaza, where each holding with irrigation irrigates on average 10.5 ha. Similarly in Al-Rakka the average is 8.9 ha. By contrast in Sweida the average area irrigated by holdings that have some type of irrigation is only 0.75 ha, and in Hama 0.93 ha. Among holdings in the smallest size class (those operating an average total area of 0.3 ha), those that irrigate tend to irrigate a very large share of their area (83 percent). At the other end of the spectrum, among irrigating holdings in the largest size class (those with total average area of more than 50 ha), those that irrigate, and they are roughly the same proportion as those in the smallest class, tend to irrigate only 33 percent of their total area. Given, however, their large holdings, this irrigated area amounts to a very large average amount of 30 ha per irrigating holding. This conclusion largely holds for all governorates. Wells seem to provide irrigation for 55.1 percent of all irrigated area in Syria. The larger holdings use disproportionately more wells as their main irrigation source, and irrigate the bulk of their area from them.

ACB extends **loans** to private farmers, co-operative member farmers, co-operatives, farmers' unions and federations and public sector organisations engaged in agriculture. Each farm household must have a crop license as a prerequisite for obtaining credit and even for cash purchase of inputs if credit is not needed. Short-term credit is made available for farm expenses such as ploughing, harvesting, irrigation and fuel, cost of inputs, for small tools and for animal feeds and veterinary medicines. Medium term credit for periods not exceeding five years is extended for greenhouses, forest tree planting, purchase of livestock, digging of canals for irrigation, equipment for poultry farms and machinery for grading, waxing and packing. Long-term credit for periods of ten years or less is aimed at financing construction of stores, land improvement, forestry projects, fruit tree planting programs and cold storage facilities. The emphasis has been mostly on short term lending. The proportion of medium and long-term loans has been declining from year to year – from 17 percent of total in 1997, to 14 percent in 1999.

The **interest rates are quite low**, between 4 and 7.5 percent, depending on duration. Various charges add about another 3 percentage points to the nominal rates for annual loans, and also augment the interest rates on medium and long-term loans. These rates until recently were negative in real terms, with the result that there has been an excess demand for credit.

Loan recovery is tied to the sales of strategic crops to public agencies. The amount of the loan is subtracted from the farmer receipts when the product is delivered to the public marketing organisations. The enforcement mechanism is effective and repayments are generally satisfactory except in times of poor rainfall and drought.

The ACB is both dispenser of farm loans and distributor of inputs. The quantity of fertiliser and other inputs are pre-determined according to a recommended crop plan (earlier it was a mandatory plan subject to severe penalties for non-adherence but now it has been made "indicative"), and formalised by the issue of a crop license to every farm at the beginning of

each crop year. Farmers wishing to purchase fertiliser in cash also need crop licenses indicating the quantity of fertiliser they are entitled to.

Despite considerable liberalisation in recent years, the state in Syria still heavily intervenes in the **marketing of strategic agricultural products.** Currently the state maintains a monopoly in purchasing cotton, tobacco, and sugarbeet, and significant shares in the marketing of the other strategic crops. The remainder of production in these products, apart from satisfying farmers' household consumption, is traded by private traders and brokers. Farmers and private traders have to obtain certificates of origin to be able to transport their production to the nearest collection area for the relevant public organisation. The private sector has always been free to trade in fruit and vegetables as well as livestock and livestock products, at all levels of the market chain. Price monitoring and controls exist at the wholesale and retail level for most food products.

4. Performance of the Agricultural Sector[5]

The agricultural sector of Syria has exhibited several strengths but also some weaknesses under the past strategies and policies. **Production increased** constantly throughout the period 1981-99 except for drought years such as 1987, 1989, 1997 and 1999. The increases were both in plant as well as in animal output. However, the pattern of growth has not been even. Fruit and industrial crop production have grown the most, while the production of vegetables has declined since 1985. Nevertheless, self-sufficiency has been achieved in terms of the strategic crops and exportable surpluses have been produced in some products. In the last ten years there have been significant average yield increases for barley, cotton, sugarbeet, and chickpeas, while there have been no major yield changes for wheat, and lentils.

Over the last ten years there have been substantial changes in the **allocation of cultivated area** among crops. Summer crops have increased their area, while summer vegetables have reduced it. Within summer crops the area increase has been almost totally in irrigated area. Similarly within winter crops, there has been a large increase in the area of irrigated crops, while there was a major decline in the area of rainfed crops. Also the area of fruit trees has expanded considerably. The major pattern has been a substantial increase in irrigated areas. The bulk of total irrigated area is occupied by wheat and cotton that account for 57.7 percent and 21 percent respectively of all irrigated area.

The **per capita production** of wheat, barley, fruits, vegetables and sugarbeet have increased during the last decade but with annual fluctuations, which have no doubt been due to weather induced yield variations. Cotton per capita production has also increased but with major annual fluctuations. On the other hand, the per capita production of legumes, red meat, milk, as well as the number of animals have been stagnant or even declining, as in the case of sheep and goats.

The **annual plan**, that aims at steering farmers towards a particular land use pattern, is the main vehicle for national agricultural planning. There have been substantial differences between the areas planned and the areas that are ultimately planted. For all the strategic crops other than tobacco, the areas that are estimated to have been planted under irrigation are on average above those actually planned. This over-planting could be due to farmers ‘stretching’ their irrigated area to make maximum use of publicly supplied water. Government irrigation system maintenance and operation fees are paid for on the basis of *licensed* area but the *use* of such water is in effect free. Yields per hectare, on the other hand, have tended to be substantially

[5] This section is a summary of the most important conclusions of the similar titled section in the first part of this consultant’s report, see Sarris (2001).

over-estimated in annual plans in the period from 1989 to 1999 for all the strategic crops other than cotton and tobacco.

Yields in irrigated areas have varied considerably from year to year, and their variation is similar to the yield variation in rainfed areas. Given that irrigated production is more controlled than rainfed production, one would expect that the variability of yields in irrigated areas would be smaller than that of rainfed areas. In fact this does not appear to be the case. A possible explanation of this is that while the farmer is obliged to cultivate certain areas according to the license, and obtains inputs on the basis of the planned areas, in practice he can vary the amount of inputs applied considerably (with labour being the least observable and monitorable input). Hence, since he has limited freedom to vary the areas planted, he may compensate, in order to achieve his desired production, by varying the amounts of applied inputs, and hence yields.

Food security, has been one of the most consistent objectives of government policy. In earlier years, when there was a shortage of financial resources for food imports, food security was interpreted as food self sufficiency. Recently the concept has been redefined to mean increasing production of products that enjoy comparative advantage, so that exports of these products can be used to secure the currency needed to import other commodities. Nevertheless, when the economy is growing, both concepts imply increasing food consumption per capita. Estimates, based on official data, however, indicate that for many of the key food commodities, **the per capita domestic apparent consumption has declined during the last decade.** This holds for cereals, and in particular for wheat, for legumes, for fruit, and for milk, while per capita consumption has increased only marginally for red meat. The only commodities for which major increases are indicated within this short period are cotton, maize, and sugarbeet. None of these, however, constitute the major food consumption items. While there maybe errors in the data, particularly since there may be parallel imports and exports, the trend is disturbing and surprising, and suggests that one of the key objectives of the government for the population, namely increasing food consumption, does not seem to have been met. This despite considerable increases in the volume of production of most of these products. Apparently the population growth in Syria is growing faster than the increases in agricultural production net of exports, and imports have not been able to compensate for per-capita consumption declines.

Concerning **irrigation**, the bulk of the increase in irrigated areas during the last ten years has come from the construction of new wells. The number of new wells has increased by 50 percent between 1990 and 1999. Total irrigated area by wells in 2000 is 715509 ha of which 314050ha (44 percent) are in Al Hassakeh (Khabour basin), the region with the most acute water overexploitation problem. The total number of wells is 201259 out of which 53078 were not licensed in 1999.

Surface irrigation is the prevailing irrigation system in Syria covering 95 percent of the irrigated area. Basin irrigation is the predominant technique used in surface irrigation and most of the irrigated wheat and barley are irrigated by this method. Irrigation field efficiency is reportedly low, often below 60 percent. The average consumption per irrigated hectare for the whole of Syria is 12434 m3 per year, and the average consumption of the irrigated hectare in the Euphrates basin is 16750 m3 per year. This is a huge quantity that necessitates a serious reconsideration of the current irrigation methods, and indicates the urgency of shifting to modern water saving irrigation systems.

Deterioration of the Syrian Steppe (al-Baddia) has been documented in many reports. In addition changes in the composition and abundance of plants have been noted, particularly the increasing dominance of less palatable species and disappearance of the more desirable plants.

These reports suggest that degradation is caused largely by overgrazing, but other causes of degradation include removal of shrubs and use of motor vehicles.

The herdsmen have gradually been obliged over time to use more concentrate feeds, as substitutes for declining rangeland resources. The range livestock was almost dependent on range plants until 1958 when concentrate feeds were introduced for the first time. The rate of feed use has increased considerably in the last three decades. Estimates of the use of feed by co-operative members suggests that 46 percent of herders use concentrate feed for between 3 and 5 months of the year, 41 percent use it for between 6 and 8 months, while 7 percent use concentrates for between 9 and 12 months.

The lack of property rights over the land in Al Baddia provides no incentive for long-term management and leads to a classic 'tragedy of the commons'. This situation is exacerbated firstly by the provision of increased numbers of wells which enable sheep to remain on the Baddia longer into the summer, and to return earlier, than was historically the case, and secondly by the provision of subsidised feed that enables the maintenance of stocking densities above that which could be supported by the natural environment alone.

The problems of overstocking and poor management are not helped by the prohibition on slaughtering female lambs and sheep under 7 years old and a largely closed export market for female sheep. Justification for this policy is that if female sheep are exported, they could reproduce in importing countries, thus lowering the export potential for Syrian sheep. This appears to be unjustified since, if female Syrian sheep could reproduce in importing countries, then so could other types of sheep (local or non-Syrian). It is the inability or high cost of raising sheep in importing countries that leads to demand for Syrian sheep, and the export of Syrian female sheep is not likely to reverse this.

Efforts to rehabilitate the Baddia have included a banning on cultivation, the establishment of grazing protectorates and the revegetation of large areas with native plants. Unfortunately these efforts have been undermined in recent years as the grazing protectorates have been opened to sheep because of the drought and the inability of herders to buy feed for their herds.

The soils of Syria suffer from water and wind erosion, salinisation and chemical pollution. Wind erosion affects the greatest area (1.6 million ha) , and chemical degradation the least. In total 17.3 percent of Syria's land is affected by some form of degradation. The areas most affected by salinisation are the Euphrates and Khabour valleys, an area south east of Aleppo and an area in the extreme east of the country, north of Albo-Kamal. Problems of salinisation are accentuated by the insufficient and inefficient drainage that exists on most cultivated land. Reclamation of land of high salinity has been undertaken, with some success, but no better method of reclamation has been devised.

There is no specific policy for soil conservation in Syria. Soil degradation is occurring because of the impact of policies related to water use on cultivated areas and resource management of the Baddia. Soil conservation is an important long-term issue for Syria, and needs to be dealt with effectively.

Concerning **forests**, historically Syria was far more forested than it is presently. The causes of natural forest loss have varied, and include extensive land clearing for human settlements and agriculture, grazing by goats, sheep and other animals, illicit felling, burning for charcoal production, fires and inappropriate agricultural practices. Substantial afforestation and reforestation programs have been launched in recent decades to increase forest areas. Forest reserves have been declared in Syria. Work on sand dune fixation, green belts, roadside plantations and urban forests has been intensified. The rate of afforestation in Syria has

increased from 159 ha/year during 1953-70 to more than 24,000 ha /year during the 1980s. These measures have been sufficient to slow, but not arrest deforestation.

Adherence to the planting plan, which requires sh that each Governorate meet set targets tends to induce them sometimes to plant on land, which may not bring the highest return nationally. This, despite the effort that goes into identifying appropriate locations. Many species of tree are planted, including species not native to the country or region. The introduction of exotic trees can become a future environmental problem, and the government in response has begun production of adaptable seedlings.

Many of the protected areas are forested, but they are not well managed. More forestry effort could go into managing these areas. Most tree planting is on State land. There may be environmental benefits in planting more trees on private lands, especially via agroforestry and/or multipurpose trees. Forest fire is not a major problem, but better forest management may reduce losses. Poorly motivated forest guards do no protect the forests very well. The policy of land clearing and planting trees has been successful, but from an environmental point of view such land clearing is not a priority. The resources could be better spent on preventing erosion. Policy in the citrus sector seems to have been successful, and the sector seems responsive to environmental concerns, but it is hindered in its biocontrol by the bureaucracy and processes surrounding the import of biocontrol agents.

The effect of policies on agriculture work through the following mechanisms. First, there maybe product specific **market price supports (MPS),** which arise from all measures (such as border protection) which induce differentials between domestic and international prices for products. Market based support also includes subsidies on credit and production inputs, as well as capital subsidies, both measures that have been utilised in Syria. The second type of support is general service support, which includes investment expenditures, and all types of current expenditures for research, training, extension, marketing structures, administration, etc.

Any indirect policies, which affect domestic agricultural producer prices, are effectively support granted from the market participants, because of which this form of support is called market price support (MPS). There seem to be three policy areas in Syria which affect the level of indirect policy transfers to agricultural producers in Syria:

- **Import and export policies.** Import tariffs, export taxes, and quantitative constraints increase the difference between the domestic and international agricultural prices.
- **Exchange rate policies.** They also directly affect the international prices, which have to be expressed in domestic currency.
- The **centrally planned system** because it has a direct effect on domestic prices, particularly in the case of strategic crops.

The most important variable in the estimates of MPS is the exchange rate. Three different exchange rates have been chosen for the assessment of the market price support: the official exchange rate, a trade weighted exchange rate, and the neighboring country exchange rate as it prevailed in Beirut.

Based on the official exchange rate, all agricultural commodities but tomatoes were subsidized throughout the 90s. By year 2000 the degree of protection, however, had declined considerably, and this is due primarily to the devaluation of the official exchange rate. Estimates with the trade-weighted exchange rate indicate a different picture. The major strategic crops, namely wheat, barley, raw cotton, sugar and tobacco have received considerable support throughout the 1990s and continue to receive large indirect support by the end of the 90s. In contrast, some of

the more export-oriented strategic crops such as chickpeas and lentils were and still are taxed based on the trade-weighted exchange rate.

Estimates computed with the neighbouring country exchange rate, which can be thought to represent more accurately the underlying shadow price of foreign exchange, suggest that, with the exception of wheat, barley, sugar, tobacco and beef, most products were implicitly taxed in the early 1990s. This appears to have remained so in the late 1990s, as well as 2000 for the limited cases where data is available. In other words the bulk of strategic products enjoy some kind of implicit protection, while the bulk of exportable products are still implicitly taxed.

Concerning the **aggregate MPS for all products**, estimates were made with the three exchange rates. While the official exchange rates as well as the trade weighted exchange rates indicate that agriculture has been protected all throughout the decade of the 1990s, (at relatively constant rates when the official rate is used but at declining rates when the trade weighted exchange rate is used), the neighbouring market rate indicates a very different story. It suggests that until the mid-1990s, and apart from some years like 1993 and 1994, namely when the official exchange rate was heavily overvalued, the Syrian agriculture was effectively taxed. It is only in the last few years, namely since 1997, with the devaluation of the exchange rates that Syrian agriculture has been effectively subsidised. In 1999 the rate of support reached an average of 7 percent of the gross value of agricultural output, which is quite large, and implies a heavy load on the budget. Another interesting observation is that the trend in the aggregate MPS using the trade-weighted exchange rate and the neighbouring country rate are opposite. The former indicates a decline in overall MPS to agriculture, while the latter indicates an increase. It thus appears that **exchange rate policy is a significant determinant of agricultural support**.

Concerning **finance for agriculture**, the total amount of lending to agriculture, while increasing until 1995, has declined considerably since then. The bulk of the loans have been of short-term nature. The biggest share of loans disbursed to agricultural producers has been for production loans for wheat and cotton. Loan disbursements for capital investments (e.g. tractors and combines) have been very low. Priority areas enumerated in agricultural policy documents have not fared well. Loans for irrigation declined in 1999 to a little over a third of their 1990 value. Lending for greenhouses, which form the thrust for improved quality and competitive costs for export, has increased very modestly from SP 301 in 1990 million to SP 475 million in 1999. The share of these special purpose loans declined from 20 percent of total ACB loans to 12 percent in 1999 besides registering a fall in absolute terms from SP 1695 million to SP 1271 million.

The number of beneficiaries of ACB loans in 1999 was only 54 % of the number in 1994. It is significant to note that the number of borrowers in 1999 was 266 thousand, nearly one third of the total number of 749,703 in 1989. This trend is indeed cause for concern. Either loans are not reaching farmers, or farmers are unwilling to utilise the facility from the Bank, or farmers are becoming self-sufficient for financing production activities. The last mentioned possibility seems unlikely. The average size of loans has been increasing and is presently 1.32 times the size six years ago. The higher average size is suggestive of a movement toward larger farmers and/or toward better-endowed zones. Subsidies in the form of low lending rates and tolerance for defaults, encouraged by a system that does not make it incumbent on the lending bank to be self-reliant for resources, may have been gradually cornered by well-to-do farmers crowding out the poorer ones thereby reducing access to credit.

The contracting base of ACB credit and the increasing average loan size are causes for concern in terms of its impact on agricultural growth and productivity and the social implications of neglecting the weaker segments of agricultural producers, who depend on farming for their

livelihood. It raises the question whether the formal credit system, in spite of subsidized interest and unrestricted fund availability at low cost is not reaching out to smaller farmers and lower rainfall zones.

Subsidies for inputs were estimated to about 1.4 percent of GAO in 1999. Given, however, that the main source of credit for inputs, as well as inputs themselves, has been the ACB, and given that the total number of beneficiaries of ACB loans has declined during the recent period, these subsidies have increasingly applied to a smaller number of relatively larger farmers. On the other hand, estimates suggest that domestic fertiliser demand is much larger than total domestic supply. This implies that the input delivery system has increasingly been biased against the smaller farmers.

Review of the budgetary expenditures for agriculture, revealed that next to the operating costs for the MAAR, the expenditures for land reclamation, afforestation and forest improvement, along with expenditures for rural road maintenance were the most important. Given the scarcity of water and the associated problems with desertification, the availability of increased financial resources for reforestation seems to be justified. Note that if the total expenditures of the Ministry of Irrigation are added to those of the MAAR for land reclamation and irrigation, then the total expenditures of the two ministries devoted to irrigation activities amounted in year 2000 to 69 percent of all expenditures on agriculture. This underlines the importance that the government has placed on irrigation development.

At the same time it is notable that agricultural research and especially extension system receive only very limited financial resources (10.7 percent of all non-operating costs of the MAAR in 1999-2000). Given that the economic returns to agricultural research and extension have been shown to be very large in all developed as well as developing countries, this is not a positive development. However, in 2000 expenditures for both research and extension increased considerably.

The cost of **agricultural producer price subsidies, as well as consumer subsidies** is large. The estimated losses of the three public establishments involved in the markets for wheat and flour, cotton, and sugar, amounted in 1999 to about 4.5 percent of GDP. This is larger than the deficit of the Public Stabilisation Fund (PSF), which amounted in 1999 to 2.3 percent of GDP. However, the PSF estimates omit the cost of running the wheat reserve.

5. Issues Relevant to the Establishment of a New Agricultural Sector Strategy[6]

Estimates of the degree of aggregate support to Syrian agriculture, based on the neighbouring market exchange rate, indicate that while the agricultural sector used to be taxed, currently, namely after a period of nominal devaluation, agriculture seems to be subsidised at a rate approximating 7 percent of the value of gross agricultural output. While this level of support is much lower than the level of support of many highly industrialised economies, with small agriculture sectors[7], it is high for an economy of the level of development of Syria with a large agricultural sector. Of major importance to the design of agricultural sector strategy is a view concerning the question of **whether the agricultural sector should be subsidised or taxed at this level of development of Syria.**

[6] This section is a summary of the most important conclusions of the similar titled section in the first part of this consultant's report, see Sarris (2001).

[7] For instance the aggregate level of support for many EU countries, measured by the so-called producer subsidy equivalent, namely the share of GAO that is accounted for by various support measures, is of the order of 50 percent, and the level of many other high income industrial countries is between 20 and 50 percent. However, in these countries agriculture rarely accounts for more than 5 percent of GDP, and the share of labour force employed in agriculture is normally lower than 10 percent.

The historical experience of many developing and developed countries is that in the normal course of development, namely during the period of transition from an agriculture based economy, to an industrial or service based one, agriculture is normally taxed at early stages, and subsidised later, namely when the share of agriculture in GDP, as well the share of labour employed in agriculture fall considerably. The analysis of agricultural support for Syria has indicated that Syria currently extensively supports agriculture, despite the fact that the economy is still agriculture based. This raises the general question of where will the government obtain the financial resources that are required for such support.

If support to agriculture is provided implicitly, namely by trade measures that differentiate domestic from international prices, then the bulk of the support will be paid implicitly by consumers, as is done in several EU countries. However, currently the policy of the Syrian government is to subsidise the domestic consumers of staples. Hence, all the cost accrues to the government, and involves both the cost for subsidising producers, as well as the cost of subsidising consumers. The total support to agriculture (not including consumer subsidies) amounts to about 2 percent of GDP, which is about 18 percent of all current public expenditures. As most of these support expenditures are basically transfers to producers, their high cost crowds out other potentially beneficial uses of this money, as well as infrastructure and other productive public investments. It is not clear, whether at this stage of its development, Syria should devote such as large share of scarce domestic financial resources to income transfers, especially since, as shown earlier, the benefits of these transfers are very inequitably distributed.

The design of the previous agricultural development strategy that dates to the 1970s was influenced considerably by a closed economy mentality. This has considerably changed in recent years, and the efforts towards signing an Association Agreement (AA) with the European Union (EU) as well as signing regional trade agreements and joining the World Trade Organization (WTO) imply **considerable trade liberalisation of the economy**.

The Syrian proposal to the EU concerning an AA between Syria and the EU has several implications for Syrian agriculture. In particular, the proposal suggests that the bans on imports of some agricultural products into Syria are continued for five years after the entry into force of the AA, and eliminated thereafter. Similarly the proposal suggests that for the products that are permitted for imports, tariffs and similar levies are gradually dismantled over a twelve-year period. All these imply considerable future trade liberalisation that will increase competitive pressures on domestic industries.

To realise export gains from the EU agreement, it is crucial for Syria that export activities are supported by an adequate domestic environment for business and investment. Syrian export composition must diversify to high-value products, if export gains are to be pursued. The constraints to Syrian exports are mainly supply-related. While farm-gate prices in Syria are below farm-gate prices in EU countries for a number of fruit and vegetables, high marketing costs (including logistics, post-harvest operations, transport, etc.) imply reduced Syrian competitiveness in the EU markets. Non-price competition has a significant influence on the European demand for imports of Mediterranean products.

Price comparisons indicate that EU export parity prices seem to be much lower than those for comparable strategic Syrian products. Hence the improvement of market access for EU exports to Syria is likely to undermine domestic price policies. This does not mean that those products should be kept as a part of a Syrian import ban list. These products could be fully tariffied and subjected to a schedule of tariff liberalisation, with the help of tariff rate quotas (TRQ)s, which could become progressively wider.

Increased market access in the EU and the progressive intra-Arab integration should improve the appeal of Syria as a destination of European Foreign Direct Investment (FDI) in the agri-food sector. However, the reform of the legal framework for the encouragement of FDI could help to simplify the business environment. The current process of reforms would need to be speeded, in relation to the banking system, the currency regulations, the movement of capital and the administrative procedures for foreign commercial transactions.

The desire to join WTO also has considerable other policy implications. Current computation of prices in terms of production cost is not valid for setting bound tax rates under WTO. In that context what is required is to exhibit the differences between domestic and international prices for Syrian agricultural products, and use this to set the bound tariffs. While this can be done for products with monopoly purchasing like cotton, sugarbeet, tobacco and wheat, it cannot be done for others. Hence the MAAR will need to analyse the differences between domestic and international prices for a range of agricultural and processed agricultural products. Another aspect of WTO membership is the inability to have bans on any imported products. These are not permitted under WTO for industrial products and for agricultural products they are permitted only in light of market access commitments.

Current agricultural policies, despite the considerable support they have given to agricultural products, **do not seem to have eliminated large income disparities, or poverty among rural households.** Results from a farm household survey in year 2001 suggest that about half of agricultural households report that their incomes are not enough even for the bare necessities of life, and another 38 percent feel that their incomes are only sufficient for these bare necessities. On the other hand, larger farmers cultivate larger areas in wheat and cotton, and also utilized larger irrigated areas. Hence **the benefits of subsidies for strategic products, as well as for irrigation and inputs seem to accrue disproportionately on larger and wealthier farmers**.

The survey revealed that **a large number of farmers do not obtain licenses** even though they cultivate land larger than 0.5 Ha, namely the size below which a license is not required. Furthermore, it was revealed that among farmers with large farm sizes, the proportion that obtain licenses is much larger than among farmers that cultivate small areas. As the license entitles a farmer to obtain subsidized loans, and inputs, as well as to sell his strategic products at the government prices, which as was seen earlier are highly supported, it appears that **the licensing system tends to be utilised to a greater extent by those with larger cultivated areas**. This is consistent with the notion that the various support measure of the government tend to confer the bulk of their benefits on the larger farmers.

Of the people that obtain a license, the survey indicated that **only about half of those who obtained licenses complied with the terms of the license**. This suggests that despite the punitive mechanisms in place for complying with the licenses, and the continuous surveillance of areas planted by extension agents, there is widespread non-compliance. The proportion not complying with the licenses is much larger among larger farmers. Hence, **the larger farmers not only are the largest license recipients and take advantage of the government subsidies, but also that they are the largest violators of the licenses.**

A major issue in the design of agricultural policies in Syria has been the notion of **self-sufficiency in a number of so-called strategic food crops**, like wheat, barley, lentils, sugarbeet and chickpeas, as well as in a number of other staples. Self sufficiency in staple foods is an extreme form of food security, and is reasonable to pursue when there is extreme unreliability of external staple food supplies, either because of few suppliers that are conditioned by politics in their supply to specific countries (e.g threat of embargoes), or by extreme international price instability. The conclusion of GATT, and the current multiplicity of

supplying countries in the world staple foods markets, imply that these conditions do not exist and will not exist in the foreseeable future, making the above underlying reasons for the pursuit of self-sufficiency policies much weaker.

Another set of reasons that may justify a policy of self sufficiency in staples have to do with the lack of foreign exchange to purchase staples if the country normally is in deficit. Such a reasoning can justify a self-sufficiency policy, if the foreign exchange cost of obtaining a ton of a staple (e.g. wheat) in the international market is larger than if it is produced domestically. This, however, does not appear to be the case, as the comparison of producer and parity prices (using open market exchange rates) suggests that Syrian producers currently receive prices above those dictated by international markets, except for lentils and chickpeas. An argument might be advanced that current world prices for staples are low because of developed country domestic support policies. While this argument is correct, estimates suggest that the likely depression of world prices due to such policies is small (of the order of less than 10 percent)[8], and hence any domestic support on these grounds should not be too large, and in any case does not justify a policy of self sufficiency.

In Syria **the government, via the planning mechanism and the direct monitoring of production at the farm level, tries to control production, while at the same time it also sets the prices at which it will purchase the strategic crops**. This policy of setting both prices for producers, as well as quantities to be produced, goes against all economic logic. In fact **this process of setting both quantities as well as prices, is against one of the most fundamental economic laws, namely that of how supply is determined**, which implies a positively sloping supply curve.

In most planning contexts a government sets either the prices or the quantities it desires, but not both. In other cases, depending on how strong the enforcement mechanism is, the **farmers will try to evade controls,** either by overtly violating the plan, which is happening on a massive scale in Syria, or covertly by reallocating inputs, so as to achieve their own profit maximising objectives given the prices. It was observed from the survey and verified repeatedly in the field, that both problems exist on a massive scale, as despite strong enforcement of the plan through the extension agents, the farmers still have considerable degrees of freedom when it comes to input reallocation. Inputs that can be reallocated are labour, fertiliser, water, etc. Hence, even when the area targets are satisfied (a situation that does not seem to be the case), the actual production targets might be far from desired. An example of the distortions that this policy creates concern the pricing and production of cotton. In 2000, the government set a very attractive price for cotton, but due to water considerations it forbade several farmers who would like to produce it, from doing so. The result is that the farmers are producing cotton anyway, despite the fines they are paying in the process. Clearly the prices set for cotton, and the desired quantities of production are not compatible with farmers'desires. The conclusion is that, **while it might be possible to control some production choices of farmers, such as areas planted, it is impossible to fully control production practices, and hence yields and production.**

Concerning the planning mechanism, it seems that one of the **hidden costs for both the government as well as the agricultural sector is the enforcement mechanism through the extension agents**. It was observed through the field visits, and verified in the household survey, that every village in Syria is supervised by an extension unit, which is staffed with a considerable number of personnel, although most of them are not "engineers", namely agriculture specialists. Each farmer in the area of responsibility of the extension unit is visited

[8] See for instance the articles in the special issue of Food Policy, on the Implications of the Uruguay Round for Developing Countries, vol. 21, Number 4/5 September/November 1996.

around 10 times a year, largely to observe and ensure that the farmer conforms to the plan and his license, and only as a secondary task to provide information on new techniques, collect data, etc. It was widely observed in the field that the bulk of the time of extension agents is utilised for these supervisory visits. This suggests that there is a significant loss of important productive resources in the form of the time and resources of extension agents, which could otherwise be utilised for improving production. It was also observed that the farmers are not happy with this heavy control, and hence often they come to distrust the extension agents.

Water is a very scarce commodity in Syria**. Some 90% of the total available water is currently used for irrigating crops. Almost all sources of irrigation water are currently being exploited up to their sustainable levels, and in some cases beyond. Given these three facts, it is essential that all available water resources in both irrigated and rainfed areas be used efficiently in each year, and that an optimal balance be struck between current and future water use.**

Despite its scarcity and great value, there is currently no means of charging farmers for the volume of irrigation water that they use, since water is not metered. Once farmers have invested in a tube well and its associated equipment or have paid their fixed irrigation fee for water from government schemes, their use of water is in effect free, other than for the cost of pumping water from wells or rivers.

Because farmers are not charged for use, water has to be distributed between them administratively. For water supplied from dams, this is done through a combination of regulating the areas planted to particular crops and through limiting the supply of water to particular time periods. For water drawn by farmers directly from rivers or artesian wells, the only means of controlling use is through regulating areas planted. The need for this indirect system of regulation of water usage is a major justification for the Government's current system of agricultural production planning. However, this system does not ensure efficient water use since it only controls each farmer's theoretical potential water requirement. In practice, farmers can utilise more than the amounts that the Government assumes to be optimal without penalty. For this reason, water table levels have been falling throughout Syria, and water from dams is not used as efficiently as it could be.

The need is for a system of allocating the available water between farmers that leads to efficient utilisation and does not require the physical farm-by-farm state control of crop areas.

The policy of the MAAR to substitute traditional with modern water saving irrigation techniques is appropriate. However, the plan of the MAAR also envisions an expansion of irrigated areas. Projections of water balances under this scenario[9], indicate that, if the modernisation plan is effective, during the four initial years of the policy a large reduction of the deficit is obtained. However, from the 5th year onwards the deficit starts to increase due to the development of the new irrigated areas. At the end of the planned period a water deficit still obtains, which is only 20 percent smaller than the initial value. This shows that **in spite of the substantial impact that could be obtained with the modernization programme the expansion of the irrigated area has a marked counterbalancing effect.**

Other scenaria simulated by Varela-Ortega and Sagardoy combining modernisation of irrigation systems wit slower expansion of irrigated areas, show that it is only if modernisation is coupled with slower irrigation expansion, and especially so in critical basins, that it will be possible to obtain a positive water balance in the medium term.

[9] See Varela-Ortega and Sagardoy (2001)

The consequences of adoption of modern irrigation on farm profitability can be substantially different in typical large, medium and small farms, evidencing that structural parameters and cropping patterns and hence regional characteristics are crucial for profitability of modern irrigation. Small intensive farms growing fruits and vegetables seem to be best suited for adopting modern irrigation techniques, especially drip irrigation. Under traditional surface irrigation, these small farms have the largest profit per Ha, three times higher than medium size farms and eight times higher than extensive large farms. When drip irrigation is adopted, these differences increase and farm profit is five times higher in the small farms than in the medium size farms and ten times higher than in the large extensive farms. Large extensive farms irrigated by wells, show in general a substantial increase in farm profit when adopting modern irrigation methods. However, as this result is due to initial low farm profits, it remains questionable whether these farms will be able to finance fully the adoption of these techniques unless there is a change in the cropping pattern. For this reason, the government has accompanied the irrigation modernisation decision with a decision to secure funding for such investment projects. As, however, the ACB funding for irrigation projects has declined considerably in the last decade (see table 5.5.3 in volume 1 of this report) it is not clear how this massive required increase in Bank lending is to be effected.

A policy of promoting modern irrigation techniques, in order to be successful, must be compatible with the incentives and disincentives facing the farmers. One major issue in this context is the clarity of land rights. If land is not fully owned, then a farmer may not be inclined to make the large investment needed for modern irrigation, irrespective of the various tax and other financial incentives given, and irrespective of the benefits derived. Hence **the resolution of many land issues is necessary to promote the adoption of modern irrigation techniques.**

Related to this issue, **the idea that the government is to force the farmers to adopt modern irrigation techniques is to be discouraged**. It is well known that forcing economic agents to do something incompatible with the price and other economic signals they face is counterproductive, requires considerable of public resources for enforcement, and can lead to evasion and corruption.

6. The Current "Orientations to the Agricultural Development Strategy" by the MAAR

The MAAR has prepared at the end of year 2000 a document that describes its orientations and policies for the period 2001-2010. The document (which from now on will be referred to as **the current MAAR orientation**) describes the strengths and weakness of past policies and, after assessing the current constraints facing Syrian agriculture, proposes a strategy and policies to realise the strategy.

The current MAAR orientation suggests that modernisation of the agricultural sector requires the following (re. page 9):

- Moving from an objective of self-sufficiency to an objective of food security, interpreted as competitive production of comparative advantage products;
- Improving the marketing and processing activities;
- Maintaining the efforts at fulfilling the objectives indicated in section 1 earlier;

The major constraints recognised are

- Limited natural resources like land and water;
- Post harvest constraints
- Institutional constraints related to the fragmentation of decision making and responsibility;

- Financial constraints; and
- Population increase

It is suggested that the modernization process requires the following economic and social modifications:

- Adoption of a gradual approach in adapting to the new economic and institutional environment in order to avoid negative social impacts;
- Introduction of modern technology to achieve agricultural modernization and development;
- Modifications of land reform laws;
- Exemption of agricultural products from all taxes, in order to increase international competitiveness;
- Establishing an information system about foreign markets;
- Promoting the establishment of marketing companies in all sectors;
- Giving attention to vertical developments;
- Determining the roles of different sectors in the agricultural development process;

The general objectives as well the required modifications for modernisation are defined in very general and broad terms, and give considerable room for alternative policies.

The specific objectives that are proposed to realise the overall general objectives are as follows:

- An annual agricultural production increase of 4-7 percent to be achieved through:
- Annual growth rates of irrigated areas of 1.5-2 percent per year, expansion of tree area by 3-4 percent annually, and expansion of forest area at 4-5 percent annually;
- Achieving annual yield increases of 3-5 percent for wheat, 3-5 percent for cotton, 3 percent for irrigated lentils and chickpeas, and 1 percent for rain-fed lentils and chickpeas;
- Achieving the objective of food security, providing raw materials required for the domestic agro-industry and increasing both raw and processed material exports;
- Adoption of comparative advantage through focusing on crops such as legumes, olives, citrus, pistachio and apples;
- Adoption of agricultural policies for sustainable development; and
- Enhancement of the supporting services (research, extension, and training) at average growth rates of 15 in the initial years and 10 percent for the rest of the period.

The idea of the production plan is to increase slowly the total cultivated area, while at the same time increasing yields

An important underlying assumption of the proposed plan is that the current system of planning will be maintained, and that the MAAR has direct control over areas planted and yields. Concerning expenditures on research and extension, the average annual growth in real terms of expenditures for agricultural research between 1990 and 1999 has been 16.5 percent, while the average annual growth rate of expenditures on extension has been only 5.5 percent. In year 2000 the budget for agricultural research was significantly increased by 56 percent, and the budget for extension by 74 percent. This suggests that there is a clear policy to enhance the intensification and technological standards of Syrian agriculture.

The strategy that is proposed to achieve the specific objectives is the following:

- Optimal utilisation and protection for depletion, deterioration, and pollution of the agricultural natural resources (land, water, forests and steppes);
- Maximising the plant yield and livestock productivity;
- Prioritising the production of the strategic crops and other crops based on their economic importance;
- Enhancing and diversifying agricultural production and promotion of rural industries;
- Achieving sustainable development;
- Creating the proper environment for all sectors and enhancing their contribution to the economic development process through the identification of the role assigned to each of them and encouraging them to compete with each other;
- Improving scientific research and focusing on genetic engineering research with the aim of expediting the vertical growth rate and enhancing the production of competitive varieties.

The above strategy is quite general and sets the overall framework for agricultural policies.

7. Constraints and Opportunities

A number of factors constrain the development of the Syrian agricultural sector. While these factors are discussed below under different subjects, they are interrelated in their effects on the different sectors and sub-sectors of the economy.

7.1 External Constraints

The developments in the international relations of Syria, as discussed above imply considerable pressure to change the current agricultural policies. This constraint will become a major one, if Syria is to open up as intended.

Another external constraint is the evolution of the world markets for products of importance to Syrian agricultural trade. Despite the policy of food self-sufficiency, Syria in the past has had to increasingly rely on international markets to provide basic foods, as well as to export surplus commodities. Despite the successful conclusion of the GATT agreement, the world markets for cereals, are likely to remain in the foreseeable future in excess supply, given the continuous producer support for these products in the world's largest producers (USA and EU). This implies that, if it becomes possible to employ some of the utilised resources in products currently produced at high domestic resource cost, in alternative products and uses, then it will be relatively cheap for Syria to import the necessary staple food commodities it needs. If alternative products or employment opportunities can be found, then continuation of a policy of import substitution in staple foods, which has been the norm in the past under the rubric of food self-sufficiency or food security could become increasingly more expensive.

It must be realized, of course, that estimates of domestic resource costs for the production factos depends heavily on the opportunity costs of factors of production such as labour, capital, and water, as well as the opportunity cost of foreign exchange. These opportunity costs, in turn, or shadow prices, denote the returns of using the factors in the best alternative activities. It has been difficult to identify these opportunity costs for Syria, and especially so for foreign exchange, and hence it has been difficult to identify comparative advantages at this stage. In addition, it remains a major technical and economic challenge to identify alternative agricultural products that could be produced profitably in the lands currently cultivated with strategic products.

Another key external constraint of importance to the development of the agricultural sector is the allocation of the water of the Euphrates basin between Turkey, Syria and Iraq. This is obviously a major political issue, but it impinges considerably on the future development of Syrian agriculture. It also suggests that an agricultural development policy that relies excessively on increasing availability of water from the Euphrates basin is subject to considerable risks in the absence of an assured framework for the allocation of this resource.

Finally, an important consideration of Syria's opening is that more technical and other types of economic aid will become available, both bilaterally, as well as multilaterally. Given that Syria will need restructuring of a large number of domestic sectors, such technical aid, and the expertise that comes with it, will be much needed in the next few years.

7.2 Macroeconomic Constraints

There are several constraints on agricultural development that are imposed by macroeconomic developments, and which cannot be ignored in the design of the future agricultural development strategy. The first concerns the developments in the domestic labour market. The agricultural sector of Syria supports a very large number of rural families, most of whom are poor. The analysis in part 1 of this report demonstrated that the imputed or shadow price or opportunity cost of family labour, appears to be low in Syria, manifesting labour surplus of rural households, and the rural sector in general. This is consistent with considerable rural-urban migration, as well as migration to neighbouring countries. Agricultural labour availability depends on alternative opportunities of agricultural workers and operators. While in the past, agriculture had to compete both with non-agricultural urban or rural based alternative activities, as well as with the demand for Syrian labour from neighbouring and other countries, the current rural labour surplus suggests that labour supply for agriculture is not a problem. The consequence of this constraint is that any future policies for agriculture must be labour intensive. However, it also implies that a strategy of restraining rural-urban migration must be supported by generation of adequate income earning opportunities in rural areas.

In the past the government has tried to influence the profitability of agricultural activities directly via price policies as well as policies on input prices and availability. In these efforts the government has incurred substantial monetary costs which were exhibited earlier. As was shown, the agricultural sector from implicitly been taxed earlier in the last decade, has moved to a situation of net subsidisation.

The availability of general investment funds, and the allocation to agriculture-related public investment activities is another general macro constraint. Clearly as GDP increases so do the available domestic savings and the funds that can be made available for general and agricultural development. Apart from this, however, an important macroeconomic constraint is the allocation of total public investment funds. While real total public investments per capita have increased in the last five years, the total per capita private investment expenditures have declined. The amount of total gross fixed capital formation that goes to agriculture, has stayed stagnant in absolute terms, and has declined in per capita terms in the last five years. This suggests that the government's overall public investment policy is a major constraint to agricultural development. Given the general budget stringency, it might become increasingly difficult for agriculture to maintain a given level of public investment spending.

A final macro-constraint concerns the overall macroeconomic climate for investments. Given the large and growing rural population in Syria, and the severe resource constraints imposed on agriculture by land and water, increasing rural and urban employment must be generated via non-agricultural private investments. Private investments, necessitate a stable macroeconomic environment, as well as lack of severe distortions, especially in the foreign exchange markets.

These are issues largely not related to agriculture, but they impinge heavily on agricultural sector adjustments.

7.3 Water Constraint

Water is a scarce commodity in Syria. About 90 percent of the total available water is currently used for irrigating crops. Almost all sources of irrigation water are currently being exploited up to their sustainable levels, and in some cases beyond. Given these three facts, it is essential that all available water resources in both irrigated and rainfed areas be used efficiently in each year, and that an optimal balance be struck between current and future water use.

7.4 Environmental and Resource Management Constraints

There are four main reasons why any Government should be concerned about its country's environment:

- The environment provides a resource base which can be utilised to generate wealth and thereby help meet wider social needs (e.g. extraction of minerals, provision of timber and fish, provision of a fertile soil for agricultural production).
- The environment provides a range of 'services' which provide benefit to humans, (e.g. nutrient cycling, filtering of pollution, aesthetic beauty)
- A badly managed environment can cause real economic and socials costs, e.g. wind erosion damaging roads and buildings, pollution of water bodies impacting human health, salinisation of soils leading to lost yields.
- An ethical concern for other species and ecosystems.

There are a range of barriers to the introduction of, and adherence to, policies concerned with protecting and enhancing the environment which are common to nearly all Governments. Seeking to meet a national environmental objective may conflict with one or more Government sectoral objectives of increasing output or wealth. Similarly, the reality of meeting environmental objectives may also conflict with the individual objectives of citizens. These barriers are often so real that many Governments acknowledge the importance of environmental issues, but frequently place them down the policy agenda when faced with apparently more pressing, short-term issues such as wealth generation and national security. This is a very understandable response, but in many cases it is ultimately flawed, and the consequences of Governments' ignoring environmental issues in the short term are that in the long term these issues multiply and their effects can potentially become enormous. So while dealing with environmental issues in the short term can be a painful experience for Government and citizens, the effect in the long term of not doing so could be far, far worse.

If a government is to act in the short-term, then it is important that it acts on the correct issues. One of the criteria for identifying the issues to be tackled in the short term is **reversibility.** Reversibility describes whether or not an environmental problem could be reversed at some future time should the right corrective action be undertaken. So for example, the impact of a minor pollution spill in a river could be reversed over time, and the river could recover, assuming no other pollution events occur. However, should a certain species of wild animal go extinct, it can never return. Some issues are reversible but over a very long time scale, for example, soil erosion leads to the loss of soils from certain areas. New soil is produced from rocks, and can regain some nutritive value, but only over very, very long time scales. So while not absolutely irreversible, soil erosion is effectively irreversible when considered against the average human lifespan.