Agriculture and Reform in Syria

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Raymond Hinnebusch
Atieh El Hindi
Munzer Khaddam
Myriam Ababsa

University of St Andrews Centre for Syrian Studies

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Preface

Raymond Hinnebusch

This issue examines agriculture and agrarian reform in Syria. The first contribution by Raymond Hinnebusch surveys the transformation of the agrarian sector under the Ba'th's "revolution from above" (1963-2000), arguing that this had major positive consequences for both growth and equity in the villages. This was the situation inherited by Bashar al-Asad in 2000. Two articles survey the outcome, the contemporary state of Syrian agriculture. Atieh al-Hindi gives a meticulous overview of the sector, including its human and natural resources; particularly valuable are his accounts of current agricultural policy and its alterations in the era of "economic reform" and of the current state of the sector's production. Munther Khaddam surveys the current situation with a focus on where improvements in under-performing areas could lead to considerable productive increases. Both analysts pay particular attention to the emerging water scarcities Syria faces and how they can be addressed. Finally, Myriam Ababsa details the failure of state farms in the Euphrates Valley, once the flagship of Syrian agrarian socialism; she also looks at the defacto privatization of the area and the agrarian counter-revolution which is resulting in a reconcentration of land in the hands of many of the same rich tribal and merchant elements that were once the target of Ba'thist agrarian revolution.

1
The Ba'th's Agrarian Revolution (1963-2000)

Raymond Hinnebusch

Roots of Agrarian Policy

The Ba'th's policy of rural development was driven by several conflicting imperatives. The party came to power in 1963 committed to an agrarian reform which would create a "socialist" agricultural sector based on state-led development, state farms and peasant co-operatives. Its ability to deliver a more equitable and productive agrarian sector was a key to its legitimacy among its putative rural constituency. More immediately, a major practical challenge was posed by land reform implementation which, in alienating landlords and investors who had hitherto been the source of production requisites and investment, left a gap which the state had to fill if production was to be sustained. When Hafiz al-Asad came to power in 1970, he inherited an agrarian sector in stagnation: unfinished cooperatization meant the state was failing to fill the gap. He therefore sought to placate landlords and investors and revive the private agricultural sector. Not only were landlords encouraged to invest on their reduced post-land reform holdings, but the vast state lands in the scarcely populated Jazira, on which the state lacked the resources to either resettle peasants or create state farms, were now rented out to agrarian entrepreneurs. Thus, the bourgeoisie, formerly regarded as a bankrupt hostile class, was being made a partner in agrarian development. The state, in the meantime, would concentrate on organising the small peasant sector and reserve its investment for the newly reclaimed and irrigated lands in major hydraulic projects such as the Ghab and the Euphrates Basin. Agriculture would, thus, have dual private and "socialist" sectors (ABSP 1965; 1972b).

However, in the seventies the exact boundaries between them became a matter of debate among policy makers. Party apparatchiki and Eastern Bloc-educated technocrats wanted to consolidate and expand the socialist (state-co-operative) sector at the expense of the market while Western-educated technocrats resisted, advocating selective liberalisation. For several reasons, the statists recovered the initiative in the seventies. Consolidation of small holdings through cooperatization was essential to prevent their absorption by a resurgent bourgeoisie and a consequent loss of the regime's political base to a still powerful and rival social force. Public sector import substitute industrialisation required state control over agricultural raw materials such as cotton while the state's provision of basic foodstuffs to its urban constituency required state marketing of grains. Party officials, impressed by the supposed aim of Western states to use a "food weapon" to counter the Arab oil weapon, sought the control over planting decisions that would give food self-sufficiency.

In addition, party apparatchiki and ministerial bureaucrats were acquiring a stake in the expanding new agrarian bureaucracy. The institutionalisation of ideology in the party was unmistakable in the constancy with which it pushed socialist-like solutions in agriculture, particularly cooperatization, and in its abiding distrust for private sector "feudalists" and merchants. As recently as the 1985 Eighth Regional Congress, the Regional Command's Peasant Office pushed to have production co-operatives set up on newly irrigated land in the Euphrates valley, continued to promote the expansion of state marketing into new fields such as fruits and vegetables, and proposed fixing the prices of machine services and transport in agriculture instead of leaving them to the free market (Hinnebusch 1989: 41-2; Munathama 1975; ABSP 1975: 37-50).

The etatist drive generated resistance. Peasants sometimes evaded the state crop rotation plan. States farms were failing and could not be used to replace private investors on the dry lands in the Jazira. In the Euphrates Basin, the state was pouring enormous investments into hydraulic projects, where returns were slow and meagre. By the eighties, resource constraints were empowering liberals who wanted to subordinate ideology to economic practicality. They won a watershed victory when state-private joint ventures were approved in agriculture which, in effect, meant turning state lands over to investors on a permanent basis. Given the division among state elites, the agrarian bourgeoisie and the peasants could use the regime's need for investment and cooperation to blunt further

bureaucratic intervention made in the name of agrarian socialism (Hinnebusch 1989: 42-48; Musallim 1983: 104-05).

No decisive choice between state and private strategies was ever made: rather, a mix of state, co-operative and private tenure forms crystallised. Agrarian policy expressed a pragmatic "muddling through," zigzagging under the competitive influence of statists and liberalizers, peasant and bourgeoisie. Yet, in defending a co-operative and state agricultural sector, the regime continued to block the bourgeoisie from reasserting control over the bulk of the agrarian surplus which in part was retained by the peasantry, in part extracted by the state itself. This was the situation inherited by Bashar al-Asad in 2000.

Bureaucracy and Agrarian Development

The agricultural development strategy of the Hafiz regime was at heart bureaucratic. It would be supervised by technocrats and co-ordinated through planning from above; if there was a problem or a need, a new ministry or "general organisation" was created to deal with it.

State planning was to translate the party's goals into concrete policies and programs. The Higher Planning Council, an inter-ministerial body headed by the Prime Minister, was backed by technocrats in the State Planning Commission, who drew up a state investment plan, identifying projects and allocating budgets. It attempted, often unsuccessfully, to co-ordinate the proposals of the various arms of the bureaucracy, each of which sought to expand its jurisdictions and programs. In practice, projects were sometimes added to the plan by a powerful minister or party politician without benefit of any feasibility study--especially in the mid-seventies when the rival arms of the state apparatus were scrambling to claim a chunk of the Arab oil wealth pouring in; for example, a paper pulp factory in Deir ez-Zor imposed by the Ministry of Industry against the opposition of the Planning Minister became an expensive white elephant. And the party apparatus promoted ideologically inspired but costly projects, such as the Euphrates Basin land reclamation project, showpiece of Ba'thist agrarian socialism (Hinnebusch 1989: 48-60; Arudki 1972: 171-78: Keilany 1980).

Although the investment plan was legally binding in theory, in practice, ministries regularly fell well short of their targets partly because of unrealistic goals, partly due to technical problems such as the gypsum encountered in the Euphrates basin; or owing to

shortfalls in Arab financial assistance caused by political conflicts; or because of bureaucratic malcoordination or contractor mismanagement. In the absence of sufficient data and expert analysis, follow-up sessions of the Higher Planning Council typically failed to pinpoint responsibility for failures and degenerated into efforts by officials to defend their ministries (Hinnebusch 1989: 53-56).

Planners also produced an agricultural production plan which set targets for key crops, crop rotations tailored to various regions, and the levels of inputs and credit needed to reach these targets. The plan was enforced through price policy (raising or lowering of state purchasing prices for crops), linkage of state credit to crop delivery and by licensing of farmers. To cultivators, the production plan was often an unwelcome constraint which put the "needs" of the country as projected by planners over their wishes and which they sometimes sought to evade (Hinnebusch 1989: 51-3).

Responsibility for implementation of the production plan was fragmented. While the Ministry of Agriculture and Agrarian Reform (MAAR) was in charge of agricultural production, the Agricultural Bank, and crop export agencies such as the cotton marketing agency were subordinated to the Ministry of Economy and Foreign Trade, while the Ministry of Internal Trade regulated market prices for agricultural goods and the Ministry of Industry controlled the food, textile, and sugar firms which bought and processed crops as well as the industries which produced farming inputs such as fertilisers.

Co-ordination was supposed to be achieved through the Higher Agricultural Council (HAC), a body chaired by the Prime Minister and including the heads of these agencies. Often, however, "each ministry acts as if it were an independent interest in conflict with the others," frustrating co-ordination of the several functions which had to be done simultaneously "since delay in the performance of one leads to a chain of bottlenecks in the performance of others" (Hilan 1973: 113).

The Ministry of Agriculture and Agrarian Reform, central to day to day implementation of agricultural policy among farmers, suffered from endemic weaknesses, beginning with leadership. Ministers were often either politicos lacking qualifications or had overly short tenures; as such, the Ministry was led by a handful of permanent deputy ministers having either political clout or agronomic expertise. The Ministry was run with far too little delegation of power, overburdening the minister and his deputies, to

whom 29 department heads reported: decision-making was therefore sluggish and initiative by subordinates discouraged.

Mission performance was also enervated by corruption, a submerged struggle between rival clientalist coalitions of high officials and supplier agents over control of the contracts and the commissions at stake in it. When commissions dictated the choice of projects, cost-benefit rationality was sacrificed. Licenses to export livestock to the lucrative markets in the Gulf or to import agricultural machinery and the right to rent extensive state lands at low prices were prized plums which agricultural authorities could distribute to clients.

Low salaries, especially in senior positions, encouraged corruption, a brain drain, and an obsession with bonuses and allowances which depended on individual connections. Inflation, reducing the real salaries of senior ministry officials by 64% from 1974 to 1979 and further in the mid-eighties, was the major threat to the integrity of the public service. The irony is that the government's deficit financing contributed to the inflation which debilitated its own capabilities.

Reflective of its ambitious mission, the ministry had a complex division of labour. Its multiple departments included budgeting, accounting, contracts, personnel matters, planning & statistics, agricultural input delivery, plant protection, research, quality control, marketing, agricultural extension, agricultural secondary schools, animal husbandry, range management, and agricultural machinery. At the governorate (*muhafazat*) level, an agricultural director (*mudir zira`i*) on the staff of the governor co-ordinated field offices corresponding to certain of these central departments. His staff agronomists were supposed to be specialists consulted by agronomists working in the field; but there was too little communication between agronomists at various levels. Too many were mere "protectors of the rules" rather than expediters of task performance, and technical experts devoted much of their time to enforcing regulations. There was insufficient housing and transport to keep local-level agronomists mobile and in the field. There was also a severe scarcity of technically competent personnel: the university agronomy faculty did not attract the very brightest students, faculties and facilities were inadequate, and training provided little practical experience; farmers often discovered they knew more than the recent agronomy graduates sent to instruct them (Hinnebusch 1989: 76-86: Arudki 1972: 234-36; Musallim 1983: 145-49). Thus, the efficiency of the state apparatus failed to keep

pace with its functional and structural expansion. Remarkably, it nevertheless achieved, although at significant cost and after substantial delay, many of its major objectives.

Agrarian Policy in Action

Land Reform

The centrepiece of the Ba'th's agrarian project was land reform, which it took two decades to complete but otherwise carried out with reasonable success. First begun under the UAR, albeit under a Ba'thist Ministry of Land Reform and briefly reversed under the separatist regime, it was sharply accelerated under the radical Ba'th. Land re-distribution was largely finished by 1970 although co-operatization would not be fully completed until the end of the seventies. The reform radically transformed agrarian structure: it much reduced the great estates, checked the forced proletarianization of the peasantry which had threatened village life, and broadened and consolidated the small holding sector. The outcome was a mixed small peasant and medium capitalist agrarian structure.

Table 1.1 gives a very rough indication of the impact of the land reform on land distribution.

Table 1.1 Pre- and post-reform agrarian structure

	Pre-Reform		Post-Reform	
	land surface		land surface	
	% owned	% pop.	% owned	% populated
Large (100+)	1.0	50.0	0.5	17.7
Medium (10-100)	9.0	37.0	15.3	58.7
Small (-10)	30.0	13.0	48.0	23.6
Landless	60.0	0.0	36.1	0.0

Source: Hinnebusch 1989

But data taking account of differences between irrigated and non-irrigated holdings allows a more precise adumbration of agrarian stratification at the completion of the reform (Hinnebusch 1989: 112-116). This more complex picture presents the following features:

1. At the top of the agrarian social structure the big landlords and entrepreneur-rentiers, about 1% of holders, still controlled a fifth of the land. However, the land reform accelerated their transformation from pre-capitalist "feudalists" into agrarian capitalists. To maintain their incomes on reduced holdings, formerly absentee landlords started to invest in advanced technology, such as sprinkler irrigation, improved seeds and mechanised harvesters. Thus, the reform resulted in the replacement of large but extensively cultivated estates with smaller but more intensely cultivated capitalist farms.

2. Below the larger landlords was a thin stratum of "rich peasants" and, around the large cities, urban investors making up barely 3% of holders, which controlled more than 10% of the surface. They might be manager-cultivators hiring labour, or might rent or let their land out to a sharecropper. While big landlords, rich peasants, and urban investors together made up only about 4% of holders, they controlled almost a third of the land and 37% of all agricultural machinery in 1970.

3. Below them was a relatively secure, prosperous and entrepreneurial middle peasant stratum amounting to over a third of all owners and commanding a half of the land surface. These self-sufficient middle peasants (owning 2-10 hectares (ha.) irrigated or 10-50 ha. dry land and not employing the labour of others except seasonally) could avoid off-farm work and had the resources for land improvement.

4. Next down were small peasants, representing nearly 62% of owners but controlling only 18.2% of the agricultural surface. The better off upper half of this stratum (peasant owners of over 1 ha. irrigated, 3 ha. rainfed land), had a strong personal attachment to the land, some independence and lived a decent peasant life. They were, however, unlikely to be very prosperous, individually they lacked the resources to much increase production and, under-employed, they or their sons might leave the land at least temporarily to accumulate some petty capital. The poorer half of the small peasants (owners with less than 1 irrigated or 3 rainfed hectares) were compelled to seek supplementary off-farm income.

5. At the bottom of the stratification system were the "landless:" tenants, sharecroppers and wage workers. Most renters and sharecroppers received about half of the income that a landowning family would receive on an equivalent size farm, so the average tenant probably ranked with the poorer stratum of the peasantry. They also often lacked the resources and motivation to improve their holdings. Finally, the low income and insecurity of agricultural wage

workers put them at the very bottom of the agrarian structure, earning a third to a half of the income of small holders in the seventies.

In eschewing a more thorough equalisation of land holdings and permitting the preservation of medium-sized estates, the regime failed to make enough land available to wipe out landlessness and consolidate a secure small peasantry. The stark fact was that, even after land reform, if landless agricultural workers, tenants, sharecroppers, and peasant holders with so little land that they could not support themselves on it without supplementary work are added together, these poor peasants made up about half of Syria's peasantry in 1970. Poverty remained a fact of life in the post-reform Syrian village (Hinnebusch 1989: 116).

But agrarian reform did consolidate, between the richest and poorest peasants, a stratum made up of middle peasants and the viable half of the small holders, who together constituted about two-thirds of land holders and about two-fifths of the agrarian population. This stratum's control of around 60% of the land arguably made it the strongest social force in rural Syria, replacing the once dominant landed magnates. These, as well as poorer peasants were, moreover, incorporated into state supported co-operatives. By 1981, over two-thirds of the agriculturally-dependent rural population or between seventy and eighty percent of all eligible holders (those owning no more than 8 ha. irrigated and 30 ha. non-irrigated land, plus sharecroppers and renters) and by 1983 about 85% of all peasant families (including wage labourers) were at least nominally in co-operatives (Hinnebusch 1989: 177). This was of no little consequence for the political economy of the regime: as against claims that the Ba'th merely represented the rich peasantry, this data suggests it consolidated a political base among Syria's substantial mainstream middle peasantry.

Co-operatives

It was the co-operatives and the agrarian bureaucracy linking them to the state which made land reform viable. Co-operatives provided the framework by which the state delivered production loans and agricultural inputs (seeds, fertilisers), services (mechanised plowing and harvesting, crop protection) and innovation to small holders, while also imposing the agricultural plan and the facilitating the compulsory sale of strategic crops to the state. This system gradually replaced the landlords and money lenders who had formerly lived off “empires” of peasant debtors or used foreclosure on debt to acquire

ownership of small holdings. In delivering services and blocking such land reconcentration, the co-operatives stabilised the small holding sector. By facilitating state marketing of crops, they excluded landlords and merchants from mechanisms of surplus extraction and capital accumulation, but, by contrast to many other similar regimes, state marketing in Syria was not generally used by the regime to extract a surplus from peasants and indeed provided them with stable support prices.

While the co-operatives made the small sector reasonably productive, they failed to realise the ideals of socialist agriculture: to organise the collective investment and common production processes thought needed by the regime to overcome land fragmentation. Peasants lacked enough confidence in the co-operatives to cede individual management of their land, partly because family rivalries destroyed trust, partly because of the government's use of the co-operatives as instruments of control: for enforcing crop rotations and for imposing collective responsibility for credit repayment. As such, the co-operatives provided no "socialist" alternative to capitalist mechanisms of accumulation and investment. However, they did encourage entrepreneurship among middle peasants and were arguably generators of a petty peasant capitalism. They were, moreover, supplemented by an array of supportive bureaucratic organisations created to carry out specialised policy tasks, including the Ghab and Euphrates Basin administrations, the General Organisations for promoting production of cattle, poultry, and fish, and similar bureaucracies for the delivery of fodder and of seeds and for the spread of agricultural mechanisation. These organisations filled some of the gap left by the entrepreneurial inertia of many co-operatives (Bakhour & Sabbagh 1979; Hinnebusch 1989: 147-63, 171-206; Bianquis 1979; Juma 1972; Metral 1984).

Bureaucratic Performance, Socio-economic Outcomes

Aside from land reform, the performance of the state agricultural bureaucracy was mixed: it contributed to increased production and productivity but often at considerable cost in waste and inefficiency. The production plan reduced unnecessary fallow, stabilised wheat output by concentrating it in good rainfall areas and diversified the crop mix. The state's planning, credit, and input system advanced the regime's control over production of strategic crops, notably cotton, sugar beets and wheat, essential for export earnings, agro-industry and food security, while also guaranteeing producers stable, if not

exactly lucrative markets. But state marketing agencies seemed incapable of effectively organising the delivery of fruits and vegetables to public processing factories. The Ministry of Agriculture initiated a score of useful innovations, from orchardization to seed and animal improvement, advancing agricultural intensification and mechanisation with considerable success, although the dismal performance of the research and extension apparatus prevented the derivation of maximum benefit from this effort (Hinnebusch 1989: 123-170).

Major resources were invested in land reclamation and irrigation although this effort, as well, was plagued by considerable waste and inefficiency. The Ghab irrigation project, long "sick" from incompetent state management, finally transformed an area of desolation and urban dominance into a viable peasant community with a certain prosperity (Metral 1984). The much more ambitious Euphrates project was, in an arid country which has reached the limits of extensive expansion, a natural next step in agricultural development and could reproduce the Ghab outcome. But it has been a costly drain on the state's limited resources and a strain on its modest management capacities. The state's massive investment in irrigation and reclamation did not decisively relieve Syrian agriculture of its crippling dependence on unreliable rainfall, in large part because advances in irrigation were partly cancelled out by increased salinity owing to inadequate drainage. But it consolidated and gradually expanded the irrigated sector (Sainsaulieu 1986; Hinnebusch 1989: 207-252).

Land reform, cooperatization and state intervention in agriculture had several positive social and economic consequences. Land reform, in enhancing the independence and potential for initiative among middle and viable small holders while forcing greater investment by landlords on their reduced holdings, created an agrarian structure more conducive to sustained growth than the old one and at the cost of only temporary declines in production during the implementation process. The co-operatives provided crucial support to land reform beneficiaries and peasants generally. The state's delivery of services, credit, and investments in irrigation and land reclamation probably put more resources into agriculture than it extracted. The public sector also developed sectoral interchanges which stimulated agriculture: industry provided inputs, markets and employment opportunities while the construction sector provided hydraulic public works and the transport infrastructure needed to integrate village and market. Overall, state activity stimulated enough

development to permit peasants to diversify their resources and strategies: many, taking advantage of new opportunities for off-farm income and of state credit and inputs acquired the resources to significantly intensify production (Hinnebusch 1989: 294-301; Bakhour 1984; Keilany 1980).

As a result, there was a continuous increase in agricultural production from the mid-seventies through the eighties. Growth in agricultural per capita output despite a decline in the agricultural work force indicated that agriculture was being brought to support a growing non-agricultural population. This growth was not, however, enough to overcome a chronic deficit in the agricultural balance of trade. And, for better or worse, state-dominated agriculture did not become an effective mechanism for extracting a surplus from agriculture to sustain industrialisation. Partly for this reason, growth in agriculture translated into a significant rise in the rural standard of living (Hinnebusch 1989: 253-283; USDA 1980).

State and Village: The Political Consequences of Agrarian Reform

The Ba'th's drive to enhance state capabilities in agriculture generally succeeded. Land reform demolished traditional interests resistant to state penetration and cooperatization institutionalised state linkages to peasants. The effect of this state intervention in the village was to pluralize power there, breaking the former dominance of the landed oligarchy over the peasantry and bridging the urban-rural gap which long kept the village encapsulated and depressed. Of course, the regime's bureaucratic penetration and regulation of agriculture had costs for peasants. There were conflicts of interest between their desire for independence and the bureaucracy's drive for control.

Yet, peasants were not so powerless as before. The village had acquired access to national power it never previously enjoyed. Alliances between agriculture ministry bureaucrats and local party and peasant union leaders pushed for higher producer prices. Clientalism supplemented this corporatist interest articulation when individuals who moved up in the national power structure used their position to help out kin in the village. The potential for official arbitrariness was diluted by the plurality of authorities--party, peasant union, and ministry officials--who took decisions in committees and by the recruitment of rurals into the local bureaucracy. Many peasants found ways to evade, even manipulate the state: a son would join the local party, a bribe would sway an official; patronage was "democratised" at the local level as public

goods were diverted and laws bent to favour locals. Finally, officials could not afford to alienate peasants who could ultimately leave the state/co-operative sector and opt for private patrons and markets; indeed peasants utilised both state and private networks as it suited their interests (Metral 1984; Hinnebusch 1976; Seurat 1979).

Conclusion

The Ba'th party, coming out of the village, initially purused an agrarian revolution that largely benefited the rural areas and incorporated the peasantry into national life. This consituted the social base of Ba'thism, imparting a stability to the regime it would otherwise have lacked. Remarkably, Ba'th agrarian policy managed to combine greater equality with greater growth. However, unlike either "Stalinist" or capitalist development strategies, the Ba'th extracted little from agriculture, no industial revolution took place at its expense and the state came to rely on rents, whether oil and aid; yet simultaneously and partly as a result of greater rural prosperity, social mobility and integration of rapid greater population growth and urbanization generated the employment crisis inherited by Bashar al-Asad. The imbalance between the Ba'thist overdeveloped political superstructure and its economic infrastructure became apparent; this made it vulnerable to pressures for "reform" that, in the absence of a peasantry sufficiently mobilized and autonomous to defend its gains, could open the door to agrarian "counter-revolution."

2
Syria's Agricultural Sector: Situation, Role, Challenges and Prospects

Atieh al-Hindi

Introduction

The Syrian Arab Republic lies on the eastern coast of the Mediterranean with an area of 185,000 km^2 (18.5 million ha), of which 6 million ha. are arable land. Syria's population was 18.7 million in 2005. Its climate is Mediterranean: rainy winters and hot dry summers with two short transitional seasons in between.

Agriculture is one of the most important sectors of the Syrian economy. In the mid-2000s, it accounted for 25% of the GDP, 20% of exports and employed 20% of the workforce. Agriculture also plays a major role in providing raw materials for manufacturing and food industries. The last decade witnessed an obvious development in agricultural production that led to self-sufficiency in several products, especially wheat, legumes, cotton, vegetable, fruits, olive and olive oil, as well as animal products. Deficits in some products continued to exist, especially in sugar, corn, dairy products, meats and vegetable oils (except olive oil). However, agricultural production fluctuates since 70% of the cultivated area depends on rainfall; at the end of the decade Syria suffered from a particularly severe bout of drought. Land is also misused and polluted in some regions while water resources are over-exploited in most basins. Most agricultural ownership and investment is private. The private sector accounts for 98.5% of total investment (in the cooperative sector ownership is private). The joint sector and public sector account for 1% and 0.5% respectively.

Agricultural policies have undergone several improvements on different levels. Marketing and processing of cotton, sugar beet and tobacco as well as wheat exports had been the monopoly of public

institutions; now the private sector is allowed to enter production, manufacturing and marketing. The agricultural sector has become a relatively more open market. The recent changes stipulated in the tenth five-year plan adopting a social market economy in addition to signing of trade agreements will accelerate trade liberalization. Syria applied to the WTO in 2001; WTO accession will positively affect the macro and agricultural policy reforms.

Natural and Human Resources

Land Resources

The total area of Syria is 18.5 million ha. In 2005, land uses were as follows: arable 32%, non-arable lands 20%, meadows and pastures 45%, and forests 3%. The actually cultivated land in 2005 amounted to 4.7 million ha, of which 70% was rainfed and 30% irrigated. The cultivated area increased from 5,352 thousand ha in 2000 to 5,562 thousand ha. in 2005. As a result of reclamation in rainfed and irrigated lands, and of well drilling, the irrigated areas increased from 1,210 thousand ha to 1,425 thousand ha in the same period with a growth rate of 3.33%, while the rainfed areas increased from 3,335 thousand ha to 3,446 thousand with a growth rate of 0.66%. Table 2.1 shows the changes in land use during 2000-2005.

Water Resources and Availability

Water Resources

The annual average volume of water is 62 billion m^3, of which 45 billion m^3 is rainfall and 17 billion m^3 is fixed sources including those from the Euphrates river (specified in the temporary agreement with Turkey). The estimated net annual water resources are 14-16 billion m^3 taking account of evaporation, water losses and seasonal rainfall. Water is used in several sectors including irrigation, industry and households. Irrigation consumes the biggest proportion (around 90%). Water resources are distributed in seven basins that differ in size, rainfall levels and water volume. Al-Badia basin is the largest in area (38% of the total country's area), while the coastal Basin is the smallest (2.8% of the total area). The Euphrates and the Khabour basins represent the main water sources (see table 2.2).

Table 2.1 Arable and non-arable land during 2000-2005 (hectare)

Description		2000	2001	2002	2003	2004	2005*	Annual growth (%)
Total non-arable lands		3,696,901	3,690,468	3,693,588	3,730,135	3,736,376	3,720,859	0.13
Total arable lands		5,905,323	5,987,817	5,910,669	5,863,106	5,909,622	5,932,869	0.09
Unexploited		552,926	537,837	490,015	384,756	384,047	3,705,13	-7.69
Exploited	Total	5,352,397	5,449,980	5,420,654	5,478,350	5,525,575	5,562,356	0.77
	Unirrigated	3,335,890	3,281,992	3,258,117	3,299,704	3,290,286	3,446,714	0.66
	Irrigated	1,210,650	1,266,889	1,332,781	1,361,211	1,439,134	1,425,811	3.33
	Fallow	805,857	901,099	829,756	817,435	796,155	689,831	-3.06

Source: based on the Syrian Statistical Abstract of 2005; Ministry of Agriculture

** Preliminary figures*

Table 2.2 Water uses by basin during 2001-2005 (million m^3 and %)

Basin	Agriculture	Industry	House-hold	Evapo-ration	Total	Agriculture (%)	Water Resource
Barada	577.6	76	269	6	928.6	62.2	5.4
Yarmouk	360.1	38	76	31	505.1	71.3	2.9
Badia	983.6	2	44	15	1,044.6	94.2	6.1
Orontes	1,735	229	240	148	2352	73.8	13.6
Coastal	458.9	85	81	16	640.9	71.6	3.7
Khabour	4,017.7	45	38	132	4,232.7	94.9	24.6
Euphrates	5,498.2	86	322	1,614	7,520.2	73.1	43.7
Total	13,631.1	561	1,070	1,962	17,224.1	79.1	100

Source: Database of the National Center for Agrarian Policies;and data of water needs for the agricultural plan 2004-2005, Public Authority for Scientific Agricultural Research.

The inefficiency and misuse of water accompanied by drought have resulted in significant reduction of inflow to wells and depletion of some springs as well as low river flows. Syria's water balance shows an annual deficit of 3 billion m^3 assuming that Syria's share of the Euphrates is 210 m^3 per second (average discharge to Syria is 500 m^3/s of which 58% flow to Iraq) which means 6.6 billion m^3. Total annual water resources in Syria are 16 billion m^3, while the total use is 19 billion m,^{3} resulting in the depletion of underground resources.

The main water source is surface water, of which about 7 billion m^3 is consumed, and groundwater, of which about 6 billion m^3 is consumed (Table 2.3). Irrigated areas have expanded; statistics indicate they depend heavily on well water and other non-renewable resources. The proportion of well-irrigated lands was 60% while public irrigation systems covered 23% of irrigated land in 2005. The remaining was irrigated from rivers and springs. Most areas use traditional irrigation methods; modern techniques (sprinkler, drip) are only used on 17% of total irrigated area. Table 2.4 shows the areas and methods of irrigation.

Most water basins are polluted by sewage water, nitrates, agricultural chemicals and the discharges of factories, tanneries and oil refineries. Al-Badia basin suffers from salinity, in particular the lands under some irrigation schemes. Per capita share of total water resources for all purposes (drinking, industry, agriculture and others) has dropped from 1,201.3 m^3 a year in 1993 to 882.6 m^3 in 2005 and might decrease more in drought years. A water crisis is expected for several reasons, the most important being population growth and the increased water usage especially in recurrent drought years. This might put water resources sustainability at risk.

Table 2.3 Available water sources during 2000-2005 (billion m^3)

Item	2000	2001	2002	2003	2004 **	2005 **
Groundwater	3	3.75	4.37	6.11	5.9	5.8
Surface water	6.42	6.67	7.13	7.48	7.3	7.1
Surface and Ground water	9.42	10.42	11.5	13.59	13.2	12.9
Other	3.1	3.24	3.41	3.51	3.4	3.3
Total	12.52	13.66	14.91	17.1	16.6	16.2

Source: MAAR, Status quo of the agricultural sector 1992-2003

** Sanitation water and agricultural waste water, etc.*

*** Preliminary estimates based on the water needs for the agricultural plan, several issues, Public Authority for Scientific Agricultural Research.*

Table 2.4 Irrigated lands by irrigation source and method during 2002-2005 (hectare)

Description	Total irrigated land	Irrigated land			Modern irrigation			% of modern irrigation
		Wells	Gov. projects	Rivers and springs	Spray	Drip	Total	
2002	1,332,781	817,271	314,123	201,387	138,500	76,421	214,921	16.1
2003	1,361,211	854,655	289,364	217,192	133,338	52,149	185,487	13.6
2004	1,439,134	864,743	340,230	234,161	130,170	57,487	187,657	13.0
2005*	1,425,811	865,367	326,113	234,331	159,940	84,433	244,373	17.1
Annual growth (%)	2.3	1.9	1.3	5.2	4.9	3.4	4.4	2.1

Source: MAAR, Agricultural Statistical Abstract of 2005

** Preliminary estimates*

Measures taken to enhance water availability and rationalize use

To reduce water use and depletion, and to make additional water available, the government has taken several actions that have had a positive impact though not up to expectations. The most important steps are:

- Establishing small, medium and large dams all over the country. In 2005 the total number of constructed dams was 164 with a storage capacity of 18.6 billion m^3, of which 14 billion m^3 are stored in the Euphrates Dam. These dams have enhanced the efficiency of surface water use.
- Land reclamation benefiting from public irrigation systems: 20,000 ha have been reclaimed annually.
- The Public Authority for Water Resources was established by Decree 90 of 2005 to develop the administrative performance of government water-related institutions and to simplify procedures.
- Water Legislation was issued to intended to encourage introducing modern irrigation; to support sustainable development; to stop groundwater depletion; and to organize the relationship between citizens and the water administration authorities.
- Law 59 of 2005 created a SYP 53-billion fund for financing the national plan for modern irrigation, and 22 billion SYP were allocated for this purpose in the 10^{th} FYP.
- The implementation of rain harvest projects in al-Badia to secure water for cattle herds.
- Establishing metrological stations (water information centers) in cooperation with Japan.
- Establishing the Higher Institute for Water Research.
- Starting to build further research centers to rehabilitate and enhance the efficiency of irrigated areas.

Further required measures to enhance the use and management of irrigation water

Further measures needed to sustain water resources, regulate their exploitation, and enhance their use can be summed up as follows:

- Expand use of modern irrigation techniques (drip, sprinkler, localized, subsoil) to increase water use efficiency.
- Ensure the required funding, technical assistance, extension and institutional structures for implementation of such irrigation methods in accordance with soil types and planting methods.
- Improve the irrigation efficiency especially in the existing government projects. Rehabilitate these projects using modern techniques and design new projects using modern technology.
- Prevent illegal well digging; settle the status of unlicensed wells; regulate groundwater use; install flow meters on wells; determine usage in accordance with renewability levels; and monitor consumption.
- Control water resources pollution of all kinds (chemical, sewage or salinity); prevent water loss through leakage and evaporation; and prevent canals blockage by weeds.
- Establish associations or societies to insure consumers' participation in developing irrigation programs. This will complement the government efforts to sustain water resources.
- Issue legislation and regulation to determine fees for irrigation, maintenance and operation according to irrigated area unit price in order to raise consumption efficiency.

Rural Human Resources

Syria's population was 18,717 thousand in 2005 with an annual growth rate of 2.78% in the period 2000-2005. Urban population accounts for 53% against 47% of rural population in which males represent 51% and females 49%. Urban population growth rate amounted to 4.22% per year while the rural growth rate is 1.26% despite the high rate of births in rural areas. This indicates a continuation in migration from countryside to cities for better jobs

despite the development of rural services and communications projects. The Syrian population is young; those under 24 years old account for 62% of the total population, which means a surge in labor market newcomers.

Agriculture is a major job creation sector. In 2005 it ranked second (20%) after services (27%) compared to other sectors: industry 14%, building and construction 14%, trade and hostelry 16%, transport and communications 7% and finance, insurance and real estates 2% (See Table 2.5). Of the 50% of women in the labor force around 30% are employed in agriculture, making it the main employment sector for women. Agriculture is also characterized by family work. Official figures show a decrease in the numbers of people working in agriculture (1,430 thousand in 2000 or 29% of total employed population dropping to 945 thousand in 2005 or 20% of total employed population (See table 2.6). The falling numbers of agricultural workers would be a healthy phenomenon if it was the result of a national plan to provide the necessary labor force for other sectors, given that modern technologies decrease employment in agriculture. However, indicators often show that this is not the case.

Table 2.5 Distribution of workers by sector during 2002-2005 (%)

Description	Public		Private		Cooperative & joint		Total	
	2002	2005	2002	2005	2002	2005	2002	2005
Agriculture, fishing & forestry	2.4	2.1	36.2	26.9	47.9	18.1	30.3	20.1
Industry	9.7	7.6	11.6	15.8	12.4	14.4	13.7	13.6
Building & construction	7.1	2.1	22.6	18.5	1.9	17.2	13.2	14.1
Trade, hostelry & restaurants	1.3	1.0	16.2	21.2	18.4	24.8	15.0	15.8
Transport and communications	4.0	2.9	8.5	8.6	10.4	11.1	5.5	7.1
Finance, insurance and real estate	0.9	1.2	1.2	2.5	0.0	1.8	1.3	2.1
Services	74.7	83.1	3.7	6.5	9.0	12.6	21.0	27.2

Source: Central Bureau of Statistics, Statistical Abstract, several issues

Table 2.6 Human resources during 2000-2005

	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Total population (in thousands)	16,320	16,720	17,130	17,550	18,138	18,717	2.78
Rural population (in thousands)	8,177	8,344	8,531	8,744	8,433	8,704	1.26
Share of rural population (%)	50.1	49.9	49.8	49.8	46.5	46.5	-1.48
Urban population (in thousands)	8,143	8,376	8,599	8,806	9,705	10,013	4.22
Share of urban population (%)	49.9	50.1	50.2	50.2	53.5	53.5	1.40
Total workers (in thousands)	4,937	5,275	5,459	4,821	4,302	4,693	-1.01
Agricultural workers (in thousands)	1,430	1,473	1,462	1,462	734	945	-7.95
Share of agricultural workers (%)	29.0	27.9	26.8	30.3	17.1	20.1	-7.07

Source: the database of the National Center for Agrarian Policies, food and agriculture.

Agricultural policies and their amendments

Agricultural policies in Syria have focused on a number of objectives including:

- Effective contribution of the agricultural sector to GDP and to economic stability through increased production and employment.
- Enhanced population living standards by providing food commodities at reasonable prices and minimizing the gap between urban and rural areas.
- Increased self-sufficiency of major food commodities and an improved trade balance by reducing imports and increasing exports.
- Ensuring integration between agricultural and other sectors (in inputs and production processes): the agricultural sector should provide industry with the major raw inputs; and industry should intensify the use of machinery and fertilizers in agriculture.

Before the 1990s, agricultural policies were highly protectionist. However, several changes took place in the early 1990s as deemed necessary by the circumstances. The following provides a glimpse of the most important agricultural policies and their amendments:

Planning Policies

Agricultural planning in Syria has, like economic and social planning, witnessed several changes. Centralized planning had regulated the investment of agricultural resources through indicative figures. However, since the 1990s, the government planning role has moved from setting quantitative targets to indicative planning achieved through pricing. It has focused on: 1) setting general indications for strategic crops (wheat, barley, cotton, sugar beet, tobacco, chickpeas and lentils). These crops are still priced by the government which is in turn committed to market them but prices are compulsory only when farmers sell to state establishments; 2) planning to ensure sufficient supply to meet local demand for food commodities, industrial requirements of agricultural products, and a surplus for export to earn the foreign currency needed for the procurement of inputs that are not available locally; 3) determining agricultural rotations and crop structures within the light of land and

water sustainability; 4) setting the sowing calendar in each region based on scientific research; 5) planning the provision of production inputs in adequate quantity and on a timely basis, extension services in the production stage and disease control measures.

Plans are to be developed in each governorate by the relevant agricultural authorities using a bottom-up approach but guided by national targets. In 2004, the planning policy was further amended to give more flexibility and choice to farmers. Thus, instead of specifying targets for each crop, a target is set for a category such as legumes, leaving it to farmers to choose among lentil, chickpea, broad bean, peas, etc.

Pricing Policies

Pricing policy for agricultural products has also witnessed some changes. Prices used to be determined centrally for cereals, fodders, industrial crops, potatoes, onions, garlic and some fruits. Pricing policy was used as a tool to implement production plans for major crops. Prices were based on production costs with the profit margins defined in line with the importance of the relevant crops the government wished to encourage.

Changes include: Prices are now administratively set only for major crops (wheat, barley, lentil, chickpeas, maize, cotton, sugar beet, and tobacco). Prices are considered indicative and only compulsory when selling to government establishments. Most prices have been frozen since 1996 in order to reduce the gap between domestic and international prices originally instituted to encourage production and raise farmer incomes. Only the prices of barley, chickpea, lentils and sugar beet were raised in 2005.

Marketing Policies

Syrian marketing policies were changed in line with the general policy amendments, and the most important aspects are: 1) ending the compulsory delivery of agricultural products to state marketing agencies (including major crops) except crops processed by state-owned enterprises (cotton, sugar beet, and tobacco); the private sector is allowed to market and process all other crops. 2) allowing the export of agricultural products except wheat and those monopolized by the state; 3) The public General Establishment for Fodder distributes minimum fodder rations while the private sector is allowed to trade in fodder both at home and abroad.

Credit Policies

Agricultural credit in Syria is provided through the Agricultural Cooperative Bank (ACB) under the following basic conditions: Agricultural credits are provided only by the ACB through its branches located in the agricultural areas (i.e. not by private creditors). The bank provides credit in cash as well as in kind such as production inputs. The ACB interest rates are relatively low. They range from 4.5% for the cooperative and public sectors to 5.5% for the private sector. This applies to all seasonal, medium and long term credits except seasonal credits exceeding SYP 50,000 per each crop, where the interest rate is 6% for the public and cooperative sectors and 7.5% for the private sector. However, those rates were adjusted to 5-8% in the beginning of 2007.

Subsidization

Over the past years, the government subsidies to production inputs contributed to realizing good agricultural development levels, especially in strategic crops where subsidies represented a large part of the production costs. Subsidies promoted the use of improved seeds and chemical fertilizers especially for wheat and cotton. However, the government has reviewed these polices and reduced or even eliminated such subsidies. In 1986, a resolution by the Supreme Agricultural Council determined that the prices of locally produced seeds should be in line with the production cost. In 1987 and later a number of resolutions eliminated the subsidies for pesticides and bags and decided on phasing out those of fertilizers and farming machinery. Subsidies continued for fuel as well as for the maintenance and operation costs in government irrigation projects, and for the fertilizers in recent years due to the high international prices and finally a partial subsidy remained for hard and soft wheat seeds.

Taxes

The agricultural sector enjoys several tax exemptions, especially production and consumer cooperatives, agricultural investments, agricultural laborers housing, agricultural warehouses and cattle barns. Production taxes were imposed on farming animals and on exported products at a rate ranging from 9% to 12% of the estimated value. Fresh, dried and frozen vegetables and fruits including their

packaging are exempted from agricultural production taxes when exported. Olives, olive oil and cotton and its products were exempted from taxes in 1999. All exported agricultural products were exempted in 2001. A recent amendment on the custom tariffs imposed the lowest tariffs on production inputs and the highest on luxury agricultural and consumer imports.

Exchange Policies

In the 1980s, Syria used multiple exchange rates either to subsidize or to impose taxes on exports and imports in line with the state economic policy. The given rationale was that the multiple rate system was an alternative to currency depreciation; they aimed at stabilizing the prices of imported items especially essential commodities and medicines and production inputs without affecting the macro demand. Since then exchange rates were modified to bring them almost in line with those of the neighboring countries.

Investment Policies

To promote investment in general and to increase its role in economic development, the government has encouraged private sector investment. Agricultural investments are, compared to those in other sectors, more likely to yield good returns. Legislative Decree No. 10 of 1986 allowed the establishment of joint agricultural companies, where the state (the Ministry of Agriculture and Agrarian Reform) contributes 25% of the capital in the form of cultivated land against 75% by the private sector. Several companies were licensed under Decree 10, and some of them started production and export but some achieved little success while others did not even start production. The investment promotion law and its amendment: Investment Law No. 10 of 1991 gave investors unprecedented benefits, exceptions and exemptions in all sectors. It allowed the establishment of industrial, agricultural, transport, tourism and other projects with many advantages for all investors regardless of their nationality. Decree 7 of 2000 amended some articles of Law 10 granting better incentives. In agriculture, it allowed land ownership size according to the project needs (regardless of land reform ceilings), and granted tax exemption of two more years (now seven years) for projects that rely on advanced technologies or are set up in remote parts of the country. At the beginning of 2007, new investment legislation was adopted under Decree No. 8 and the

Syrian Investment Agency was created under Decree No. 9 to offer more facilities to encourage investment in all sectors, including agriculture. The private sector investments licensed under Law 10 of 1991, and its amendments up till 2005 amounted to 120 projects with a total value of nearly 31 billion SYP creating slightly more than 8,000 new jobs (Table 2.7).

Table 2.7 Private sector agricultural investments under Law 10 of 1991 (up to 2005)

Description	No. projects	Cost (bn. SYP)	Jobs created
Agricultural production and irrigation	34	6,987	1,824
Livestock breeding and fattening	86	24,003	6,208
Total agricultural sector	120	30,990	8,032

Source: National Center for Agrarian Policies: Syrian Agriculture on a Crossroads.

Table 2.8 Government spending on agricultural investments during 2000-2005 (million SYP)

Project	2000	2005	Annual growth (%)
Total spend on agri-services	5,72	7,75	6.3
Afforestation and fruit trees	1,84	1,63	-2.4
Agricultural and animal	624	824	5.7
Development of animal	100	333	27.2
Animal improvement	114	86	-5.5
Agricultural extension	158	236	8.4
Support for general	154	245	9.7
Arid areas projects	274	544	14.7
Forestation projects	849	1,76	15.7
Other service projects	1,60	1,86	3.0
Total agricultural production investments	322	222	-7.2
General Establish. of Poultry	26	34	5.5
General Establish. of Cows	10	42	33.2
General Establish. of seed propagation	47	34	-6.3
Other institutions	239	112	-14.1
Total public agricultural	6,04	7,97	5.7

Source: MAAR, Planning & Statistics Directorate.

Investment by the government aims to provide infrastructure and services needed by agriculture; to undertake reclamation and irrigation projects in order to increase the irrigated area (Ministry of Irrigation); to conduct agricultural scientific research and undertake support projects in areas like afforestation, plant protection, extension and veterinary services (MAAR). Investments in agriculture and irrigation sectors constitute 15-20% of total government investments, which is less than the contribution of

agriculture to GDP (around 24%). Government spending on MAAR projects in 2000 amounted to 6,047 million SYP, of which 5,725 million SYP went to service projects and 322 million SYP to production projects (state-owned enterprises). Such spending rose to 7,975 million SYP in 2005, a growth rate of 5.7% with 61 projects financed (See Table 2.8 above).

Agricultural support services

The government is providing many services to the agricultural sector with a view to developing this sector and increasing its efficiency. The most important services provided during the period 2000–2005 are summarized in Table 2.9.

The Public Authority for Scientific Agricultural Research was established under Law 42 of 2001 to conduct scientific research and coordinate among all departments working in this area (ministry directorates of agricultural research, the cotton office etc.). The Authority now has a number of specialized departments working in the areas of crops, horticulture, cotton, natural resources, socio-economic studies, plant protection, animal wealth and financial, managerial and professional affairs. The most important results achieved recently include the introduction of 24 high-productivity varieties of wheat, barley, lentil, cotton, maize, sorghum; and the distribution of hundreds of genetically engineered animals especially Awassi sheep and Shami goats with a view to improving the productivity of animal wealth. Agricultural extension aims to transfer knowledge and technology to farmers to develop livestock and plant production. These government services are provided free of charge through a network of around 1,200 extension units covering various regions. With regard to the agricultural and technical education, training and capacity building, there are five training centers in different governorates. These centers organize training programmes on priority agricultural issues and on technical development. There are also a number of veterinary and agricultural institutes and schools in various regions.

Table 2.9 Main intermediate goals of the support services (2000-2005)

Description	Unit	2000	2004	2005
Scientific research				
No. conducted researches	Research	696	1,000	1,201
No. of generated varieties	Variety	17	7	Na
No. of nucleus delivered	nucleus	22	2	Na
Area involved	1000	80	60	Na
No. of analyzed samples (soil, water and others)	1000 sample	47	36	36.6
Agricultural extension				
No. of extension units	Unit	883	1,071	1,200
Support to general pesticides				
Treated areas	1000 hectare	1,495	2,440	1,426
Development of veterinarian care				
Produced vaccines	Million dosages	162	228	320
Preventive vaccination and treatment	Million	84	53	40
Animal improvement				
Artific pollination	Thousand	708	883	895
Azotic fluid	1000 liter	482	463	486
Sperm	1000 cell	544	950	876

Agricultural methods				
Length of roads	Km	1,741	933	Moved to local authorities
Serviced area	1000 ha	148	95	
Reclamation projects				
Tree planted	Hectare	22,141	19,715	20,584
Crop area	Hectare	2,721	8,464	8,436
New forest roads	Km	1,265	519	401

Source: MAAR, Planning & Statistics Directorate: MAAR Achievements in 2004 and 2005 + Agricultural Development Strategy.

MAAR is implementing a comprehensive programme to protect crops against insects and diseases and reduce the consequent losses. There is a follow-up system to implement treatments using the latest available scientific information in order to maintain human health and protect the environment. The Pesticide Committee assesses the country's need for pesticides, taking into account areas scheduled to be cultivated. The government provides pesticides for compulsory protection free of charge. The integrated pest management programme has been adopted with a focus on biological control, efficiently implemented on many agricultural products especially citrus fruits, cotton, olives and apples, and will cover other crops. Veterinary care, protection services of local breeds, medicines and vaccines are provided by a network of veterinary clinics established for this purpose. The private sector is allowed to provide local as well as imported medicines and vaccines to protect animal health.
A special directorate of rural women was created to raise the awareness of rural women, to enhance their role in improving household income and their participation in the development of local communities in general and agricultural development in particular.

Trade policies and trade agreements

Syrian trade policy before the 1990s was characterized by government intervention in both domestic and foreign trade. However, many amendments were made in this policy. Some

restrictions have been removed: the private sector is now allowed to import essential production inputs. Tariffs have been reconsidered and the import burden on public foreign trade institutions has been eased to encourage them to focus on exports. They are also allowed to deal with the private sector and export at market prices. Public institutions may now subcontract their export operations and have the right to hold their export proceeds in foreign currencies.

Trade agreements have liberalized trade in agricultural products. Syria has signed or ratified several bilateral agreements during recent years with a view to strengthening regional integration. Free trade agreements or agreements to facilitate investment and double taxation were signed with Algeria, Jordan, Yemen, Lebanon, Oman, Saudi Arabia. Turkey, and Cyprus.

The Economic and Social Council of the Arab League adopted this initiative to establish the GAFTA on 1 January 1998. The relevant decision stipulated a 10-year period for the phasing out of customs duties and procedures of similar impact on inter-Arab trade. In 2002, the Council decided to accelerate the implementation of this by ending the transitional stage in early 2005 when agricultural quotas and customs duties were officially abolished. In addition, the Arab summit in Tunisia decided the mandatory application of the Arab standard specifications. The Arab Rules of Origin are currently under development. Syria also joined the framework Convention on Trade Preferences among the OIC member states based on nondiscrimination and equal treatment and trade preferences

The EU-Syrian Association Agreement will be among the most important agreements for Syria. With regard to agriculture, the Association Agreement ensures preferential treatment for Syrian agricultural production to facilitate its entry to the European markets. This includes full or partial exemption from customs duties, granting quotas for important products where Syria has surpluses, assistance in enhancing its competitiveness in European markets and achieving the required specifications. The EU shall also phase out tariffs on agro industries so that they reach zero level at the end of the transitional period. This will help the export of manufactured products meeting the required specifications. The EU promised in a WTO meeting to remove all forms of agricultural subsidies in 2013. This will increase the entry chances for Syrian agricultural products, which find it difficult to compete with the EU's low–priced subsidized products.

Agricultural production

This section reviews the importance of agriculture to national production and trade, and the impact of agricultural policies on production. The annual and 5-year plans have prioritized the development of agriculture and the growth of productivity. Consequently, agricultural production has recorded positive development in recent years, especially as a result of the relatively high rainfalls levels (now, however, reversed with several years of drought), the promotion of modern irrigation methods and the provision of improved seeds. The following are the most important developments in the agricultural sector:

Production and self-sufficiency

Agricultural and animal production has developed at varied growth rates (table 2.10). Wheat production increased from 3,105,000 tons in 2000 to 4,669,000 tons in 2005; lentils from 73,000 tons to 154,000 tons; milk from 1,673,000 tons to 2,358,000 tons. In terms of growth rates, wheat recorded 8.5%, lentils 16%, barley 29% and potatoes 4.6%, while other crops recorded negative growth rates such as maize (-0.3), cotton (-1.1), and olives (-6.7) (Note that a good year of production is often followed by a reduction in output the following year.) Animal production has achieved positive growth rates during the said period (7% for milk, 0.5% for red meat, 9% for poultry and 4% for chicken).

These positive developments helped achieve self-sufficiency in many crops, especially strategic crops directly related to food security, and in many animal products (See Table 2.11 on the self-sufficiency rates of the most important agricultural products). For example, self-sufficiency was achieved for wheat, legumes (chickpea, lentil and others), cotton, and most vegetables and fruits with self-sufficiency rates of 114% for wheat, 232% for lentils, and 146% for cotton in 2004. Meanwhile, there are shortages in some other crops, where production does not cover the demand, such as barley whose self-sufficiency fluctuates according to rainfall since its cultivation is mostly rain-fed and in marginal areas; sugar where the self-sufficiency rate ranges between 12% and 15% due to the lack of irrigated areas to grow sugar beet; maize, imported as animal fodder (especially for poultry), the production of which cannot be increased because it requires excessively large amounts of water.

Table 2.10 Main agricultural and animal products during 2000-2005 (1,000 ton)

	2000	2001	2002	2003	2004	2005	Annual growth (%)
Wheat	3,105	4,745	4,775	4,913	4,537	4,669	8.5
Lentils	73	177	133	168	125	154	16.0
Gram	65	60	89	87	45	65	0.2
Barley	212	1,956	920	1,079	527	767	29.4
Maize	191	216	232	227	210	187	-0.3
Cotton	1,082	1,010	802	811	1,029	1,022	-1.1
Potato	485	453	513	487	542	608	4.6
Field tomato	475	425	562	539	559	535	2.4
Olives	866	497	941	552	1,027	612	-6.7
Grapes	409	389	342	307	243	306	-5.6
Apple	287	263	216	307	358	296	0.6
Citrus	800	833	746	652	844	778	-0.6
Total	1,673	1,578	1,765	1,878	2,129	2,358	7.09
Red	236	216	173	207	216	242	0.55
Chicken meat	107	116	125	161	172	163	8.92
Eggs (mil)	2,546	2,671	3,321	3,449	4,002	3,104	4.04

Source: MAAR, Agricultural Statistical Abstract of 2005 issued by the CBS.

Table 2.11 Self-sufficiency of main crops (%)*

Description	2001	2002	2003	2004
Wheat	100	113	109	114
Barley	85	77	95	55
Lentil	121	136	169	232
Gram	91	92	103	192
Potato	100	100	96	99
Peanut	98	65	68	107
Maize	42	21	20	20
Cotton yarn	121	1,080	182	146
Sugar	16	14	13	12
Tobacco	103	104	103	106
Tomato	127	128	165	134
Dry onion	91	90	93	93
Garlic	101	78	95	89
Citrus	105	103	103	101
Aleppo peanut	135	99	97	106
Fresh grapes	108	108	103	104
Apple	107	108	105	109
Eggs	101	102	103	101
Fresh milk	96	96	88	100
Fish	89	55	56	56
Chicken	100	100	100	100
Washed wool	102	110	119	140

Sheep meat	103	177	119	130
Beef	99	100	91	91
Goat meat	100	636	240	375
Total meat	102	149	113	122

$$\text{*\% of self-sufficiency} = \frac{\text{Produced quantity}}{\text{Quantity available for consumption}} \times 100$$

For animal products, the self-sufficiency rate would be good for meat if the export of Awassi sheep (highly desirable abroad) was paralleled with importing of less valued types of meat, keeping in mind that increasing the production of Awassi meat is limited due to the lack of grassland. For eggs and chicken, the self-sufficiency rate is 100% or more. For dairy products, it is around 80% (this percentage was calculated on the basis of the milk equivalent of imported items such as cheese and butter).

Value of agricultural production/output and its contribution to the national economy

The value of agricultural production at fixed prices of 2000 recorded positive growth due to the considerable development in agricultural production (farming and animal sectors). The agricultural GDP increased from 337 billion SYP in 2000 to 452 billion SYP in 2005 (average annual growth of 1.6% (table 2.12). The value of vegetable production rose from 215 billion SYP in 2000 to 288 billion SYP in 2005 (average growth rate of 6%). It accounts for 66% of agricultural GDP. The value of animal production rose from 122 billion SYP in 2000 to 147 billion SYP in 2005 (average growth rate of 2.6%). It accounts for 34% of agricultural GDP.

The value of agricultural production was 391.5 billion SYP in 2005 at production prices (table 2.13). Its contribution to the national GDP ranged from 20% to 22%, thus ranking agriculture second among the national economy sectors (after industry and mining, including oil, whose contribution ranged between 36% and 40% of the national GDP (table 2.14). The value of agricultural output (final and semi-final products) at the fixed market prices of 2000 ranged from 224 billion SYP in 2000 to 277 billion SYP in 2005, with an

annual growth rate of 4.3% (Tables 2.15 and 2.16), i.e. constituting between 24% and 25% of the GDP. It ranks first or second among other sectors according to weather conditions.

Syria's total per capita GDP rose from 55,000 SYP to 63,000 SYP (with an average growth rate of 4.3%). The annual rural per capita of agricultural output rose from 27,000 SYP to 32,000 SYP (average growth rate of 3%). This shows that income in the rural sector is still lower than that of other sectors (table 2.17).

Table 2.12 Agricultural production 2000-2005 in fixed prices (million SYP)

	Simple annual growth rate 2000 -2005 (%)	2005	2004	2003	2002	2001	2000
Agricultural production	6.0	288,141.5	272,566.0	237,380.1	253,292.4	233,476.3	215,382.5
Cereal	10.9	65,774.0	59,457.2	67,032.5	63,679.8	71,493.1	39,208.6
Industrial crops	4.3	46,139.3	41,546.5	32,810.7	37,415.5	36,503.7	37,406.6
Fruits	2.9	75,848.6	83,706.2	53,642.1	68,304.8	49,453.1	65,691.8
Vegetables	10.7	31,053.2	29,265.3	24,564.0	21,938.8	20,339.7	18,713.4
Dry beans	19.5	8,075.5	6,819.0	6,149.0	5,546.9	5,859.6	3,313.0
Pastoral crops	8.1	2,199.3	1,644.9	1,506.1	1,485.9	1,550.6	1,488.7
Rural industries	4.7	1,614.1	1,537.2	1,415.9	1,348.5	1,301.6	1,281.8
Seeds	7.6	6,641.7	5,997.7	6,172.5	5,075.3	4,999.7	4,604.2
Plantation	16.7	1,002.5	954.8	512.6	488.2	471.3	464.1
Cotton ginning	-4.3	22,233	21,956.0	20,843.4	28,277.2	24,018.1	27,647.5
Other crops	11.3	26,567.3	18,640.4	21,742.1	18,778.4	15,922.1	15,562.8
Public sector	–	993.0	1,022.8	989.2	953.1	1,563.7	–
Animal production	6.2	164,218.7	146,861.9	127,762.9	124,640.8	123,378.0	121,715.5
Milk and milk products	8.7	64,213.2	55,060.1	50,247.0	45,881.9	42,940.8	42,408.0

Eggs	7.9	9,312.3	13,338.8	8,623.3	8,302.0	6,687.4	6,364.7
Wool	8.7	4,233	3,861.0	2,818.4	2,603.1	2,451.1	2,795.1
Hair	5.9	33.2	31.7	17.3	18.9	17.8	24.9
Hides	14.1	918.7	835.1	672.3	527.2	474.2	474.2
Fish	6.1	1,698	1,595.4	1,527.4	1,436.3	1,342.1	1,264.0
Silk worm	-20.5	4	4.1	5.5	5.5	11.8	12.6
Honey	8.6	1,454	1,355.3	1,056.4	1,220.2	1,018.5	960.7
Honey wax	-2.8	71.8	81.9	70.7	101.5	115.5	82.6
Total prod-uction	**6.1**	**452,360.2**	**419,427.9**	**365,143.0**	**377,933.2**	**356,854.3**	**337,098.0**
% of agricultural production	_	63.7	65	65	67	65.4	63.9
% of animal production	_	36.3	35	35	33	64.6	36.1

Table 2.13 Total production by sector in fixed production prices 2000-2005 (million SYP)

Sector	2000	2001	2002	2003	2004	2005*	Annual growth rate %
Agriculture	340,570	361,947	384,005	371,442	371,455	391,532	2.8
Industry & Mining	611,948	616,686	627,560	616,595	702,465	696,029	2.6
Building & construction	76,777	82,717	79,748	105,657	88,684	93,238	4.0
Wholesale/retail trade	159,463	183,717	206,165	206,109	239,650	227,628	7.4
Transport, communications & storage	176,202	187,713	200,219	216,313	173,298	226,430	5.1
Finance, insurance & real estates	34,529	34,176	35,915	40,413	52,138	68,453	14.7
Social & personal services	43,111	46,473	51,224	52,296	56,683	65,160	8.6
Civil services	113,927	116,498	124,180	135,855	139,909	150,956	5.8
Nonprofit organisations	592	687	753	762	827	995	10.9
Tariffs**					27,021	26,608	_
Total	1,557,119	1,630,614	1,709,769	1,745,442	1,852,130	1,947,029	4.6

Table 2.14 Production structure by sector 2000-2005 (as measured in fixed prices of 2000 (%)

Sector	2000	2001	2002	2003	2004	2005
Agriculture	22	22	22	21	20	20
Industry & Mining	39	38	37	35	38	36
Building & construction	5	5	5	6	5	5
Wholesale/retail trade	10	11	12	12	13	12
Transport, communications & storage	11	12	12	12	9	12
Finance, insurance & real estates	2	2	2	2	3	4
Social & personal services	3	3	3	3	3	3
Civil services	7	7	7	8	8	8
Nonprofit organizations	0	0	0	0	0	0
Tariffs**	0	0	0	0	1	1
Total	100	100	100	100	100	100

*Source: CBS * Preliminary estimates, ** added as of 2004*

Table 2.15 GDP by sector 2000-2005 in fixed market prices of 2000 (million SYP)

Sector	2000	2001	2002	2003	2004	2005*	Annual growth rate
Agriculture	223,749	241,896	261,008	254,078	257,958	276,532	4.3
Industry & Mining	272,514	275,152	264,984	248,905	296,760	275,460	0.2
Building & construction	28,898	28,789	28,919	39,213	32,508	38,438	5.9
Wholesale/retail trade	134,453	149,005	168,492	163,857	201,102	187,849	6.9
Transport, communications & storage	113,851	121,516	132,530	147,419	122,057	155,041	6.4
Finance, insurance & real estates	32,448	31,760	33,473	37,659	47,051	61,285	13.6
Social & personal services	21,195	22,725	27,235	27,530	27,562	31,259	8.1
Civil services	76,392	78,867	89,225	98,387	102,874	114,031	8.3
Nonprofit organisations	444	515	565	571	532	640	7.6
Tariffs**					27,021	26,608	_
Finance services**					9,844	11,757	_
Total	903,944	950,245	1,006,431	1,017,619	1,105,581	1,155,386	5.0

Table 2.16 GDP structure by sector 2000-2005 in fixed market prices of 2000 (in %)

Sector	2000	2001	2002	2003	2004	2005
Agriculture	25	25	26	25	23	24
Industry & Mining	30	29	26	24	27	24
Building & construction	3	3	3	4	3	3
Wholesale/retail trade	15	16	17	16	18	16
Transport, communications & storage	13	13	13	14	11	13
Finance, insurance & real estates	4	3	3	4	4	5
Social & personal services	2	2	3	3	2	3
Civil services	8	8	9	10	9	10
Nonprofit organizations	0	0	0	0	0	0
Tariffs**	0	0	0	0	2	2
Finance services**					1	1
Total	100	100	100	100	100	100

*Source: CBS * Preliminary estimates, ** added as of 2004*

Table 2.17 Per capita GDP and agricultural GDP 2000-2005 (SYP)

Description	2000	2001	2002	2003	2004	2005	Annual growth rate (%)
Per capita GDP	55,389	56,833	58,753	57,984	60,746	62,943	4.3
Rural per capita GDP	27,357	29,120	30,806	29,240	30,502	31,771	3.0

Source: Statistics Abstract, CBS

The importance of agriculture in trade

The value of total trade developed from 404 billion SYP in 2000 to 927 billion SYP in 2005 at an average annual growth rate of 18%. Exports recorded a growth rate of 14%, while imports recorded 22% (table 2.18). As a result of the big increase in imports, especially in 2004 and 2005, the trade balance turned from surplus before 2003 to deficit in the last two years. The deficit was around 78 billion SYP in 2005. The value of agricultural trade rose from 75 billion SYP in 2000 to 127 billion SYP in 2005 at an annual growth rate of 11%. However, its share of total trade decreased from 19% in 2000 to 14% in 2005 (table 2.19). Agricultural imports evolved from 39 billion SYP to 72 billion SYP during the years of comparison, at a growth rate of 13%, but their share to total imports fell from 21% in 2000 to 14% in 2005. Agricultural exports evolved from 36 billion SYP to 56 billion SYP with a growth rate of 9%, but their share of total exports fell from 17% in 2000 to 13% in 2005. However, the increase in exports remains lower than that of imports, which increased the agricultural trade deficit to 16 billion SYP in 2005 due to the increased openness, especially toward Arab states and hence increased imports, especially of sugar, rice and maize.

The European Union is Syria's most important agricultural trade partner (15% of total agricultural trade), but with Syria suffering from a trade deficit of 537 million SYP. Saudi Arabia accounts for 5.9% with a surplus for Syria of 10 billion SYP, followed by Egypt (9% and a surplus of 609 million SYP), the United States of America (6.7%), Turkey and Argentina (6.5%) and the remaining countries less than 4% (table 2.20).

Raw cotton and cotton yarn accounted for the lion's share of agricultural exports (22%), followed by live sheep (14%) and olive

oil (8%). In general, the Syrian exports have low diversification; 10 commodities account for 60% of total agricultural exports As for imports, maize had the highest share (12.4%), followed by sugar (12%) and barley (7%). Like exports, imports have been characterized by low diversification; the 10 first commodities formed 55% of total agricultural imports.

Syria has focused, since the launching of the five-year plans in the early 1960s, on achieving the highest possible level of self-sufficiency. However, with the 8th FYP, the concept of self-sufficiency changed to food security, which focuses on producing goods of relative advantage and exporting surpluses to provide foreign exchange to cover the import of other goods that are not produced locally or where the domestic production does not satisfy the need.

In general, the per capita share of food commodities in Syria has been acceptable in recent years and Syria occupies a high rank among the developing countries; the average per capita calorie was over 3,200 calories per day, of which 88% from plant sources and the rest from animal sources. The per capita protein share is 87g/day, 68% of them from plant sources and the rest from animal sources; 113g of fat, 77% from plant sources and the rest from animal sources. These are good food levels in general, but there is imbalance between plant and animal sources. Given the above per capita share of food and the population growth estimates (2.3%) and using some of the indicators of future investments, we may conclude the following projections for production and demand: Syrian agriculture will, until 2015, continue satisfying the food needs with some surpluses for export (crude or manufactured goods of basic crops in particular: wheat, pulses, cotton, vegetables, fruit, olives and olive oil, and an important part of the animal products). The deficit will continue and even increase in some items, in particular: sugar, rice, vegetable oils (except olive oil), tea and coffee and some livestock products (table 2.21).

Table 2.18 Syrian trade 2000-2005 (million SYP)

Value	2000	2001	2002	2003	2004	2005	Annual growth rate
Total exports	216,190	243,148	315,919	265,039	346,166	424,300	14
Total imports	187,535	220,744	235,754	236,768	389,006	502,369	22
Trade Balance	28,655	22,404	80,165	28,271	-42,840	-78,069	-222
Total trade value	403,723	463,894	551,673	501,807	735,172	926,669	18

Source: CBS

Table 2.19 Syrian total and agricultural trade 2000-2005 (million SYP and %)

Syrian trade	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Annual growth**
Imports (million SYP)							
Total trade	187,535	220,744	235,754	236,768	389,006	502,369	22
Agricultural	38,813	40,810	48,098	50,505	64,683	72,174	13
% of agricultural trade	21	18	20	21	17	14	-7
Exports (million SYP)							
Total trade	216,190	243,148	315,919	265,039	346,166	424,300	14
Agricultural	36,177	37,876	61,331	52,313	51,861	55,764	9
% of agricultural trade	17	16	19	20	15	13	-5
Trade balance (million SYP)							
Total trade	28,655	22,404	80,165	28,271	-42,840	-78,069	-222
Agricultural	-2,636	-2,934	13,233	1,809	-12,822	-16,411	44
Trade volume							
Total trade	403,725	463,892	551,673	501,807	735,172	926,669	18
Agricultural	74,989	78,686	109,429	102,818	116,544	127,938	11
% of agricultural trade	19	17	20	20	16	14	-6

Source: CBS + National Center for Agrarian Policies

Table 2.20 Main trade partners by volume of agricultural transactions in 2005 (million SYP)

Country	Imports	Exports	Trade volume	Trade balance	% of total trade
EU 25	10,067	9,530.5	19,597.8	-536.7	15.3
Saudi Arabia	1,031	11,160.0	12,191.3	10,128.7	9.5
Egypt	5,372	5,981.1	11,353.1	609.0	8.9
USA	8,085	437.8	8,522.4	-7,646.8	6.7
Turkey	2,804	4,360.0	7,163.6	1,556.5	5.6
Argentina	7,103	4.5	7,107.7	-7,098.6	5.6
Ukraine	5,004	111.0	5,114.7	-4,892.8	4.0
Lebanon	1,945	3,065.2	5,009.9	1,120.5	3.9
Iraq	776	4,043.5	4,819.1	3,267.9	3.8
Jordan	687	3,593.0	4,280.2	2,905.8	3.3
Brazil	3,694	202.9	3,897.3	-3,491.4	3.0
Sri Lanka	2,578	0.0	2,578.3	-2,578.3	2.0
Russia	2,354	117.7	2,471.6	-2,236.2	1.9
UAE	1,115	1,267.6	2,382.4	152.8	1.9
Malaysia	1,850	32.5	1,882.1	-1,817.0	1.5
China	868	696.1	1,564.1	-171.9	1.2
Kuwait	3	1,531.5	1,534.8	1,528.2	1.2
Thailand	940	438.2	1,377.7	-501.3	1.1
Sudan	599	690.3	1,289.6	90.9	1.0
Other countries	15,300	8,500.1	23,800.0	-6,799.9	18.6
Total	72,174	55,763.5	127,937.6	-16,410.6	100.0

Table 2.21 Production, demand and surplus/deficit for main agricultural products for 2005 and predictions for 2010 and 2015 against an average population growth rate of 2.3% (1,000 ton)

Description	2005			2010			2015		
	Production	Demand	Surplus/ deficit	Production	Demand	Surplus/ deficit	Production	Demand	Surplus/ deficit
Wheat	4,669	3,328	1,341	5,289	3,729	1,560	5,839	4,178	1,662
Barley	767	1,710	-943	1,317	1,953	-636	1,419	2,231	-812
Maize	187	703	-516	259	797	-538	272	905	-633
Lentil	154	95	59	221	108	113	238	123	115
Gram	65	48	17	99	56	43	109	65	44
Cotton yarn	307	109	198	265	124	140	278	142	136
Sugar	110	661	-551	176	750	-574	185	851	-666
Sesame	5	21	-16	6	25	-19	6	28	-22
Potato	608	507	101	717	576	141	811	655	157
Tomato	958	544	414	1,207	621	586	1,359	710	649
Olives	612	na	na	1,458	na	na	1,658	na	na
Table olives	110	110	0	127	127	0	146	146	0
Industrial olives	502	na	na	1,331	na	na	1,512	na	na
Olive oil	123	97	26	327	111	216	372	128	244
Citrus	778	577	201	1,086	659	427	1,321	752	569
Apple	296	288	8	409	329	80	498	376	122
Cherries	53	42	11	61	48	14	68	55	13
Red meat	242	269	-27	322	321	1	342	383	-41
Raw milk	2,358			2,782			3,225		
Fresh milk	739	760	-21	874	895	-21	1,034	1,054	-20
Ghee & butter	29	29	0	34	34	0	40	40	0
Cheese	115	98	17	136	117	19	158	138	20
Other products	503	328	175	592	388	204	665	459	206
Chicken	162	120	42	222	144	78	283	173	110
Eggs (million)	2,767	2,875	-108	4,447	3,349	1,098	4,910	3,902	1,007
Fish	17	18	-1	19	22	-3	21	27	-5

Problems and challenges facing the agriculture and irrigation sectors

Agriculture is facing many internal and external challenges that affect its performance and, consequently, sustainable development. These include: limited natural and agricultural resources which are susceptible to climatic and environmental factors; high population growth and the lack of agricultural employment opportunities; fragmented land tenures; limited financial resources as investors refrain from investing in the agricultural sector because of the risk factor and the long investment recovery period; multiple regulatory authorities and poor coordination among them; changes in the world economy (trade liberalization, free trade agreements); subsidies to agricultural products in other countries and the high level of competition; problems regarding macro policies that directly or indirectly affect the agricultural sector (such as pricing, subsidization policies and trade policies).

Strategies and plans to develop agriculture and improve food security

Syria seeks to develop the agricultural sector in line with the concept of a *social market economy*, that is, to further liberalize the sector while protecting the interests of producers. Some of the highlights of the Tenth Five-Year Plan strategies that illustrate this attempted balance between the role of the state and the market are the following:

- Major government investments will be made in the modernization of irrigation, to improve the management and use of irrigation water.
- Local private and foreign investment will be encouraged in agricultural marketing and manufacturing.
- All sectors including the private sector will be allowed to provide production requirements while tightening the monitoring role of the state to ensure product specifications.
- Central pricing of strategic crops marketed by the State will continue due to their importance for food security or for export and to ensure farming of the planned areas. Moreover, government will buy some

new high-return crops at prices set to encourage their cultivation.
- A viable subsidization programme will be developed to enhance the competitiveness of agricultural production and to avoid price distortion.
- The agriculture related administrative bodies have to be reformed to enable them to fulfill their new mandates in line with the new economic policy.

Necessary funding to implement the strategies

To implement the plan funds have been allocated to the Ministries of Agriculture and Irrigation as indicated in table 2.22. Note: those projects with no allocations depend on the ability of the state or private sector to raise additional funding.

Conclusion

Syria's agriculture has made major advances over the last decades. However, high population growth on fixed land resources, continued reliance on rainfall and the threat of growing water deficits underline its continued vulnerability, as manifested in the drought of the end of the 2000s. Attempts to deal with this and to adapt Syria's agriculture to the shift toward a greater market economy more open to the outside without losing the gains achieved under the socialist system will preoccupy agriculture decision-making for the near future.

Table 2.22 Ministry of agriculture and Agrarian Reform: projects with allocations in the 10th FYP (million SYP)

Ongoing projects	MAAR (central administration)	38,760
	Public Authority for Scientific Agricultural Research	8,000
	General Directorate for Real Estate Services	2,000
	Public Authority of Al Ghab Development Management	2,000
	Organisations	1,630
	Total	52,390
New projects	Fund for Modern Irrigation	22,000
	Studies for new projects	7
	New projects	8,178
	Total	30,185
Grand total		82,575
New proposed projects with no allocations	MAAR	53,044

Table 2.22 (cont.) Ministry of Irrigation: projects with allocations in the 10th FYP (million SYP)

Replacement and renewal projects	Public Authority for Water Resources	7,570
	Organisations	6,114
Ongoing projects	Ministry of Irrigation (central Administration) (completing the Ministry premises)	100
	Public Authority for Water Resources	34,245.5
	Organisations	35,384.5
New projects	Ministry of Irrigation (central Administration)	37
	Public Authority for Water Resources	485
	General Establishment for Land Reclamation	7,192
Grand total		91,128
New proposed projects with no allocations	Public Authority for Water Resources	1,510.1
	General Establishment for Land Reclamation	1,8002

Table 2.22 (cont.) Total investment allocations in the 10th FYP for MAAR and Ministry of Irrigation (million SYP)

Year	2006	2007	2008	2009	2010	Total
MAAR and affiliates	10,792	16,309	17,349	18,464	19,661	82,575
Ministry of Irrigation, Public Authority for Water Resources and its organizations	12,924	17,884	19,726	20,011	20,583	91,128
Total	23,716	34,193	37,075	38,475	40,244	173,703

3
Syrian Agriculture between Reality and Potential

Munzer Khaddam

The paper of Atieh al-Hindi provides an outstanding description of the different aspects of Syrian agriculture supported by ample data. This paper focuses on certain aspects which merit more detailed analysis and supplements al-Hindi's paper with a view to assessing the mechanisms and factors from which future predictions can be made and development policies recommended.

Natural Resources

Land resources and their use

Land is the most important agricultural resource. We give below information on land use based on corrected figures from the Syrian Central Bureau of Statistics in Table 3.1. It shows that the total area of agriculturally invested lands in Syria was 14,240 thousand hectares (ha.) in 2005 (9,000 ha lower than 2002). About 5,950 thousand ha. is arable, of which 4,743 thousand ha. (33.38% of the total) is actually cultivated. An area of 845 thousand ha. (12.20%) is kept fallow to renew its fertility and 362 thousand ha. (6%) is not cultivated. Pastures covers an area of 8,290 thousand ha., used for sheep and cattle husbandry and form 58.21% of total invested land in animal and plant production.

Table 3.1 Land use in Syria ('000 ha), per capita share (ha)

Years	Lands invested in agriculture								Forests	Unarable land	Total
	Arable lands						Steppes and pastures	Total			
	Actual cultivated lands			Fallow	Not cultivated	Total					
	Irrigated	Rain-fed	Total								
2002	1,333	3,258	4,591	830	490	5,911	8,338	14,249	595	3,694	18,156
2003	1,361	3,300	4,561	817	385	5,863	8,335	14,198	590	3,730	18,518
2004	1,439	3,290	4,729	796	385	5,910	8,279	14,189	593	3,736	18,518
2005	1,426	3,447	4,873	690	371	5,934	8,266	14,200	598	3,720	18,518
2006	1,402	3,341	4,743	845	362	5,950	8,290	14,240	601	3,677	18,518
Per capita	0.074	0.176	0.250	0.044	0.019	0.313	0.436	0.749	0.032	0.194	0.975

Source: Author calculation based on table 4/6 of the CBS Statistical Abstract of 2007, p. 113.

The above data clearly shows that renewing soil fertility relies on leaving fields fallow despite the rapid development in chemical fertilizer manufacturing: 14.2 % of the arable land (362,000 ha) was kept fallow in 2006. This underutilization of land is aggravated by the impact of population growth on land resources: the cultivated land per capita decreased from 3.4 ha in the late 1940s to 2.2 ha in the late 1960s, and has become 0.31 ha in 2006.

The high pressure on land resources due to high population growth and increasing demand for food, raw materials, and agro-industrial inputs makes intensive cultivation the only viable scenario. This, in turn, requires capital to ensure the essential production factors such as fertilizers, pesticides, technology and skilled labor, not to mention water, a crucial factor in intensive cultivation, in sufficient quantity and quality. The above table shows the contrary: most of Syrian agriculture (more than 70% of arable lands) still relies on rainfall, which fluctuates in amounts from one year to another. Even the irrigated lands are not exploited properly; their usage index (cropping area / physical area) is 102 percent. This means that the physical area yields one main crop per year. In neighboring Jordan, two main crops are cultivated per year and in Egypt two crops and a short season intensive crop can be cultivated per year.

In the early 1950s, there was more than 8 million hectares of arable land at the height of extensive expansion and although much of this has been deliberately set aside for pasturage, we still now have only 6 million ha. (25% less). One of the main causes is improper irrigation (land flooding) that has led to soil salinity. It seems the problem is recurrent and is still taking important areas out of irrigated cultivation. Table 3.1 shows that the irrigated area dropped 2.5% in just two years (from 1,439 thousand ha in 2004 to 1,402 thousand ha in 2006).

Irrigated areas in Syria can be doubled if financial resources are provided, especially for irrigation systems. When the Euphrates dam was built in late 1960s, it was expected to irrigate about 640 thousand ha. of arable lands in the arid third and fourth agricultural settlement zones in Eastern Syria; three decades later only 60 thousand are irrigated given that the dam lake flooded about 20 thousand ha. of irrigated fertile lands. A significant amount of Syria's share in the Euphrates goes to Iraq (about 40 m^3/sec out of 210 m^3/sec, which is Syria's share of the 500 m^3/sec released by Turkey). The Euphrates basin farmers use poor quality groundwater instead of the Euphrates waters due to the lack of piping systems.

Cropping Area in Syria

Cropping structure shows how lands are distributed among different crops, thus defining the type of investment. Table 3.2 shows that the irrigated area for winter crops and vegetables increased by 21.6% from 2001 to 2006, while the irrigated area for summer crops and vegetables declined by 7.29%. This is not understandable at first glance, knowing that irrigated cultivation takes place in summer, especially for vegetables, but in fact the variation was in non-vegetable crops. Referring to 2006 statistics, a more detailed picture can be drawn. Table 3.3 shows that cereal crops cover over 64% of the total cultivated area in Syria (wheat 56.84%, barley 41.59%), followed by fruit trees (18.44%) and industrial crops (with cotton on top with 62%).

There is a wide possibility to change the current crop structure, hence providing additional areas for industrial crops, fruit trees or vegetables once economic resources become available to intensify production. The hectare yield of wheat in irrigated lands was 4,404 kg. in 2006, while in rain-fed lands it was 1,397 kg. Similarly barley yield was 2,198 kg and 868 kg respectively (see table 3.4). A simple calculation will give us a picture of how much land can be spared for other crops by simply changing from rain-fed cultivation to irrigated cultivation. The required water can be provided, especially in the northeastern regions where wheat and barley cultivation is prevalent, as will be noted in the water resources section.

Table 3.2 Cropping area in Syria (ha)

Year	Winter crops and vegetables		Summer crops and vegetables		Fruit trees		Total		Grand total
	Irrigated	Rain-fed	Irrigated	Rain-fed	Irrigated	Rain-fed	Irrigated	Rain-fed	
2001	814,289	2,599,905	412,334	52,757	129,383	683,919	1,356,006	3,336,581	4,692,587
2002	914,863	2,529,916	376,201	51,640	135,810	681,362	1,426,874	3,262,918	4,689,792
2003	969,412	2,556,363	375,955	59,530	141,153	687,740	1,486,520	3,303,633	4,790,153
2004	1,025,945	2,537,804	412,181	56,230	144,540	702,293	1,582,666	3,296,327	4,878,993
2005	997,337	2,684,247	418,170	48,096	148,321	719,682	1,563,828	3,452,025	5,015,853
2006	990,169	2,548,876	382,287	52,299	155,225	744,037	1,527,680	3,345,211	4,872,891
Fluctuation %	21.6	-1.96	-7.29	-0.87	19.97	8.79	12.66	0.26	3.84
2006 as a percentage	20.32	52.31	7.85	1.07	3.19	15.27	31.35	68.65	100

Source: Author calculation according to table 7 of the Agricultural Statistical Abstract of 2006 (Ministry of Agriculture, Statistics Directorate, 2006).

Table 3.3 Land use of various cropping in 2006

Crop	Area ('000 hectare)	Percentage %
Cereal	3,143.5	64.46
Legumes	267.4	5.48
Vegetables	162.3	3.33
Industrial crops	348.1	7.14
Forage crops	56	1.15
Fruit trees	899	18.44
Total*	4,876.3	100

Source: Author calculation according to tables 14/4,17/4,23/4,24/4 of the Agricultural Statistical Abstract of 2007(CBS, Damascus 2006)

**Differences in numbers are due to errors in data collection as a result of numerous data collecting workers and bodies.*

Table 3.4 Yields of some crops in Syria in 2006 (kg/ha)

Crop	Irrigated crop yield	Rain-fed crop yield
Wheat	4,404	1,398
Barley	2,198	868
Broad Bean	2,380	1,284
Pea	2,957	985
Forage barley	14,216	6,127
Corn	3,515	1,685
Cotton	3,180	-----
Tobacco	2,590	1,114
Tomato	49,401	5,121

Source: Agricultural Statistical Abstract of 2006.

Holding Typology in Syria

Table 3.5 provides average holding sizes which have actually declined. Small holdings are 70% of total Syrian holdings and occupy only 22% of land area; medium holdings comprise 23 % on 57% of the land area while the large holdings amount to 7% on 20% of the land area. The average small holding size in 2004 was around 2.85 hectares, whereas the average medium size holding was 22.51 hectares and the average large holding size more than 258.53 hectares.

Table 3.5 Number of holders and average holding area of arable lands

Year	No. of holders	Average holding size (ha)
1970	527,899	11.05
1981*	485,501	7.59
1994	613,657	8.32
2004	660,371	9.01

Source: Statistical Abstract of 2007, table 5/4.
** data of 1981 are inaccurate.*

Small farms on which the farmer and his family members work constitute more than 95% of total holdings in Syria. The area of the holding is typically fragmented into pieces of different sizes in different places. It allows little application of technology and thus yields low productivity and has become an obstacle to the development of Syrian agriculture. It is vulnerable to progressive subdividing due to traditional inheritance practices. Generally characterized by poor capabilities, small holdings cannot provide fulltime work for farmers and their families throughout the year. The utilization coefficient of work time in agriculture is 25% and for agricultural engineers only 10%. The agricultural work time utilization coefficient could be raised by integrating small holdings into large modern farms, in the animal and plant production sectors, food processing sector and handicrafts sector. In this regard, cooperatives are a possible solution. The household economy should

also be revived after being neglected for many years so that farming families produce more of their own requirements. After the issuing of the investment law No. 10 of 1991, several agricultural companies were established in Syria, but two decades later these companies are still meeting obstacles including the fact that they did not manage to combine large farms in one location.

Water Resources in Syria

Water availability is crucial for sustainable development in countries suffering from a water deficit such as Syria. In Syria, rains fall in winter; the amount of rainfall fluctuates considerably from one year to another and from one area to another. Syria is divided into five rainfall zones with rainfall levels ranging between 30 and 55 billion m^3 annually, according to rainfall intensity. The average annual rainfall is 46 billion m^3, according to Ministry of Irrigation sources. As Syria lies in the arid and semi-arid regions of the globe, most rainwater is lost to evaporation. The annual water balance deficit (the difference between precipitation and evaporation volume) is 2,400 mm in the eastern and southern parts of the country as a result of low rainfall and evaporation. This deficit declines to 600 mm in the northeastern areas in the period from November to late May and rises to 1,600 mm in the same area from June to November. The deficit is lower in the coastal areas and a surplus occurs in the western mountainous areas.

Syria in endowed with several rivers, but the annual discharge rate is low except for the Euphrates and the Tigris rivers. Flow rates fluctuate from year to year according to rainfall. The average river discharge in Syria is 33 billion m^3 including the Euphrates, which is shared with other countries. Hydrological and geological studies show that groundwater aquifers prevail all over Syria; it is estimated that the annual consumption ranges between 4.5 and 7.5 billion m^3. In addition to the traditional water resources, Syria has some non-traditional resources, the most important being agricultural drainage waters and sewage (waste water). Most of the cities' waste water in Syria becomes available for agricultural use once discharged into the rivers. Agricultural drainage waters started to gain importance as active efforts are made to construct canals and treat the discharge water to be reused in irrigation.

In the last decade of the twentieth century, Syria launched a promising attempt at rain-making through cloud seeding. The project

is still in the development phase. The amount of manmade rainfall during the rainy seasons of the last decade (December, January, February and March) constituted 11% of annual precipitation. Table 3.6 gives an overview of the water resources in Syria.

Demand for Water in Syria

Demand for water varies with population growth and is concentrated in the agricultural sector. The irrigated area in Syria amounted to 1,210.5 thousand ha in 2000, which consumed 12 billion m^3 of water with an average use of 10,000 m^3 /ha/year.

Table 3.6 Water Resources in Syria during the period 1993-2003 (million m^3)

Item	2000	2001	2002	2003	1993 - 2003 (avg.)
Surface resources	1,823	2,359	2,943	4,806	3,019
Ground resources	4,239	4,613	4,859	6,464	5,008
Agricultural drainage reuses	1,739	1,816	1,930	1,948	1,687
Industrial wastewater reuses	1,117	1,165	1,214	1,258	1,021
Syria's share of Euphrates according to the 500 m^3/sec standard (30758 m m^3)	6,567	6,567	6,567	6,567	6,567
Total water resources	15,485	16.520	17,513	21,043	16,281
Evaporation from surface waters	1,949	1,949	1,949	1,949	1,949
Total utilizable waters	13,536	14,571	15,564	19,094	14,332
Resource rate of change	100	107.65	114.98	141.06	105.88

Source: Author calculation based on Ministry of Irrigation data, Water Resources Directorate, 2005

Population growth and the decrease in agricultural land per capita necessitate the expansion of the irrigated areas and increased land/water unit productivity to meet agricultural demand and ensure food security. Indeed, irrigated farming in Syria is in progressive expansion; it has increased in 2004 to more than 1,430 thousand ha, and an additional 1,135 thousand ha are expected to be added until 2020. By then demand on irrigation water will exceed 25 billion m^3 based on the current usage; but theoretically this could be limited to 17.7 billion m^3 if water usage/hectare decreased to 7,500 m^3/ha/year. Theoretically, this is achievable in areas with annual rainfall above 400 mm. Decreasing the water usage/hectare in other areas is not possible unless traditional flooding is replaced by modern irrigation techniques.

Domestic demand on water is also increasing as a result of population growth and the rising living standards. Drinking water of 987 million m^3 consumed in 2000 increased to 1,070 million m^3 in 2005 according the Ministry of Housing and Utilities. Taking into account other domestic water uses, demand for domestic water amounts to 1,277.5 million m^3. Industry consumed 237.8 million m^3 of water in 1992, 480.9 million m^3 in 2000 and 561 million m^3 in 2005. Domestic and industrial use is expected to reach 4.12 billion m^3 in 2025. Table 3.7 illustrates the demand on water in Syria during the period 1993-2003.

Table 3.7 Demand for water in Syria (1993-2003)

Item	2000	2001	2002	2003	1993 - 2003 (avg.)
Agriculture	13,188	13,683	14,410	14,669	13,001
Drinking	1,291	1,333	1,380	1,426	1,215
Industry	510	541	569	595	452
Total demand	14,989	15,557	16,359	16,690	14,667
Standard number	100	103.78	109.14	111.35	97.85

Source: Author calculation based on Ministry of Irrigation data, Water Resources Directorate, 2005.

Water Deficit in Syria

The world's standard of water poverty is 1,000 $m^{3/}$person/year, while in the arid and semi-arid area 500 m^3 can be acceptable. A comparison between availability and demand in Syria would give a picture of the water balance and water security in this country as shown in table 3.8. It shows that Syria, based on the balance between availability and demand of water, suffers from a high deficit.

Water provision in Syria compared to world standards is in deficit, although compared to standards for arid and semi-arid areas, it is acceptable. According to this indicator, Syria's water balance will, however, suffer from a critical deficit by 2010, as a result of population growth and the increasing demand on food; it will reach highly critical levels in 2030 unless measures are adopted to develop water resources and rationalize their uses. Several dams have been constructed in the last decade to conserve surface waters and organize water flow rates. There are more than 164 dams with a total storage capacity of 18.6 billion m^3, 13 billion m^3 of which are in the Euphrates dam.

Syria is trying to reach an agreement on a share of the Euphrates and Tigris rivers with Turkey in accordance with international law. Table 3.9 indicates that Turkey has discharged more water to Syria via the Euphrates than the agreed quantity 500 cubic meters in the 1987 protocol. The average flow at Jarablos was 732.36 m^3, an increase of 232.36 m^3. This can be attributed to the slow implementation of Turkish irrigation projects and would not be expected to continue after their completion.

It is worth noting that Syria does not actually use more than 174 m^3/sec of its share in the Euphrates on average, which is 36 m^3/sec less than the agreed share in protocols and 25% less than the average flow at Jarablos. The annual average flow into Iraq is 558 m^3/security (75% of the average flow at Jarablos), which is more than Iraq's share by 133 m^3/sec. As such, Syria failed to use around 12.4 billion m^3 of water calculated according to the protocols signed with Turkey and Iraq and around 46.2 billion m^3 of water calculated according to the total flow through Jarablos and the 42% share based on the 1991 protocol. Furthermore, Syria's share of the Tigris River is 3-5 billion m^3 annually.

Table 3.8 Water deficit in the Syria water balance during the period 1993-2003

Year	Population (million person)	Water resources		Demand on waters		Water deficit	
		Total (million m^3)	m^3/ person/ year	Total (million m^3)	m^3/ person/ year	Total (million m^3)	m^3/ person/ year
2000	16.336	13,536	828.6	14,989	917.54	-1,453	-88.94
2001	16.497	14,571	883.25	15,557	943.02	-986	-59.77
2002	17.130	15,564	908.6	16,359	954.99	-795	-46.39
2003	17.550	19,094	1,087.9	16,690	951.0	2,404	136.9
1993-2003	15.395	14,332	931.25	14,667	953.02	-335	-21.77

Source: Author calculation based on Ministry of Irrigation data, Water Resources Directorate 2005.

Table 3.9 Water inflow from Turkey flowing to Iraq

Year	Inflow from Jarablos		Flow from Al-Bukamal		Actual consumption in Syria		Consumption in Syria %	Iraq share %
	m^3/sec	Million m^3/yr	m^3/sec	Million m^3/yr	m^3/sec	Million m^3/yr		
92/93	521	16,430	375	11,826	146	4,604	28.0	72
93/94	710	22,391	440	13,876	270	8,515	38	62
94/95	816	25,733	681	21,476	135	4,257	16.5	83.5
95/96	1037	32,703	884	27,878	153	4,825	14.8	85.2
96/97	990	31,221	816	25,733	174	5,487	17.6	82.4
97/98	1009	31,820	823	25,954	186	5,866	18.4	81.6
98/99	751	23,684	555	17,502	196	6,181	26.1	73.9
99/00	718	22,643	508	16,020	210	6,623	29.2	70.8
00/01	458	14,443	277	8,735	181	5,708	39.5	60.5
01/02	482	15,200	333	10,501	149	4,699	30.9	69.1
02/03	564	17,786	447	14,097	117	3,690	20.7	79.3

Source: Ministry of Irrigation, Water Resources Directorate.

There is large potential to increase Syria's water supply through rationalization by developing irrigation methods and reducing water loss from distribution networks by increasing their efficiency. Modern techniques such as sprinkler and drip irrigation should replace the flooding method. Adopting such techniques would save 60% of the current water use, in addition to increasing production by 20-30%. Yet the area irrigated by modern techniques (sprinkler and drip) is 2% of the total irrigated area, compared to more than 60% in Jordan. During water transfer from source to fields huge losses are incurred due to evaporation, transpiration and leakage. Several studies have indicated that 20% of total water in open irrigation canals is lost; using pipes instead would save around 15% of waters.

Water losses also take place in the field depending on the irrigation method: the flood irrigation efficiency of 50% can be raised to 60-70% by using sprinkler systems and to 80-85% by drip irrigation. Domestic water networks also suffer from water loss; according to the Ministry of Housing around 25% of the water supply is lost from the household, municipal and industrial networks. In-depth analysis of water rationalization cannot ignore factors such as establishing the proper administrative and institutional authority for water resources; improving databases and establishing monitoring and follow up systems; and raising people's awareness of water use issues.

Review of the water sector from a future prospective

We can estimate the expected water gap by comparing expected supply and demand (tables 3.10 and 3.11) and thus determine the level of water security (table 3.12).

Table 3.10 Syrian water resources (million m^3), based on 500m^3/sec and the 42% share of rivers waters

Type/ season	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	Average 1992/ 2003
Rainfall	31,090	38,908	44,202	54,978	43,369
Evaporation	26,463	33,923	38,209	46,217	37,302
Evaporation rate %	85	87	86	84	86
Surface water resources (without Euphrates and Tigris)	1,823	2,359	2,913	4,806	3,019
Groundwater resources	4,239	4,613	4,859	6,464	5,008
Total	6,062	6,972	7,772	11,270	8,028
From Euphrates river*	6,567	6,567	6,567	6,567	6,567
Gross renewable resources	12,629	13,539	14,339	17,837	14,595
Organizing degree %**	90.87	84.44	77.62	73.74	83.14
Organized resources	11,464.6	11,432.3	11,129.9	13,153.0	12,134.3
Drainage reuses	1,739	1,816	1,930	1,948	1,687
Sewage and industrial wastewaters resources	1,117	1,165	1,214	1,258	1,021
Gross water resources	14,320.6	14,413.3	14,273.9	16,359	14,842.3
Losses from surface waters	1,949	1,949	1,949	1,949	1,949
Gross utilizable water	12,371.6	12,464.3	12,324.9	14,410	12,893.3

Source: Author calculation based on Ministry of Irrigation data, Water Resources Directorate, 2005.

**Syria's share based on 1987 protocol and the 42% standard according to the Syrian-Iraqi Agreement.*

***degree of benefit*

Table 3.11 Demand on waters during the targeted period (million m^3)

Item	2000	2001	2002	2003	2010	2020	2030
Irrigated area (thousand/ hectare)	1,210	1,266	1,332	1,361	1,657	2,154	2,565
Population million person	16.32	16.72	17.13	17.55	19.77	22.95	27.54
Agricultural demand*	13,188	13,683	14,410	16,669	18,509	20,349	24,239
Agricultural demand**	na	na	na	na	14,622	16,075	19,041
Agricultural demand***	na	na	na	na	12,031	13,074	14,937
Domestic demand	1,291	1,333	1,380	1,426	1,582	1,836	2,203
Industrial demand	372	377	382	388	485	536	621
Gross demand*	14,851	15,393	16,224	18,483	20,576	22,720	27,063
Gross demand**	na	na	na	na	16,689	18,447	21,865
Gross demand***	na	na	na	na	14,098	15,446	17,761

Source: Author's calculation

** based on current status estimates*

*** assuming that 30% of irrigated areas are irrigated by modern techniques*

**** assuming that 50% of irrigated areas are irrigated by modern techniques*

Table 3.12 Water gap in the Syrian water balance in the targeted years (million m^3)

Item		2000	2010	2020	2030
Water resources	1	12,464	12,464	12,464	12,464
	2	na	15,774	15,774	15,774
	3	na	14,608	14,608	14,608
Gross demand	*	14,851	20,576	22,720	27,063
	**	na	16,689	18,447	21,865
	***	na	14,098	15,446	17,761
Gross water gap	1	-2,387	-8,112	-10,256	-14,599
	2	na	-915	-2,673	-6,091
	3	na	510	-838	-3,153

Sources: Author calculation based on 1) the assumption that Syria's share is 6,567 million m^3 based on the 42% standard and 500 m^3/sec standard; 2) the assumption that Syria's share is 9,695 million m^3 based on the 42% standard and the actual flow rate 732m^3/sec; 3) the assumption that Syria's share according to international law is 8,603.7 million m^3 based on the 42% standard and the 666m^3/sec rate.
, **, * same as in Table 3.10.*

A surplus in the Syrian water balance can be achieved until 2020 or beyond, in case Syria's share of water flow from Turkey increases from the actual water inflow from Turkey, of around 9,695 million m^3; as well as Syria's share in the Tigris River (around 5 billion m^3 per year). In addition, another one billion m^3 could be conserved from coastal waters, water projects on Al-Yarmouk and Southern Kabeir rivers and many other places. However, in the longer run Syria's water security cannot be ensured; Syria might suffer from high water deficit that would only be compensated for through regional cooperation, especially with Turkey.

Animal Resources

Animal resources convert plant products to animal products of high nutritional value for human use and allow exploiting the wide pastures on the Syria steppe (al-Badia). Animal resources represent 35.8% of the total agricultural production.

Cattle numbers in Syria, which have increased since the beginning of the century, amounted to 1,121 thousand head in 2006. A marked increase in cattle numbers had occurred, calves increased by 60.7%, dairy cows increased by 43.7% and the total number of cattle increased by 34%.

Research indicates the potential to increase cattle numbers to 2 million head, especially dairy cows and fattening calves. However, this necessitates further investment to improve fodder production and husbandry conditions. Under the current situation, focus should be given to husbandry condition improvement and providing proper production services; and replacing the local low yielding breeds with high yielding imported breeds or at least relying on the Shami breed, which is highly adapted to environmental conditions and has high productivity. The Shami breed comprises only 0.31 % of total dairy cows, whereas local cows comprise 8.02%, imported cows form 8.31% and the remaining are improved local breeds constituting 83.36%. The average annual production of local cows is below 1,310 kg/year, while the average annual production of imported cows is around 4,190 kg/year. A neighbouring country achieved an average production of 5,000 kg of milk from its Shami herd whilst in Syria Shami cow average production of milk does not exceed 2,020 kg/year. There are, thus, large potentials to increase dairy production; in addition there is much potential to increase meat production, which is currently only 60,305 tons.

Sheep in Syria are important to utilize the wide pastures in the Syrian steppe (al-Badia). When rainfall is high in the steppe, pasture improves, and sheep numbers increase. Sheep total numbers have increased by 72.95% from 2000 to 2006, reaching 21 million. The number of milk-producing ewes increased by 75.81%. Research indicates that the herd could be increased to 30 million head, once grazing in the steppe is organized and new forage plants, adaptable to the steppe, are introduced. It is important to raise sheep under sheds during winter (two or three months) and provide concentrated fodder, which increases the lambing rate and ewes' milk productivity.

Sheep production of milk and wool increased between 2001 and 2006 70.68% and 74.74% respectively as a result of increasing sheep

numbers, while ewe production of milk or wool remained very low at about 60 kg. However, research indicates that in the Awassi ewe, the predominant breed in Syria, milk production can reach 700 kg/year. The reliance on pastures to raise sheep in Syria restricts the options to improve sheep production in terms of meat or wool; adopting fixed husbandry in sheds during winter and fall months and using hay fodders would increase both.

The contribution of poultry in the Syrian food basket in term of meat and eggs made this sector a very important one, not to mention the export potential. The poultry sector in Syria, driven by high demand and the creation of modern farms, witnessed an increase by 46.51% during the studied period. Egg production increase ranked the highest by 72.20%. Hen numbers have increased by 84% Production of eggs in Syria amounted to 3,780 million eggs in 2006 and poultry production around 174,990 tons of meat. There is real potential, based on research, to increase egg production to five billion and meat production to 200 thousand tons through increasing the number of broiler and layer modern farms, or through utilizing the potential of the country's household economy.

Agricultural Technology, Services and Financing

Syrian agriculture is well equipped with tractors and other accessories such as ploughs of all kinds. Syria has a good position among Arab countries in terms of the number of hectares per tractor (43 ha/ tractor). The data also reveal that there are a significant number of combines, sprayers, water pumps and dusting machines. At the same time, Syrian agricultural lacks many other essential types of machinery such as cotton picking machines, sugar beet diggers, tobacco planters, and others. Cereal cultivation in Syria is almost mechanized, wheat and barley cultivation is fully mechanized, cotton cultivation is party mechanized (planting operations) as well as sugar beet and corn cultivation. Vegetables, fruit trees and tobacco cultivation are manually cultivated, except for plowing, tillage and pesticides spraying. Obstacles to the further introduction of agricultural technology include small holdings and the inability of the non-agricultural sectors to absorb excess rural labour.

Syrian agriculture uses quite a lot of fertilizers, but still lags in this domain. Fertilizer quota per area unit is low in comparison with standard necessary amounts or actually used amounts in neighboring countries. One hectare share of chemical fertilizers in 2006 was 148 kg of nitrogen, 130 kg of phosphor and only 4.33 kg of potash

fertilizer according to the calculations. Although Syria has all the inputs to develop its fertilizer industry, it imports 45% of the fertilizers used in agriculture.

State intervention has developed toward more agricultural liberalization during the last decade instead of centralized planning. Increasingly, state policy can only intervene indirectly through financial and economic tools (subsidization of inputs, defining prices of crops purchased by the state, or providing credit with low interest). However, there is no evidence that subsidization increases agricultural production efficiency. As for crops purchased by the state, it should adopt a direct contracting system with producers to guarantee state purchases and provide, in exchange, some agricultural inputs. The state could buy agricultural products' surplus in local markets or the quantities that could not be exported. Syria is in real need of large private marketing companies that could open new markets abroad for its agricultural products. Additionally, we need marketing services to promote Syrian agricultural products and reveal market trends in regards to these products.

The state has developed an infrastructure to provide agricultural services; however, the 1,200 extension units across the country are overstaffed with agricultural engineers, which can be misleadingly taken as an indicator that extension services provided in Syria are good. However, if we studied the volume of extension work provided by these units in relation to the volume of those who need it, or the actual work hours of extension work compared to official working time, we would find that extension work in Syria is a cover for masked unemployment.

The state-owned Agricultural and Cooperative Bank provides credit in cash and in-kind with low subsidized interest rates. However, the total credits provided to the agricultural sector have decreased by 30% in the period 2001-2006. The highest decrease was in medium term credits (-46.31%), then short term credits (-28.11%) and finally the long term credits (-22.44%). There was also a decrease in borrowers by 48% during the period 1995-2005 according to the bank's data. What makes things worse is that around 85% of total credits given by the Agricultural Cooperative Bank are operational ones, while the share of the actual development credits did not exceed 2.35%. Agriculture cannot be developed without investment credits. The private banking sector is not able to finance agriculture, partly because it is new to Syria and partly because of the high risks in agriculture.

Agricultural Production in Syria

Syria is characterized by diverse natural and climatic conditions that support agricultural production diversification. Indeed, there is a relatively long list of crops grown, including cereals, legumes, vegetables, fruit trees and forage crops. As a result of state efforts during the last three decades, the output of these crops has increased.

Table 3.13 depicts the magnitude of fluctuation in agricultural production from year to year due to different rainfall levels. For example, production of barley in 2004 of 514 thousand ton increased by 133.85% to 1,202 thousand ton in 2006. Wheat production decreased by 32.87% between 2003 and 2004. This is true for most of rainfed crops. Notwithstanding this, Syria has achieved a high percentage of self-sufficiency of the main crops and improved its food security.

Production Cost of the Main Agricultural Products

Table 3.14 indicates the cost of production, although the actual costs are much higher since these figures neither include the cost of irrigation water (only irrigation fees) nor the farm holder's and his family members' wages. The fluctuation of cost from year to year can be attributed to the fluctuation of inputs costs

Table 3.13 The development of main Syrian agricultural products (in thousand ton)

Crop	2002	2003	2004	2005	2006
Wheat	4,775	4,913	4,537	4,669	4,931
Barley	920	1,079	517	767	1,202
Lentils	133	168	125	154	181
Chickpea	89	87	45	65	52
Broad beans	31	32	36	34	31
Corn	232	227	210	187	159
Sugar beet	1,523	1,205	1,218	1,096	1,438
Tobacco	26	26	26	29	25

Cotton	802	811	1,029	1,022	686
Tomato	900	923	559	535	603
Potato	513	487	542	608	603
Dry onion	97	95	117	125	103
Water melon	480	674	812	588	562
Olive	941	552	1,027	612	1,191
Grapes	342	307	243	306	337
Fig	43	42	37	50	50
Apricot	101	105	76	66	98
Cherry	40	55	35	53	63
Pistachio	53	48	21	45	73
Apple	216	307	358	296	374
Sour lemon	85	71	112	111	119
Orange	427	399	495	453	554
Other citrus	234	182	237	214	234
Eggs (million)	3,321	3,425	4,002	3,104	3,781
Red meats	173.2	206. 9	216. 3	242.4	255.5
White meats	124.6	160.9	171.8	163. 4	175.0
Milk and its products, of which:	1,765	1,878	2,129	2,358	2,535
Fresh milk	582.3	553.7	662.0	765.3	824.9
Ghee	13.6	14. 4	16.1	16.9	17. 9
Butter	6. 0	5. 9	8.6	9. 6	10.7
Cheese	97.0	92.5	107.0	114.7	136. 8

Source: Agricultural Statistical Abstract of 2006, various tables.

Table 3.14 Production Costs of Major Agricultural Products (Syrian Pounds/Kg)

Item		2002	2003	2004	2005	2006
Wheat	Irrigated soft	1,027	1,073	999	950	936
	Rain-fed hard	923	928	869	881	834
	Irrigated hard	1,064	1,104	1,024	985	979
Barley	Rain-fed	929	1,024	877	853	786
Chickpea	Rain-fed	2,160	2,224	2,054	2,082	2,149
Lentils	Rain-fed	1,567	1,602	1,549	1,446	1,454
Corn	Irrigated	1,348	1,419	999	894	1,007
Cotton	Irrigated	2,620	2,673	2,576	298	2,684
Sugar beet	Summer crop	235	243	240	239	245
Potato	Fall crop	797	826	853	829	898
	Summer	829	810	839	871	865
	Spring	729	668	700	727	765
Average tomato cost		469	486	463	462	458
Olive	Rain-fed	---	---	---	---	1,677
Grape	Rain-fed	----	---	----	----	678
Apple	Irrigated	-----	---	----	---	155
	Rain-fed	-----	----	----	----	1,555
Citrus		----	----	---	---	703

Source: Agricultural Statistical Abstract of 2006, various tables. Costs and prices section

Trade Balance of Agricultural Products in Syria

The trade balance reflects the food security level of Syria, that is, how much it relies on imports from abroad. Table 3.15 shows the amounts available for consumption, taking account of production, imports and exports of major agricultural products, which generally confirms a good level of food security in Syria up to 2005. Of course it can improve greatly and Syria can achieve an export surplus.

Table 3.15 Main Agricultural Commodities' production, exports, imports and amounts available for consumption (thousand ton)

Product		2001	2002	2003	2004	2005
Wheat	Produced	4745	4775	4913	4537	4669
	Import	24	74	265	143	188
	Export	36	624	668	700	753
	Available	4733	4223	4510	3980	4104
Barely	Produced	1956	820	1079	527	767
	Import	345	368	601	625	803
	Export	===	89	546	194	2
	Available	2301	1199	1135	958	1568
Lentils	Produced	177	133	168	125.3	153.7
	Import	0.3	2	0.9	0.26	0.3
	Export	31	38	70	71.4	74.8
	Available	146.3	97	99.6	54.16	79.2
Corn	Produced	216	232	226.7	210	187
	Import	296	899	914.2	856	147.4
	Export	===	===	===	===	===
	Available	512	1131	1140.9	1066	1661
Potato	Produced	453	513	486.6	542	608.5

	Import	11	16	36.8	22	44.2
	Export	12	17	16.9	17	23.9
	Available	452	512	506.5	547	628.8
Tomato	Produced	772	900	845.8	965.4	957.3
	Import	4	14	5.1	14.7	74
	Export	168	210	217.9	260.3	321.7
	Available	608	704	733	719.8	709.3
Ginned cotton	Produced	353	281	283.8	360	357.6
	Import	===	===	===	===	====
	Export	187	255	127.6	114	156.3
	Available	166.3	26	156.2	246	201.3
Olive	Produced	497	941	552.2	1027	612
	Import	===	===	===	===	===
	Export	0	===	0.6	0.5	5
	Available	497	941	551.6	1026.5	607
Fresh grape	Produced	389	342	307.3	243	306.3
	Import	0	===	===	0.5	0.8
	Export	30	25	13	9	13
	Available	359	317	297.3	234.5	294.1
Apple	Produced	263	216	306.7	385	296
	Import	0	===	===	====	===
	Export	18	16	13.9	28	68.5
	Available	245	200	292.7	330	227.5
Citrus	Produced	833	746	652.5	844	777.8
	Import	7	9	12	19.6	19.6

	Export	45	29	28.9	27.8	53.5
	Available	795	726	635.6	834.8	743.9
Milk	Produced	1578	1765	1875	2129	765.3
	Import	9	---	---	---	0
	Export	11	14	---	---	0.3
	Available	1576	1751	1878	2129	765.1
Egg (million)	Produced	2671	3321	3449	4602	3104
	Import	---	----	----	----	----
	Export	15	10	107	48	20.4
	Available	2656	3311	3342	3954	3083.
Red meats	Produced	216	173	206.7	216.1	242.3
	Import	0.9	0.7	6.6	5.8	4.2
	Export	5.2	6.3	30.3	44.8	54.5
	Available	212.3	115.7	182.8	177.1	192
Poultry meats	Produced	116	125	161	171.8	163.4
	Import	---	----	----	----	----
	Export	-----	----	-----	----	----
	Available	116	125	161	171.8	163.4

Source: Agricultural Statistical Abstract of 2006, 157/10-1.

Conclusion

Despite considerable progress in the development of Syrian agriculture, its potential has not been fully utilized. There is considerable scope for improvement in land and water use, animal breeding and the delivery of technology to the sector. Such improvements are necessary if Syria is to maintain food security with population increase and to develop its export capacity.

4
Agrarian Counter-Reform in Syria (2000-2010)

Myriam Ababsa

Introduction

In 2008, as the price of cereals doubled across the world leading to hunger riots in Egypt (April 2008), Syria's policy of food self-sufficiency pursued since the Ba'athist revolution of 1963 appeared vindicated. Syria had the most thriving agriculture of the Middle East. It was highly subsidised and accounted for up to one third of the Gross Domestic Product and employing up to a third of the working population. It enabled almost half of the nation's inhabitants to stay in the countryside, especially in the North East of the country, the Jazira,[1] which is the source of two thirds of cereal and cotton production, partly thanks to irrigated zones developed as part of the State Euphrates Project. However this achievement was in question after three consecutive dry years (2008-2010), in which Syria had to receive international food aid for nearly one million persons, its emergency cereals reserves were exhausted and tens of thousands of peasants fled to main city suburbs in search of informal work. Its agricultural work force may have dropped from 1.4 million to 800,000 workers in this period (Aita 2010). Some believe this is also linked to the dismantlement of Syria's socialist agriculture.

The bulk of agricultural production in Syria is in the private sector which was restructured during the land reforms of 1958, 1963 and 1966, with small peasants organized in service cooperatives. The public sector, which consists of state farms and production cooperatives created during the land reforms and the implementation of major national irrigation projects, never fulfilled its economic and ideological objectives of social transformation of the rural population. The process of economic liberalization which President Bashar al-Assad embarked upon in July 2000 has therefore taken on

a radical form in the domain of public agriculture: that of the distribution of land in state farms and the renting out of undistributed land confiscated during the land reforms.

Between December 2000 and December 2001, the Syrian Ba'th party promulgated a series of political decisions (*taqarir*) that aimed at privatising the state farms in Syria. The main one, decision number 83 of 16 December 2000, put an end to 43 years of collectivist experiments in the field of land reform, including 38 years under the aegis of the Ba`th party. Thodr reforms had established state farms and, more generally, aimed at the replacement of the traditional tribal social allegiances with new allegiances to the state. Now under decision 83, the land was parcelled out in shares of 3 ha. for irrigated land and 8 ha. for non-irrigated land. It formally allocated "right of use," and not property. It called for land to be distributed to, in order of priority, to the former owners, the farm workers, and employees of the General Administration of the Euphrates Basin (GADEB). In the Jazira, the decision triggered considerable tension and competition among these three categories, as each feared being excluded from the land redistribution process. As implementation proceeded, more than 250 complaint letters were addressed to the Syrian President's office and a peasant revolt took place in the village of Disbi Afnan in December 2002. Nevertheless, the reform and its consequences have failed to attract broader attention, and were hardly mentioned in the economic columns of Syria's daily press.

Decision 83—and the move towards privatisation that it represents—should be seen against a broader backdrop of controlled economic liberalisation (*infitah*) underway in Syria since the early 1990s. This paper explores the impact of the decision on agrarian structures and the social hierarchies in the Syrian Jazira. I suggest that, to a greater degree than the liberalization process announced in 1991, this land reform has marked the end of the socialist ideology of the Ba'th Party. However, this was paralleled by a renewal of clientelist political practices. I show that it constitutes a case of counter-revolution, analogous to that in Egypt (Bush 2002).[2]

State Farms in Syria and the Euphrates Project in al-Jazira

State farms were created in Syria as a result of successive land reform laws in 1958, 1963 and 1966. These laws offered the state the opportunity to rationally manage agricultural resources that had been previously 'plundered' by absentee landowners. When the land reform was completed in 1970, 1,513,000 hectares had been

expropriated by the state, including 443,000 ha that had been handed over to private individual peasants, 338,000 ha distributed collectively to peasants in cooperatives, 38,000 ha sold and 140,000 ha reserved for the state farms. Notably, 351,400 hectares in arid areas were not distributed. 306,000 ha of this arid land were located in Jazira. Here, it was decided that the population was insufficient to allow for meaningful re-distribution (Hinnebusch 1989: 96).

Formerly a pastoral area located between the Tigris and the Euphrates, at the borders of the Bilad ash-Sham, for half a century, the Jazira has been the pioneering agricultural and energy site of Syria. The great Euphrates and Khabour Project was implemented here in the seventies, and the main national hydrocarbon reserves have been exploited here since 1985. This strategic zone, half of whose population are Kurds, has been heavily controlled by successive Ba'athist regimes, which have relied on medium-sized land owners from the semi-nomadic tribes of the valleys of the Euphrates, the Balikh and the Khabour in order to carry out their development objectives. We shall study the process of agrarian counter reform underway in the heart of this zone.

Latifundia and the implementation of land reforms in the Jazira (1958-1970)

The Jazira underwent a boom at the end of the 19th century, due to the Ottoman policy of land endowment of Bedouin chiefs and the settling of the Euphrates semi-nomadic tribes. This policy was continued during the French Mandate with relative success, though this zone was divided between Syria, Turkey and Iraq in 1920. Vast landed estates formed in the Syrian Jazira controlled by Bedouin Sheikhs, by the chiefs of the Euphrates tribes who had registered collective lands in their names, and lastly by the inhabitants of Raqqa (*Raqqawi)* and Deir ez-Zor (*Deiri)* who offered usurious loans to the modest tribal land owners and confiscated their lands when repayments were not made (Hannoyer 1982; Ababsa 2002). In 1951, 90 % of Jazira agricultural land was owned by forty Bedouin chiefs and town notables. Ten of them, including the Najjar and Asfar families and the sheikh of the Shammar, Dahham al-Hadi, owned 70 % of the irrigated land of the Euphrates (Khader 1975: 66).

Table 4.1 Land ownership structure in Jazira and the Euphrates, 1945

	Euphrates	Jazira
Properties < 10 ha	15%, 178,000 ha	5%, 56,000 ha
Properties 10 to 100 ha	32%, 286,000 ha	52% 528,000 ha
Properties > 100 ha	28%, 246,000 ha	34% 343,000 ha
State Properties	25%, 224,000 ha	9%, 96,000 ha

Source: Service technique du cadastre et d'amélioration foncière, 1945, in Khader 1984: 189.

The Jazira's first economic boom came about at the initiative of Aleppo merchants (*khanji*) at the time of the cotton boom in the fifties. 13,000 motor-driven pumps were installed along the Euphrates by entrepreneurs from Aleppo, Raqqa and Deir ez-Zor, to irrigate the upper terraces of the Euphrates. Irrigation without draining the land and monoculture led to the impoverishment of this new agricultural land within a decade. Yet, at the same time, middle-sized *shawi* owners grew extremely rich. They began to question the domination of the old Sheikhs (Khalaf 1981). New figures emerged within tribes, especially middle-sized land owners who subscribed to the Ba`ath Party from 1963 onwards.

Although the "pillaging" of the Jazira during the fifties was stigmatised by the theoreticians of the land reform of 1958, this reform was only partially implemented in the North-East of Syria. This limited application in the main zone of Syria's latifundia was due to technical obstacles – the absence of a land register, lack of staff and the division of land between heirs – as well as political reasons. From 1963, the Ba'athist regimes adopted a pragmatic policy towards the Jazira which consisted in promoting the emergence of a class of middle-sized tribal landowners who were loyal supporters of the Party, while allowing the great "feudal landowners" to keep the basis of their wealth. Thus, an amendment to the land reform law was enforced in 1966, protecting recently irrigated lands from expropriation. This amendment was inspired by neo-Ba'athist militants from Deir ez-Zor, who were small and middle-sized landowners, anxious to oppose the cities' middle

classes, counting not on the peasantry, but on their kind, other middle-sized landowners (Petran 1972: 183). Their aim was to control a region which was 92 % rural and 96 % of whose inhabitants were illiterate, and to create favourable conditions for the implementation of the great Euphrates and Khabour Projects.

At the end of the land reforms, less than a fifth of the arable lands of the Raqqa governorate, i.e. 18.5 %, and 14.5 % of those of the Deir ez-Zor governorate were expropriated. Only one third of the fertile lands located in the Euphrates valley were affected by the land reform. As for the remaining two-thirds, either their ownership was relatively egalitarian (with farms below the 1963 55 hectare ownership limit), or most often their Sheikhs were sufficiently influential to deter the distribution committee from intervening (Bauer 1990: 10). As for the bigger landowners of Raqqa (with over 20 irrigated hectares or 80 unirrigated hectares), although they counted for only 5 % of landowners, they still owned 37 % of the land of the governorate, while the 83 % of small-scale landowners (with fewer than 8 irrigated hectares or 30 unirrigated hectares) shared 40 % of land (Hinnebusch 1989: 234). A quarter of Raqqa's farming families received no land. In the middle valley of the Euphrates, large-scale landowners managed to retain up to 55 hectares of the most fertile land, located all along the valley, while leaving the semi-arid plateau lands to be distributed.

The land reform was accompanied by an important law concerning agrarian relations (law no. 134 of 1958 amended by decree 218 of 1963). For the first time, contracts between owners and tenants had to be in writing and automatically renewed, even in the event of the sale of the land. According to this law, farmers who only worked the land, without providing seeds or fertilizers, should gain at least 25 % of irrigated cotton harvests, 33 % of irrigated vegetable harvests, 40 % of unirrigated vegetable harvests, 30 % of fruit harvests and 25 % of olive harvests.[3] The 1958 law restricted the share of the owners of power-driven pumps to 40 % of the harvest, the peasant farmer receiving at least 40 % and the landowner 20 %. The application of the law on land relations allowed peasants to benefit from a significant increase in income. In the Raqqa governorate, the average share of crops which went to the peasant farmer rose by 20 to 30 % to reach almost 43 % (Khalaf 1981: 339). This enrichment was the prelude to a significant transformation of social relations in the Syrian countryside, as a result of the reduction of farmers' debts owed to landowners. Moreover, tenant farmers had

the opportunity to obtain new forms of credit, outside the context of feudal landowners.

The Euphrates Project and the Creation of State Farms

Along with the implementation of the agrarian reforms, state farms were established in the sixties. They were conceived as "avant-garde" structures to train farm labourers with modern techniques of production and to diffuse the Ba'th socialist ideological principles. Each state farm constituted a model village where farm labourers were paid and governed by a *"council of production"* (Hannoyer 1985: 32). Standard acreage ranged from 100-155 ha in Deir ez Zor and Aleppo, to 14,000 ha in Raqqa, and to 36,000 ha in the northern Jazira city of Qamishli. The state farms quickly became associated with low productivity and heavy production costs. In 1972, nine out of fifteen farms lost money, and milk production cost two and half times the retail price (Hinnebusch 1989). At the beginning of the 1980's, 72,000 ha. of state farm land were distributed to peasants (Hinnebusch 1989: 118).

Nevertheless, new state farms were created in the frame work of the state irrigation projects. The most important of these was the Euphrates Project, which attracted a quarter of the national budget during twenty years. It was conceived to create a new agro-industrial sector and an abundant electric power supply. More than half a million hectares of new irrigated areas were planned that included 450,000 ha to be reclaimed from the steppe and improvements to 160,000 ha already irrigated land (Figures 4.1 and 4.2). The Euphrates Project was as much a political as an economic project. It was to assist in establishing the new socialist order that was to substitute for the tribal structures dominant in the Jazira and facilitate political control of a long insubordinate area. Fifteen Pilot Project farms and villages were created as part of the Euphrates Project in Raqqa Governorate. From a social point of view, engineers and workers acquired new skills as they were engaged in the substantial projects of dam-building and the construction of the new city of Thawra, the administrative centre of the project.

The fifteen state farms of the Euphrates Pilot Project were built on lands expropriated by the state in the *barriya*, a zone of pasture and dry culture. Most of its land belonged to members of the Hleissat, a formerly semi-nomadic tribe that settled near Raqqa in the 1940s. 2,396 land owners of steppe areas north of Raqqa, between the Euphrates and the Balikh, were expropriated of 19,255 ha. They

received a small indemnity of 2,000 to 5,000 SYP, according to the lost surface, plus a compensation of 100 SYP per donum ($1/10^{th}$ hectare), which was supposed to cover the lost income for each donum.[4] The Pilot Project was then launched on these expropriated surfaces.

Figure 4.1 Irrigation Projects in Syria

Source: Ababsa 2004, Hinnebusch 1989.

Table 4.2 State farms' surfaces evolution (1970-2000)

Year	State farms total surface	Cultivated surface
1970	138,000 ha	64,132 ha
1983	67,666 ha	10,378 ha
2000	68,146 ha	21,011 ha

Source: Hinnebusch 1989: 203 and GADEB, 2001, Teshreen, 2002.

Figure 4.2 Localisation of the 15 state farms of the Pilot Project in the Euphrates Valley on a Google Earth image

The State General Administration for Land was created in 1986 within the Ministry of Agriculture to administer nine big projects (*munchaat*) and five agricultural units, throughout nine governorates.[5] It administrated 114,040 ha, of which 62,188 ha were exploited. Only 19,855 ha were irrigated: 3,731 ha by wells and the rest by canals. In 2004, 6,307 permanent workers and around 10,000 temporary workers were employed there (*Teshreen*, 1 September 2004). In the north-eastern governorates of Aleppo, Raqqa, Deir ez Zor and Hassaka state farms covered 68,146 hectares of which 21,011 ha were irrigated land in the Pilot Euphrates Project. A further 45,862 hectares were uncultivable lands that were also included in the state farms in 2002 (*Teshreen* article, 23 June 2003).

The failure of the Pilot Project State farms

The Pilot Project along the Balikh River was carried out relatively quickly. Between 1972 and 1973, the cement channels and the pumping station for 20,000 ha were installed. 24,000 ha were scheduled, but because of soil salinisation and the collapse of the main channels built on gypsum, only 9,000 ha were still exploited in the mid-1980s (Hannoyer 1985: 32). Between 1976 and 1985, 4,000 ha of arable lands became salified per annum (Hannoyer 1985: 29). At the beginning of the 1980s, 20,000 ha of fields irrigated but not drained were salified and unsuitable for agriculture, and 35,000 ha had lost half of their productivity because of salt formation (Hinnebusch 1989: 236).

Table 4.3 Implementation percentage of the Euphrates Project (1973-1986)

Zone	Surface announced (ha)	Surface cultivated (ha)	Implementation (%)
Balikh	186,000	34,000	18.4 %
Middle Euphrate	165,000	27,000	16.4 %
Rassafa	25,000	0	0
Mayadin	40,000	0	0
Meskene Alep	155,000	21,000	13.5 %
Lower Khabur	70,000	0	0
Total	640,000	82,000	12.8 %

Source: GADEB statistics YOUNIS 1992: 168.

Table 4.4 Population, housing and services in the Pilot Project's fifteen state farms in 1996

Name of the farm	No of inhabitants	Men	Women	No of peasants' houses	No of engineers' houses	No of school classes	No of shops
Andalous	2,561	1,255	1,306	330	10	6	5
Rachid	3,120	1,529	1,591	404	12	2	3
ANSAR	4,960	2,420	2,540	636	10	8	5
Yarab	3,104	1,521	1,583	497	10	6	3
'Adnanya	4,159	2,038	2,121	516	10	8	5
QAHTANIA	4,119	2,018	2,101	514	12	8	5
Rabi'a	4,048	1,981	2,065	500	12	8	5
Hittîn	3,759	1,842	1,917	466	10	6	5
Assad	6,127	3,002	3,125	468	16	12	5
Badr	3,344	1,639	1,705	408	10	6	5
Qadissiya	3,200	1,568	1,632	396	10	6	5
MUDAR	2,640	1,293	1,347	336	14	6	5
Mohamdia	3,040	1,490	1,550	390	10	6	3
Ghassania	2,561	1,255	1,306	340	10	6	5
Yamana	2,800	1,372	1,428	356	10	6	5
Total				6,768	166	104	69

Source: internal data from the GADEB, Raqqa, 1997.

The creation of Lake Assad in 1973 submerged 66 villages and 126 hamlets located on fertile lands in the Euphrates banks. Sixty thousand people from the al-Walda, a semi-nomadic tribe, had to be moved. The Euphrates Dam Ministry created 15 state farms for the displaced in the Pilot Project and 42 colonization villages at the Turkish border, in the Kurdish area of Hassaka governorate to form an "Arab belt" among the Kurds.

Only 9 % of the 60,000 al-Walda people whose villages were submerged by the Assad Lake agreed to be reinstalled in the Pilot Project (Meyer, 1990). The displaced people who joined the farms obtained an average of 3,3 ha of land in private property as a compensation for lost lands. But as experts of the United Nations noted, this allocation was insufficient. In order to realize one of the social objectives of the project—namely the destruction of tribal relations—the displaced were dispersed over several farms. Thus in the farm of Rabi`a, 260 families were installed that originated from 67 different places - half of them from areas submerged by the lake (55 %) (Hinnebusch, 1989).

About half of the workers from the Pilot Project farms left them between 1976 and 1986. Population declined from 39,200 to 20,100 people during this time. That was due to the low productivity of the lands, which quickly became salinified because of inefficient drainage. The workers went to Raqqa to find daily employment in the building sector. To stop the exodus of workers, more lands were allocated to them in private property in the project of Bir Hachem in 1986 while marketing was organized by a cooperative. The six farms built between 1983 and 1986 in Bir Hachem offered improved housing for the peasants. Each village counted 400 families, that is to say 2,400 people, for whom the services were improved. In Bir Hachem Project, 10,000 hectares were cultivated at the end of the 1980s.

Evidence suggests that state farms produced little benefit for the farmers and failed equally in their ideological role of peasant indoctrination. From the beginning production costs were higher than revenue. Thus, in 1980, the income of the GADEB farms was 25 million SYP whereas the production costs were 50 million (Hinnebusch 1989: 241; Hannoyer 1985: 33). In July 2001, an internal GADEB document assessed production in the whole Euphrates Project. The results, highlighted in table 4.4, offer an explanation for why the government decided to put an end to the farms. In 2000, the benefit of all the state farms and the projects of Euphrates managed by the GADEB were 25.5 million SYP, whereas

the production costs reached on the 645 million SYP: they had been multiplied by 13 in twenty years! Meanwhile, the number of temporary workers was hardly reduced between 1999 and 2000, in spite of low production and a rumor that the state farms would be closed (table 4.5). The situation was especially bad within the General Administration of State Farms, where income dropped from 177.8 million SYP in 1990 to 87.8 million SYP in 1995, further to 36.3 million SYP in 2000 and finally to 10.8 million SYP in 2003 (*Teshreen*, 1 September 2004).

Table 4.5 Production cost and incomes in the Euphrates Basin Projects (1999-2000, in '000 SYP)

Project Name	Total production	Production expenses	Salaries	Total expenses	Incomes or deficits
All Projects	645,821	300,267	297,358	620,271	25,550
Pilot Project :	540,811	241,326	246,938	504,720	36,091
Cultures	485,792	190,468	230,248	436,881	48,911
Milk farm	38,535	35,830	11,882	47,953	-9 418
Bovine farm	16,484	15,028	4,808	19,886	-3 402
Meskene West*	4,922	1,798	1,906	3,704	1 218
Experiment Center	2,238	1,736	4,574	6,345	- 4 107
Middle Euphrates	66,381	31,024	33,182	68,306	- 1,925
Bir Hachem	31,469	24,383	10,758	37,196	- 5,727

Source: Syrian Irrigation Ministry, GADEB, May 2001.

** Meskene is divided into two zones, Western Meskene and Eastern Meskene. Both are located in Aleppo Mohafazat, with an extension in Raqqa Mohafazat, especially the Bassal Assad farm, created in 1994.*

In the face of the evidence indicating the failure of the state farms, the government was forced to act within the framework of its "Campaign against Corruption." It is in the context of economic opening (*infitah*) accelerated after 1991, and especially after the death of the President Hafez al-Asad in June 2000, that the decision to distribute the lands of the state farms was adopted in 2000.

Decision Number 83 (16 December 2000) on the Distribution of State Farms

With the beginning of the economic opening in 1991 (*infitah*), the Syrian state launched a renewal of private economic initiative. At the same time it also insisted that some sectors be protected from liberalization for political reasons. In 1992, a new production system was introduced in the state farms. This allowed the use of hiring contracts, which gave 20 % of the production to those who signed one. A new category of land-holders thus appeared alongside farm labourers and the various engineers and technicians: that of the holders of an exploitation contract (*mucharikin*).

The legislative principles of decision 83, 2000

Ten years of economic liberalization, severe decline in agricultural production, and extensive corruption in the state farms led to the privatisation of all Syrian state lands by decision 83, 2000. Critically, this decision was taken by the executive rather than by the legislature; indeed, it was not a ministerial decree, nor a law, but a political decision of the Ba`th Party, which was then transmitted to the Agriculture Ministry and to the Irrigation Ministry (and the GADEB). The provisions of the decree include the following:

Figure 4.3 Extracts from *Taqrir* 83 – December 16, 2000 (Ba`th Party): "The State farms General Administration Land Distribution"

1. - Cancellation of the property status of the lands which were expropriated but not cultivated after this.

2. - Distribution of the exploited lands by lots of 3 ha (irrigated) and 8 ha (not irrigated, ba`l) by family according to the following order of priority:

- former owners and agrarian reform beneficiaries (*malik wa muntafi`)*;

- the holders of a contract who live in the farms, then those who do not;

- the farm labourers who live in the farms, then those who do not;

- the agricultural technicians who worked in a permanent way in the state farms.

3. - Sale of the state farms' housing to those who occupy them and who obtained lands. Furthermore, the sale of the production tools and materials with priority to the agricultural cooperatives by payment in several installments, and finally the sale of the sheep herds.

4. - The Agriculture and Irrigation Ministries keep what they need in terms of housing and agricultural tools, 10% of the agricultural surface, the irrigation networks, and the cattle farms entrusted to the general administration.

Source: Extracts of the Official text, obtained in Raqqa, October 2003.

Decision 83 was not accompanied by the cancellation of the preceding decrees (1971 and Decree 1033, 1983)[6] which related to the distribution of ownership. This led to confusion as to the rights of the former owners, the agrarian reform recipients, the workers and the technicians. Many employees tried to obtain rights to the property based on some contracts dating back to before 16 December 2000. For these, strict measures were adopted by the Commission of Distribution: any agricultural engineer present at his working station at the time of the publication of the decision, who could have left it for various reasons, but who again occupied it at the date of April 3, 2003, had the right to obtain land plots. On the other hand, any temporary worker having had a contract for the agricultural seasons

of 1999-2000 and 2000-2001 had the right to obtain lands, but not those employed in the previous seasons. Any farm labourer having worked at least 180 days during 2000 could claim lands, but not those having worked the previous years.

While the Pilot Project involved the management of public property, the redistribution of the lands to the citizens was by privatisation - although the term does not appear officially. This process of privatisation was strongly criticised by some GADEB communist employees I met in Raqqa. As one of them recalled it, decision 83 had been taken without any preliminary study on the consequences of such a redistribution for the Pilot Project, nor on the property structures. In this context of legal inaccuracy and conflict between administrations, many owners, recipients and heirs started to assert their rights to the land, and many complaint letters were sent to Damascus, addressed to the President of the Republic.

Petitions of former landowners and their parliamentary intermediaries

In this vague legal context, many landowners, beneficiaries and heirs began to claim land rights. Three types of petitions (*shakwa*) appeared: those from former landowners contesting the fact that they only received 3 irrigated hectares at the most and 8 unirrigated hectares (*ard ba`l)* out of all the lands they had formerly owned; those from heirs whose names had not been recorded; and finally those from landowners who saw their former lands distributed to government officials, through "fake" contracts.

Concerning the farms of the Euphrates Project, the most active group of protesters was formed by the heirs of former landowners and beneficiaries of the land reforms. Their first petition was received by the governor of Raqqa on 13 January 2001. The heirs were classified into several categories depending on the date of death of the legatee. Heirs of a legatee deceased before decision 244 of 1972 concerning the creation of state farms of the Pilot Project were divided into two categories: those whose names were recorded in the land registers and who had obtained up to 3 hectares each, and those whose names were not registered and who had to share one collective 3 hectare plot. If the legatee deceased after decision 244 of 1972, the heirs collectively obtained only 30 donums,[7] unless they had personally registered themselves under their names. However, in this case the cost of personal land registry was higher than the value of the land.

Several deputies from the Raqqa governorate raised the problem of discrepancy between decision 83 and the inheritance law. In June 2005, deputy Mohammed Faysal al-Howeidi, chief Sheikh of the `Afadla tribe who has sat in parliament since 1994, gave me a copy of his file of complaints. This file shows the rivalries between the different Syrian administrations, particularly between the Ministry of Agriculture and Land Reform, the Ministry of Irrigation, the GADEB and the Agriculture Department of the Raqqa governorate. Deputy al-Howeidi preferred not to present his petition in his own name as a wronged large-scale landowner. Instead, he passed his request on to the Deputy of Raqqa, Nadua Salum. Nadua Salum, a member of the Ba`ath Party, did not contest decision 83. However, she stressed the need to apply article 825 of the Civil Code and article 260 of the personal law concerning inheritance.

In her first letter, dated March 2004, to Prime Minister Naji al Otri, deputy Nadua Salum emphasized that the GADEB Committee in charge of the distribution of state lands had not recognized the rights of all heirs, but only of those whose names were registered in 1972, the date of the creation of state farms. This was a real problem, she added, insofar as many landowners had passed away without having registered the names of their heirs. She called for the government to apply the inheritance law which does not oblige an heir to be registered as such in order to inherit. She took the following example: *"A family which owned 380 hectares before the creation of state farms only received 3 hectares even though it had 14 legal heirs,"* which means that they should have received 42 hectares. Thus Nadua Salum echoed the lobby of landowners by asking of the Prime Minister that the Committee of Distribution takes into account the year 1985, when the ownership of state farms was transferred (*naql al mulkiya*) to the GADEB. Choosing this later date would make a greater number of heirs eligible for distribution. She sent copies of the letter to the Minister of Agriculture and Land Reform, to the Minister of Irrigation as well as to Parliament.

In response to Deputy Nadua Salum's letter, in April 2004 the Minister of Agriculture, Dr. Adel Safir, made an official request to the Agriculture Department of the Raqqa governorate for a report on the inheritance law for the lands of the Pilot Project. On 7 April 2004, in his turn, the Minister of Irrigation sent a very precise letter to the Committee for Distribution of the GADEB, recommending the application of the two articles of law which safeguard inheritance rights : article 260 of personal law, which states that *"the heir inherits at the death of his parent or by legal decision"*, and article

825 of the Civil Code which states *"the heir inherits without having to be registered"*.

In June 2004, Deputy Nadua Salum sent a second letter to the Minister of Irrigation again requesting to consider the application of the inheritance law of 1985 rather than 1972. In September 2004, The Department of Agriculture of the Raqqa governorate finally replied to her requests. According to the Department of Agriculture, the lands of state farms were transferred to the GADEB in 1972, by decision 244 of the Ba`th Party. The names of the landowners and of their heirs were registered, and could have been changed until 1985, when ownership was transferred to a sole owner: the GADEB. In 1985, the number of landowners was 166, and the number of heirs, registered or not, reached 2,000.

These issues concerning inheritance have still not been resolved in 2008. However, the Committee for Distribution of GADEB land was dissolved in January 2005, following several scandals concerning the attribution of lands to individuals unrelated to the various administrative services of the Raqqa governorate. Tensions are high in the villages where "fake" beneficiaries cultivate unjustly obtained lands. On 15 December 2002, the day of the farmers' festival, the governor of Raqqa, the general secretary of Raqqa's Ba`ath Party as well as the head of the Department of Agriculture, were invited to the village of Dibsi Afnan (which was rebuilt after having been flooded by the dam's lake), and bore the brunt of the population's anger. Attacked by tens of farmers shouting "*corruption sucks the lifeblood from farmers!"* they had to seek refuge in their cars under a volley of stones. On the same day, fifteen demonstrators were arrested and transferred to Raqqa. 500 farmers' families from Dibsi Afnan protested for several months against the renting out of their lands, which had been confiscated by the state in the early seventies, to people from outside their village. A young man from Dibsi Afnan was even killed during a brawl with the newcomers. In 2003, President Bashar al-Assad ordered an investigation committee which partly restored the wronged farmers' rights.

Decree no. 4 of 2005 and the sale of state farm housing

On 18 January 2005 decree no. 4 was promulgated, officially putting an end to the General Administration of State Farms as well as to the Pilot Project, despite the latter depending on the General Administration of the Euphrates Basin, which was not dismantled. Under the decree, employees of the General Administration of the

State Farms henceforth come under the control of the Ministry of Agriculture, which continues to pay for their contracts until their retirement; 10 % of lands and agricultural tools passed on to the ministry; and the housing was sold "at current prices" to the beneficiaries of land distribution transactions underway following decision no. 83 of 2000 (*Teshreen*, 19 January 2005).

A new type of petitioner then appeared: those occupants of the state farms who were neither employees of the General Administration of State Farms nor of GADEB. Over the years, because of the poor levels of farm productivity and the exodus of workers to the towns of Aleppo and Raqqa, state farm housing had been rented out and sub-let following various procedures. Whilst the beneficiaries of decision 83 of 2000 could purchase their housing for 10,000 SYP per flat and 15,000 SYP per house; the tenants of State farm housing, who paid a token rent of 15 SYP per month henceforth had to pay an amount equivalent to 9 % of their salary (i.e. 300 to 450 SYP) without the right to purchase their accommodation.

Decree 4 of 18 January 2005 ratified this situation despite the questions raised since 2002 by non-beneficiary residents of state farms, especially by 1,071 residents of the Assad Project in Meskene in the Aleppo governorate, who are neither civil servants nor farm labourers. Their first petition dates back to February 2002, when they asked for the right to purchase their accommodation *(Teshreen*, 26 March 2005). In response, a special committee for housing was created within the Ministry of Agriculture in October 2003. Deputy Ahmed Munir Mohamed raised the question in front of parliament in autumn 2003. On 8 July 2004, the head office of the Assad Project asked the Aleppo governor for permission to grant all farm occupants the right to buy their accommodation (*Teshreen*, 25 June 2005). Nevertheless, decree 4 of 2005 was promulgated with complete disregard for previous parliamentary debates.

The issue of the rights of non-civil servant farm residents has become particularly tricky. It also arises in the farms of the Pilot Project of the Raqqa governorate where a third of the working resident heads of households (36.4 %) are not employed by the state. In 2005, out of 3,507 resident heads of households in the fifteen farms of the Pilot Project, 717 were employed by the GADEB, 830 were *musharikin*, 684 civil servants of various state services, and 1,276 were not employed by the state.[8]

The distribution of State Farm Land of the Euphrates Project

"All about the first stage of the distribution of lands of the Pilot-Project.

Everyone is talking about it in Raqqa because the distribution concerns almost 6,000 beneficiaries, i.e. 36,000 people allowing for six members per family, which gives an idea of the economic and social importance of this major distribution in the region"

(Al Thawra Newspaper, 5 February 2002).

The distribution of Syrian state farms

The bulk of the distributions took place within the Pilot Project of the Raqqa governorate and the large Bassal al-Assad farm of Meskene in the Aleppo governorate. On 1 September 2005, 26,470 hectares of the Assad farm in Meskene (of which 15,625 hectares are irrigated) were shared out between 4,297 beneficiaries (3,168 of whom were labourers), but only 3,600 of them took their plots (i.e. 10,574 hectares), since 697 had not reported to the distribution committee (*Teshreen*, 1 September 2005). The other half of the distributions took place within the Pilot Project of the Raqqa governorate, where my field investigations were carried out.

The implementation of Decision 83 of 2000 in the Euphrates Pilot Project proceeded in five stages, until June 2005. The first, from October 2001 to March 2002, affected the landowners and beneficiaries of the land reform, as well as employees and contract farm labourers. The second stage, from April to October 2002, benefited GADEB staff with at least three years' service. The third stage, from October 2002 to September 2003, concerned those who could give proof of having worked for GADEB for one year. The fourth stage, which began in September 2003, allowed all civil servants from the GADEB who wished to retire to obtain a three hectare plot on top of their allowance. This last measure aimed at reducing the workforce of the GADEB whose main duties were henceforth to provide water at a set price and to stipulate crop types which comply with the agricultural plan. The last stage of distribution, underway since 2004, allows all civil servants of Raqqa governorate to receive a plot of land if they resign voluntarily.

By August 2003, 2,392 landowners and beneficiaries of the land reform had benefited from the first stage of distribution; followed by 1,379 holders of contracts to farm land (*musharikin*); and finally 1,067 labourers and contract staff employed under various categories

by the GADEB. On 31 May 2005, there were an additional 5,614 beneficiaries. Half of them were former landowners and beneficiaries of the land reform, one third were agricultural labourers holding a lease contract (*musharikin*), and the remainder were temporary labourers and civil servants. Note that 1,086 female civil servants were also allocated land, at the request of the governor who sent a note in this regard to the Minister of Agriculture (653 employees of the Pilot Project, 253 employees of the administration other than the Ministry of Irrigation, the others being employed in the Euphrates Basin). The highest uncertainty persists regarding the authenticity of their contracts.

The increase in agricultural incomes

Despite the many protests regarding the legal principles and the terms of implementation of Decree 83, most people are nevertheless agreed about the economic legitimacy of such a measure which aims to re-create a real bond between farmers and the land they cultivate. Every civil servant I met, including communist activists as well as the beneficiaries, acknowledge that the decree has at least allowed the recovery of a satisfactory level of productivity in the older farms. According to the head of the Department of Agriculture of Raqqa governorate, one of the direct positive consequences of the dismantling of farms has been the five-fold increase in revenue from total agricultural production of Raqqa governorate between 2000 and 2003 (from 400,000 million SYP in 2000 to two billion SYP in 2003).[9]

Moreover, according to the head of the committee for land distribution of state farms, interviewed in October 2004, the beneficiaries of Decision 83 have doubled their annual income. Thus, a civil servant whose monthly salary used to be 5,000 SYP/month, i.e. 72,000 SYP/year, managed to earn between 130,000 and 170,000 SYP during the year 2003-2004.[10] However these calculations are very optimistic and only concern good years for agriculture. Indeed, yields of wheat, cotton and barley vary depending on soil quality, irrigation techniques and annual climatic conditions (winter frosts, and extreme summer drought). Yields fluctuate; for wheat between 300 and 550 kilos per donum (kg/d) and for cotton between 200 and 450 or even 500 kg/d. For example, 2003 was a very good year for agriculture, wheat yields were 550 kg/d, compared to 450 kg/d in 2004. Meanwhile cotton yields were nearly 500 kg/d in 2003, then fell to 300 kg/d in 2004. In 2005, the state guaranteed all producers,

private and public, purchase prices of 13,000 SYP per ton of wheat, 27,000 to 29,000 SYP per ton of cotton, and 7,000 SYP per ton of barley (see table 4.6). If the beneficiary does not cultivate but rent his land, his income was reduced by a third. In that case, the labourer had a salary of 250 SYP/year per donum and 35 % of the production. The labourer's wife and children are working for free on the plot. He must pay up to 35 % of the fertilizers and up to 20 % of the farm machinery rental. The owner pays for the water, provides the seeds, and pays the remaining 65 % of the fertilizer cost and 80 % of the tractor.[11]

Table 4.6 Agricultural income from a 30 irrigated donum lot in the Euphrates Project

	2003 (excellent year)		2004 (normal year)	
	cotton	wheat	cotton	wheat
Yield (kg/donum)	500	550	300	400
Sell price (£/ton)	29,000	13,000	27,000	13,000
Expenditures (£/30 donum)	100,000	100,000	100,000	100,000
Annual income (£/30 donum)				
- for the exploitant	335,000	114,500	143,000	56,000
- for the renter of the plot	217,750	74,425	92,950	36,400
- for the labourer of the plot	117,250	40,075	50,050	19,600

Source: Interviews in Raqqa, June 2005.

Land resale and latifundia recreation by Euphrates tribal contractors

As explained, the state farms' reform created many family conflicts between the recorded heirs who gained land and the non-recorded. There were also conflicts however, between those who received bad plots and those who gained better land. Moreover, the reform led to

an extreme land parceling and a property scattering (most of the recipients obtained plots far from their former and existing properties). As a consequence, an internal "rationalisation" process is taking place by plot sale or exchange.

Following the parcelling out of the lands and their distribution, many recipients now either rent or sell their plots. In case of land rental, the current price is 1,500 to 2,000 SYP per donom. For a 30 donom plot, such a rental produces an income of 45,000 to 60,000 SYP per annum, which corresponds to the average wages of employees. In case of land sale, the current price is 15,000 to 30,000 SYP per donom, which is three to ten times lower than the wider land market: a donom costs along the river Balikh, between 50,000 and 80,000 SYP and along the Euphrates between 100,000 and 400,000 SYP for the best land, located near Raqqa. The sale price is low because such sales are illegal; still, a recipient who sells his/her thirty irrigated donoms can still hope to gain from 450,000 to 900,000 SYP on the black market. That is six to twelve years of average wages.

As the sale or rental of the state farms' plots are both illegal, the contracts are confidential and engage only private individuals. The denunciation risk weighs on the land recipient and not on the man who rents or buys it. I have tried to uncover the identities of new large landholders in this process, but it is a difficult subject to broach in interviews. I did, however, learn that a majority of the recipients do not exploit their lands directly, but rent or sell them; and that the largest "purchasers" are currently members of the Euphrates tribes, in particular that of the Hleissat, who are specialized in sheep sale. Some Hleissat sheikhs confirmed this analysis in October 2004: *"Of course the Hleissat are the ones who buy this land: because it is their land! We, the former owner, received only 30 donoms out of thousands of donoms we had. We do everything to get our land back. Why did not the government simply give us our land back?."* As a Ba`th activist reminded me, this former big owner should thank the government that gave him back some land, for, in most of the case, big ownership was built illegally in Jazira. During the 1950s, many tribe chiefs registered in their name common tribal properties, and many Raqqawî urban landowner took land from indebted peasants. Furthermore, one must keep in mind that the agrarian reform was not fully implemented in the Jazira: in 1970 it had concerned only a third of latifundia (Khader, 1984).

A double process results from the sale and rental movements of the Pilot Project fields. On the one hand, there is a reinforcement of

large contractor capacities, mainly members of the Euphrates tribes but also Raqqawî, who have the means to rent and exploit large surfaces, and that were able to keep their properties during the agrarian reform by giving it to their heirs. On the other hand, there is the renewal of large latifundia, which exceed all property ceilings fixed by the successive land reform laws. These contractors have access to low cost Euphrates water through the Euphrates Project canals. Thus, the change in the property structures and nature of exploitation is radical. It passed from state farms to large private domains, that the Ba`th Party theorists had wished to limit above all. It is indeed a form of counter-revolution (Bush 2002).

Conclusion

The political decision 83 of December 16, 2000 completely upset the land structures which prevailed in the Euphrates Basin since the land reforms and the creation of the Pilot Project State Farms in 1972. 5,600 people received lands from the former Pilot Project's fifteen farms. Half of them were former owners or land reform recipients; a third were sharecroppers with exploitation contracts and a fifth were workers and GADEB employees. An intense phenomenon of land rental took place through which the former employees received the equivalent of the pay they had lost. In parallel, large land contractors grew rich at high speed. They even managed to acquire land at low prices (three times cheaper than market prices) and without respecting property ownership ceilings. The state farms' privatisation process constitutes an unexpected counter-revolution. Indeed, the primary beneficiaries of the "reform" process are not the traditional rural constituents of the Ba'th party, but a re-emergent class of latifundists tied to the central state and traditional power structures.

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[1] The band of land between the Tigris and the Euphrates.

[2] Fieldwork was conducted in Raqqa in September and December 2003, with a grant received from the *Lebanese Centre for Policy Studies*, as a winner of the 2002 *Middle East Research Competition*. Interviews with employees and land owners made in Raqqa in October 2004, June 2005 and April 2007 helped me to update the data. This work is part of my Ph D in Geography entitled *"Ideologies and territories in a pionnier front: Raqqa and the Euphrates Project in the Syrian Jazîra",* 2004), Best Doctoral Dissertation Prize, 2006 (runner-up), Syrian Studies Association.

[3] During the Ba'athist revolution, the limits were raised in favour of the farmer, who could obtain 40 % of irrigated cotton crops, 50 % of irrigated vegetable crops and 30 % of olive crops.

[4] Interview with a GADEB communist agricultural engineer in Raqqa, October 2003.

[5] These big projects are: 8th March Project in Rif Damascus; Hurriya Project in Lattaquia; Assad and Abu Firas Hamdani Projects in Aleppo governorate; Rachîd Project in Raqqa governorate; Si`lo Project in Deir ez-Zor and Ras al-Ain Project, Manajir and Tiger in Hassaka governorate. The five agricultural units are located in Quneitra, Deraa, Suweida and Hassaka governorates.

[6] Decree 1033 limited the private property in the State Irrigation Projects to 160 donums. 3,100 hectares were expropriated and transformed to state land rented for 75 SYP a donum a year (Bauer 1990: 38).

[7] One donum = 0.1 hectare or 1,000m^2.

[8] See Ministry of Irrigation, *Statistics of the General Administration of the Euphrates Basin*, 2005.

[9] The governorate of Raqqa produces on average 500,000 tonnes of wheat (on 189,000 ha), 120,000 tonnes of barley (299,000 ha), 240,000 tonnes of cotton (52,000 ha), and 64,000 tonnes of corn (14,000 ha).

[10] The interviewee took the case of a beneficiary who was cultivating 15 donums of wheat and 15 donums of cotton. The 15 donums of wheat can produce 8 tonnes (i.e. 75 sacks, *« joual »,* weighing 110 to 120 kg), given that a ton of wheat sells on average for 12,000 SYP, that makes a total production of 100,000 SYP. This calculation assumes a high yield of 5 sacks of wheat per donum, i.e. 600 kg. As for cotton, one donum can produce between 300 and 400 kg, so 15 irrigated donums can produce between 4.5 and 6 tonnes of cotton. Banking on a sale price of 2,900 SYP per 100 kg, a sum of 130,500 to 174,000 SYP is reached. 100,000 SYP must be deducted to cover the purchase of seeds and fertilizers, as well as the rent for farm machinery (Seeds cost 15 SYP/kg and in this case 500 kg are needed for 15 donums. Fertilizers cost 8 SYP/kg and 50 kg are needed per donum). Altogether, once production expenses are deducted from the agricultural revenue, the beneficiary can earn an annual income of 130,500 to 174,000 SYP, i.e. double his previous salary.

11. According to other calculations in the Euphrates Valley I received, an irrigated donum produces an income around 20,000 SYP in a good year (600,000 SYP for the assumed 30 donum example). Regarding the non-irrigated *ba`l* land, the income depends on the level of precipitations. Near Ain `Issa, in the northern part of the governorate (350 mm per year) a donum can produce 15,000 SYP/year, but around Raqqa only between 2,000 and 8,000 SYP/year, according to the year's rainfall and the soil.

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About the Authors

Myriam Ababsa is a research fellow and social geographer at the French Institute for the Near East (Institut Français du Proche-Orient). Her work has focused on the impact of public policies on regional and urban development in Jordan and Syria. Her PhD thesis, "Ideologies and territories in Syria: Raqqa and the Euphrates Project", Tours University, 506 p., 2004, received the Honorable Mention of the *Best Dissertation Prize (Syrian Studies Association)* in 2006. It was published in French by IFPO in 2009. Myriam currently runs two research programs: *The Atlas of Jordan* (funded by the French Embassy and the European Commission) and *National Construction and Urban Transformation* in collaboration with Rami Daher (German Jordanian University). She published *Amman de pierre et de paix*, Paris, Autrement, in 2007.

Atieh El-Hindi, Director of the Syrian National Agricultural Policy Center (NAPC), is an agricultural economist. He has been working for the Ministry of Agriculture and Agrarian Reform (MAAR) since 1982, where he served as Head of the Following up Department and as Deputy Director and Director of the Statistics and Planning Directorate. He was National Director of a FAO project from 1998 to 2008. He participated in the Syrian delegation to negotiate the Syrian EU Mediterranean Partnership Agreement and chaired the Committee on Agriculture in the Syria-EU Association Agreement discussions and the Committee of Agricultural Trade for preparation of WTO accession. He has published many essays, studies, reports, and articles about the agriculture sector in Syria, such as "Agricultural Development Strategy in Syria," "Strategic Crops Sub-sector in Syria," "Food Security and Accession to the WTO: Procedures, Issues and Lessons for Syria from Recent Experiences, and Options for Reforming Syrian Agricultural Policy." Since 2000 he is the head of National Agricultural Policy Centre in Syria (www.napcsyr.org).

Raymond Hinnebusch is Professor of International Relations and Middle East Politics at the University of St Andrews and Director of the Centre for Syrian Studies at St. Andrews. He is the author of many studies on Syria including "*Syria: Revolution from Above"* (Routledge 2001) and "*Peasant and Bureaucracy in Ba'thist Syria: the Political Economy of Rural Development"* (Westview 1988).

Munzer Khaddam is a prominent Syrian agriculture economist. He holds a bachelor degree (1974) and a Ph.D (1980) in agricultural economy from Sofia University (Bulgaria). He is currently professor of agricultural economics at Teshreen university, Latakia, Syria. He has published 15 books about economy and society such as: 'Water Security in Arab Countries,' 'Water Security in Syria,' 'Theoretical Basis of Investments,' 'The Public Economy,' 'Questions of Democracy in Arab Countries in the Globalization Period,' 'Arabs and Globalization,' 'About Methodology, Philosophy of Science and Methodologies.' His e-mail is khddam@scs-net.org.

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