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Abbreviations, Acronyms

AFA	<i>Agence Foncière Agricole/Agricultural Land Agency</i>
AFD	<i>Agence Française de Développement/French Development Agency</i>
ALMP	Active Labor Market Programs
AMC	<i>Association de Micro Crédits/Micro Credit Associations</i>
APIA	<i>Agence de Promotion des Investissements Agricoles/Agricultural Investment Promotion Agency</i>
ASSP	Agricultural Services Support Project
ATE	<i>Agence Tunisienne de l'Emploi/Tunisian Employment Agency</i>
AVFA	<i>Agence de vulgarisation et de formation agricole/ Agricultural Extension and Training Agency</i>
BNB	<i>Banque Nationale Agricole/National Agricultural Bank</i>
BPO	<i>Budgétisation par Objectifs/Performance-Based Budgeting</i>
BTS	<i>Banque Tunisienne de Solidarité/Tunisian Solidarity Bank</i>
CCGC	<i>Coopérative Centrale des Grandes Cultures/Central Field Crop Cooperative</i>
CCSPS	<i>Coopérative Centrale des Semences et Plants Sélectionnés/Central Seeds and Selected Plants Cooperative</i>
CFPA	<i>Centre de Formation Professionnelle Agricole/Agricultural Professional Training Center</i>
CGE	Computable General Equilibrium
CNEA	<i>Centre national d'études agricoles/National Agricultural Studies Center</i>
COCEBLE	<i>Coopérative Centrale du Blé/Central Wheat Cooperative</i>
COTUNACE	<i>Compagnie Tunisienne pour l'Assurance du Commerce Extérieur/Tunisian Foreign Trade Insurance Company</i>
CRA	<i>Cellule de rayonnement Agricole/ Agriculture Extension Cell</i>
CRDA	<i>Commissariat régional au développement agricole/ Regional Center for Agricultural Development</i>
CSA	<i>Coopérative de services Agricoles/Agricultural Service Cooperatives</i>
CTA	<i>Centre technique agricole/ Technical Agricultural Center</i>
CTAMA	<i>Caisse Tunisienne des Assurances Mutuelles Agricoles/Tunisian Mutual Agricultural Insurance Fund</i>
CTV	<i>Cellule territoriale de vulgarisation/ Local Extension Cells</i>
DGF	Direction générale des forêts/General Directorate for Forests
FAO	Food and Agriculture Organization

FNG	<i>Fonds National de Garantie/National Guarantee Fund</i>
FODECAP	<i>Fonds de développement de la compétitivité dans les secteurs de l'agriculture et de la pêche/Agriculture and Fisheries Competitiveness Development Fund</i>
FOPRODEX	<i>Fonds de Promotion des Exportations (Export Promotion Fund)</i>
FSA	<i>Financial Sector Assessment</i>
GDAP	<i>Groupement de Développement de l'Agriculture et de la Pêche/ Agricultural and Fishery Development Group</i>
GFIC	<i>Groupement Forestier d'Intérêt Collectif/Forestry Collective Interest Group</i>
GIC	<i>Groupement d'Intérêt Collectif/ Collective Interest Group</i>
GIP	<i>Groupement interprofessionnel/ Inter Professional Group</i>
GIS	<i>Geographical Information Systems</i>
GOT	<i>Government of Tunisia</i>
IRESA	<i>Institut de Recherche et d'Enseignement Supérieur/ The Agricultural Research and Higher Training Institute</i>
MARH	<i>Ministère de l'Agriculture et des Ressources Hydrauliques/ Ministry of Agriculture and Water Resources</i>
MDCI	<i>Ministère du Développement et de la Coopération Internationale/ Ministry of Development and International Cooperation</i>
MTEF	<i>Medium Term Expenditure Framework</i>
OEP	<i>Office de l'Élevage et des Pâturages/Livestock and Rangelands Agency</i>
ODESYANO	<i>Office de Développement Sylvopastoral du Nord-Ouest/North West Sylvopastoral Development Agency</i>
ONH	<i>Office National des Huiles/National Oils Agency</i>
PACFS	<i>Petite Agriculture à Caractère Familial et Social/Small Scale Family and Social Agriculture</i>
PBB	<i>Performance Based Budgeting</i>
PISEAU	<i>Projet d'Investissement dans le Secteur de l'Eau/Water Sector Investment Project</i>
PMEACE	<i>Petites et Moyennes Exploitations Agricoles à Caractère Economique/Small and Medium Scale Commercial Farms</i>
PSIA	<i>Poverty and Social Impact Analysis</i>
UTAP	<i>Union Tunisienne de l'Agriculture et de la Pêche/ Farmers' and Fisherfolks' Union</i>
UTICA	<i>Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat/ Tunisian Union for Commerce, Industries and Handicrafts</i>

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Executive Summary

The sectoral context

1. Is agriculture making its full potential contribution to the nation? That is the question that the Tunisian Government is asking as it prepares for the 11th and 12th Plan periods (2007-16). Tunisia's farm sector is entering new territory, with higher incomes, lower poverty rates, and new consumer tastes, market structures and trade agreements. Policymakers face challenges that simply did not exist a decade ago and are asking whether the solutions of the past are still relevant. In 2004, therefore, the Government asked the World Bank to review the entire farm sector for the first time in more than 20 years. This report is based on 11 background papers prepared during 2005, with support from the FAO/CP and the Agence française de développement.

2. Tunisia's agricultural policy has come a long way since the 1980s: from post-Independence dirigisme, through the emphasis on expenditure control in the late '80s and productivity in the early '90s to the current preoccupation with international competitiveness. After nearly two decades of gradual liberalisation, many key prices are controlled and tariffs are high.

3. Agricultural production has performed remarkably well, with yields growing at 2.8% per year since 1989. Agriculture has kept pace with overall economic growth. It provided a quarter of Tunisia's new jobs in the 1990s, creating twice as many jobs per unit of GDP as the economy overall.

4. If one looks beneath the surface, however, there is plenty of evidence that agriculture is not making its full potential contribution to the economy.

- A growing labour supply is disguising stagnant labour efficiency: farm labour went up 20% between 1993 and 2002 but there was no trend increase in its productivity.
- Agriculture's success imposes costs on the rest of society: DT 180m per year in compensation subsidies, 4% extra on the cost of living for consumers and taxpayers and 0.8% of GDP in lost growth thanks to distorted prices.
- Two-fifths of agriculture's growth represents a loss to the economy because it comes from commodities which it would cost less to import - beef and milk.
- Where Tunisia has the potential to be competitive, in fruit and vegetables, it is underperforming. Between 1980 and 2000 the value of exports went down by 0.3% per year. EU import quotas are underused.

5. The cases of citrus and olive oil illustrate how potential is not being realized. The key issue is quality. Supply chains must be responsive to consumers' specific demands. But to get premium oranges and oil onto the market, farmers need first-rate technical and marketing support from research, extension and producers'

organizations. And Government interventions, in the form of fixed retail margins and the Office des Huiles' control over quotas and testing, are interposed between the producer and the consumer. The result is that Tunisian oranges and olive oil command low prices and EU quota is left unused. Conversely, when Government has made partial reforms, such as the removal of the ONH's olive oil export monopoly, the private sector has responded.

6. The next stage of the analysis is to ask how supply chains might become more responsive. It looks at trade policies, domestic policies and institutions, producers' organizations, research and extension, natural resource management, the mobilization of resources and land. Common themes begin to appear:

- That the state's heavy presence in supply chains hampers their responsiveness.
- That supply chains need first-rate public goods from Government: good research, extension and phytosanitary and health regulations.
- That the prevailing logic is for Government to give top-down prescriptions e.g. for farmers organizations, credit packages, land tenure. Government could facilitate the private sector more effectively by seeking to understand and respond to its perceived needs.

Institutions and policies

7. When it comes to making supply chains more responsive, one set of reforms, removing price distortions, matters more than others. Allowing markets to set prices freely is an "apex reform" because it makes other reforms more effective. For example, the more the price system rewards farmers for growing high-quality vegetables, the more vegetable-growers will take advantage of improvements in water-management, land markets, farmer groupings, extension services and so on.

8. Trade policy is the starting point of the analysis, because it is the basis of prices and profitability. Tunisia's farm tariffs are high by regional and world standards. Peak tariffs apply to 69% of agricultural tariff lines and applied rates average 67%. According to the WTO, Tunisia's reforms of the last two decades, "have not substantially liberalised trade."

9. This matters for consumers and taxpayers, whose cost of living is raised 4% by agricultural protection. And it also matters for the economy as a whole, which loses 0.8% of GDP. In fact, the protection of Tunisian cereals is particularly costly. Using trade protection to keep one person employed in cereals costs the nation over 4 times national per capita income in terms of lost output. This is because cereals-farming uses little labour.

10. But if the Government were to liberalise food trade, it would need to understand who would lose out. The two main sub-sectors, tree crops and small ruminants, would not lose out. Livestock farmers would even become better off, because tariff reductions would mean cheaper fodder. But 16% of farms, covering

30% of land area, would be losers. They are generally cereals operations in the north- and north-west of the country and include farms on state land. They include high- and low-income farms. The low-income losers are concentrated in Kef and Béja. Because cereals farming uses little labour, the impacts on income would be more pronounced than the impacts on farm employment.

11. On trade, therefore, the recommendation is that Government should gradually reduce cereals tariffs and the producer support price. Tariffs on barley and other feed inputs should be liberalised as soon as possible. A Poverty and Social Impact Analysis should identify vulnerable losers more precisely and work out mitigation measures.

12. Concerning domestic policies and institutions, the study focuses on three issues: cereals marketing, animal health and food safety and produce quality. A common conclusion emerges: the state should reposition itself. It should withdraw from direct market intervention. Instead it should concentrate on regulating markets, protecting health, natural resources and the environment and providing genuine public goods.

13. Government uses the Office des Céréales' monopoly of the cereals market to keep the producer price up and the price to millers down. But the cost of its interventions is out of proportion to the supposed benefits. At a budgetary cost of DT 180 million per year, the Office's interventions reduce the price to millers by 2.9% at most. It costs \$12 per consumer per year to deliver a benefit to the consumer of \$1.30. Moreover, the Office's monopoly has retarded the modernization of quality control, transportation, storage, trading techniques, risk management etc..

14. Government's reliance on the Office to ensure food security is understandable, in the light of the food riots of 1984. However, the causes of food shortages in the past (foreign exchange shortages caused by macroeconomic imbalances) are no longer a threat. A small strategic reserve, with releases targeted at specific vulnerable groups during crises, would serve the purpose more cheaply than the Office des Céréales' operations.

15. So the recommendation here is that the state should transfer cereals importation and marketing to the private sector. The Office des Céréales would concentrate on core public services: ensuring competition, maintaining a security stock and providing technical support to market players. A private inter-professional group should take the lead in developing trading instruments, such as forward pricing and standard contracts.

16. Food safety in Tunisia is inadequate. For example slaughtering arrangements are a health hazard and pesticide residue testing is incomplete. To protect the Tunisian consumer and export prospects, Tunisia should develop a comprehensive food safety system. It should be applied equally to products for domestic consumption and export.

17. A number of Government interventions in produce markets systematically send the message to producers: go for volume and cheapness rather than quality. Government controls retail margins, pressures wholesalers to keep prices down, sometimes imports vegetables when prices go up, pays inadequate quality bonuses for cereals and caps the prices of processed foods. Meanwhile, supply chains need more of the public services that would help improve quality: research, training, phyto-sanitary and food safety regulations, and up-to-date norms.

Professional organizations and support services

18. In developed countries, farmers depend upon producers' organizations for technical and marketing services. In Tunisia there are 201 Coopératives de Service Agricole, over 3,000 Groupements d'Intérêt Collectif (mostly dealing with water), 171 Groupements de Développement de l'Agriculture et de la Pêche, 7 inter-professional associations and UTAP, the farmers' and fisherfolk's union.

19. There are success stories. Some wine and dairy cooperatives have provided effective marketing services to their members. The transfer of downstream irrigation management from the public sector to Groupements d'Intérêt Collectif has also helped improve operations and maintenance. However, there is great room for improvement. Cooperatives' coverage is low, many are inactive, and the turnover of milk, wine and vegetable cooperatives is falling. Neither UTAP, nor the inter-professional groupings, nor the Central Cooperatives are seen as representative of their interests. As 2004 legislation redefines GICs and Cooperatives as GDAPs, they will lose their ability to earn revenues.

20. Government can make professional groupings more effective by redefining their governance arrangements so that farmers are genuinely in control. This would improve ownership and accountability, and dispel the conception that they are arms of Government. It could also encourage GDAPs to become commercial players. This would involve revising the 2004 statute as well as capacity-building.

21. Research and extension are core Government services. They also are not realizing their potential to support quality-driven supply chains. This came out strongly from the background studies. There are two broad problems. One is that extension and research are not responsive to farmers' perceived needs, for example for practical post-harvest advice. The other is that extension and research are underfunded. Government should reform the management of research and extension, institutionalizing farmer consultation and showing a firm commitment to performance-based budgeting. There will be little incentive for improvement until research and extension are accountable for giving farmers what they want.

Natural resources

22. Natural resources are the foundation of the agricultural supply chain. As in other areas, Government could improve its effectiveness by focusing less on quantitative investments and more on systems and incentives.

23. Tunisia has led the region in innovative irrigation management. The delegation of downstream management of 150,000 ha to GICs has improved operations. The cost-recovery rate for operations and maintenance costs overall is 115%. Government is currently experimenting with two-part pricing, so that farmers feel the marginal cost of water. Thanks to Government subsidies, 75% of the irrigated area uses water-saving equipment.

24. Some anomalies need attention, however. The 50% tariff discount for cereals distorts farmers' choices. Also there is no real reason for Government to subsidise the replacement of water-saving equipment when it wears out.

25. When it comes to resource-allocation the emphasis is still on massive water-mobilisation programmes. 55% of the MARH's 10th Plan Budget is for water investment, and 43% of that is for large dams. The large dams allocation for 2005 was equivalent to 61% of the MARH's entire recurrent cost budget. Given the consensus that extension and research are under-funded, this is unfortunate. Moreover, with 90-95% of available water already mobilized, diverting even more water cannot solve the key issues in the irrigation sector: dam siltation, groundwater depletion, pollution, salinization, and low water-use intensity.

26. The key tool for addressing this bias is economic cost-benefit analysis. Government could define its objective (e.g. volume or stability of supply) and work out the least-cost combination of measures for achieving it. This integrated water management approach would need to be underpinned by new skills in the MARH, especially in agro- and socio-economics.

Resourcing the agricultural sector

27. The public and private sectors' ability to respond to the market will depend upon their capacity to mobilize and manage resources.

28. The MARH's management systems are biased towards the management of hard investment. "Soft" activities, such as research and extension, are losing out. The Ministry can therefore build on the approaches of the Agricultural Services Support Project (ASSP) and Performance Based Budgeting to improve its management of "soft" activities.

29. Government's approach to rural finance has been to pursue quantitative investment targets with subsidies, interest rate caps and debt forgiveness. But on the ground people have not behaved as intended. Private investment and farm credit are contracting rapidly, and the loan arrears rate is around 50%.

30. If the current approach is not working, there are no easy alternatives. The Government should study decision-making in the credit market, to understand why bankers and farmers do not act as Government intends. On the basis of this study, Government may see how to harness the behaviour of bankers and farmers to increase investment. One option may be to allow micro-credit institutions greater commercial

freedom. Another may be to make the BNA's objectives and accountability more transparent.

31. Rainfall variation bedevils rural investment. Government may therefore wish to promote rainfall-index insurance. However, Tunisian farmers have not been willing to pay for drought insurance in the past. The reason may be that they expect drought- and debt-relief from Government.

Rural land

32. If one compares Tunisia with developed Mediterranean countries like Italy and Spain and the new EU countries, one can see where increases in farm labour productivity come from. Much of it derives, not from higher land productivity, but from higher land-labour ratios. Out-migration and land consolidation are part of that process.

33. In Tunisia, land fragmentation and absenteeism are causing concern. Holdings of under 5 ha have risen from 41% to 53% of the total land area since 1976. In response, the Agence Foncière Agricole (AFA) has been active in reconsolidating and titling (mostly irrigated) land at the rate of 12,000-14,000 ha per year. But is land fragmentation really a problem for competitiveness? And, if it is, is it a deep-rooted social phenomenon or can Government intervene in land markets to prevent it? Unfortunately, despite all the quantitative and legal analysis of land tenure, there is very little understanding of farmers' decision-making. Moreover, we only have anecdotal evidence of how land tenure affects farming practices.

34. So the first step towards defining a land tenure policy is to define the problem from the farmers' perspective, by studying their perceived priorities. Based on the findings of this study, Government could consider policy responses such as one-stop shops for land transactions, administrative simplification, an integrated land code, fiscal penalties and bringing in emphyteotic leases.

Social aspects of agricultural policy

35. Farming is a source of livelihoods as well as a source of growth. Those who depend upon agriculture are often the most poor and vulnerable elements of Tunisian society: the elderly, the unskilled, landless labourers, inhabitants of less-developed rural areas and females left behind by male migration. One must understand how policy change will affect them.

36. This report has suggested the re-engineering of institutions and processes to make them more responsive to farmers' needs. This approach would apply to extension, research, farmers' organisations, budgetary management and credit and land tenure institutions. But Tunisian farmers are a diverse group. As Government tries to become more responsive to their needs, there is a risk that the dialogue will be captured by larger farmers and men, to the exclusion of smaller farmers, women and the landless. Government should therefore ensure that farmer-Government dialogue (e.g. consultations and research) embodies the diversity of stakeholders.

37. This report has also suggested that cereals tariffs and guaranteed producer prices should fall. The social impacts of this reform, via food and labour markets, will be complex and heterogeneous. At this stage, however, we can make the general prediction that small cereals farmers and cereal farm labourers in the North and North West are vulnerable to cereals price liberalisation. It may be difficult for labour to find an alternative to cereals farming. 80% of these cereal farmers are over 40 years old, and few (only 15% in Le Kef) have a secondary source of income. In order to understand the dynamics more precisely, a Poverty and Social Impact Analysis (PSIA) should accompany any cereals price reforms.

38. When it comes to mitigating the impacts of reform, the emphasis should be on improving the targeting of Active Labour Market and other social programmes. At the moment they focus on urban males with secondary education, marginalising the rural poor.

39. Countries like Mexico and Turkey have de-linked rural income support from farm production. In this way, they achieve the political objective of a controlled and predictable income transfer to rural society – but without the market distortions and fluctuations in transfer values that go with production subsidies.

40. A key point, however, is that well-designed rural social programmes should not just be seen as mitigating the impacts of reform. They are desirable *per se*. Subsidizing outputs, credit, loan arrears and water is inefficient and socially regressive. Most of the benefits go to better-off farmers. So better-targeted social programmes will achieve Government's social objectives more effectively than the current market distortions.

1. INTRODUCTION

A. OBJECTIVES OF THE REVIEW

1. It is impossible to consider economic development in Tunisia without considering agriculture. It generates about 13% of GDP and employs about 16% of the labour force, contributing *25% of new jobs* during the 9th Plan period (1997-2001), and about a half of Tunisian households' consumption is on food.

2. The preparation of the 11th and 12th Plans, covering the period 2007-16, is a historic opportunity for the Tunisian Government to take a fresh look at agriculture. Higher incomes, lower poverty rates and a new international trading environment present policymakers with opportunities and challenges that simply did not exist a decade earlier. On the threshold of the new planning period, the Tunisian Government is asking fundamental questions. What makes agriculture competitive? Is agriculture contributing its full potential contribution to the nation? How can agriculture take advantage of trade agreements with the EU and other partners?

3. In 2004, therefore, after more than 20 years without a comprehensive World Bank study, the Ministry of Development and International Co-operation requested an Agricultural Policy Review. The review was executed by the World Bank, with the Ministry of Agriculture and Water Resources as its Tunisian interlocutor. In addition to contributing to the preparation of the 11th and 12th Plans, the report is intended to provoke a lively debate on the role of agriculture in Tunisia's future.

Background Papers

4. This report is based on 11 background papers, on topics identified in consultation with the Ministry of Development and International Cooperation (MDCI) and the Ministry of Agriculture and Water Resources (MARH). Support was received from the Food and Agriculture Organization (FAO/CP) and the French Development Agency (AFD), without which the sector review would have been impossible. The studies covered:

- Tunisia's agricultural competitiveness;
- cereals;
- fruits and vegetables;
- livestock products;
- fisheries;
- soil and water conservation, forestry and rangelands;
- irrigation water;
- rural land;
- agricultural organizations;
- agricultural finance; and
- social aspects, including gender.

5. The eleven studies have provided a wealth of data, which is now available to the Government¹. The purpose of the present report, therefore, is not to duplicate the background studies with another encyclopaedic description of the agricultural sector. It is rather to answer Government's request that we explore the "main themes" and see in which direction they might reorient the policies of the Tunisian Government.

B. APPROACH

6. The starting point for the review is the Tunisian government's own policy objectives, as expressed in the Plan and other official statements. This report briefly describes the sector's past achievements in terms of these objectives, and then presents evidence that it could do even better. This raises the question: *how could Government help the farm sector realize its potential more completely ?* To answer this question, the study looks in detail at the different building-blocks of agricultural competitiveness: trade policy, domestic policies and institutions, producer groupings and so on.

7. As the study examines each facet of the agricultural sector, some common themes begin to emerge clearly:

- That agriculture's output growth has been impressive.
- That it has unrealized potential.
- That the challenges of the past are not the challenges of the future: production is now joined by issues of quality and global marketing.

¹ Unfortunately the findings of the fisheries study were not available in time to be incorporated into this report. It was also felt that soil conservation, forests and rangelands were satisfactorily covered as separate issues by the background study and that their inclusion in this synthesis report would have distracted from its main messages.

- That meeting the new challenges of quality and global marketing is a matter of responsiveness to the market. Supply chains must be agile and flexible to give the modern consumer what s/he wants.
- That the state's heavy and distorting presence in supply chains hampers their responsiveness. Facilitating the private sector to serve the consumer could help agriculture achieve its unrealized potential.
- For the state, effectively facilitating the private sector means becoming more responsive and less prescriptive.

8. However, the objectives of agricultural policy are not just about maximizing growth potential. They relate to social stability and food security as well. When the Tunisian state intervenes in the agriculture sector, the ostensible reason is often social. So there are trade-offs between the various objectives of agricultural policy: some policies intended to maintain social stability and food security have negative impacts upon the sector's competitiveness. It is not the intention of this study to prioritize one policy objective above another; social and economic aspects of policymaking are treated as of equal importance. However, the study will argue that the targeting of agricultural policy instruments to social concerns has created a mismatch between instruments and objectives. The result is that neither social nor economic objectives are being addressed optimally.

9. The study's overall approach therefore is to recommend policies that will deliver agricultural growth, by empowering the private sector to respond to consumer demand. At the same time, and in parallel, the study will recommend the mobilization of policy instruments that are better suited to addressing the needs of the poor and vulnerable.

10. The aim at this point is to advise on the overall strategic direction of Tunisian agricultural policy. With such a broad remit and without a recent history of analytical work, it would be imprudent to propose a step-by-step blueprint for implementation. As the Government identifies specific areas for reform, the transition path will need to be mapped in more detail, drawing on the experience of other countries.

II. PAST PERFORMANCE OF THE SECTOR

11. This section examines the performance of the agricultural sector over the last 20 years. Its purpose is to recognize its achievements, and also to identify ways in which it may not be realizing its potential. This analysis will lead into the analysis of strategic policy choices in subsequent sections.

A. FIVE YEAR PLAN PRIORITIES

12. The Tunisian Government executes agricultural sector policy within the framework of Five Year Development Plans. The Plans' aims are expressed as quantified volumes of inputs and outputs. Although Chapter III, D on "Resourcing the Agricultural Sector" will argue that a new approach to objective setting could improve Government's effectiveness, the current Plan framework will be used in this section to assess the sector's past performance.

13. It is important to recognize that Tunisia's agricultural policy has come a long way since the late 1980s. During these last two decades, Tunisia has pursued a twofold agricultural development strategy oriented towards economic growth and social stability. The goals were sustainable productivity, access to foreign markets and improved farmers' livelihoods.

14. During the 7th Economic and Social Development Plan² (1987-1991), Tunisia embarked on structural reforms, supported through the Agricultural Sector Adjustment Program³ (PASA). The reform program aimed at improving the balance of payments, public finances and employment. It addressed the roles of public and private entities, the investment climate and sustainable resource use. A number of sector reforms were implemented, mostly in the irrigation sector, in order to improve resource-use. New water saving technologies and tariff systems were introduced in order to encourage efficiency and reduce water waste.

15. During the 8th Plan (1992-1996), further efforts were made to enhance productivity. This involved investments in applied agricultural research and extension, and the delivery of farmer support services. Reforms in land tenure, agricultural credit and fiscal systems were carried out to encourage private entrepreneurship.

² VII^{ème} Plan de Développement Economique et Social (PDSE)

³ Programme d'Ajustement du Secteur Agricole (PASA)

16. In the late 90s, increased access to international markets brought new priorities. The 9th Plan period (1997-2001) was dominated by a new Association Agreement with the European Union, WTO liberalization and the creation of the Arab Free Trade Area. This kick-started domestic reforms in price and subsidy policies. Input subsidies were cut and most commodity prices were liberalized. However, prices remained fixed for some crops such as *hard wheat* and *soft wheat*, external tariffs remained high and the Ministry of Commerce maintained formal and informal controls on consumer prices. Meanwhile, Tunisia pursued parts of its previous agenda: (i) further mobilization of water resources; and (ii) increased self-sufficiency in products such as olive oil, cereals, potatoes, tomatoes, milk, red meat and sea products.

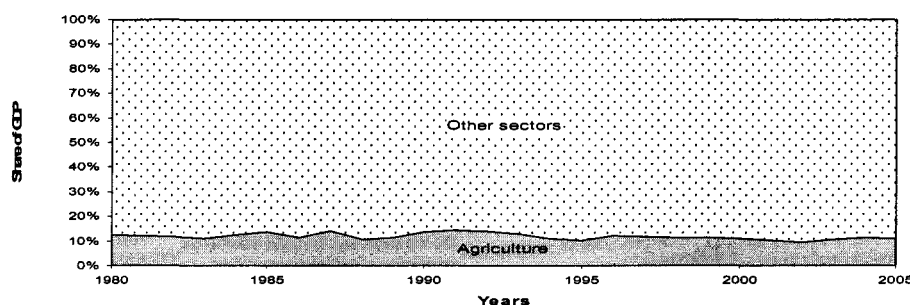
17. The 10th Plan (2002-2006) has continued what the 9th Plan had begun, while emphasizing private investment and smallholder agriculture's roles in social and regional development.

B. SECTOR PERFORMANCE

18. Agriculture has kept pace with Tunisia's economic growth overall. Within an economy growing at average rate of 4.3%, the sector has shown average rates of growth of 10%, 2%, 2% and 5.6% during the 7th, 8th, 9th and 10th plans respectively. So the contribution of the agricultural sector to GDP has remained on a flat trend, averaging 13.4% over the past twenty years. This is quite unusual. Often agriculture's share of GDP falls steadily when a middle-income country grows steadily.

19. However, agricultural growth has shown large fluctuations, mostly because of rainfall variation. The growth rate of agricultural value-added varied from 8.6% during 1987-1991 to 2.1% during 1991-1996, averaging 3.5% over the 9th and 10th Plans

Figure 1. Agriculture's share of GDP



Source: WDI, IBRD

20. Some of agriculture's growth has come from land productivity increases. Average yields have shown substantial growth, estimated at 2.8% for the period 1989-2003, through greater use of chemical fertilizers, mechanization and improved seeds, more skilled farmers, and the expansion of irrigated cropping.

Table 1. Production levels of main agricultural commodities (1000 T)

	7th Plan	8th Plan	9th Plan	10th Plan*
Cereals	1408	1607	1394	1867
Olives	563	740	915	628
Citrus fruits	240	209	223	229
Dates	71	77	102	118
Potatoes	197	217	305	326
Tomatoes	487	507	759	905
Meat	124	238	325	401
Milk	387	526	806	905
Fisheries	95	86	93	104

Source: Tunisia 7th, 8th, 9th and 10th Plans Evaluation Reports

*Authors estimates based on 2002-2005 average output values at 1990 constant prices

21. Looking at the record of different commodities, cereals crops declined during the 9th Plan period with two consecutive years of drought (Table 1). Preliminary production estimates for the 10th Plan period show a recovery. Tree crops contribute a major share of agricultural exports. They consist principally of olives, dates and citrus fruits. The share of olive oil in total agricultural exports averaged 34% during the 10th Plan. Dates followed with 13% . The share of citrus fruits has been only 2%, and their contribution to total commodities exports is decreasing.

22. The livestock sector has grown rapidly across the board. Milk and poultry meat have exhibited especially high annual growth. Incentive policies have resulted in a strong increase in milk production and a large decrease in milk imports, despite rising national demand. Local milk supply currently meets more than 90% of domestic demand. Fisheries outputs, which account for 18% of exports, have practically stagnated during recent years. Nevertheless, their export value has shown considerable growth.

C. FOOD TRADE BALANCE

23. The 10th Plan (e.g. volume 2, para. 1) explicitly endorses food self-sufficiency as a national objective. Section III.A of this report will argue that the pursuit of self-sufficiency for its own sake cramps growth and is an inefficient way of promoting

food security. However, is informative to assess progress against the self-sufficiency goal that Tunisia has set for itself.

24. Tunisia's food trade balance has remained negative during the two last decades with the exception of the years 1999 and 2004. It is chronically dependent on cereals imports, which represents about 40% of total food imports. However, the overall coverage rate has risen from about 64.8% during the period 1987-1991, to 69.1% in 1992-1996, 81.5% in 1997-2001 and 78.4% during 2002-2006⁴. The reason is that Tunisian milk and sheep meat now cover domestic demand.

D. CONSOLIDATION OF AGRICULTURAL EMPLOYMENT

25. The sector's share in national employment has significantly decreased over the years. From 46% in 1960 and 23% in 1995-2000, the sector now contributes to only 16% of national employment. During 1989-1994, net employment creation was negative in the agricultural sector. In 1994-1997, however, its gross contribution was estimated at 23.5% of total new employment creation and increased to 25% in 1997-2001. In other words, over the last 12 years agriculture has created twice as many jobs per unit of GDP as the economy as a whole.

E UNREALIZED POTENTIAL

26. So one could fairly ask whether there is an agricultural policy problem in Tunisia at all. With such a respectable growth and employment record, it seems at first sight as though the status quo is perfectly satisfactory. But if one looks beneath the surface, one finds plenty of evidence that Tunisian agriculture is performing below its potential.

27. What does "potential" mean in this context ? One can think of it as cost-competitiveness: the ability to produce a commodity more cheaply than competitors. Then "realizing potential" means actually increasing the value of competitive commodities purchased at home and abroad.

28. To identify Tunisia's agricultural potential, therefore, the MARH's Carte Agricole data was used to compare economic production costs ("domestic resource cost") with border prices. If the economic cost is higher than the border price, this means that Tunisia would not be a competitive exporter and would save resources by importing this commodity. If the border price is higher than the cost, this means that Tunisia is potentially a competitive exporter - providing that quality and supply chain issues are addressed. The main findings are as follows:

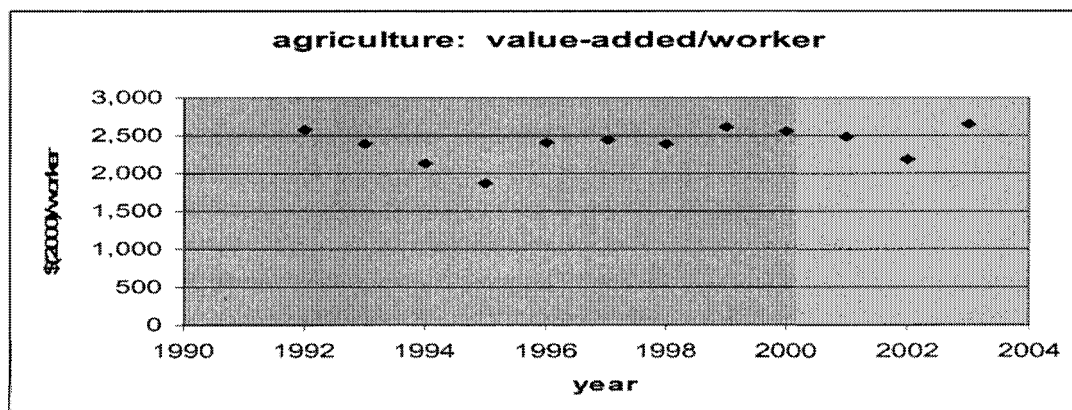
⁴ The lapse in the food trade balance in 2002-2006 is principally due to the 2002 drought, which resulted in a coverage rate of only 48.7% in that year.

- Treecrops, fruits and vegetables are potentially competitive. The domestic resource cost of producing vegetables and melons ranges from 10% to 55% of the border price. For treecrops it ranges from 30% to 85%.
- Dairy and beef production are uncompetitive, because of high domestic production costs and foreign export subsidies. The least uncompetitive activity is milk production in a mixed farming operation [lait intégré], for which costs are 125% of border prices. The most uncompetitive activity is beef production, for which costs range from 175% to 260% of border prices, depending upon the genetic quality of the herd.
- Sheepmeat production is potentially competitive, with a domestic resource cost of 65% of border prices.
- The competitiveness of cereals is highest in the north and west where rainfall is most favourable and lowest in more arid areas. Hard wheat is most likely to be competitive and soft wheat and barley least likely. The larger the farm size, the more competitive cereals production is likely to be.

On this basis we can ask whether Tunisia is realizing its growth potential. There are signs that it is not.

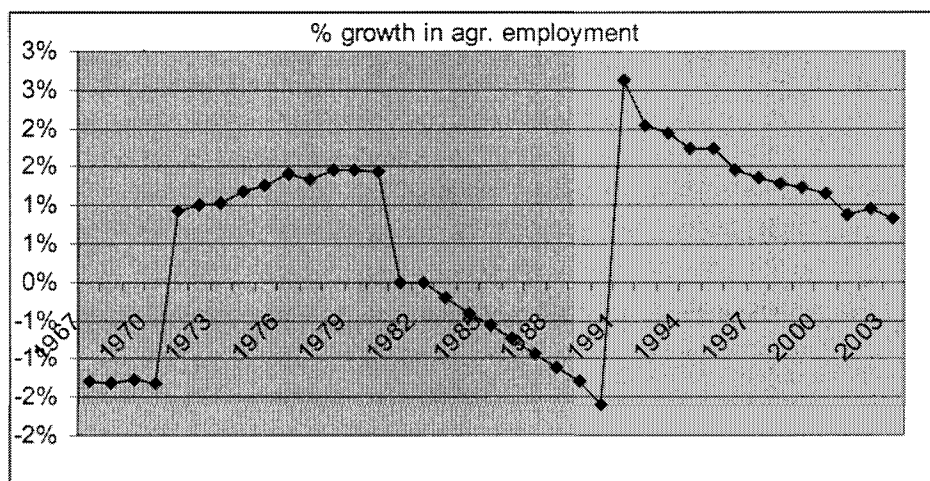
29. Firstly, some of agriculture's growth has simply come from applying more and more labor to the same area of land. This is unusual for a middle-income economy with slow population growth, and may be because the industrial sector is unable to absorb labour supply growth.⁵ Agricultural employment grew by 20% between 1993 and 2002, while there is no trend increase in labour productivity (Figure 2). Over the 9th and 10th Plan periods labour productivity in agriculture did not grow, but it rose 4.4% and 4.7% per year in manufacturing and services respectively (World Bank, 2004a). This is worrying, because it means that labour supply growth is disguising low efficiency growth.

Figure 2. Value-added per worker in agriculture 1992-2004



⁵ There is no simple correlation, however, between the rate of growth of agricultural employment and Tunisia's overall growth and employment record.

Figure 3. Agricultural employment 1967-2004



Source: WB / GDI database

30. Secondly, much of agriculture's success is thanks to sacrifices made by the taxpayer, the consumer and the rest of the economy. The cost of agriculture's growth includes:

- DT 170 million per year from the Government budget for price compensation: for wheat the cost is DT145m (see para. 88);
- a 4% increase in the cost of living for Tunisian consumers (see para. 57);
- a loss of 0.8% of GDP thanks to distorted prices (see para. 0);
- public spending on irrigation investment worth 9% of the total crop sector's value-added over 1997-2004. If the public money spent on irrigation projects since 1992 had been invested at a 6% rate of interest, the interest income alone would have been worth a third of the crop sector's growth.⁶

31. Thirdly, much of agriculture's growth has been driven by subsidies and protection for commodities in which Tunisia is not competitive. As Table 1 showed, beef and dairy production account for much of the sector's value-added growth: agriculture grew by 47% over 1989-2003, of which over a third (18%) was thanks to beef and milk. But Tunisia is grossly uncompetitive in them both. It costs 1.8 to 2.6 times as much to produce beef in Tunisia as it does to import it (Ideaconsult, 2005a) and 1.2-2.1 times as much to produce milk. So growth of the beef and milk industry is actually a net loss to the Tunisian nation and much of Tunisia's agricultural sector growth record is spurious.

⁶ Attributing to irrigation 80% of the cost of the MARH's water investment.

Table 2. The contribution of beef and milk to growth

	Growth 1989-2003	Share of agricultural production 1989-03	Contribution to agricultural growth 1989-03	
			As % of 1989 agricultural production	As % of 1989-03 growth
Beef	64%	5.8%	4%	8%
Milk	179%	7.8%	14%	30%
Both		13.7%	18%	38%
All agriculture	47%	100.0%	47%	100%

Source: Ideaconsult (2005a)

32. Fourthly, where Tunisia is competitive, in fruits and vegetables, it is not capitalizing on its advantage. As Table 3 shows, although exports of fruit and vegetables are performing well in volume terms, the value of exports in current US dollars is going down, not up.

Table 3. Fruit and vegetables: annual growth rates 1980-2000 (% per year)

	Cropped area	Production volume	Export volume	Domestic supply volume	Export value (US\$ current)
Tunisia	2.2	3.8	9.2	3.5	-0.3

Data: FAOSTAT

33. Looking at Tunisia's major export market, the European Union, there are more signs that the potential competitive advantage in fruits and vegetables is not being fully translated into exports (CNEA, 2005b). Tunisia is using only 55% of its citrus export quota, and there are no exports of tangerines and clementines at all because Tunisian farms can only supply the local market. Tunisia's apricot exports peaked at 338 tonnes in 1998, compared with an EU quota of 2,240 tonnes. Tunisia only uses 1,000 tonnes of its 4,000 tonne EU quota for tomato concentrate. (The price of fresh tomato delivered to the factory is higher than in Italy, Spain, Portugal and Turkey. – *ibid.*) Tunisia is agronomically suited to getting almonds onto the market 1 month ahead of EU suppliers, and yet is unable to use its 1120 tonne EU quota. Even the quota for olive oil, a success story, is 21% unused.

In fact, across the sector as a whole, Tunisia's competitive products are under-performing while its uncompetitive products are over-performing. Treecrops, horticulture and fisheries, the most competitive sub-sectors, are only contributing 34% of growth, despite starting out as 53% of sector output in 1986-90

34. Table 4). Overall, non-competitive products are contributing 40% of growth, even though they were only 26% of output during 1986-90 (Table 5).

Table 4. Sub-sectors' contributions to growth

	% of 1986-1990 output	% of growth between 1986-90 and 2001-5
Cereals	12%	16%
Treecrops	28%	19%
Horticulture	16%	16%
Livestock	32%	49%
Fisheries	9%	-1%
Other	3%	1%

Source: MARH

Table 5. Performance is inversely correlated with competitiveness

	Products	% of output in 1986-90	Share of growth 1986-90 to 2001-5
Competitive	Hard wheat (50%), treecrops, horticulture (exc. Potatoes), small ruminants, fisheries, other products (50%)	73	60
Non-competitive	Soft wheat, non-wheat cereals, potatoes, beef, milk, other products (50%)	27	40

Source: MARH

What prevents Tunisia from realizing its potential, and how can Government help the sector to perform better?

36. Box 1 presents the cases of citrus and olive oil. As it shows, much of the answer lies in the fact that supply chains are not showing the agility and responsiveness to give consumers the quality produce that they want to pay for. This leads to the question of how Government can best help agricultural supply chains to become responsive. In the cases of citrus and olive oil the answer is the same: Government should focus on supplying core public goods, remove market distortions, and encourage private business associations to seek profit by developing technologies and markets.

37. Despite its difficulties with quality, the olive oil sector is proof that supply chains can respond to better Government policies. In 1994, when Government removed the ONH's monopoly on olive oil exports, the private sector responded. The ratio of olive oil export earnings to olive production hit new levels after 1994

38. *Figure 4*). The value of olive oil exports in 2004 was USD 569 million (FAOSTAT), or 6% of the country's total exports.

Box 1 . Unrealised potential in citrus and olive oil

Unrealised potential: citrus

The citrus supply chain illustrates how Tunisian supply chains could capitalize more on their cost-competitiveness. Citrus production has stagnated for more than a decade and growing domestic demand absorbs more than 90% of local production. Current citrus exports to the EU amount to 20,000 tons and represent only 50% of the country's preferential quota. To take advantage of this opportunity, Tunisia needs to increase the quantity and quality of production.

Tunisia citrus fruits are graded as being of "average" quality. Many citrus orchards are old and unproductive. The conversion of old orchards into younger and more productive farms is slow. Yields are low and fruit are too small to get good prices. Negligence at harvest is damaging fruit. Fruits that are tree-harvested and those collected on the ground are often mixed together.

More efforts should therefore be made in applied research and extension service to develop appropriate harvest and post-harvest techniques that ensure high fruit quality for exports. These techniques must be developed for all stages of the supply chain and be easy to implement by citrus growers, fruit processing centers and traders.

Despite price liberalization, retail margins are still regulated by a 1988 decree: retail margins are set based on official purchase prices. Fruits growers and collectors are required to sell their produce to the official wholesale market while fruit retailers must purchase their goods at the same market. The permitted retail margin is low, encouraging retailers to avoid the formal wholesale market and directly purchase fruit from local producers or collectors. This trend is coupled with quality-damaging practices where fruits of all quality levels and sizes are mixed and sold as a whole regardless of size and quality differentiation.

What would improve the quality of Tunisian citrus ?

- Government should focus on "public goods" like quality regulations, applied research and extension on post-harvest handling.
- Government should reduce its market-distorting interventions. Retail margins should be set by the market instead of being state-regulated. This would encourage private farmers and traders to go for quality.
- Private sector associations should give producers and traders the technical and market information they need to supply what the consumer wants.

Unrealised potential: olive oil⁷

Tunisia is the world's fourth producer of olive oil behind Spain, Italy and Greece and exports more than 70% of its production.

Olive oil prices depend on quality. While virgin olive oil, the highest olive oil quality, currently represents about 70% of the international market, Tunisian oil exports mainly consist of the lowest grade of such virgin oil, the *lampante* olive oil, which amounts to about 60% of its oil exports. Only 25% to 30% of its oil is high-quality compared to rates of 70% to 86% observed in European competitor countries. This low rate is the result of various factors such as: (i) inappropriate harvest, storage and transport methods; (ii) a long harvest and storage cycle; and (iii) obsolete extraction equipment, which accounts for 42% of capacity. Olive mills with modern

⁷ Source: CEPI (2000)

equipment currently represent 31% compared to 70% to 80% in Italy, Greece and Spain. The result is that about 97% of Tunisian olive oil is still traded unbranded and in bulk. While 12 origin trademarks exist in Spain, 12 in Italy and 27 in Greece, Tunisia olive oil producers have developed no origin trademark and quality labels.

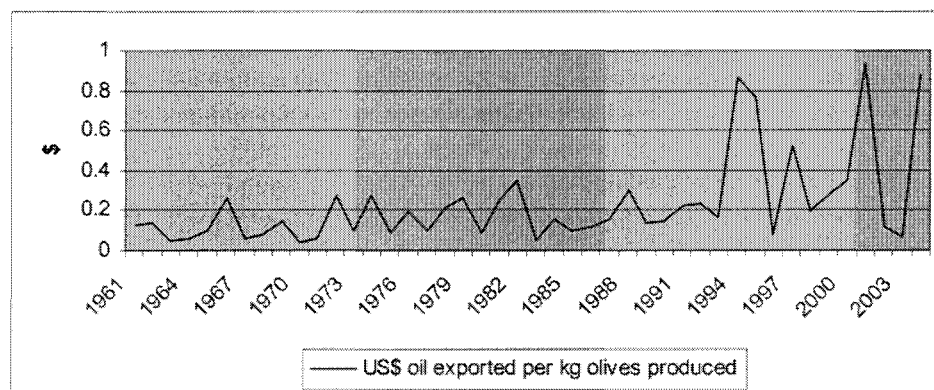
The existing quality testing laboratories (three laboratories: Tunis, Sousse and Sfax) belong to the state-owned Office National des Huiles (ONH), which it makes available to private companies on a fee-paying basis. However, it is said that in practice very few privately-owned olive oil processing centres have access to quality analysis and control facilities.

Tunisia currently benefits from a profitable preferential quota of 56,000 tons of exports to the EU. The ONH allocates some of the quota to private operators through procedures that are not made public. It keeps the rest, handling 50% of olive oil exports directly, and the profits from ownership of this quota cross-subsidises ONH's other activities, even if the ONH does not fix marketing margins directly.

What would improve the quality and profitability of Tunisian olive oil ?

- Again, Government should focus on "public goods" like applied research and extension on appropriate techniques for the harvest, storage and transport of olives.
- Again, Government should reduce its distorting market interventions. The allocation of quota should be transparent. A profitable export commodity should not cross-subsidise other activities. Quality analysis and control facilities should be more accessible to the private sector.
- Again, private sector associations have a role to play: in technical awareness-raising, and the development of brands, new products (e.g. pomace oil and soap) and maybe geographical denominations.

Figure 4. Ending the ONH monopoly of olive oil exports in 1994



Source: FAOSTAT

39. The supermarket phenomenon is raising the stakes. 70-90% of food sales in the EU pass through supermarkets. Their high-volume, centralised purchasing systems allow them to scour the world for high-volume, high-quality, reliable and timely suppliers. In order to manage uncertainty, they develop private quality standards, preferred- or sole-supplier arrangements and centralised procurement (Shepherd, 2005). Supermarkets accounted for only 5% of Tunisia's food sales in

2002, but international experience shows that it could rise to 18% with the liberalisation of foreign direct investment (Traill, 2006). Experience from other countries in the region shows that supermarkets will try to reduce uncertainty by centralising procurement and shifting from market- to contract-based purchasing (Codron et al., 2004).

40. The rewards for producers who can penetrate this market are high⁸. But “major changes in the global agro-food market are tilted toward those economic agents who have capital, superior organizational and marketing skills, and an acute understanding of consumer requirements” (World Bank, 2004f). So the challenge is to stay in the game, because there is no place for second-best, the small wholesaler, the unreliable supplier, the consignment of mixed quality or bureaucratic delay. As supermarkets expand in Tunisia and its export markets, the reward for excellence - and the cost of mediocrity - will increase.

III. CHALLENGES AND OPPORTUNITIES

A. POLICY AND INSTITUTIONAL FRAMEWORK

41. Chapter II concluded that Tunisia’s agricultural sector, despite its growth record, is performing well below potential. This section will examine how the state intervenes in agricultural markets, and how reforms could boost agriculture’s contribution to the national economy. It begins by looking at trade policy, which helps set the prices that farmers receive. It follows with an analysis of how trade policy reforms would affect the national economy, consumers and different types of farms. It then looks at government interventions in domestic agricultural markets. The section concludes that specific trade policy measures could boost growth whilst minimising employment impacts, and that government can improve agriculture’s efficiency and competitiveness by recasting its own role in the sector.

42. This section focuses upon how trade policy and other Government interventions affect prices. This is because, when it comes to making supply chains more responsive, one set of reforms, removing price distortions, matters than others. Allowing markets to set prices freely is an “apex reform” because it makes other reforms more effective. For example, the more the price system rewards farmers for growing high-quality vegetables, the more vegetable-growers will take advantage of improvements in water-management, land markets, farmer groupings, extension services and so on.

⁸ For example, the producer price of Gazan strawberries and cherry tomatoes destined for the EU can be 4-6 times higher than the producer price for local sales.

Trade Policy

43. For decades Tunisian trade policy has encouraged import substitution through high import barriers, with special export-promotion regimes and direct government involvement in commerce. In the case of agriculture, this general approach has been overlaid with policies aiming at self-sufficiency, low prices and protection for certain farmers. Since the 1980s structural adjustment has brought macroeconomic stability. But reforms “have not substantially liberalized trade” and the trade regime remains “in need of further liberalization” (WTO, 2005, p. vii).

Import Policy Regime

44. In agriculture, Tunisia’s applied tariffs are high by regional and world standards. Applied rates currently average 67% for agricultural products (compared to 31% for all products – see Table 6), with a maximum rate of 150%. The current average rate is about double the average at the time of the WTO’s last Trade Policy Review in 1994, although much of the increase is associated with the “tariffication” of non-tariff barriers since 1994. “Peak tariffs” (those over 15%, as per the WTO definition) account for about 69% of agricultural tariff lines, compared to 59% for non-agricultural products. Among agricultural product categories, the highest overall tariffs (averaging around 100% in 2004 and 2005) are in the “exportable” fruits and vegetables sub-sector (Table 6). Protection of these products in the local market not only reduces consumer choice⁹, but also impedes the development of a quality-oriented sector better able to compete in global markets.

45. Bound tariff rates (that is, the ceiling rates above which Tunisia has committed in the WTO not to raise its applied rates) are much higher than applied rates, averaging close to 117% for the product categories agriculture and food. This creates considerable uncertainty as to whether applied rates might be raised in the future. The average bound rate for these two product categories is around twice that of the third highest category, clothing and textiles (WTO, p. 29).

46. Reliance on non-tariff barriers has been reduced over time: only 6.7% of imported goods currently require a license, compared to around 13% in 1994, and most of the remaining requirements are ostensibly imposed for technical reasons (WTO, p. 39). But imports of about 1.6% of all tariff lines – including a number of important agricultural products - are under a tariff quota regime (WTO, p. 75), with above-quota tariffs averaging 98%. (See Table 7). The quotas are allocated by an inter-ministerial committee in a procedure that is discretionary and less than fully transparent (WTO, p. 75).

⁹ For example, Tunisian tomato paste manufacturers pay a higher price for raw tomatoes than their counterparts in Italy, Spain, Portugal and Turkey (CNEA, 2005b).

Table 6. Tariff Structure, 1994, 2004, and 2005

(Percentages and US\$ million)									
Description	MFN Tariff						Preferential Tariff for EU		Imports 2004 (US\$million)
	1994		2004		2005		2005		
	Simple average duty	Duty range	Simple Average duty	Duty range	Simple average duty	Duty range	Simple average duty	Duty range	
Total	30.7	0-43	32.7	0-200	31.7	0-150	18	0-150	12,727.10
Agriculture	35	10-43	69.3	0-200	66.8	0-150	63.6	0-150	1182.7
Live animals: animal products	38.5	10-43	97.4	20-180	91.8	20-150	91.8	20-150	40.5
Dairy produce	23.5	15-43	92.1	15-180	95.3	15-150	94.2	0-150	42.2
Coffee: tea, cocoa, sugar, etc.	38	15-43	73.1	0-200	72.1	0-150	67.7	0-150	178.5
Cut flowers and plants	27.3	20-43	37.3	0-180	36.9	0-150	34.7	0-150	10
Fruits & vegetables	42.1	15-43	104.3	0-200	96.8	0-150	94.6	0-150	61.7
Cereals	29	15-43	45.3	0-100	45.3	0-100	45.1	0-100	342.3

Source: World Trade Organization, Trade Policy Review Body

WT/TPR/S/152, September 7, 2005

Trade Policy Review: Report by the Secretariat, Tunisia

Table 7. Imports under tariff quotas, 2001-04, and customs duty rates, 2005

(Percentages, unless otherwise indicated)							
Description of Product			Tariff quota commitment (tonnes)	2001	2002	2003	2004
	Average quota rate	Average Out-of-quota rate		Utilization rate	Utilization rate	Utilization rate	Utilization rate
Calves and bullocks	27	82	3,000	0	0	0	97
Bovine meat	27	88	8,000	0	0	0	100
Sheep and goat meat	27	125	380	0	0	0	100
Milk powder	17	76	20,000	10	19	35	43
Butter	35	100	4,000	60	88	48	49
Cheese	27	139	1,500	100	100	100	100
Beans	25	60	1,300	0	0	0	0
Durum wheat	17	73	300,000	100	100	0	0
Soft wheat	17	73	600,000	100	100	85	100
Barley	17	73	200,000	100	100	100	100
Sugars	15	42	100,000	100	100	100	228
Shelled almonds	43	60	1,335	70	100	0	0
Tomato concentrate	43	100	155	0	0	0	100

Source: World Trade Organization, Trade Policy Review Body

WT/TPR/S/152, September 7, 2005

Trade Policy Review: Report by the Secretariat, Tunisia

47. In Tunisia, as in many other countries, the high protection given to agriculture is intended to compensate for the protectionism of other countries - especially industrialized countries. The argument is that global liberalisation will eventually raise world prices, and until then temporary protection will avoid adjustment costs and irreparable damage to the production base. While this argument is dubious from an economic perspective, it has political appeal. But in any case, if this reasoning is applied, the magnitude of the tariffs applied should at least be grounded in solid analysis. A wide range of modelling work indicates that for most commodities the price increases with global liberalization are expected to be of the order of 10% or less, although there is a fairly wide variance in these estimates¹⁰. For some of the most distorted markets – sugar and dairy are good examples -- the increases from full liberalization would be larger, but these are unlikely to be fully liberalized soon in any case. So tariffs should be fairly modest if they are meant “compensate for distorted world prices.” Clearly, the high levels of protection in Tunisia cannot be justified on this basis.

¹⁰ For a commodity-by-commodity analysis of the effects of liberalization in global agricultural markets, see Aksoy and Beghin (2004).

Export Promotion Policies

48. In the 1990s, Tunisia liberalized its export regime and eliminated taxes on exports of olive oil, fruits and vegetables, hides and skins, and cork (WTO, p. 55). But a number of products can be exported only with the permission of the Ministry of Trade. These include cereals and cereal preparations, forage and animal feed, molasses, and oilseed cake (WTO, p. 55). The aim is to keep down the domestic prices of these goods, some of which are subsidised, but in practice it can give Tunisian exporters a reputation for unreliability, thereby reducing their competitiveness. Export subsidies are widespread, generally as a 50% subsidy on transport costs (Ideaconsult, 2005b, p. 32), administered through the Fonds de Promotion des Exportations (FOPRODEX). FOPRODEX also provides other aids to exporters, including market surveys, staff training, and subsidies (for 3 years) for the salaries of new graduates who work for exporters.

Institutional Framework

49. Several state trading enterprises play important roles in agricultural trade. The Office des Céréales has monopoly rights on the import of durum wheat, soft wheat, and barley, and may if it chooses also import maize and soya cake. The Office du Commerce has a de facto monopoly on the importation of sugar, and also imports several other food products, including tea, coffee, and potatoes. The Office National des Huiles imports edible oils and exports olive oil. It does not have sole legal rights to olive oil exports, but does control access to EU quotas, and uses this to maintain its virtual monopoly of this market. The “rents” from controlling access to high EU prices cross-subsidize its other activities, and the lack of transparency in the way that quota is allocated between producers may discourage investment.

50. Slow customs procedures have been identified in several studies as a major barrier to trade and to increasing Tunisia’s international competitiveness¹¹. The World Bank (2004) notes that clearance for many products involves multiple institutions, with physical inspections and technical controls at several stages. Agricultural and food products -- which have the highest incidence by far of technical import control requirements (WTO, p. 46) – are particularly susceptible to these problems. The length of time to clear goods from their arrival in Tunisia until their release currently ranges from 7 to 20 days; the Bank’s Export Development Project II aims to reduce this to 3- 7 days.

¹¹ WTO (2005) cites *Cahiers de l'IEQ*, “Compétitivité de l'économie tunisienne”, no. 18, Jan. 2004 ; and proceedings of the Third Meeting of the EU-Tunisia Association Council, 29 Jan 2002, available at <http://www.europarl.eu.int/meetdocs/delegations/magh/20020313/012.pdf>

Box 2. The Wastefulness of Farm Price Protection

Diaz-Bonilla, Diao, and Robinson of IFPRI report the results of an interesting simulation exercise in which a strategy of protection through trade policy is compared to a strategy of agricultural investment as means to promote agricultural development and food security. They use a general equilibrium model with 47 countries and regions and 37 sectors of production. In one scenario, they model the effects of a 50% tariff on grain imports imposed by all developing countries and regions. This tariff stimulates production of those products, while acting as an implicit tax on consumption. In the second scenario, the implicit tax is transformed into an explicit tax, and the proceeds used to fund increased agriculture research. Using rates of return to such research in specific countries and regions (which have been estimated on the basis of historical experience), they model the effects on overall welfare, GDP, food consumption, labor employment, and agricultural exports. By every one of these measures, the second strategy was hugely more successful in meeting the objectives than the strategy of protection. While Tunisia was not broken out in the model as a separate country, Morocco was, and by almost every measure, Morocco and the region of "Rest of North Africa" were among the biggest losers from protectionism.

51. To decide whether liberalisation makes economic and political sense it is useful to understand the impacts and roughly how big they will be. It is also important to know who will win and who will lose. That is what the next section of this report will analyse.

The cost of protectionism – the effects of liberalisation

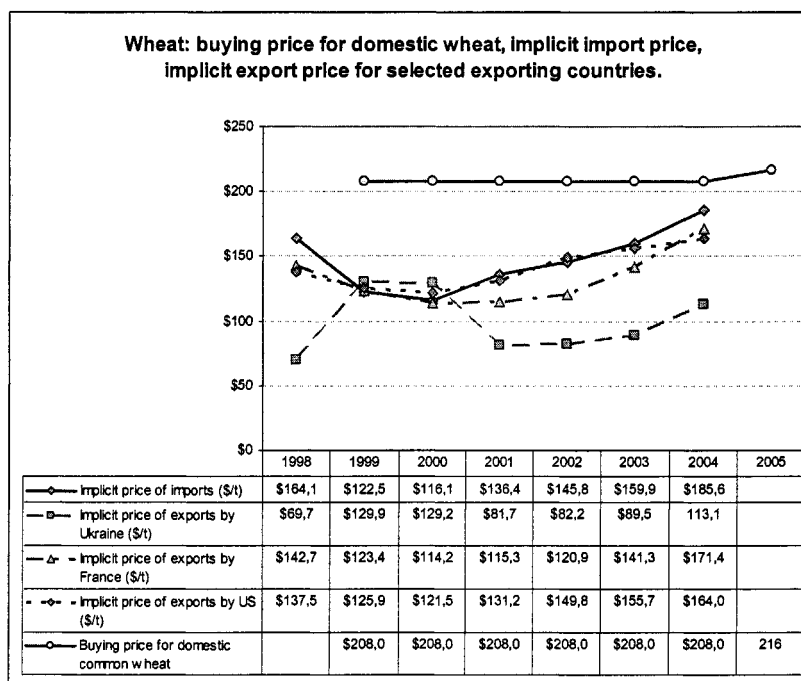
52. The result of high rates of protection is that food prices on Tunisian markets are significantly higher than those on world markets – even if the domestic market is apparently liberalised. We can take the example of two commodities, wheat and tomatoes, one controlled by the government and one freely traded within Tunisia.

Figure 5 shows movements since the early 1990s in the wheat market. While the EU has dropped its producer prices to world prices, the Tunisian wheat producer price has remained well above the world price, being 43% higher in 2002 and 2003. For tomatoes, Tunisian processing plants are paying more than their counterparts in Italy, Spain, Portugal and Turkey (CNEA, 2005b), even though it is supposedly 55% cheaper to grow tomatoes in Tunisia than to import them. So strong tariff protection is enough to keep prices high, whether or not the product is competitive and government is fixing prices.

53. High producer prices might appear beneficial in a country that is concerned about rural welfare. However, there are important costs attached to farm protection and these costs usually outweigh the benefits. Annex 1 explains in economic terms why this is so.

54. Annex 1 also describes how this study used economic models to estimate the effects of protection. Readers who want a detailed technical explanation of the models may refer to Ideconsult (2005), which is the basis for the analysis in paragraphs 55 to 80.

Figure 5. Tunisian wheat is more expensive than imports



Sources: FAO database and MARH

Impact of Agricultural Trade Liberalization on Consumers.

55. High farm prices make food more expensive for consumers. As Table 8 indicates, foodstuffs remain by far the largest category of expenditure for Tunisian households. They account for 38% of household spending for the country as a whole, and 44% for “non-communal” households (i.e. those that are not located in designated municipalities - the difference is probably due to lower incomes and cheaper housing in rural areas.)

56. Food will be a big part of household spending for a long time. The share of foodstuffs in household expenditures has fallen very slightly over the last twenty years, from 41.7% in 1980 to 38% in 2000. Real per capita household expenditure rose by 42% over the same period. This is in line with global estimates of the income elasticity of demand for food for middle-income countries, which are generally in the range of -0.5 to -0.7 (Seale et al. 2003).

Table 8. Breakdowns of household expenditure

	DT / person / year			% of expenditure		
	All	Communal	Non-communal	All	Communal	Non-communal
Food	505	579	382	38.0	36.1	44.2
Housing	296	364	154	21.5	22.7	17.8
Clothing	148	178	95	11.1	11.1	11.0
Hygiene and personal care	133	162	83	10.0	10.1	9.6
Transport and telecommunication	129	164	70	9.7	10.2	8.1
Education, culture and leisure	115	144	68	8.7	9.0	7.9
Other expenditure	13	13	12	1.0	0.8	1.4
Total	1329	1604	864	100.0	100.0	100.0

Source: National survey on household budgets, consumption and living standards, INS (2000)

57. Lower tariffs would mean cheaper food – both Tunisian and imported. The net effect of total liberalisation would be worth around 4% of consumers' expenditure, of the same order of magnitude as a bonus year's growth. As Table 8 illustrates, moreover, food expenditures are higher than average proportion of low-income households' expenditure, so the benefits of price liberalisation would be greatest for the worst-off households. If consumers reallocate their spending in response to changes in relative prices, the benefits of liberalisation are higher: 5.6% - 5.8% of spending.

58. Part of the benefit to consumers from price liberalisation derives from developed countries' farm subsidies, which depress world food prices. If the EU were to liberalise at the same time as Tunisia, the gain to the Tunisian consumer would average 2.6% of expenditure instead of 3.8%.

59. A few points should be borne in mind when interpreting the figures in Table 9. Firstly, the model assumes that consumers are actually affected by changes in producer prices. However, the consumer price of wheat is controlled by the state, through the Office des Céréales. So long as this policy stays in place, therefore, the benefits from a lower Tunisian producer price for wheat would go to the taxpayer, not to the consumer. Secondly, some domestic food prices, in particular meat prices, are lower than world prices. This is not because of trade policy but because Tunisian produce is of lower quality than internationally-traded commodities and because of a variety of obstacles to exports. In assuming that farm price liberalisation would equalise domestic and international prices, the model assumes that these domestic food prices will actually rise. In reality this would not happen, because of quality constraints, so Table 9 underestimates the benefit of liberalisation to the consumer.

Table 9. How the benefits to consumers of price liberalisation would be allocated.

Expenditure class (DT/head/year)	% of Tunisian population	% of household expenditure allocated to foodstuffs	Benefit from price liberalisation (as % of expenditure)
< 400	9.3	53.5	4.3
400-600	14.7	51.0	4.5
600-800	14.7	49.1	4.6
800-1200	22.8	45.1	4.4
1200-1600	13.9	41.2	4.3
1600-2400	13.4	36.6	3.8
2400-3600	6.8	31.5	3.4
>3600	4.4	31.3	3.5
Overall	100.0	38.0	3.8

Source: Ideaconsult (2005)

Impacts of Agricultural Trade Liberalisation on the National Economy

Another way of capturing the costs of protectionism is to look at its effects on economic growth. Protecting agricultural prices encourages the allocation of labour and capital to farming when it could be used more efficiently in other sectors. By making food more expensive, it also raises the cost of labour, which discourages employment and makes the economy less competitive in export markets. The CGE model (see Annex 1) therefore estimates that farm trade liberalisation will raise GDP by 0.8%.

60. Table 10), shifting around 87,000 jobs out of agriculture and producing total benefits of 7.1 billion DT over 25 years. This leaves a positive net benefit of over 6.1 billion DT over 25 years, when adjustment costs of 1.0 billion DT¹² have been factored in.

Table 10. Effects of agricultural trade liberalisation

Agriculture contracts	1.4% of GDP
Rest of economy expands	2.2% of GDP
Overall gain	0.8% of GDP

Source: Ideaconsult (2005)

61. The rise in GDP is 0.5% instead of 0.8% if EU agricultural subsidies are lifted at the same time as Tunisian liberalisation. This is because Tunisian consumers would no longer benefit from food imports subsidised by the European taxpayer. What this model suggests therefore, is that other countries' protectionism is not an

¹² This is the estimated cost of retraining labour and the upgrading [mise à niveau] of investments.

economic argument for Tunisian protectionism¹³. In any case, as the earlier trade policy analysis mentions, the removal of global farm subsidies would only push world prices up by around 10% for many commodities. So Tunisian protection levels are far higher than what is needed to countervail them.

Table 11. Broad economic effects of full agricultural liberalisation

Variables and parameters	Baseline scenario	Total liberalisation scenario	
		With EU agricultural subsidies	With removal of EU agricultural subsidies
Economic growth (% p.a. in year following liberalisation)	5.7	6.5	6.2
Agriculture labour (% of employed population)	20.2	17.4	18.3
Agriculture labour moving to other sectors ('000 jobs)	-	87	67
Adjustment costs (million DT to 2025)	-	984	874
Adjustment gains (million DT to 2025)	-	7107	4441

Source: Ideaconult (2005)

62. Half the benefits of full liberalisation can be achieved by liberalising field crops (essentially cereals). Cereals liberalisation also has a very low cost in terms of farm jobs lost. Assuming that field crop liberalisation would raise production efficiency by 7.5%, the full liberalisation of the field crop sub-sector would produce a one-off increase in GDP of 0.4%¹⁴. This implies a gross benefit of 3.6 billion DT over 25 years, or a net benefit of 2.9 billion DT after the costs of adjustment have been factored in. It would be achieved at a cost of only 9,000 jobs, because field crops have a relatively low labour requirement. This means that the annual cost of protecting one job in the cereals sector is over 4 times national income per head.

63. One reason that cereals liberalisation has such a small employment impact is that it encourages farmers to switch land into crops which use more labour. This has important implications for government policy. Preferential policy treatment of cereals, such as raised prices, cut-price water and reserved access to state land, may be harmful for agricultural employment as well as detrimental to growth.

64. In fact, policy reforms that encourage the agricultural sector to shift towards higher-value fruit and vegetable crops can create off-farm employment by stimulating

¹³ This is not to say that Tunisia should necessarily liberalise unilaterally under all conditions. Linking Tunisian liberalisation to other countries' concessions could be in principle an effective strategy for obtaining market access for products in which Tunisia has a competitive advantage. However, this consideration would only trump the benefits of unilateral liberalization in negotiations in which Tunisia has substantial leverage on its own, which is probably not the case for the ongoing Doha Round. And, in any case, the bargaining chip of these multilateral negotiations is the bound tariff, so unilateral reduction of applied rates does not diminish whatever leverage a country may have.

¹⁴ This figure includes an increase of 7.5% in field crop productivity, which works out at approximately 7.5% times the share of cereals in agricultural production (12%) times the share of agriculture in GDP (14%) i.e. 0.1%.

activity in the handling and agro-processing sectors. In Chile, for example, off-farm jobs related to agriculture contribute more than farming itself (Valdes and Foster, 2003). In contrast, the Tunisian cereals sector offers very little opportunity for additional post-harvest employment.

65. So far we have discussed the so-called “static” effects of liberalisation, which derive from shifting factors of production towards more productive activities. One would also expect “dynamic” effects: improvements in the competitiveness of agriculture as farmers respond to the pressure of foreign competition.

Impacts of Agricultural Trade Liberalisation on the Tunisian Farm Sector.

66. But before policymakers will choose the benefits of trade liberalisation, they need to know exactly where the changes will be felt. This will help them to understand the political and social consequences of their decisions and to think about accompanying measures. So the linear programming models (see Annex 1) take the Carte Agricole data one step further, simulating the changes in cropping patterns and profitability, farm-type by farm-type, that would follow the equalisation of domestic and world product prices.

67. Farms can be divided into three categories: those benefiting from liberalisation, those whose profitability would be more or less unchanged and those which would be worse off.

68. The farm types classified as benefiting from liberalisation would have increases in gross margins [marge brute] ranging from 55% to 294%. They account for 41% of Tunisia’s farms by number and 30% by area. The predominant farm types in this group are those producing olive oil and sheep, off-season geothermal horticulture in the Gabes region and citrus production in the Nabeul area.

69. As noted above, however, the assumption that domestic farmgate prices will move towards world prices implies that some Tunisian prices will move upwards. This would probably not be the case in the short run because it is quality rather than trade policy that keeps the price of Tunisian olive oil, sheepmeat, fruit and vegetables below world prices. It would be safer to conclude, therefore, that these farms may be better off as a result of liberalization. In the medium term, liberalization would be expected to lead to dynamic private and public sector investment in improving quality of export products.

70. The farm types classified as having their profitability more or less unchanged as a result of liberalisation are modelled as having gross margin increases of up to 47%. They account for 42% of Tunisia’s farms by number and 41% by area. They are typically mixed tree-crop / sheep farms of the Centre and South and farms within irrigated perimeters. In fact, 60% of farms with irrigation are in this group.

71. The farms that lose out would experience falls in gross margins of 1% to 79%. They account for 16% of farms by number and 30% by area. However, only one farm type, accounting for 4% of farm numbers and 5% of area, would experience a

fall in gross margins of over 34%. Farms in Category 3 are generally cereals operations in the north and north-west of the country. This is the zone in which rainfall is most abundant. A high proportion of government farming operations in the state lands [terres domaniales] are cereals-based and in the fertile north and north-west, and would therefore fall into this category.

72. This permits some conclusions about how the liberalisation impacts would be spread. 70% of farming operations would at least not lose out from liberalisation, and may gain. These farms would be spread across the more arid centre and south of the country and would be producers of sheep, olives, fruit and vegetables. The “winning” sub-sectors, livestock, treecrops and horticulture, account between them for around 60% of agricultural labour use and are geographically dispersed. The farms that would lose out from liberalisation would tend to be cereal-producers in the better-watered north and north-west, including government farms on state land.

73. There is no correlation between a farm type’s profitability and the impact of liberalisation upon it. Farm types that would experience a fall in gross margin fall into all size categories; in this respect liberalisation is not specifically “anti-poor”. (Before liberalisation the farms in the bottom quartile by farm gross margin would have a total gross margin of around DT 100 million. After liberalisation the farms in the bottom quartile would have a total gross margin of around DT 110 million.) This is because the lowest-income farm types in the Carte Agricole tend to produce olives, other treecrops, sheep and only small amounts of wheat and barley.

74. The most vulnerable farm types would be those with low gross margins to begin with and a fall in gross margin as a result of liberalisation. The two “losing” farm types with gross margins of under 7000 DT/year, are in Kef and Béja. Together they represent 5.6% of national farm numbers and 2.5% of national farm area. It is also important to understand the form of the adjustment that such “losing” farms and areas would face. A major shedding of labour, leading to migration, is not expected: cereal production only employs 9% of Tunisia’s agricultural workdays, compared with over 40% for both livestock and fruit and vegetables, and 80% of cereals farmers are aged over 40 years (CNEA 2005a). However, cereal-dependent areas such as Kef and Béja would experience localised but significant falls in farm income, which would also affect demand for the local service sector.

75. Farm price liberalisation would result in an adjustment of cropping patterns, as farmers respond to changes in relative prices.

- Cereals land would spend more time as fallow, a change recommended by government agronomists (CNEA 2005a), and environmentally-fragile marginal land would be taken out of cereals cultivation. Table 12 shows how the linear programming models predict that cereals production will respond to the simultaneous liberalisation of all farm prices; hard wheat would be least affected and soft wheat most affected. Soft wheat is ill-adapted to Tunisian agro-ecological conditions and hard wheat is a substitute for it in production, so the high level of protection for soft wheat is particularly wasteful in economic terms.

- Sheep and fodder production would increase by 3% and 6% respectively.
- There would not be any significant change in the overall area under horticultural crops, but within the horticultural sub-sector there would be a shift away from potatoes.
- The profitability of treecrops will be maintained.

Table 12. Area under cereals responds to simultaneous liberalisation of all prices

Crop	% change in price	% change in cropped area	% change in area % change in price
Hard wheat	-19	-7	.4
Soft wheat	-72	-50	.7
Barley	-52	-27	.5
Total	-36*	-24	...

* average weighted by cropped areas as per MARH data for 2004

Source: Ideaconsult (2005) and World Bank staff calculations

76. It is possible to derive from these findings a rough picture of the winners and losers from cereals price liberalisation. The taxpayer would save DT 207 million per year on purchases of cereals through the Office des Céréales. 24% of this saving would come from buying imported instead of home-grown cereals. The other 76% would come from paying less for domestically-produced cereals. The cereal-growers, on the other hand, would see their profits fall by DT 182 million. So the net gain to the economy would be of the order of DT 25 million per year. This figure represents the cost savings from importing cereals that used to be produced more expensively in Tunisia¹⁵.

¹⁵ A straight-line approximation of the cereals supply curve was used. The net welfare gain is therefore estimated as 0.5 x the change in quantity produced x the change in price. Changes in cropped area are assumed to be proportional to changes in production.

Table 13. Winners and losers from cereals price liberalisation

Price pre-liberalization (DT/tonne)	272
Quantity pre-liberalisation ('000 tonnes)	2117
% change in price on liberalisation	-36
% change in production on liberalisation	-24
Change of price on liberalisation (DT/tonne)	-98
Change of quantity on liberalisation ('000 tonnes)	-508
Money saved to taxpayer (million DT)	207
Profits lost to farmer (million DT)	182
Net gains (million DT)	25

Source: Ideaconsult (2005) and World Bank staff calculations

77. The liberalisation of farm prices would produce an important benefit for livestock producers, namely a fall in the price of feedstuffs. Livestock contributes 37.5% of agricultural GDP, and tends to be concentrated in the more disadvantaged arid areas of the country. According to Carte Agricole data, fodder represents 50% of the cost of raising a ewe. Hay accounts for around half of fodder costs and barley grain for about a quarter. A 52% fall in barley prices following liberalisation would therefore reduce the cost of sheepmeat production by about one sixteenth. In addition, the linear programme models forecast that farm price liberalisation would lead to an increase in fallow land areas of 23%, and a 6% increase in forage cultivation, both of which would tend to lower the costs of grazing and feeding animals.

The Way Forward on agricultural trade

78. Reforming the trade regime would involve reducing tariffs and government controls and phasing out the commercial roles of state economic enterprises. It would also be helpful to transform the tariff quotas into simple tariffs. This all could be done in a gradual process and without a high risk that import surges would severely damage local producers of sensitive products. Tunisia has reserved the right under WTO rules to avail itself of the special safeguard procedures for the products that are now under a tariff quota regime; this right could be invoked should the "tariffication" of the tariff quotas be followed by the threat of injury to producers. Dismantling the complex web of state economic enterprises and subsidies would produce fiscal savings that could be channelled toward agricultural investments, and would also create more space for dynamic private sector development.

79. The Tunisian government can consider some farm price liberalisation options which offer a "soft landing": a good ratio of economic gain to loss of farm employment. "Soft landing" options are available because Tunisia is most competitive in products (treecrops, fruit and vegetables, sheep) which are labour intensive.

- A substantial phased reduction -- beginning immediately and completed in a few years -- of tariff protection for hard and soft wheat, accompanied by a matching reduction in the guaranteed producer price (for as long as that instrument remains

in place). More analysis would be needed of the best design and sequencing of tariff-reduction, price-reduction and privatisation of the Office des Céréales' functions.

- The total liberalisation of barley imports, and also of livestock concentrate and its components. This would not only benefit livestock producers, but would also allow barley farmers to cultivate crops in which they are more competitive.

80. As explained above, it is expected that the employment impact of these measures would be limited and localised. However, it is recommended (see section III.F) that the social impacts of cereals liberalisation be verified by means of a thorough Poverty and Social Impact Analysis (PSIA). Government should then assess the need for mitigatory measures on the basis of the PSIA's findings. OECD countries have compensated farmers for reduction of protection by direct, decoupled (and WTO compliant) area-based payments. In countries where this is feasible, tariff reduction (and phase-out of other subsidies) can be carried out quickly¹⁶. The experience of Mexico and Turkey shows that this is practical¹⁷. However, in Tunisia, affordability and institutional capacity (in particular, a land registration system) would need to be evaluated. Other policy reforms should be put in place to complement the trade policy reforms. However, some of the most important reforms and investments may not be in the agriculture sector itself, but rather would support rural non-agricultural employment, the integration of rural-urban labour markets, and out-migration.

81. Finally, it should be emphasised that the "static" efficiency gains from farm trade liberalisation, like the employment costs, are modest compared with the size of the Tunisian economy. The figures are measured in tenths of a per cent of GDP. Far more important are the dynamic efficiency gains that could result from translating Tunisia's potential competitiveness in treecrops, sheepmeat, fruit and vegetables into actual growth and exports. This will involve making supply chains more responsive to consumer demand, particularly where quality is concerned. Supply chain responsiveness is a recurrent theme of sections III.B to III.E of this report).

Domestic Policies and Institutions

82. Chapter II argued that Tunisia's agricultural performance is falling short of its potential. This section will look at bottlenecks that are preventing Tunisia from responding to consumers' demands for quality and efficiency. The analysis will not examine exhaustively every aspect of agricultural policy. It will focus on three areas

¹⁶ To the extent possible, this needs to be done with a credible commitment to keep tariffs low. Otherwise, it may set up perverse incentives for lobbying to raise tariffs in the future not only to collect the initial rents, but also to collect the compensation when the tariffs are later reduced.

¹⁷ Care must be taken to ensure that these do not become permanent drains on the budget or distract from more productive forms of public expenditure in the sector. The medium term vision should be a phaseout of such payments and integration of poor farmers over time into a national targeted safety net system. Baffes and de Gorter (2004) examines lessons of experience in direct income support, which can be useful in designing new schemes.

which are not only important in themselves, but also highlight the key issues for the sector as a whole:

- Cereals markets
- Animal health and food safety
- Produce quality

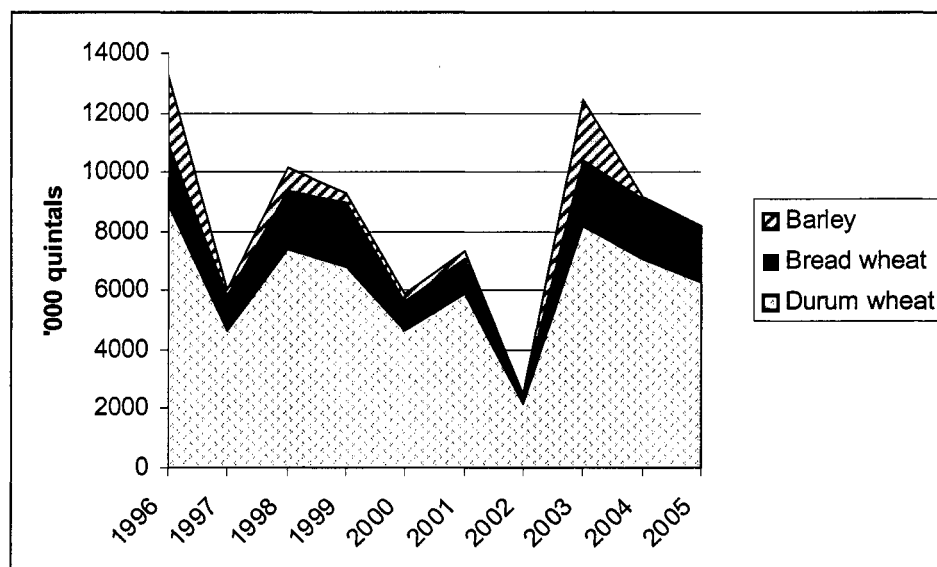
In each case it is argued that the role of the state should be recast: a general strategic conclusion which the Tunisian government could then apply across the sector.

Marketing of Cereals

83. The GOT's cereal market interventions are meant to address two distinct objectives: a) a reduction in the level of dependency upon imports through a guaranteed producer price; and b) a subsidised consumer price for wheat flour, bread and semolina.

84. Farm gate prices for wheat and barley remained unchanged for six years until 2005/06 at DT 290 per ton for durum wheat (US\$ 232), DT 260 per ton for bread-making common wheat (US\$ 208) and DT 170 per ton for barley (US\$ 136). These prices are buying prices by agents of the Cereals Board. They were adjusted in 2005/06 to DT 270 for common wheat (US\$ 216), and TD 300 for durum wheat (US\$ 240). This pricing system (i.e., pan-territorial buying price) for domestically produced wheat is directly administered by the Cereals Board either directly through its regional agencies (about 44% of the total quantities collected) or through selected intermediaries, the "*mandataires*", mainly the "*coopératives centrales*", with two of them handling on average more than 42% of the total quantities collected (CNEA, 2005a). Although it is illegal to market wheat through a trading institution other than the Cereals Board, about half of the production remains outside the official channel (either kept for domestic use by the producers themselves, or marketed through informal or traditional trading channels, such as itinerant traders, local weekly markets, artisanal millers, etc.).

Figure 6. Quantities collected by the Cereals Board



Source: CNEA (2005a)

85. The Cereals Board also enjoys an import monopoly through its three seaport elevators at Bizerte, Tunis-La-Goulette and Gabès. Tunisian private traders/millers cannot directly tender for wheat intended to be consumed domestically. However, they can import wheat under toll milling and re-exportation arrangements. These arrangements ensure that Tunisian farmers earn much more than the world price for wheat (see Figure 5).

86. Since 2000 the Cereals Board has implemented payment according to technical criteria: "*paiement à la qualité*". However, millers remain dissatisfied with the quality of wheat. A substantial part of the domestic wheat producers deliver low quality produce and this does not seem to be satisfactorily compensated by the quality of imported wheat.

87. The OC's costs are disproportionate to its turnover. One should keep in mind that the total quantities collected from Tunisian farmers by both the Board and its *mandataires* remains extremely small with an average over the past ten years of 844,000 tons of cereals (incl. 619,000 tons of durum wheat, 159,000 tons of common wheat). Even when adding the three port terminals and the 1.36 million tons of wheat imported, this would not justify an institution of such size.

88. The fiscal cost of wheat price compensation is also disproportional to the effects. This can be illustrated by splitting the fiscal cost (US\$145m) between producer price support (US\$39m) and consumer subsidies plus operating costs (US\$106m).

89. The US\$39m producer subsidy was equivalent to US\$20 per ton, or 12% of the implicit price of imports, in 2004: down from 79% in 2000. Large farmers in the north have been the main beneficiaries.

90. If all of the remaining US\$106m subsidy benefited consumers, it would work out at USD10 per person. This is worth around 2.5% of average per capita food spending (see Table 8), or 1% of mean per capita expenditure. In fact of course, the benefits are even less because of the OC's operating costs.

91. In other words, now that the wheat producer price is closer to the landed price of foreign wheat, the whole superstructure of the OC is becoming redundant. So Government can ask whether any justification remains for the current intricate system of market intervention, the resulting absence of market-based incentives to produce, process and use cereals, and the retarded modernisation of marketing (both in hardware, e.g., quality control, transportation, storage) and in software (trading techniques, risk management, standard contracts, arbitration methods, etc.)?

92. In short, the administrative centralisation of the marketing chain is harmful in many ways: (i) it is costly for the budget, (ii) it does not target the poor well, (iii) it discourages the private sector from restructuring (excess capacity is observed both at the milling and baking levels), (iv) it artificially favours the cultivation of uncompetitive cereals at the expense of other crops (see above) (v) it cramps the development of competitive markets, and moreover (vi) it often has a detrimental impact on environment because it induces inefficient use of scarce water resources.

93. The GOT has made modest reforms, opening the list of *mandataires* to two small traders and to reducing the involvement of the Cereals Board in the collection of barley. The total number of employees of the Board has been reduced from a total of 2,800 to 1,500. It has mostly withdrawn from retail sales and indicates that it is contemplating the privatization of a number of its local facilities.

94. But there is no consistent movement towards reform. The monopoly of sales to mills remains intact. Although 94% of cereals are produced in the north, the Cereals Board is maintaining stores in all the regions of Tunisia. The Board intends to keep its port facilities and is involved in the building of a new port elevator in Zarziz to supply the Centre and South of Tunisia.

95. Government's caution is understandable, given the "bread riots" of 1984. Nevertheless, the causes of food shortages in the past (e.g., foreign exchange shortages caused by severe macroeconomic imbalances) are no longer a realistic threat. With reasonable macroeconomic policies and better systems to forecast drought and transport food, food insecurity now more commonly stems from insufficient purchasing power by poor segments of the population than from any domestic shortages.

Animal Health and Food Safety

96. Severe weaknesses in the fields of animal health, sanitary conditions and hygiene (in particular in the field of animal slaughtering), and in quality control and food inspection need to be addressed.

97. For instance, informal large-scale slaughtering activities for poultry are maintained in the middle of cities. With one exception only, the Ministry of Agriculture reports that no treatment of waste and other effluents is in place in the entire country for animal slaughtering activities. In order to address food poisoning outbreaks in tourist facilities, the Ministry of Tourism has had to develop an ad-hoc task force to inspect hotels, restaurants, cafés, etc. in tourist areas.

98. Another example of defective food safety controls concerns pesticide residue testing. Government only tests for those pesticides which are approved for the crop in question. However, there is widespread use of unapproved chemicals, such as the application of systemic pesticides to vegetables (CNEA, 2005b), leading to ingestion by the consumer.

99. It is dangerous and costly to have a dualistic approach to food safety: one dealing exclusively with foreign trade and the other with domestic markets. The prevalence of unsafe food in consignments for domestic and foreign consumption can seriously limit Tunisia's access to international markets. In partnership with private sector organisations, therefore, the Government should develop a food safety and animal health assurance system, applied to products for export and domestic consumption in an integrated manner.

Produce Quality

100. As the Domestic Resource Cost analysis above has shown, Tunisia should already be cost-competitive in a wide range of fruit, vegetable and small ruminant products. If Tunisia is not realising its export potential, it is because weaknesses on the quality and marketing side are limiting Tunisian agricultural exports, not crude cost (see CNEA, 2005b).

101. A number of Government interventions and policies systematically discourage Tunisian farmers from producing high-quality commodities for the domestic consumer. In this way they encourage a dualistic market, in which high quality goods are produced only for export. This makes it difficult for agro-businesses to progress via the top end of the domestic market towards developing exportable production. For example:

- Formal retailers have to purchase from official wholesale markets. Formal wholesale markets have to pay a 12.5% tax, and observe controlled and inadequate retail margins – unchanged since 1993. The result is that a large proportion of production (70% for citrus) avoids the official marketing channel, and formal retailers prefer to sell low-quality produce. This in turn discourages the emergence of domestic demand for high-quality, well presented products,

which in turn would make it harder for Tunisian producers to progress towards export-grade quality.

- Ministry of Commerce inspectors monitor pricing in wholesale markets and take measures to discourage high prices, e.g. by ordering traders to take a commodity out of the formal market when the price is high to avoid its inclusion in official statistics. This creates uncertainty for farmers and traders, which is particularly marked for the potato marketing chain (CNEA, 2005b). Such measures are unnecessary; because there is patently a high level of competition between sellers in wholesale markets, but discourage the trading of high-quality goods which would command a higher price.
- Tax concessions for 100% exporters discourage companies from selling into local and foreign markets at the same time, which prevents the high-quality end of the local market from becoming a stepping-stone towards export-production. This is an issue for dates, (CNEA, 2005b) and the same issue may arise for other commodities.
- Government support for quality (e.g. research, training, coordinated approach by private sector and state agencies) is under-funded by comparison with infrastructure. Top-down budgetary procedures prevent organizations from being flexible and responsive, for example by concentrating more research on post harvest issues.
- Quality norms are underdeveloped. For example, the single norm for citrus fruit dates from 1985; the tomato norm dates from 1983; Tunisian tomato concentrate norms do not correspond to those in the Codex Alimentarius (CNEA, 2005b). Again this would encourage a dichotomy between production for the domestic and foreign markets, which discourages agro-processors from making the transition to exporting.
- The Office des Céréales quality bonuses are insufficient, with the result that many consumers prefer to buy more expensive but better-tasting black market couscous through inefficient small traders.
- The Ministry of Commerce's supervision of retail prices for processed goods (e.g. tomato concentrate and milk) feeds back to depressed "reference prices" for raw products (e.g. tomatoes and raw milk), and discourages the payment of higher prices for better-quality produce.
- Government support for exports focuses on reducing the cost-to-market for Tunisian exporters. For example, FORPRODEX subsidises freight costs and COTUNACE subsidises exporting costs.

102. Taken together, such measures send a clear message to the producer: go for volume and cheapness, but not quality.

The Way Forward: Redefining the Role of State vis-à-vis the Private Sector

103. The preceding sections have analysed how government interventions have confined and distorted the agricultural sector's growth and competitiveness. By planning, steering and sometimes supplanting the activities of private farmers and traders, the state is cramping agriculture's and agro-industry's expansion. The challenge now, therefore, is for the state to reposition itself. Experience in other countries suggests three main roles for the State:

- to design and enforce the legal framework to ensure an efficient functioning of competitive markets for products, services and factors (finance, land, labour);
- to protect the population's health, natural resources and the environment; and
- to address issues with large externalities i.e., supplying products or services with a public goods nature.

104. For example, in the cereals sector it is now appropriate for government to transfer importation and marketing to the private sector. The Cereals Board would then concentrate on providing core public services that the private sector cannot deliver, ensuring that:

- no collusion nor market disruptions are observed;
- modern methods of trading, transporting, storing, inspecting grain are developed by private entrepreneurs;
- security stocks are properly maintained, separately from commercial flows and under government supervision.

105. Modest strategic reserves of "*produits de première nécessité*", against catastrophes (such as natural disasters, wars and social unrest) would be governed by strict operating rules and be small relative to the market so as not to displace private storage. Their release would be targeted at groups specifically affected by the breakdown of markets during acute crises.

106. An analysis of social transfer schemes that could succeed the public wheat monopoly is beyond the scope of this note. It is now important to identify alternative targeted social transfer options that would allow government to lift current restrictions upon the development of an efficient wheat market.

107. A privately-governed interprofessional organization for cereals and cereal products would be governed by representatives of the various professions operating in the whole marketing chain for cereals. It would ensure:

- Support for the physical exchange of products by the private sector in order to reduce transaction costs and improve transparency (i.e. the provision of price information as well as production, trade, storage, milling statistics);
- The creation of a system of forward pricing;

- The development of risk management instruments (for price and counterpart risks)
- the development of contracting practices and an efficient system of private arbitration. This would result in simple written rules for the exchange of agricultural products, including for delivery (on spot or later, i.e., forward), for sorting and grading (when possible), for payment at or after delivery, for product inspection (if necessary), and for the designation of recognised private arbitrators.

108. Looking at the issue of food hygiene and safety, a coordinated approach between i) the concerned Ministries and State agencies; and ii) the private sector (processing, retailers, wholesalers) in the promotion of an efficient and modern system to protect human and animal health is needed. The cost would be trivial compared with the current costs of price support.

109. As for the issue of quality, measures would include:

- Removing controls on retail margins and other interventions of the Ministry of Commerce to limit prices. Competition in food markets will ensure reasonable margins and the Ministry should focus its interventions on identifying and attacking collusive behaviour.
- Developing appropriate norms and standards in conjunction with (privately-governed) inter-professional organisations. Work has already begun in this area, under the Agricultural Services Support Project (ASSP).
- Redefining the role of the Office des Céréales (see above).
- Ensuring that the objectives defined for the Ministry of Agriculture under Performance-Based Budgeting (see section III.D) emphasise quality.

110. The basic lesson from these three examples is that the state should concentrate on delivering core public goods, genuinely private business groupings should be encouraged to develop their marketing chains, and government should remove distortions from the marketing chain. The same principles could and should be applied across the sector.

Box 3. Realising potential value-added by improving quality

An action plan for improving the value-added of agricultural and agro-industrial production should cover the areas detailed below. Many of them are the role of the private sector, others the role of the public sector, and a third category would depend on joint public-private collaboration..

- a. Supporting primary and secondary processing industries, in the areas of:
 - i) quality management and HACCP certification
 - ii) the development of company laboratories, and the strengthening of public laboratories specialised in agro-food quality control;
 - iii) the modernisation of agro-food processing, presentation, packaging and logistics;
 - iv) the treatment of industrial waste and effluent (particularly from slaughterhouses and the meat and milk processing sectors);
- b. Training and support for the private sector in grading and quality-based pricing for farm products; setting up arrangements for traceability and quality-based pricing.
- c. Public investment in supporting infrastructure (access roads, waste treatment, water supply, electricity and telephone connections), and the development of private fruit and vegetable packing houses in rural areas, in irrigated areas and date and almond-producing areas;
- d. Pilot traceability initiatives for plant and animal supply chains;
- e. Analysis of health and environmental risks, leading to the improvement of the regulations and institutions responsible for managing them;
- f. The co-ordination and strengthening of institutions involved in quality assurance training, sorting, packaging and quality control, for stores, factories, collection and packing centres, and warehousing and transport services.
- g. The immediate and complete abolition of export bans and controls, except in genuine crises, such as natural disasters. This is particularly important for oils, tomatoes and tomato products, milk and almonds;
- h. Immediate and complete access to duty drawback arrangements for unprocessed and semi-processed agricultural products, to enable agro-processors to operate modern processes at an optimal scale;
- i. A gradual reduction in import tariffs on agricultural and agro-industrial products, in order to encourage efficiency, modernisation and quality in the domestic sector. In parallel, the impact of value-added tax at each level of the marketing chain should be studied;
- j. The gradual removal of the Ministry of Commerce's resale margin controls;
- k. The reform of the inter-professional associations, to make them independent of Government (see below).

B. Professional Organizations and Support Services¹⁸

Producer organisations

111. Chapter II homed in on the importance of improving the sector's responsiveness to consumer demand, especially where quality is concerned. In all developed countries, private producers' organisations take the lead in providing marketing services, market information and technology to their members. [add Pierre's para. on other countries...] Turning to Tunisia, this leads to the question of how the private sector organises itself, and how government promotes or discourages private organisations.

112. This section will describe and analyse the performance of Tunisian producer organisations, before making recommendations on new strategic directions. The broad conclusion is that agricultural professional organizations in general are under the control of state-run institutions, with very limited financial independence. They are perceived as another layer of the administration, which limits their technical and economic responsiveness to the market. The report therefore makes a small number of strategic recommendations which would have the effect of changing the incentives structure under which producer groupings operate, making them more responsive to the perceived and expressed needs of their clientele.

113. *Cooperatives for delivery of economic services (Cooperative de services Agricoles CSA)*. These number 201 with 90,000 members, i.e. 20 % of total Tunisian farmers. Their turnover is 5.5 % of total agricultural production value. Most of them started by collecting milk and providing services to livestock owners. They then diversified their activities into agricultural input supply and sometime crop marketing. 80% of cooperative business is in the coastal Governorates from Nabeul to Sfax.

114. The cooperative sector is stagnant. Although a few are doing very well, mostly the ones engaged in milk collection or wine-production, the majority are non-performing or inactive. The 9th Plan objective of covering 50% of producers was not reached. The turnover of milk, fruit and vegetable cooperatives is falling. Only 5 new cooperatives were created during the last five years whereas 100 new cooperatives were created between 1990 and 2000.

115. The cooperative sector is facing several challenges.

- There is little sense of farmer ownership. Cooperatives were set up as Government institutions, and farmers and government employees still see them as such, not as farmer-controlled bodies. Managers are unqualified and neither members nor board members participate in cooperative management.

¹⁸ See Ideaconsult-IRAM-FERT-AMCIDA (2006)

- Central Government disengagement from cooperatives has been replaced by local government intervention.
- Because of their bureaucratic management practices, cooperatives have difficulty competing against genuinely private operations.
- There is no bottom-up regional and national cooperative union or federation.

116. Where the Tunisian cooperative sector has had some successes, in milk and wine, there are lessons to be learnt. A successful cooperative supplies services to members as requested by members, with pricing and payment arrangements suited to them, and has professional managers, staff and management systems.

117. *Collective Interest Groups (Groupements d'Intérêt Collectif: GIC)* number more than 3,000. Half deal with drinking water supply (for 219,000 families) and a third with irrigation management (110,000 families on 150,000 ha). They are operating successfully for the most part. However, the law of March 15, 2004 requires them to adopt the status of "Agricultural and Fishery Development Groups" by March 2007.

118. *Agricultural and Fishery Development Groups (Groupements de Développement de l'Agriculture et de la Pêche: GDAP)* are non-profit associations of farmers and fisherfolk. Their objective is to manage collectively the natural resources of a clearly identified zone and to contribute to its development. This status was created by the law of 10 May 1994. 171 GDAPs existed at end-2005, often where there is no cooperative.

119. The law of 15 March 2004 redefined GDAPs. They must no longer have any commercial or economic role, and must engage instead in (i) extension (ii) promoting cooperation, (iii) protecting and managing natural resources (iv) supporting local investment and basic infrastructure (v) addressing land tenure issues. They will neither receive Government funding nor have access to loans or revenues.

120. There are seven *Central cooperatives*, mainly playing a role in the administered cereals market. The total average annual turnover of the 7 cooperatives was 190 M TND over the last three years. The Cereal Office delegates 54% of its cereals collection monopoly to three Central Cooperatives (CCGC, COCEBLE and CCSP). The Central Cooperatives also sell cereals, and supply agricultural inputs and equipment.

121. Members and users believe that these cooperatives are arms of Government, since they are not managed as cooperatives. They have no member cooperatives, and election to their governing bodies is not easy. Management is centralized, without analytical accounting systems. They have financial deficits and are highly indebted towards the Office des Céréales and the banking sector.

122. *The Farmers and Fisherfolk's Union : l'Union Tunisienne de l'Agriculture et de la Pêche (UTAP)*. UTAP is the only farmers union permitted by law, and

represents a quarter of Tunisian agricultural producers. It is active on the boards of cooperatives, inter-professional groups and technical agricultural centres. UTAP leaders are large farmers, with political ties, and are usually former civil servants (the current UTAP leader is a former Minister of Agriculture). UTAP is therefore not perceived as representing ordinary farmers' interests, which negatively affects the functioning of the many farmers' organizations which it is involved in.

Interprofessional organisations and commodity-specific technical support centres

123. The *Inter-professional Groups (Groupement Inter Professionnel - GIP)* are intended to cover all the actors in a supply chain. They number five: milk, fish production, animal production, fruits and vegetables. A quarter of their board-members are from Government and the others are from UTAP and its equivalent for industry, UTICA. Financing comes from para-fiscal taxes collected by the FODECAP: 1% of agricultural products sold on wholesale markets. GIPs are managed by a General Director, a civil servant appointed by the Ministry of Agriculture. The Department of Investment of the Ministry of Agriculture also fixes the allocation of the FODECAP to each GIP. GIPs are therefore effectively an arm of the administration.

124. The *Technical Agricultural Centers (Centres Techniques Agricoles: CTA)* were created less than ten years ago, at UTAP's initiative, with the objective of linking research and extension to farmers. There are three Centers, covering cereals, potatoes and biological agriculture. They are financed by FODECAP, and in practice under the authority of the Ministry of Agriculture which nominates their Directors.

Key issues

125. The main issue, therefore, is that the rigid framework imposed on producer organisations makes it very difficult for them to become farmer-owned organisations. The laws defining their status are simplistic and inflexible: farmers are either members of a cooperative or of an Agricultural Development Group (*Groupement de développement agricole, GDA*), or they are not affiliated at all. In short, a genuinely independent, profit-making cooperative would be illegal in Tunisia.

- The shift from cooperatives to agricultural service organizations (*Sociétés mutuelles de service agricole, SMSA*) will place them under the direct control of the local governorate.
- GDAs will combine the functions of Collective Interest Groups (*Association d'intérêt collectif, AIC*) and of collective interest organizations (*Groupement d'intérêt collectif, GIC*). This will harm their performance: an association managing drinking water collection points has little in common with an association of tomato producers. The latter needs a statute that will allow them to earn and distribute commercial profits – which a GDA is not allowed to do.

- Inter-professional groups are currently managed by the administration and their job is to implement government policy: market and currency regulations, security stocks and so on. It is not surprising that they have no membership base and cannot respond to producers' demands for information, services and market linkages.

The way forward

126. The associative sector has the potential to become an engine of supply chain improvement if Government empowers it to do so. It is therefore necessary to recast its role, by:

- (a) Redefining the governance arrangements for UTAP and other associations (GIPs, GDA, GIC etc..) to encourage the perception that they are owned by farmers and not arms of government.
- (b) Create a diversity of legal frameworks for farmer organisations. Whilst maintaining the new SMSA concept, develop a legal basis for farmer-governed, independent, profit-making cooperatives, updating cooperative legislation and regulations to be in line with best practice defined by the international cooperative movement.
- (c) Redefining Government's role as providing a facilitating framework rather than becoming directly involved in management. A semi-public agency with majority farmer ownership should promote farmers' groupings and agricultural extension. This would primarily involve capacity-building, linking different types of organisation and helping cooperatives form unions and apex organizations.
- (d) Using actual Government services, rather than the associative sector, to perform core government functions like regulating phytosanitary standards and food safety.

127. Under this reoriented strategy, Government would adopt a revised approach to GDAPs: i) helping them to serve as intermediaries between Government, banks and farmers; ii) allowing them to receive revenues; iii) encouraging contractual partnerships between GDAP and cooperatives; iv) supporting new GDAPs in new irrigated areas and help old ones to diversify; v) developing a communication plan to improve farmers' understanding of GDAPs' role; and vi) capacity-building.

128. There is a role for apex cooperatives to play, but the future of the Central Cooperatives would depend upon the willingness of Government to liberalise cereals trading and regularise their financial situation.

129. **For the Inter-professional Groups (GIP)**, the new approach would involve: i) freeing them to manage the FODECAP based on previously agreed upon rules, and encouraging a shift towards private funding; ii) breaking up responsibilities for heterogeneous supply chains (regrouping some chains was a mistake); iii) capacity-building in management, especially marketing and financial management; iv) ensuring Board representation of ordinary farmers and cooperatives.

Public agricultural support institutions

130. Chapter II of this report argued that Government should re-centre its activities on the provision of high-quality public goods, such as research and extension. This section will examine briefly the agricultural support services provided by Government, before recommending a way forward based on increased responsiveness to producers' expressed needs.

131. The Agricultural Research and Higher Training Institute (Institut de Recherche et d'Enseignements Supérieur : IRESA) was created in 1990, and regrouped 4 research institutes, 9 higher training centers, 5 regional research and development poles and their experimentation networks. IRESA includes 590 researchers and professors, including 270 full time researchers. IRESA has created national programming and evaluation commissions to program and budget agricultural research in 10 priority areas.

132. The common theme in critiques of IRESA (Ideaconsult et al., 2006) is that its research should become more receptive to the needs of stakeholders and the market. Links with extension and farmers are weak and feedback from farmers plays little role, although this is changing. Research priorities and research planning are neither results-oriented nor participatory. There is limited input from regional research poles and use of research results (this is also changing). Varietal improvement and cropping technology are prioritised to the detriment of applied agronomy, socio-economic and post-harvest issues. The top-down mono-sectoral philosophy precludes an integrated farming systems approach. Finally, human resources are lacking, especially in the social sciences, and there is no obvious rationale in their allocation.

133. The Agricultural Extension and Training Agency (Agence de vulgarisation et de formation agricole : AVFA) was created in 1990 and is responsible for all extension. Its central services are in Tunis. At regional level, under the Regional Center for Agricultural Development (CRDA), are the Territorial Extension Cells (Cellule territoriale de vulgarisation: CTV) at governorate level and the Agriculture Sector Cells (Cellules de Rayonnement Agricole; CRA) at sector level. Some Offices, some Inter-professional Groups (GIP) and some technical Centers also have their own specialized extension services. To complete the picture, there is an association of private farm advisors, composed mainly of retirees from the Ministry of Agriculture.

134. The need to strengthen extension services came up in many of the sub-sectoral studies commissioned during the preparation of this report¹⁹. Responsiveness to farmer priorities is again the key issue. The top-down training and visit approach fails to adapt extension messages to farmers' needs. Extension is perceived as part of the government apparatus, helping farmers access Government subsidies, and not transferring any updated technology. Extension programmes are fixed by the AVFA with limited consultation with producers and research.

¹⁹ e.g. CNEA (2005a), CNEA (2005b), Ideaconsult-IRAM-FERT-AMCIDA (2005)

135. At the same time, the extension service is under-resourced relative to its mandate. Both in terms of the quantity and quality of services available, it is unable to meet increasing demand. The lack of resources is particularly acute at the CRDA level.

The way forward

136. The first key recommendation, therefore, is that Government should ensure that **farmers' perceived and expressed priorities** determine the planning of research and extension services. Given the fact that farmers' organisations are not representative, farmers' perceived priorities should be elicited through quantitative and qualitative surveys of representative samples, and by adopting a focus group approach²⁰. It would be essential to ensure that female farmers are properly represented, as they are increasingly acting as de facto farm managers (see chapter III.F). It would also be essential to ensure that socio-economists experienced in interpreting farmer priorities play an increasing role in determining the overall direction of research and extension. One approach tested successfully in Chile, Costa Rica and Nicaragua has been to give farmers extension vouchers that they can use to pay for public or private extension advice (Feder et al. 2000). In the longer term, as farmer groupings become more genuinely representative, it would be advisable to institutionalise their role in the governance of research and extension.

137. The second key recommendation is that the MARH should introduce **internal management reforms**: firstly, to ensure that research and extension are properly resourced; and secondly to make them more accountable for results. As chapter III.D of this report will argue, the MARH could achieve both these objectives by showing a firm resolve to implement Performance Based Budgeting. (chapter III.D will make the case that the MARH's management systems are inherently biased against "soft" activities like research and extension, and that Performance Based Budgeting could be a powerful instrument for revitalising them.) One way of making research institutions more responsive is to offer competitive research grants. Long the norm in the USA and EU, competitive grant schemes also operate in countries such as Romania, Vietnam, Brazil and Turkey, and tend to stimulate research efficiency when they replace a public sector research monopoly (Gill and Carney, 1999, Echeverria et al., 2002). In Ecuador, for example, as many as 45 organisations, public and private, are executing competitively-awarded research assignments²¹.

138. So far as **research** is concerned, this new approach would create a favourable strategic framework for updating priorities, involving farmers in research planning, measuring the results of research, promoting an integrated supply chain approach, interdisciplinary research and dissemination. For **extension**, the new approach would involve reinforcing the role of farmers in managing extension services and defining extension programs, better targeting, and management procedures that allow front-line agents to respond to client demand.

²⁰ Intense consultations with a small representative panel of farmers.

²¹ World Bank Agricultural Investment Sourcebook, in preparation

139. But it is important to be realistic. Until and unless those responsible for research and extension feel themselves to be accountable to farmers and to their employer for the impact of their work, there will be little incentive for change.

C. SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES

140. Natural resources are the beginning of the agricultural supply chain and the basis for agricultural livelihoods. 5.4 million ha of cultivable and 400,000 ha of irrigable land are the foundation of the cropping sectors. Forests and rangelands cover another third of the territory or 5.5 million ha, and are home to 10% of the Tunisian population. Finally, the 4.3 million ha of rangelands provide up to half of the national herd's food requirements. This section will look at water alone, given its importance as a factor of production, but an analysis of forests and rangelands is presented in Annex 4. The implications for long-term direction of government policy will be highlighted.

Water mobilisation

141. Tunisia's well-developed water infrastructure can mobilize 90-95% of the 4.8 billion m³ of surface and groundwater available for use. Nearly half is mobilized by twenty-seven existing large dams, 5% from hill dams and lakes and the rest from groundwater. Water management in Tunisia focuses on storing large volumes for use in the increasingly frequent years of shortage²². The situation is complicated by the fact that water resources are mainly in the north and inland whereas users are concentrated on the coasts, therefore requiring extensive and costly transportation.

142. The 2002-11 water mobilization strategy aims at: (i) developing conventional infrastructure (mainly dams and groundwater) as well as non-conventional sources (recycling of used and saline waters), (ii) protecting existing infrastructures (see also soil/water conservation), and (iii) promoting water savings (particularly in irrigation schemes). 11 new dams have been completed or are under construction under the 10th Plan, and 11 others (mainly for water storage) are planned under the 11th and 12th Plans. Other water-mobilisation investment includes the recharging (under the 10th Plan) of a number of groundwater sources and the construction of hill dams and deep wells.

143. Water infrastructure investment consumes a massive share of the MARH's budget. 55% of the 10th Plan budget is allocated to water investment, and 43% of water investment is for large dams alone. The large dams' allocation in 2005 was

²² Water consumption averaged around 2.6 billion m³ in 2004, or two thirds of the volume mobilized. Irrigated agriculture accounts for about 80% of water consumption; another 12% consists of drinkable water, and the remaining 8% goes to industry and tourism.

equivalent to 61% of the MARH's entire recurrent cost budget for that year. Given the evidence above that Tunisia's agricultural competitiveness depends on quality, which depends in turn upon first-rate research and extension services, it is unfortunate that these massive infrastructure investments are accompanied by a real decline in the MARH's recurrent budget. This theme is pursued in chapter III.D.

144. Moreover, building new water-mobilisation infrastructure does not address the main constraints to water mobilization: dam siltation, overexploitation of groundwater, water pollution and salinization. Siltation losses in storage capacity are estimated at around 17 million m³ per year, or 0.7% of storage capacity. The main cause is the degradation of the watersheds upstream of the dams; large-scale soil conservation works would be necessary to reverse this situation. So protecting the 90-95% of surface water that is currently mobilised from siltation might be more economical than mobilising the last 5-10%.

145. In addition, the level of use of costly public irrigation infrastructure remains lower than design assumptions in most schemes. This is particularly so in the high-rainfall north of the country where farmers have less incentive to irrigate. The intensity of use is often less than 1 (i.e. less than one full irrigated crop per year), which is usually some 20% less than original design objectives. Weaknesses in extension services have been identified as an obstacle to raising the utilization rate of existing infrastructure.

146. In short, dams are expensive, so it is important to match construction to utilisation. Currently on average only two thirds of the water mobilized is consumed. New dams will have to be built on less convenient sites, increasing their cost. It may be optimal to delay the planned construction of new dams beyond the 11th and 12th Plans and thus liberate funds for other priority needs, such as rehabilitation, desiltation, extension and research.

Farm-level water management

147. Tunisia has made substantial progress in delegating the management of downstream irrigation systems to user groups. Operating with the legal status of Groupements d'Intérêt Collectif (GIC), they serve over 100,000 households and 150,000 ha under irrigation. They have changed the way the irrigation department is working in Tunisia, improving the financial sustainability and the management efficiency of irrigation water delivery.

148. There are two policy issues concerning GICs facing the Government. Firstly, they will be converted to the status of GDAPs (see paragraph 119) as redefined by the Law of 15 March 2004. It remains to be seen whether this vision of multi-purpose farmer groupings, managing water, production, purchasing and marketing, will live up to reality. It may be that the specific needs of individual farmers or groups cannot be covered by the standardized catch-all model prescribed by Government. It is likely that different sub-sets of farmers would be interested in the water-management and commercial aspects of group membership. Secondly, their large number – 1,100 so

far – is beginning to stretch the capacity of MARH to support start-ups and to provide advice.

149. Tunisia leads the region in the use of water fees to promote financial sustainability and more efficient water-use. Water charges in public irrigation schemes cover 115% of all operation and maintenance costs, up from 70% in 1991 (see Table 14). They are reportedly applied consistently except in some central and southern governorates with high concentrations of low-income irrigators.

Table 14. Recovery of operations and maintenance costs 1991-2000

Region	Recovery Rate 1991	Recovery Rate 2000
North	76%	119%
Sahel	56%	81%
Centre	44%	107%
South	60%	83%
Total	70%	115%

Source: Bazza and Ahmad (2002)

150. Tunisia is experimenting with a two-part pricing system [tarification binôme] in 12 pilot public schemes over 10 governorates. The approach is to charge a fixed initial fee plus a volumetric fee. It is intended to ensure that operating and maintenance costs are fully-covered without discouraging efficient water use. The experience so far has been mixed, but the consensus is that the shortcomings – mainly a lack of communication and enforcement – do not bring the two-part pricing approach into question. A major problem, however, is that Government decreed a 50% tariff discount for cereals after the two-part tariffs had been fixed, which is undermining the financial viability of the pilot schemes.

151. Concerning on-farm water-use efficiency, the Government's objective is to have irrigation schemes fully covered by water-saving techniques²³ by 2009. About 305,000 ha are covered so far, close to 75% of the irrigated area. The Government pays between 40% and 60% of the total costs of upgrading to water-saving equipment, and 20-30% of the cost of replacing it. The subsidies granted for water saving equipment to irrigators are expected to be around 40 million Tunisian dinars in 2006. It is estimated that field-level water use efficiency has improved from 50% to 75% over the last 10 years, which is an excellent achievement by world standards.²⁴

The Way Forward

152. A theme running through the observations above is that there is a bias in favour of new dam investment at the expense of anti-siltation, rehabilitation and improving the utilization rate of existing public irrigation schemes – let alone

²³ e.g. sprinklers, drip irrigation or improved surface irrigation.

²⁴ Contrary to expectations, agricultural production has increased rather than water consumption decreasing.

recurrent spending on supporting farmers' quality-competitiveness. The key tool for addressing this bias is economic cost-benefit analysis. Government should define explicitly the objectives of its dam-building policy. If the objective is to stabilize farm incomes, there may be lower-cost ways of doing this (see section III.D). If, however, the goal is stabilizing the supply of water in drought years, Government should use economic analysis to determine the least-cost approach to attaining this objective.e. Alternative approaches would include anti-siltation work, dam rehabilitation and the transfer of water from agricultural to non-agricultural uses. Cost-benefit analysis should be carried out for each proposed dam to determine whether it is the least-cost means of achieving the objective compared with, for example, anti-siltation measures.

153. MAHR must therefore shift its emphasis from water mobilisation to integrated management. The strategy would be to improve the effectiveness of existing infrastructure, with activities such as: (i) the protection of existing water resources against pollution; (ii) research into dam protection and desiltation; (iii) better meteorological and hydrological analysis. On the demand side, activities would include: (i) the refinement of pricing systems; (ii) continued promotion of improved irrigation techniques, and (iii) continued increases in management by water-users (iv) helping farmers to increase the value of their production.

154. For use-values and demand-management to play a greater role in water resource planning, it would be useful to strengthen the capacity of the central services the Ministry of Agriculture and Water Resources. This would build on recent progress achieved by the creation of the *Bureau de la planification et des équilibres hydrauliques*. It will be particularly important to improve skills in the fields of agro-economy and socio-economy.

155. So far as farm-level water management policies are concerned, Tunisia should build on the reforms of the last decade. The general approach should be to extend successful existing models and to eliminate the remaining anomalies.

156. Looking at the extension of successful models, it is recommended to extend the two-part tariff experiment to more schemes countrywide, in accordance with the results of the evaluation workshop held in 2004. It would also be useful to consider the introduction of replacement costs in the calculation of the fees.

157. Government should continue to support the creation of water-user groups. However, it should monitor the impact of the conversion to GDAP status. As recommended in paragraph 125, Government should be ready to adapt the GDAP model to the dynamics of groupings on the ground, rather than expect conformity. As water-user groups become more established and co-ordinated decision making between different groupings becomes more important, regional water councils – comprising all types of water users (including associations) – could be set up.

158. However, it will be difficult to improve extension services to water-user groups so long as the number of GICs goes up and the MARH's recurrent budget

moves in the opposite direction. Sub-contracting advisory services to private organizations will not solve the underlying budget issue.

159. There is no economic or social justification for public subsidies for the replacement of water-saving equipment, certainly when it involves the substituting depreciated equipment with new equipment of the same type. The start-up subsidy could perhaps be justified on the grounds that the beneficiary does not yet know the technology. But if farmers are paying the full cost of water still are not motivated to buy water-saving equipment after using it for a few seasons, then it is probably not profitable for them. The subsidy is also distributionally regressive, because access to it is proportional to ownership of irrigated land.

160. Government should also remove the preferential water tariff for wheat. It is cumbersome to assess how much of a farmers' water use should be at the full rate and how much at the discounted rate. It distorts farmers' cropping patterns, encouraging them to grow crops in which they are less competitive (see chapter III.A above). It undermines the financial viability of the two-part tariff approach. And it is distributionally regressive, because access to the subsidy is again proportional to ownership of irrigated land.

D. RESOURCING THE AGRICULTURAL SECTOR²⁵

161. We have seen that realising Tunisia's agricultural potential means pursuing quality and responding to the demands of the market. The state's role will increasingly be to provide core public goods and a favourable business environment, so that producers can be in touch with and adapt to market demand. The capacity of the public and private sectors to play their respective roles will depend in part upon their ability to marshal resources. This section will therefore comment on the performance of the institutions that mobilise and manage resources for agriculture.

162. A common theme emerges for both the public and private sectors: a pervasive philosophy of top-down quantitative planning is making it difficult for the government budget and the financial sector to respond flexibly to the needs of the farmer. Government has erected a complex superstructure of programmes and prescriptions, which responds imperfectly to the perceived priorities of farmers. The report therefore makes a small number of strategic recommendations to address the incentives framework under which decision-makers in banks and the MARH operate. The intention is to make them more aware of and responsive to their clientele.

Management of the Ministry of Agriculture's Human and Financial Resources

163. Whatever new policy direction the Tunisian government decides to take, it will only be effective to the extent that the ministry has the management tools to reorient its activities and to allocate staff and money to its new priorities. Currently,

²⁵ Based on CNEA (2006), a study financed by the Agence Francaise de Developpement

however, the ministry lacks some of the critical management systems for translating policy priorities into action on the ground.

164. A key observation is that the MARH's systems of planning, budgeting and human resource management are better suited to the management of physical investment (e.g. irrigation infrastructure, plantations and fishing ports) than to managing so-called "soft" activities. The phrase "soft activities" here means the management of knowledge, information, systems, procedures, institutions and behaviours. It covers critical functions of the MARH, such as research, extension, improving product quality, the establishment of maintenance systems and the involvement of communities in the management of natural resources.

165. The background studies provided strong evidence that the MARH's efforts are focussing on the creation of new physical infrastructure at the expense of "software". The assessment of the irrigation sector is that ambitious plans for new storage dams are accompanied by the poor maintenance, high siltation and relatively low rate of utilisation of existing dams. Similarly, the MARH's programmes of support for the fisheries sector emphasise the provision of additional ports, whereas it is more important, given the over-exploitation of limited fish stocks, to ensure that the potential value-added from the existing catch is fully realised. Meanwhile, analyses of the fruits and vegetables, livestock, olive oil and cereals marketing chains all emphasise the lack of effective research, extension and quality assurance systems.

166. The management systems which create a bias in favour of physical investment at the expense of "soft" activities include:

- The emphasis on quantified physical targets in the Plan process, in the presentation of the Budget Economique and in sectoral analyses, to the exclusion of more qualitative indicators.
- The definition of targets and objectives in terms of volumes (e.g. quantity of tomato puree produced) rather than values (e.g. USD received from exports of tomato puree), which implies that crude levels of output matter more than marketing or quality.
- The institutional separation of Titles I (recurrent operations) and II (investment) of the budget in the MARH – even though they are managed by the same Directorate General in most other ministries.
- The apparent lack of an objective procedure for allocating resources between Titles I and II.
- The different degrees of strategic management applied to Titles I and II of the Budget. The Title I Budget, especially where personnel costs are concerned, is the product of incremental adjustments to the previous year's allocations within very narrow margins. The Title II budget, on the other hand, benefits from discretionary resources, planning, analysis and heavy donor

involvement. In practice, Title I has to match Title II with staff and running costs as well as it can within its much tighter constraints.

167. These imbalances are visible in the MARH's resource allocations. Out of a total ministerial budget of DT 722 million for 2005, DT 523 million are classified as "investment expenses", of which DT 218 million are funded by external grants and loans. Of the remaining DT 199 million available for recurrent expenditures, DT 175 million are allocated to staff costs, leaving only DT 24 million for non-staff recurrent expenditures, which are often crucial for the delivery of high-quality "soft" activities like research and extension. Slightly over a half of 10th Plan allocations, DT 1206 million out of DT 2200 million, are allocated to irrigation activities. This compares with DT 56 million for research, studies and extension. In other words, the savings from reducing water investment by 5% could double spending on research, studies and extension. The total agricultural Plan size increased by DT 105 million between the 9th and 10th plans, whereas expenditure on water resources alone increased by DT 134 million.

168. The Government could ask itself some hard questions about the implications of this bias for the development of the agricultural sector. So far this report has stressed that Government's role should be to provide core public goods to support high-quality production: research, extension, phytosanitary controls and food safety regulations. But does the MARH have effective tools for managing the performance of such "soft" activities? For example, how would it mobilize its front-line staff to put more emphasis on quality and efficiency as opposed to productivism? Is the staff training programme planned and funded so as to support the reorientation of the Ministry's priorities? How can a CRDA plan its staff use when its personnel (funded by Title I) are pulled in different directions by special programmes and donor-funded projects (funded by Title II)? Will the MARH see a progressive deterioration in the ratio of the stock of infrastructure to the resources available to fund its maintenance and to advise the farmers who use it?

169. The ongoing Agricultural Services Support Project (ASSP) is achieving positive results in a number of "soft" areas such as research, extension and quality. This is due in part to the framework of objectives provided by the project cycle management approach. The ASSP demonstrates that it is possible to define measurable objectives for "soft" activities, and to transmit them through the organizational hierarchy. The lesson from the ASSP is that relatively small injections of non-salary recurrent expenditure can have a large transformational impact, provided that they are backed up by a robust framework of objectives for performance management.

The Way Forward

170. The Ministry of Finance is currently preparing the government's transition towards Performance-Based Budgeting (PBB) [budgétisation par objectifs]. The intention is that PBB should be practiced across the entire government by 2010. The Ministry of Agriculture is a pilot ministry, and within the MARH the Forestry

Directorate General, the Water Sector Investment Project (PISEAU) and the Regional Agricultural Development Commissariat (CRDA) of Ariana will be pilot departments.

171. The main elements of the PBB approach are:

- (a) *A Medium Term Expenditure Framework (MTEF)*, which is the medium-term development strategy translated into financial flows, and implies by definition the integration of budgetary planning for “development” and “recurrent” expenditure (i.e. Titles I and II).
- (b) *The organization of the budget by objectives*, so that the budget format maps onto the ministry’s objectives and organigramme. This reform helps ensure that human and financial resources follow development priorities and that staff responsibilities for translating money into results are clearly defined.
- (c) *The setting of performance objectives* which cascade responsibility for the ministry’s performance from top to bottom, while respecting the congruence between responsibilities, budget lines and the organigramme.
- (d) *A modern approach to financial control and audit*, which should be concerned not only with procedural correctness but also with the effectiveness of expenditures.

172. PBB will therefore provide the MARH with a tool that is currently lacking for the management of “soft” activities. It will help integrate the two titles of the budget, to transmit the ministry’s new priorities to the front line and to monitor and control staff performance across the range of the MARH’s activities. However, the MARH will only benefit from PBB to the extent that it is prepared for and committed to its introduction. This will involve: creating a PBB management cell within the MARH, bringing together the functions of strategic planning, administration, finance and investment; establishing an implementation plan and mobilizing the required technical assistance; launching a communication and training campaign for MARH staff at all levels; and developing a long-term staffing and human resource development plan, taking account of the MARH’s new role and the high rate of retirements expected in coming years²⁶.

173. According to the Economic Budget, 55% of public agricultural investments were externally funded in 2004 (DT 214 million out of DT 387 million). There are indications that the modalities of external funding may risk weakening the Ministry’s management and planning systems. The existence of many regional or thematic projects and programmes, each with its own budget, management unit, objectives and procedures, is in direct contradiction to the move towards integrated strategic planning described above. It is reported that projects’ demands upon staff for “special duties” makes it difficult to plan and manage CRDA activities. Their

²⁶ Annual departures are currently 400-500 per year (around 2.5%), which is expected to rise to 900 by 2010.

reliance upon contractual staff funded via Title II of the budget may also compromise their long-term sustainability.

174. Many ministries of agriculture that are similarly dependent upon external funding seek to incorporate donor funding within a predetermined sector strategy and resource mobilization plan, to manage it within existing ministerial structures instead of project-specific management units, and to channel funding as far as possible through the departmental budget. The MARH should consider adopting such a "Sector Wide Approach."

Agricultural Finance

175. There are signs that private investment in agriculture is far below its potential level. Over 2002-4, private investment was 51% of total investment, up from 40% in 1987-91, but a long way short of the middle-income norm of around 75% (CNEA, 2005c). The share of farmers investing in agriculture has fallen significantly over the last decade, from 36% in 1990-4 to 26% in 2000-4, with the greatest drop (from 50% to 33%) occurring among the medium-sized farms of 10-50 ha. The proportion of farmers who invested fell in every region, and the drop is most pronounced in the north. This raises the question: to what extent has limited access to finance constrained private investment?

176. Under the 1993 investment code, Government encourages agricultural investment with an extensive and complex system of direct subsidies («encouragements de l'État»), administered by the Agence de Promotion des Investissements Agricoles (APIA). The schedule of subsidies is intended to encourage exports, the development of backward regions, modern technologies (e.g. organic farming) and protection of the environment. Subsidies represent 20.4% of the cost of investments over DT 40,000, and 38.4% of the cost of investments under DT 40,000. It is difficult to assess the impact of these subsidies in terms of growth and jobs. If the farmer would have invested anyway without a subsidy, the subsidy only represents a transfer from the government to the farmer.

177. The Banque Nationale Agricole (BNA) is the main agricultural lender, with DT 0.7 billion of loans outstanding. Although around 1,600 farmers borrow from other commercial banks, these are people with other businesses, for whom agriculture is a secondary part of their banking relationship. Meanwhile, the Banque Tunisienne de Solidarité (BTS) has a portfolio of individual smallholder loans and credits to microfinance institutions. Around 40% of BTS-funded microcredits are classified as agricultural.

178. Bank credit accounts for around 20% of the financing of agricultural investment. The remainder is divided between self-financing (61%) and subsidies. The relative importance of bank loans in agricultural finance has fallen significantly over recent years. The ratio of bank loans for agriculture and fishing to the sector's value added fell from 3.8% in 2000/01 to 2.1% in 2003/04. For seasonal loans [crédits de campagne] the fall was even more marked, from 2.2% to 0.9%.

179. The share of farmers expressing a demand for credit is low, at 7 – 8% (CNEA, 2005c), and is on a slight downward trend. When surveyed, around a quarter of farmers say that they do not demand credit for fear of indebtedness, and another quarter because of difficulties in accessing credit. Most of the remaining farmers gave a wide range of reasons too diverse to capture statistically. At the same time, the share of farmers reporting that their demand for credit was satisfied has fallen sharply over the last decade, from 54% in 1990-4 to 36% in 2000-4. Only the larger farmers, cultivating over 50ha, have not seen their satisfaction rate fall.

180. The main factors underlying this contraction of agricultural lending are well known.

- (a) *The poor repayment rate.* The repayment rate of the Banque Nationale Agricole (BNA) is around 50%. The repayment rate of the Banque Tunisienne de Solidarité (BTS) for loans to individual farmers (“microprojets agricoles”) is also around 50%, and around 80% for on-lending via NGOs (MARH estimates). The fiscal cost of these arrears is not transparent, because Tunisia’s fiscal regime discourages provisioning and the central bank does not permit a loan asset to be written off if it can be shown that it is backed by security (IMF, 2004). For the banking sector as a whole, therefore, provisions only cover 46.2% of bad debts (IMF, 2004). For the BNA, provisions are only 5% of the DT 3.3 billion of loans outstanding. Unprovisioned bad loans stay on the creditor’s balance sheet as an asset, backed by the implicit guarantee of the state shareholder.
- (b) *The tightening of the market.* The number and value of agricultural loans has been falling for several years, with 3,907 seasonal credits in 1998/9 becoming 1,446 in 2003/4, compared with an estimated 59,000 farms with some degree of commercial potential²⁷. This drop can be attributed to (i) clients’ indebtedness, (ii) the BNA’s adoption since 1999 of a policy of limiting its costs by focusing on larger clients (World Bank, 1999)²⁸, (iii) a real cost of credit of around 15%²⁹, and (iv) increased farmer savings - the demand for credit always falls after a good season – and access to informal credit from friends and family. Non-farm earnings are often the main source of capital for farm investments.
- (c) *Suitability of credit instruments for small farmers.* 1.8% of small farmers receive short term credit (Guellouz, 2004), compared with 4,140 out of 471,000 farmers, or 0.9%, in the sector as a whole in 2003/4. However, it is possible that classic bank credit, with its administrative formalities, earmarking of funds and requirement for immovable security, is ill-adapted to the needs of the 225,000 farming operations categorized as “of weak viability” or worse. These rural

²⁷ i.e. classified in categories B and C.

²⁸ The sharpest fall in the rate of credit demand satisfaction has been at the bottom end of the BNA’s clientele (CNEA, 2005c), i.e. among farmers too small to be the BNA’s best borrowers but too large for BTS credit.

²⁹ Interest rate 11-12%, contribution to the Fonds National de Garantie 2%, compulsory insurance 2 – 3%, variable commissions and charges, inflation 5%.

households, which often engage in multiple informal economic activities, may be better suited to microfinance products.

181. These phenomena are typical of a rural finance sector that is tightening up after a period of “easy credit” and bad debts. From a purely prudential point of view, however, the situation appears stable, as Government has the fiscal resources to continue subsidising the BNA, the FNG and the BTS. This, along with the prominence of high-profile co-operatives in the bad debts of the BNA, helps explain the lack of a sense of urgency concerning the reform of the rural finance sector. However, the status quo does have hidden costs for Tunisia. Firstly, there is the fiscal cost of the government’s implicit guarantees for unprovisioned bad debts. Secondly, there is the cost of investments being foregone because bankable projects are not receiving finance. Thirdly, there is the cost of the allocation of savings to unproductive investment.

182. The supply of credit to agriculture therefore depends critically upon the lending practices of the BNA. These in turn depend upon the incentives under which its management operates. Key features of this incentives framework are that:

- The BNA has an obligation to maintain an expensive rural branch network and to offer agricultural finance products;
- The BNA is encouraged to operate in non-agricultural markets, which are perceived as less risky and more lucrative;
- The BNA is under pressure to improve its operating profit;
- The BNA is under little pressure to collect bad debts, as these are not provisioned (see above)³⁰.

183. Taken together, these factors could easily encourage a bank’s management to view its agricultural portfolio as an imposition: a high-cost business line which must not be allowed to affect the bank’s competitiveness in more lucrative markets. The result would be conservative lending practices, high charges and little effort actively to develop new agricultural business.

184. The lending and arrears figures quoted above show that the finance sector is failing agriculture. One reason is that Government policies have removed the incentive for financial institutions to lend sustainably. The conflicting social and commercial objectives of the BNA and the BTS make it impossible for their performance to be measured, let alone rewarded or sanctioned. State subsidies compensate for poor financial results and discourage the entry of private banks. Central Bank policies on provisions discourage proper accounting for bad debts. Publicly-funded repayments of arrears discourage prudent lending and collection procedures.

³⁰ Of around 100,000 loans in arrears only around 7-8,000 are being pursued as “contentieux”. There are no cases of land security being repossessed.

185. If government were to seek to remobilize the agricultural finance sector, an essential first step would be a study of the decision-making in the credit market. It would not only look at farmers' investment decision-making, demand for credit, and *perceptions* of the financial system, but bankers' decision-making and banks' organizational behaviour. There is currently no hard data available upon whether a bankable clientele is currently excluded from the credit market and, if so, what are its characteristics and needs, and how it is segmented into differentiated sub-markets.

186. This recommendation for a field level study is not simply an evasion, a cop-out, an excuse for not making firm recommendations at this stage. It is part of an important paradigm shift, in which the perspective of decision-makers moves away from prescribing schemes that may or may not suit the sector's needs towards understanding the behaviour of key stakeholders and responding to their perceived priorities.

187. Depending on the results of this study, two broad policy options would suggest themselves:

- *Adopting international best practice on the environment for microcredit.* The World Bank /IMF 2001 Financial Sector Assessment (FSA) concluded that Tunisia's microcredit environment is far from ideal. For example, Tunisia's 170 Microcredit Associations (AMCs) are not allowed to charge positive interest rates and the recent decision to limit banks' interest rates to 5% for farms with incomes of under DT 3,500 / year make it impossible to cover expenses. AMCs depend for their income on a DT 20 subsidy per loan dossier from the BTS, funded from BTS's DT 18 billion / year state subsidy. Best practice policies, on the other hand, would include: allowing micro-finance institutions to set rates that cover their costs, the use of subsidies for start-up costs only, the dismantling of competing "social" credit schemes and legislation facilitating the creation and growth of micro-finance institutions.
- *The reform of the BNA.* The purpose of reform would be to strengthen the incentives for bank management to manage credit risk effectively, and to develop improved lending practices. This could involve recasting the BNA as an autonomous commercial bank, having transferred its irrecoverable bad loans to a separate financial entity. If the Government wished to maintain credit subsidies, these could be administered more efficiently and transparently via competitive tendering between commercial banks, which would have the added advantage of increasing competition in rural banking. Separating the agricultural and non-agricultural accounts of the BNA would enable government to identify clearly the economic and fiscal cost of its agricultural credit policies. Reform of the BNA would require improved policies on the accounting treatment of bad debts. It would also have serious implications for debtors with major arrears, including a number of important co-operatives. It was beyond the scope of this study to examine this option in detail.

Agricultural Income Stabilisation

188. Tunisian rainfed agriculture is drought-prone. For example, wheat yields between 1961 and 2005 were on average 18% above or below the trend line (FAOSTAT data). In seven of these last 45 years they were at least 25% below the trend line. CNEA (CNEA, 2005a) data paint a more dramatic picture: over a period of 19 years, 5 high-rainfall years produced at least 18 million quintals of wheat and 9 low-rainfall years produced less than 5.1 million. Exposure to climatic risk can reduce farm incomes significantly (World Bank, 2005a), as farmers stick to low-risk, low-return activities. In addition, a part of the BNA's bad debts are attributed to drought losses.

189. Meteorological data show that temperatures have been rising gradually during last century. In theory this could increase the frequency of extreme droughts, even if statistical analysis does not yet show this to be happening (MARH / GTZ, 2005).

190. A number of instruments for stabilizing farm incomes operate in Tunisia. Taken together, these instruments leave many farmers exposed to drought risk, since they have limited coverage and the farmer cannot predict how they will operate :

- (a) The provision of public irrigation services, which were discussed earlier.
- (b) The Fonds National de Garantie (FNG), which pays interest costs when loans are rescheduled (over 5 years) after droughts. Of course, the FNG's coverage is limited to the minority of farmers that borrow and the benefit is proportional to a farmer's borrowing capacity i.e. the benefit is focused on richer farmers. In practice, moreover, rescheduled loans are often not serviced and the bank is left carrying the remaining debt. It is estimated, for example, that 51,000 farmers benefited from rescheduling in 1999, of which 18-20,000 are keeping up with repayments.
- (c) Commercial Crop insurance, which is seen only as a precondition for obtaining a bank loan. It only covers non-systemic losses such as hail, fire and damage to greenhouses. The Caisse Tunisienne des Assurances Mutuelles Agricoles (CTAMA) has 80% of the market. The CTAMA covers its costs, and is gradually losing market share to other insurance companies, which suggest that this market is competitive. The market is shrinking in parallel with the number of bank loans; in spite of the CTAMA's marketing campaigns there is little demand for insurance except when it is linked to bank credit.
- (d) The "Fonds des Calamités" and other ad hoc interventions. In drought years Government allocates a part of its budgetary reserve to disaster mitigation as the Fonds des Calamités. Plans for the use of these resources are proposed by the regions, consolidated by the centre and implemented through sectoral ministries' development (Title II) budgets. Typical MARH activities might include fodder and transport subsidies and the provision of water-tankers. The structure of the

government budget makes it difficult to identify Fonds de Calamité spending. Other ad hoc interventions include the decision in 1993/5 to write off the debts of 7,557 farmers, and in 1999 to write off all arrears below DT 1,000 and to reschedule arrears between DT 1,000 and DT 4,000 over 7 years.

191. The MARH is interested in exploring agricultural drought insurance. Traditional drought insurance involving individual crop-loss assessments, however, is unlikely to succeed in Tunisia. The subjectivity of crop loss assessments and the problem of "moral hazard" (once insured, farmers may take insufficient care to reduce the likelihood and severity of losses) will make it difficult to bring in reinsurance, which is crucial because drought risk is systemic i.e. many claims will be made at the same time. Also the cost and delay of administering many individual field loss assessments would be prohibitive.

192. A possible alternative option would be **rainfall index insurance**. This would involve the creation of a set of rainfall indices, in which rainfall at different times of the year is weighted to maximize correlation with the yields of different crops in various locations. The insurer would pay out an amount proportional to the rainfall index's shortfall below a predetermined threshold. Such index-based insurance is offered in Canada and has been tested since 1998 in Nicaragua, India, Ukraine, Ethiopia and Malawi. The advantages of index insurance are that reinsurers can trust the objectivity of meteorological data and that there is no need to assess farmers' field losses.

193. Global experience of index insurance provides two relevant lessons (World Bank, 2005). Firstly, policymakers must be clear whether the objective is to reduce poverty and vulnerability on the one hand or to provide a commercial insurance product on the other; mixing the two can lead to suboptimal outcomes. Secondly, an index insurance product is unlikely to succeed in a high-risk environment where government intervenes with ad hoc and unpredictable compensation, for example in the form of loan write-offs. This is because farmers will not pay the large premia required when they hope that government might provide compensation free of charge. That was the experience of the « Fonds de mutualité pour l'indemnisation des dommages agricoles aux calamités naturelles » in Morocco (1986-88). In spite of a history of drought, a 30% government subsidy and a 20% reduction in premiums in year 2, the insurer sold very few policies because farmers assumed that government would cover their losses and bad debts. Another initiative in the late 1990s, supported by the International Finance Corporation and the Italian Government, was abandoned when the value of premia was fully understood. (Indeed, when the Tunisian government considered launching drought insurance in 1987 and 1997, premiums of 6% of the insured amount were considered too expensive).

194. However, there is scope for Government to conceive more systematic social drought insurance programmes targeted on the most vulnerable. This would involve moving away from input subsidies (credit, write-offs, fodder, and transport) which mostly benefit larger farmers, towards targeted direct transfers triggered by drought events. If necessary, Government may consider stabilizing the fiscal impact of such

programmes by purchasing drought insurance from international reinsurers, or by entering into conditional borrowing agreements with international financial institutions.

E. RURAL LAND

195. Land is the foundation of agricultural production and livelihoods. It is also an area in which the MARH has actively intervened. This section explores the issues surrounding rural land tenure in order to identify possible new orientations for Government.

196. On one level, the analysis is inconclusive. The data available do not say much about how land tenure affects farmers' behaviour and competitiveness. On another level, however, a firm conclusion does emerge: before offering prescriptions, we need to understand what is driving farmers' choices on the ground.

197. Tunisian law recognizes four forms of land tenure:

- Private land [terres privées]. This legal form was introduced in 1885. 4.7 million hectares are held as private property, a figure increasing at the rate of around 70,000 ha per year.
- Collective land [terres collectives]. This legal form, defined in 1901, integrated the concept of tribal land tenure within the framework of colonial French law. The Tunisian law of January 4, 1964, incorporated many of the provisions of earlier legislation on collective land, giving tribal collectivities legal personality and exclusive land rights. It also facilitated the conversion of collective land into private or forest tenure [terre soumise au regime forestier].
- Habous land [terres Habous]. Habous land tenure was historically created by religious endowments. Habous land incomes financed religious and social activities implemented by the Djemaïa des Habous.
- The state estate [terres domaniales]. This was the dominant form of land tenure during the colonial era. 820,000 in 1964, it now covers around 500,000 ha of highly fertile land. It is farmed by pilot farms, "agro-combinats" and co-operatives farming under the Office des Terres Domaniales. By law the state can not alienate such land. But Government can delegate it [affectation] to public institutions, lease it, or grant the usufruct to young farmers and agricultural graduates. The study was not able to look into Terres Domaniales, but some questions for future reflection are in Annex 3.

198. Before Independence, titled tenure were the preserve of the colonial state and foreigners. A key theme of land tenure policy since 1956 has been the promotion of registered private title for the Tunisian citizen. Habous land was abolished in 1956

and taken into the state estate³¹. The policy of nationalisation and collectivisation of state and private land was reversed by the law of September 22, 1969. Since Independence 3 million hectares of collective land have been converted either into private property or put under forest tenure. Although it is not compulsory to register titles, several laws enacted since the late 1990s require that private property be registered in the cadastre [livre foncier] in order to create property rights. This, however, leaves some ambiguity around the implications of the law of 10 July 1974, which recognises that unchallenged occupation of land for five years can lead to issuance of a Certificate of Possession, which can be mortgaged and converted into title after a further five years.

199. A second central theme of land policy has been the consolidation of land in public irrigation schemes in accordance with fixed minimum and maximum levels of ownership. The maximum levels are to widen ownership, while the minimum levels are for viability and technical efficiency. Since 1977 the Agence de la Réforme Agraire des Périmètres Publics Irrigués, and then the Agence Foncière Agricole, have been reconfiguring land ownership in public irrigation schemes. They do it by expropriating private land, transferring it into the state estate and then reissuing it to private owners. New legislation in 2000 widened the AFA's mandate. If requested by 75% of the owners, it can reconsolidate landholdings in privately irrigated or productive rainfed areas. Since 2000, the AFA has processed 12,000 – 14,000 hectares per year, out of a publicly-irrigated area of 200,000 ha.

200. The rest of this section will examine land policy in the light of the government's stated policy objectives. It will look at the role of land productivity increases in generating higher farm household incomes, at the possible implications of land market performance for agricultural growth and at land law as an incentive for investment and effective natural resource management. As we will see, the legal and institutional framework is much better understood than farmers' decision-making.

Profile of Land Availability

201. One of the Tunisian government's 21 stated policy objectives is "un revenu meilleur pour l'agriculteur." In this context, it is important to appreciate that increased land productivity alone is unlikely to provide most of the desired increase in per capita farm incomes. This point can be illustrated by comparisons with high-income and transition countries.

202. Around 4.5 million hectares of land are classified as agricultural in Tunisia, equivalent to 1.3 hectares per rural inhabitant and 4.7 hectares per person employed in agriculture. 2.9 million hectares are classified as arable, which works out at 3.0 hectares per person employed in agriculture. To put this in perspective, Tunisia's arable land availability per person employed, although low, is typical for the southern

³¹ Although 100,000 ha remain under habous tenure, it has negligible productive potential.

Mediterranean region (see Table 15), and is of the same order of magnitude as the countries acceding to the EU in 2004: 4.8 ha/person³².

Table 15. Arable land per person employed in agriculture, 2000

Country	ha/worker
Libya	16.8
Israel	4.8
Lebanon	4.0
Tunisia	3.0
Syria	3.0
Algeria	3.0
Morocco	2.1
Jordan	1.3*
Egypt	0.3*

Source: World Bank / GDI database

* largely irrigated

203. A comparison with developed agricultural economies (Table 16) suggests that increasing per capita incomes from agriculture in the long run will depend largely upon farm labour shifting into sectors, and by the consolidation of rural landholdings. A comparison between the Tunisian and Spanish farm sectors, for example, shows that, for Spain's land productivity is only 70% higher than Tunisia's, some of which can be explained by climatic and market access advantages, whereas Spain's land to labour ratios are over three times higher than in Tunisia. This means that only a third of the difference between Spain and Tunisia's agricultural labour productivities is due to higher land productivity; the rest is due the absorption of Spanish rural labour by the industrial and service sectors. The difference between Australia and Tunisia's agricultural labour productivities is entirely due to Australia's higher land to labour ratio. In the case of Italy, which has greater natural advantages than Spain, Australia or Tunisia, still as much as 35% of the difference in labour productivities is due to Italy's higher land to labour ratio.

204. A comparison with EU pre-accession countries is also revealing. Although Tunisia's value added per worker in agriculture, at USD 2557/year, is of the same order of magnitude as that of countries such as Hungary (USD 3391/year) and Poland (USD 1182/year), the number of people employed in agriculture fell in Hungary and Poland by 29% and 15% respectively during the same period (Table 16).

³² Weighted average, excluding Cyprus, Malta and the Slovak Republic.

Table 16. Labour and land productivity (2000)

	Agricultural value added (USD bn)	Arable land (ha)	Value-added/ha (USD)	Agricultural labour force	ha/worker	Value-added /worker (USD)
Tunisia	2.4	2,864,000	838	941,000	3.0	2,550
Spain	18.5	13,400,000	1,381	1,333,000	10.1	13,878
Italy	27.5	8,479,000	3,244	1,352,000	6.3	20,347
Australia	13.3	50,304,000	264	447,000	112.5	29,754
Tunisian agricultural workforce with Spanish land productivity	4.0	2,864,000	1,381	941,000	3.0	4,202
Tunisian agricultural workforce with Italian land productivity	9.3	2,864,000	3,244	941,000	3.0	9,874
Tunisian agricultural workforce with Australian land productivity	0.8	2,864,000	264	941,000	3.0	805

Source: World Bank / GDI database

205. Moreover, Tunisia's agricultural labour force is not yet on a downward trend. It rose by 20% between 1993 and 2002, while labour productivity stagnated (see para. 29).

Table 17. Aggregate land availability.

	1970	1980	1990	1994	2000
Population (million)	5.1	6.3	8.1	8.5	9.7
Rural population (million)	2.8	3.1	3.4	3.5	3.6
Agricultural land (million ha)	4.8	4.8	4.7	4.5	4.5
Agricultural employment (million)	.84	.76	.86	.87	.94
Irrigated land (ha)	90,000	155,000	275,000	303,000	350,000
Agricultural land/rural inhabitant (ha)	1.7	1.5	1.4	1.3	1.3
Irrigated land/rural inhabitant (ha)	.03	.05	.08	.09	.10

Source: FAO, Land and Water Development Division, World Bank / GDI database

206. Water availability is also a constraint upon strategies for raising agricultural incomes based upon improvements in land productivity. Only 2.3% of Tunisia's arable land is situated in humid or sub-humid zones with at least 600 mm rain per year. 78.6% is located in arid or desert areas with rainfall lower than 300 mm per year, and it is estimated that 88% of irrigable land is already irrigated (Mtimet, 2004).

207. It is therefore in agriculture's long-term interest that industrial and service-sector growth should attract labour out of farming. This process will involve many elements, including macro-economic stability, removal of the pro-agriculture bias in trade policies (see para. 43 onwards), and a favourable business environment. One important component, however, will be the ability of the farm sector to avoid land fragmentation and absenteeism by consolidating landholdings under the ownership of active farmers. This requires an effective land tenure system and market.

Performance of the Land Market

208. Land-ownership trends in Tunisia are causing concern. These are fragmentation, absenteeism, and low involvement of younger farmers. They are not specific to any sub-sector. A study commissioned by the Direction Générale de Production Agricole in 2002/3 identified absenteeism as land fragmentation as constraints upon cereals production (CNEA, 2005a). 90% of farmers growing early vegetables [primeurs] are cultivating fewer than 2 ha. Over 50% of citrus farmers and cereals farmers are absentees. And as far back as 1994, over 62% of tomato producers were over 50 years old (CNEA, 2005b).

209. Land ownership data (Table 18) shows that land fragmentation is indeed advancing; 73% of landholdings are currently less than 10 ha in size, up from 64% in 1976.

210. The assumption is that small farmers are uncompetitive. Formal sector wholesalers and retailers in Tunisia and abroad will prefer the greater predictability of supply, low transactions costs and standardisation of quality offered by larger farmers: for example, 10 citrus growers represent 80% of export sales, and 4 date exporters have 36% of the market, and it is estimated that it takes 10 ha of tomatoes to justify the cost of a refrigerated truck.

211. It is therefore often proposed that Government should actively intervene to prevent fragmentation and to encourage consolidation; for example the World Bank proposed in the 1980s that the Agricultural Sector Adjustment Loan action programme should involve legislation on minimum rainfed farm sizes, with government actively consolidating undersized farms, and that Islamic inheritance laws be amended to prevent subdivision below specified levels.

Table 18. Evolution of landholding size

Farm size(ha)	% of total area			% of total holdings			av. Size
	1976	1980	2005*	1976	1980	2005	1980
<5	6	6	9	41	42	53	2
5-10	11	10	12	23	22	20	7
10-20	16	18	17	20	20	15	13
20-50	21	23	23	11	12	9	29
50-100	12	12	11	3	3	2	64
>100	34	24	26	2	1	1	297

* = estimate, based on 1980 average farm sizes within each size range.

Source: World Bank (1976, 1980 data), MARH (2005 data)

212. Land registration is also seen as a policy challenge. 25% of titles were registered in the 1960s, and for about a seventh of registered titles the registration was out of date, a condition known as a “frozen title” or “titre gelé”. By 2001 around half the land stock was registered, and about half the remainder was considered not worth

registering (Rochegude, 2005). However, reliable up-to-date data is scarce: one estimate (Gharbi, 1998) is that around 34% of farms have neither title nor a certificate of possession. The suspicion is that frozen titles are also widespread, encouraged by registration costs of USD30-50 per hectare and land registration taxes which were as high as 15% in the 1980s³³.

213. However, one should not automatically assume that consolidation and titling are a major policy issue.

- Much land remains in large holdings: 60% in holdings of 20 ha or more. This is not just because of large, arid rangeland holdings in the south. As of 1980, landholdings of 20 ha and over were over-represented in the higher-rainfall north-east and north-west zones. Since 1976 the share of total land in holdings under 10 ha nationwide has only increased by two percentage points, hardly a major inroad into the nation's land resources. In other words, plenty of land is still available for large-scale farming and marketing³⁴.
- Secondly, Government (MDCI) classifies 24% of farms as either "social" or "familial". The practices of such farmers would probably remain non-commercial even if they could consolidate their landholdings.
- Thirdly, there is no empirical evidence that the land tenure regime making farms inefficient. A recent informal survey estimated that 5.7% of land was "under-used" nationwide, falling to 1.9% and 1.8% in the more fertile north and central zones. Although the sampling methodology and definitions are not clear, this does not *à priori* indicate an important market failure.
- Fourthly, we do not know whether landowners actually wish to consolidate, but cannot because of laws and institutions. If the desire to consolidate is not there, policy interventions cannot make it happen.

214. So, is it the land market or the landowner that is stopping consolidation ? Rochegude (2005) found that the Tunisian legal framework is favourable to the titling and registration of land, although the accretion of overlapping legislation over the years has made for a complex body of law. Property transfer and registration taxes are probably no longer a issue. Real estate transfer taxes are now 5%, plus 1% for registration, down from 15% in the 1980s, and falling to 2.5% for successions to children or spouse.

215. If there is a major problem, it may be that the institutional set-up is inaccessible to the ordinary farmer. Land registration is handled exclusively in Tunis, and involves three separate ministries. The Ministère des Domaines de l'Etat et des Affaires Foncières maintains the agricultural land registry. The Ministère de l'Équipement is responsible for land delimitation and mapping. The Ministère de la Justice is responsible for the Tribunal Immobilier, which takes decisions on land registration. It was estimated in the 1980s that the services responsible for registration had the capacity to handle 22,000 ha per year. Now that the AFA is

³³ Real estate transfer taxes are now 5%, plus 1% for registration.

³⁴ A localised exception might be the land developed for geothermal cultivation, where the lack of large holdings limits economies of scale in vegetable marketing (CNEA, 2005b).

inserting 12,000 – 14,000 ha annually into the system³⁵ and the urban land market has grown exponentially, registration services may be a bottleneck for the private rural citizen. This would tally with the observation that slow, cumbersome land registration procedures are an obstacle to industrial investors (World Bank, 2000). If user surveys confirm that inaccessible institutions do indeed impede the land market, one solution may be to create local “one-stop shops” [guichet unique]. Another may be to promote, through legislation and communication campaigns, the use of the Certificat de Possession, which is currently only recognised as a “transitory and exceptional form of tenure” (RocheGude, 2005).

216. But land is a psychological asset as well as an economic one. Even though 64% of the population is now classified as urban, rural land ownership is perceived as part of one’s identity, which encourages absentee ownership. Inheritance is determined by Muslim law and custom. A surviving spouse receives an eighth of the estate, and surviving sons and daughters the remainder on a 2 to 1 basis. This practice may produce fragmentation and joint ownership, but it makes sense from a social and religious point of view. All these factors combine to encourage informal tenurial arrangements. Often the owner retains formal title while delegating de facto possession to a relation or neighbour. And it would still happen with a perfectly efficient land market.

Foreign investment

217. Foreign direct investment in agriculture is politically contentious, but it does promote competitiveness and exports. The receiving country gets not only capital, but technology and a ready-made marketing chain. In China, for example, foreign direct investment runs at around USD 1 bn per year, primarily in horticulture and floriculture for export (Sellami, 2005). Investors in Chinese agriculture get the same tax advantages as investors in remote and deprived areas. Vietnam passed legislation permitting foreign investment in farmland in 2001 and 15 agricultural projects received foreign investment in 2002 (Vietnam Economic Times Jan 8, 2003). In Chile there is no limit on percentage or duration of foreign ownership of joint ventures, local enterprises, buildings, or land (Decree Law 600 of 1974).

218. In Tunisia, foreign ownership of agricultural land has been illegal since 1964. According to 1989 legislation, moreover, only companies with 100% Tunisian shareholdings can own agricultural land. Many countries allow emphyteotic leases, whereby the rent is inversely related to the value of investment by the lessee. The aim is to encourage foreign inward investment without putting land in foreign hands. In Tunisia, however, emphyteotic leases are explicitly banned by the Code des Droits

³⁵ The law of 11 August 1976 on land expropriation in the public interest, which covers such operations, laid down extremely onerous procedures. Delays of two years between expropriation and compensation were normal, rising to seven years in exceptional cases (e.g. n°80- 72 du 28 mai 1980). The law of 14 April 2003 may speed the process up.

Réels³⁶. Furthermore, the law of January 13, 1995 only permits long-term land leases for Sociétés de Mise en Valeur Agricole - which are defined as 100% Tunisian-owned

219. Limitations on foreign land ownership are not unique to Tunisia; in Switzerland both rural and urban land ownership is restricted to the Swiss, and in Turkey legislation permitting foreign ownership of agricultural land was struck down by the Supreme Court in its judgement of 14 March 2005. However, in Tunisia a relaxation of the 100% local shareholding requirement and the introduction of emphyteotic and other long-term leases might at least keep the door open for would-be investors without any risk of surrendering national control.

220. On the face of it, it seems as though Tunisian land law could be an obstacle for foreign investment. But once again, the legal situation is better understood than the economics: we do not know whether potential agro-business investors see farmland tenure as an obstacle.

Land Tenure and Natural Resources

221. Land tenure is crucial to the sustainability of renewable natural resources, such as rangelands and forests. Analysis of an extensive sample of case studies suggests that there is no single “correct” form of tenure: the arrangement that controls use effectively in a specific context is the appropriate one (Gibson et al. 2004).

222. The legal instrument for the government’s forest and rangeland conservation objectives is the Code Forestier. The Code applies to 2.8 million ha, up from 0.7 million in 1987, and cuts across several forms of land tenure: 1 million ha in the state estate, 1.7 million ha of collective rangelands [parcours collectifs] and 47,000 ha of private property.

223. The government’s performance (16,000 ha) against 2002-5 Plan targets (12,000 ha) for plantation forests in the state estate cover suggests that state ownership is not a constraint on the growth of plantation forest cover. However, the highest rate of achievement of Plan targets for both forest and rangeland plantations took place in privately-owned land, where the execution rates were 163% and 118% respectively for 2002-6. Land tenure has been identified as an obstacle to afforestation alongside oueds and roads, in urban areas and in irrigation schemes.

224. Once again, there is an issue about we represent what is happening in the forest sector. In the logic of quantitative planning, the focus is on the number of hectares planted and the number of GFICs . This is what drives the Plan, which is what drives data-collection, Part II budget allocations and the work programmes of Ministry staff. But one can fairly ask whether we really understand the forces that

³⁶ Art 191 Code des Droits réels : «Sont interdits, à compter de la date d’entrée en vigueur du présent code, toute constitution d’emphytéose, tout renouvellement des baux emphytéotiques en cours et toute constitution d’un droit de superficie, d’enzel ou de kirdar ».

drive local people to conserve natural resources – or to over-exploit them. And without understanding them, can we manage them?

225. Indeed the degradation of non-plantation state forests is a concern. The code forestier allows the population limited use rights: the collection of dead wood and brush, grazing, the collection of specific forest products and the cultivation of specified plots of land. These rights are free of charge, but restricted to production for domestic consumption. In reality, however, government cannot stop illegal and excessive use of forest resources; the government's limited resources and enforcement capacity mean that state ownership is no guarantee against land degradation (Rouchiche and Abid, 2002). Although land in the state estate cannot be alienated, the government's response has been pragmatic: Article 75 of the Code Forestier was revised in 2005 to permit Groupements Forestiers d'Intérêt Collectif (GFIC) to enter into concessions of up to 30 years for such land. The effect will be to introduce elements of common property tenure for state forest lands.

Land Use Planning

226. Some policymakers are worried that urban expansion is eroding the stock of productive agricultural land. It is important, however, to put this perceived problem in perspective. Firstly, at an estimated rate of 4000 ha per year (Mtimet, 2004) only one per cent of the stock of agricultural land is transferred to urban use every 12 years. This is less than a fifth of the rate of loss to erosion. Secondly, the conversion of land from agricultural use usually indicates that it has a higher value as residential or commercial property, which is a net gain to the economy. Thirdly, global experience suggests that it is very hard to enforce controls on the conversion of fertile farmland unless an ample stock of alternative construction sites is available. In short, the conversion of a small fraction of Tunisia's agricultural land to other uses is an inevitable and positive feature of Tunisia's development.

227. Having said that, there may be scope to improve land-use planning. The Code de l'Aménagement du Territoire et de l'Urbanisme of 28 November 1994 provides a legal basis, among other things, for « une répartition rationnelle entre les zones rurales et urbaines » (Article 1). Article 5 of the Code provides for the preparation of « schémas directeurs d'aménagement », as an instrument to balance different land uses. This article makes specific reference to agriculture. However, whereas the code specifies detailed mechanisms for enforcing urban development plans, there appear to be no legal instruments to ensure that land identified as agricultural in the "schema directeur" is used as such. With land-use planning passing to the regions in 1989, the question is how the "schema directeur" applies to the decisions of local government.

The Way Forward

228. In summary, the first step towards defining a land market strategy is to define the problem. The problem of farmers not aligning themselves with government policy by consolidating and registering landholdings may not be a problem at all from the farmers' perspective. It is therefore essential to study the reality of land tenure on the ground, based upon rigorous quantitative and perceptual data. This study would examine :

- The actual land tenure situation, not only land's formal legal status but also de facto ownership and management arrangements;
- Whether it is possible to demonstrate a causal correlation from land tenure status to farming practices;
- How the under-utilisation of land can be meaningfully defined and measured;
- Which legal, financial, institutional and cultural factors determine people's participation in the rural land market, and how they affect such phenomena as fragmentation, frozen titles and absenteeism;
- What are the costs and capacity constraints involved in land transactions;
- Whether the ban on land ownership discourages foreign investment in agro-business;
- How different land tenure regimes affect the sustainability of forests and rangelands;
- Whether farmers are ever unable to make a rational decision about converting land to non-agricultural use e.g. because they are coerced by powerful local interests.

229. To reiterate a point made earlier, the recommendation for further field-level study is not a pretext for a lack of firmer prescriptions. Field-level research into farmers' perceptions and attitudes is a very important component of the proposed reorientation of the MARH's role. As in other domains, the role of Government in land tenure would become less one of laying down administratively logical solutions. Instead, Government would increasingly seek to understand what stakeholders require from a land tenure system and respond to that perceived and expressed demand.

230. Based upon the findings of this study, a number of policy measures may be considered, including:

- Creating local one-stop shops for land transactions;
- Simplification of administrative procedures;
- Updating of land laws into an integrated code;
- Legislation and communication campaigns to promote recognition of the Certificat de Possession;
- Fiscal penalties for land fragmentation³⁷;
- The introduction of long-term or emphyteotic leases for foreigners;
- New mechanisms for zoning land for agricultural use. The Carte Agricole (see Annex 2) provides much of the information required.

³⁷ However, land taxes are also an incentive for non-registration.

- A final policy option: recognising that the current situation reflects farmers' cultural and economic priorities in a time of rapid social transition, and maintaining the status quo.

F. SOCIAL PERSPECTIVES ON AGRICULTURAL POLICY

Introduction

231. Agriculture is not only a source of growth. It is the basis of livelihoods, so reform has to be analysed through a social as well as an economic lens. The objective of this section, therefore, is to i) describe agriculture's social context; ii) outline the potential social implications of the changes suggested in earlier sections and iii) tentatively offer some potential mitigation measures, to be investigated by a PSIA³⁸.

232. With a longstanding Government commitment to social development, Tunisia's social and gender equity indicators are among the region's best. A goal of the 10th Plan is that all social groups should participate in the benefits of economic and social development. Since the 9th Plan, Government has made efforts to promote beneficiary participation in design and implementation of agriculture projects. Particular attention has also been given to the inclusion of rural women.

233. Tunisia enjoys one of the lowest poverty rates in MENA. The headcount poverty rate fell from 8% to 4% between 1995 and 2000. Nevertheless, important rural-urban differences exist. 8.3% of the rural population is poor compared with 1.61% of the urban. Pockets of severe poverty are found in remote rural areas.

234. In 1995 poverty rates were highest in the North-West, followed by the Centre-West and the South. Together these three zones accounted for about 80% of the poor³⁹. 2000 data revealed that poverty levels were falling more steadily in the North-West than the Centre-West and South, perhaps because of better rainfall and access to remittances. By 2000, the Centre-West included 40% of the poor as against only 13% of the non-poor. Also by 2000, the South had as many poor as the North-West (World Bank, 2003).

The social significance of farming

235. Poverty rates are not particularly high in the agriculture sector as a whole. But in 2000, households headed by landless agricultural workers were among the poorest—second only to the unemployed (World Bank, 2003). Poverty was also associated with large household size.

³⁸ A Poverty and Social Impact Analysis (PSIA) evaluates the distributional impacts of policy reforms on the well-being of different stakeholder groups, with particular focus on the poor and vulnerable. It also addresses issues of sustainability of reforms and the risks to successful implementation arising from the social impacts of policy changes.

³⁹ Republic of Tunisia: Social Conditions Update. Volume 1 (2000).

236. Demographic change is transforming rural areas. The rural population fell from 45% of the total population in 1986 to 34% in 2001. 67% of Tunisians now reside in cities and towns. The agricultural labor force represented 16% of the total labor force in Tunisia in 2004, down from 24% in 2000. 78% of farmers live in rural areas.

237. Farm labour is essentially family-based and accounts for approximately one million persons, most of whom are perhaps female. Only a minority of family workers work full-time in farming: the equivalent of 275,000 permanent employees⁴⁰. There are only 190,000 salaried agricultural workers.

238. The average age of farmers is increasing rapidly as young people migrate to the city. In 1995, the date for which we have the most recent data, the average age of farmers was 53, with 37% over the age of 60, compared with 20% in the 1960's. The level of education also remains low among farmers; 88% have not gone beyond primary education.

239. 56% of farmers depend principally on agriculture for their livelihoods (1995 data), for 35% agriculture is an important secondary source of income, and for 6% agricultural production makes a limited contribution. A larger farmer is more likely to depend principally on agriculture than a smaller one. There are also regional differences. For example, half of Medenine farmers have an important secondary activity, compared with 15% in Le Kef.

240. Across the region, women are not leaving agriculture as fast as men and a growing share of women's jobs are in agriculture (World Bank 2004a). Tunisian women have always played a critical – but often unrecognized - role as non-remunerated family labour, hired labourers and, a minority, as farm managers. A recent survey noted that 96% of female members of farming households said that they were unpaid family agricultural workers. Agriculture is the third biggest employer of Tunisian women. Most female salaried agricultural workers work seasonally and their numbers are increasing, especially in larger tree-farming and market-gardening enterprises.

241. Moreover, woman's role in agriculture is becoming qualitatively more important. The ageing rural population, male out-migration and diversification into livestock all place new responsibilities upon women (World Bank, 2005c). However, extension services target men more than women, even where women are the de facto farm managers.

242. This is in a context where rural women from poor families still have fewer educational opportunities than other social groups. Illiteracy among older rural women remains a particular problem. In 1999 half were illiterate compared with a quarter of urban women (World Bank 2005c).

⁴⁰ Presentation by M. Badr Ben Ammar, Directeur Général Etudes et Développement Agricole, Ministère de l'Agriculture et des Ressources Hydrauliques, Tunis, December 2005.

243. Farm size is extremely skewed. 53% of farmers use less than 5 hectares while a quarter of the country's agricultural land is cultivated by the 1% of farmers with over 100 hectares.

244. Government classifies farms into three categories on the basis of farm size and incomes:

- Large Farms (les Grandes Exploitations);
- Small and Medium Sized Farms which are economically viable (Les Petite et Moyennes Exploitations Agricoles a Caractère Economique - PMEACE)
- Small Family-Based Farms (La Petite Agriculture a Caractère Familial et Social - PACFS⁴¹). The Ministry of Development and International Cooperation (MDCI) classifies 24% of farms as either 'social' or 'familial'.⁴²

245. To understand poverty and vulnerability in Tunisian farming, we will look at the PACFS in detail. At the same time one should bear in mind that some PMEACE have small landholdings and may be vulnerable to policy change.

PACFS

246. There are around 186,000 PACFS. They cultivate one million hectares with an average farm size of 5.7 ha. It is difficult to generalize about their farming systems, but:

- In irrigated areas, their income comes primarily from tree-crops (olives, dates and orchards: 50%) and livestock (25%), as well as market gardening.
- In rainfed farms in the Northern and Central areas cropping systems and incomes are often dominated by 'grandes cultures' [field crops] and tree-crops.
- Southern rainfed farms have fewer field crops and more tree crops and small ruminants. PACFS treecrops are mostly olives, almonds and pistachios. Mixed farming modes of cultivation include irrigated olives, market gardening and milk production.

247. PACFS depend on family labour with the occasional use of seasonal hired labor. Women tend to work on livestock and poultry rearing, milking, artisanal

⁴¹ PACFS are defined by the following features: i) disposer d'un revenu net d'exploitation (agricole) – RNE – inférieur a 3500 DT, seuil de viabilité de son exploitation agricole; ii) avoir l'agriculture comme activité principale (ou a défaut comme revenu principal) ; iii) Ne pas disposer d'une main d'œuvre salariée permanente (non familiale).

⁴² In terms of farm size, three types of farmers are generally recognized: small farmers (the 53% who farm less than 5 hectares); medium sized farmers (farming between 5 and 10 hectares) representing 20% of the farming population as well as those between 10 and 50 hectares (24% of farmers); and large-scale farmers, who farm between 50 and 100 hectares and represent 3% of the farming population, working 2% of the land.

activities, food processing and specific field tasks such as hoeing. The growth of the dairy and beef sectors, noted earlier, has mainly been achieved through female labor.

248. PACFS, especially the poorest, use little formal credit. Physical access (distance) and bureaucratic procedures limit their access. But 87% of PACFS say that they would use credit if it were more accessible and adapted to their needs. Informal loans between family members, neighbours and so on, are fairly common, especially among the better-off PACFS.

249. Specific studies of PACFS list the constraints noted in earlier sections as facing the farm sector as a whole. These are: low capacity to invest, insufficient access to credit, weak farmer organization, poor access to extension, training, research, and market information, an ageing population and land fragmentation.

Managing the social aspects of institutional change

250. The previous sections of this report have described how the relationship between Government and farmers could be realigned. The suggestion is that Government could re-engineer institutions and processes to make them more responsive to farmers' needs. This approach could apply to the extension service, research, farmers' organizations, budgetary management, and credit and land tenure institutions.

251. But we have seen that farmers are a very diverse group. As Government tries to become more responsive to their needs, there is a risk that the dialogue will be captured by larger farmers and men, to the exclusion of smaller farmers, the landless and women.

252. A key role for Government, therefore, will be to ensure that farmer-Government dialogue (e.g. consultations and research) are structured so as to embody the diversity of actors. The key principle is disaggregation by socio-economic status and gender. It should apply, for example, to the choice of organizations consulted, the constitution of focus groups, the design of surveys, the definition of targets and the selection of monitoring indicators. The MARH can build upon its experience with farmer participation (e.g. in ODESYPANO) and the collection of disaggregated survey data (e.g. the recent PACFS study).

Managing the social impacts of market reform

253. The potential social consequences of lowering tariffs and guaranteed cereals producer prices require thorough analysis. The issues are complex and only partly understood, so the following section identifies critical issues for further study.

254. Liberalization will affect different stakeholders via employment, prices (production, consumption and wages), assets and transfers (Chemingui et al 2005). It affects the demand for labor, which will affect especially the welfare of low income and more constrained households. The precise social impacts are complex to predict,

and will depend on the context, nature and pace of the reforms themselves. At this stage we can only make general predictions.

255. Section III.A identified very roughly the winners and losers from market liberalisation. Seen from a social perspective, some important points emerge:

- The farms that are not harmed by liberalisation are mostly in two of the poorest regions of the country, the Centre-West and South. The sub-sectors classified by this model as 'winning' are livestock, tree crops and horticulture which are geographically dispersed and account for around 60% of agricultural labor use.
- The 'losers' are the cereal producers, of all sizes, in the north and north-west, specifically Le Kef and Beja. These Governorates are among the poorest in the country and include significant numbers of PACFS growing cereals with family labour. 80% of these cereal farmers are over 40 years of age. Relatively few farmers there have non-farming sources of income: 15% in Le Kef. A high proportion of government farming operations in state lands [terre dominiales] are cereals-based and in the fertile North and North-West, and would therefore fall into this category. These farms employ a poor seasonal labor force, many of whom are landless and vulnerable.
- Liberalization may create better jobs for higher-skilled workers in fruits, vegetables and agro-processing.
- The poor will receive the greatest proportional benefit from lower food price.

So, as a starting point, the initial focus of analysis should be on the vulnerability of small family owned farms and cereal laborers, in the North and North-West.

256. Tunisia's unemployment rate is high at 15% (INS, 2000), and the employment impacts of liberalization are a major policy issue (World Bank, 2004a). With market liberalisation labor will be 'released' from agriculture to other sectors, and within agriculture from cereals to other products⁴³.

257. Faced with partial liberalization 13,300 jobs would likely be affected (Ideconsult, 2005a); the CGE model estimated that some 87,000 jobs would be 'shifted' out of agriculture in the case of total liberalization. If field crops (essentially cereals) alone were liberalized fewer farm jobs would be lost, approximately 9,000 because these crops have a relatively low labor requirement and it is also *assumed* that farmers would diversify into other crops with higher labor use per hectare.

258. Until now, however, the non-agricultural sector has not been able to draw labor out of farming into more productive activities. The aggregate employment structure has remained fairly stagnant. Recent evidence from the World Bank's Employment Strategy for Tunisia shows that the target of 80,000 jobs per year (outlined in the 10th Development Plan) hinges largely on jobs in agriculture and administration, neither of which are necessarily long term viable options for

⁴³ Evidence from Tunisia suggests that workers shift from agriculture to construction when agriculture is doing badly, because construction also employs low-skilled labor.

employment creation (see section on rural land). There may be significant costs entailed in retraining displaced labor, some of whom might be 'untrainable'.

259. So there is a real risk that the potential gains from reforms will not be reaped because labour cannot shift to more competitive sectors of the economy. Less skilled workers, and those unable to adapt, will be most vulnerable. Social tensions may increase and coping strategies (diversification of income sources) would be strained (World Bank, 2001).

260. Moreover, as noted above, women tend to move out of agriculture at a slower pace than men. The dependency ratio of rural populations could be further exacerbated with young girls and women being left behind to care for elderly relatives. In other countries, as males migrate out of agriculture women increasingly become subsistence farmers, because they do not have enough labour for more intensive agriculture. This is often accompanied by increasing poverty.

Social policy options

261. Social measures will need to be as diverse as the rural population itself, reflecting the age, gender and geographic location of the affected farmers. Of particular concern are those who lose out from reforms and find it difficult to adapt. This group is likely to include the poorest and most vulnerable, including the landless, the old and sick, seasonal laborers etc. Because the dynamics of change will only become clear as it unfolds, implementation should be gradual and accompanied by a thorough Poverty and Social Impact Analysis (PSIA) with the full, participatory involvement of stakeholders.

262. The targeting of active labor market programs (ALMP) will need to be improved. While the Government plays a central role in social protection, through large public sector employment, heavy regulation of the labor market, tight control of vocational training, active labor market programs (ALMP's) (World Bank, 2004a) and social safety nets, targeting of these programs is inadequate (World Bank, 2004c)⁴⁴. Job creation schemes, mainly micro-credit and youth interventions, are the most important category of ALMP spending, representing 90% of total expenditures. The majority of these programs benefit post-secondary graduates who account for only 6% of the unemployed and are mostly urban. However, the unemployed are dominated by those with primary schooling or less (86% of the unemployed). In addition, despite high spending, only a small share of the workforce participates in ALMP's - 5.3% of the labor force in 2002 (World Bank 2004c).

263. The misalignment of ALMP programs is illustrated by the micro-finance programs which in principle are targeted towards unemployed and at-risk workers. Less than one-third of these programs are in rural areas and one study of three micro-

⁴⁴ The GoT has shifted its focus of late from untargeted social assistance programs (i.e. universal consumer food subsidies) to targeted assistance programs (regional development programs, cash transfer programs etc). See World Bank, Republic of Tunisia, Social Conditions Update

finance programs⁴⁵ noted that the beneficiaries are predominantly male (75-80%), between 20-29 years old and have some education and training qualifications (half have secondary schooling). The programs also mainly serve urban areas (69-83%) and are heavily skewed towards self employment in manufacturing.

264. A comprehensive contributive social security system exists, which covers urban wage-earners, agriculture workers and the self-employed. However, evasion among agriculture workers is high and, as noted above, the majority of agricultural workers are family-based labor and are not covered (World Bank, 2000a).

265. The GoT could therefore consider introducing targeted social protection schemes, re-employment programs and passive income support programs (World Bank, 2004a). ALMP's could emphasize support for job searches and retraining.

266. Significant agricultural employment data gaps exist and the quality of information systems to monitor and evaluate employment data is poor. Specifically, employment surveys and impact evaluations are of uneven quality and analysis and the dissemination of agriculture employment information (full time, seasonal and part time) is inadequate and insufficiently disaggregated by gender (World Bank, 2004a). Existing surveys (household and enterprise-level) ought to supply better quality information on labor demand and supply on a regular basis and improvements are recommended in methodologies and definitions used (e.g. labor force projections). It is also recommended that collaboration among concerned ministries be strengthened to better exploit existing information and evaluate the labor-market situation as well as monitor programs, and adapt policies according to market needs. Dissemination of information (micro-data from surveys) to various stakeholders and analysts could be improved to more effectively analyze the data and to build consensus on employment policy issues.

267. Farmers will still need high quality services. As mentioned above, any strategy to make research, extension and land tenure services more responsive should focus on the needs of the most affected and vulnerable groups. Government could strengthen and expand well-established community development organizations in rural areas, such as ODESYANO, a regional development agency assisting rural populations in diversifying their agriculture base and accessing micro-credit. As it happens, ODESYANO is located in the Northwest, where the small cereals farmers most vulnerable to price reform are concentrated.

268. Other countries such as Mexico (see Box 4) and Turkey are now de-linking farm support from production. In this way, they achieve the political objective of a controlled and predictable income transfer to rural society – but without the market distortions and fluctuations in transfer values that go with production subsidies.

⁴⁵ BTS (Tunisian Solidarity Bank's), 26-26 and FNE 21-21 (World Bank World Bank Republic of Tunisia Employment Strategy 2004, p. 82)

Box 4. De-linking income support from production in Mexico

***PROCAMPO* - Program of direct support to rural areas**

PROCAMPO was introduced in 1993 to compensate farmers for the deprotection associated with the North American Free Trade Agreement (NAFTA) and the GATT Accords. Objectives were: (a) political: to help make the free trade agreement acceptable to farmers; (b) economic: to provide farmers with liquidity to adjust production to the new set of relative prices; and (c) social: to compensate farmers for lost income, alleviate poverty impacts and reduce out-migration.

The program provides farmers (defined as those with the legal usufruct rights over the land) with a fixed payment per hectare that is de-linked from current production. The number of eligible hectares was determined by area each farmer had under the crops covered (initially nine) during a three year reference period (1991-93). Since there are two agricultural cycles, payments are made twice a year for the area that had been planted in the corresponding cycle. There is a ceiling of 100 ha eligible per farmer. The rate per hectare is the same nationwide. In 1997, payments averaged US\$329 per recipient and US\$68 per hectare (compared to US\$83 per hectare for 2002). Only producers registered at the start of the program in 1994 are eligible, and they have to re-register at the start of each crop cycle. Although since 1995 the aid is decoupled (i.e. not linked to the cultivation of specific crops), the land must be used for either crops, livestock or forestry activities or as part of an approved environmental program. The intention is to make payments only to active farmers and to keep up the level of rural activity (and so avoid out-migration). Payment for each crop cycle is made by check, collected from one of the 700 local agricultural extension posts (*CADER* or *Centros de Apoyo al Desarrollo Rural*). PROCAMPO "qualification certificates" can be used as collateral for banks or input retailers, giving beneficiaries more timely access to their PROCAMPO resources during the planting season. The program is intended to be phased out once the fifteen year transition period provided for Mexico's agriculture sector under NAFTA is concluded, i.e. in 2008.

***Alianza para el Campo* – Alliance for the countryside**

In order to make the most out of the NAFTA-driven reforms, Mexico decided on a broad program of agricultural sector restructuring. To support this, a second program - *Alianza* - was introduced in 1996 to improve productivity and to promote the transition to higher value crops. The program comprises: matching grants to finance productive investments; and support services for a wide range of agricultural sub-programs (24 in 2002) designed to transfer modern technology, promote investment in infrastructure, improve livestock health, and support integrated rural development.

Administration and decision making for *Alianza para el Campo* is decentralized to the states. Matching funds are required both from state governments and from farmers. According to the different programs, producers contribute an average of 50 percent, the federal government 32 percent, and the state governments 19 percent. Farmers submit requests to the Rural Development Districts (DDR), the Support Centers for Rural Development (CADER), and the state coordinators. The requests are approved by committees which manage each of the *Alianza* sub-programs. Farmers present the approval document to their supplier or contractor. The farmer pays his share and the supplier or contractor claims the balance from *Alianza*. Certain aspects of the program could be more pro-poor. Some sub-programs require group participation, which may

be difficult for the poorest.⁴⁶ A voucher-based program would allow poorer farmers to buy their inputs locally instead of traveling to the government-certified distributors. Also, the program is rather cumbersome and expensive to administer. More decisions – for example on the nature of sub-programs – could be decentralized.

Oportunidades (formerly PROGRESA) - Opportunities

After several years implementation of PROCAMPO, it was evident that rural poverty was persisting. Therefore, PROGRESA was introduced in 1997 to alleviate poverty through monetary and in-kind benefits, and to invest in education, health and nutrition. PROGRESA was re-launched as Oportunidades in 2002. PROGRESA has as its basic objective to improve the education, health and nutrition of poor families, particularly children and their mothers, by providing education and health services, monetary assistance and nutrition supplements. The program provides cash transfers to families in exchange for regular school attendance and visits to health posts. The payments are provided directly to mothers or the female head of households. The program is expensive to run, and as it relies on government services and the road infrastructure may exclude very poor households in remote areas. A second problem is the quality of education provided in schools. There may be considerable improvements to be attained by linking benefits to performance, such as granting bonuses to encourage successful completion of a grade.

269. A key point, however, is that well-designed rural social programmes should not just be seen as mitigatory measures to accompany agricultural reforms. They are desirable *per se*. We have seen in earlier sections that subsidizing outputs, credit, loan arrears and water is inefficient and socially regressive, because most of the benefits go to better-off farmers. So, as well than saying that social measures are needed as mitigation, we can also say that social policy reform will achieve Government's social objectives more effectively than market distortions.

Next Steps

270. A more precise understanding of the social impacts of reform is needed, so a participatory Poverty and Social Impact Analysis (PSIA) is the most appropriate starting point. Critical areas to be studied include:

- **The political costs of liberalization.** If the Office des Céréales' operations are reformed, are there any unforeseen impacts on food prices. If so what are the implications, particularly for the urban poor?
- **What are the precise spatial/geographical consequences ?** Which regions will be most impacted and how? While the above analysis has pointed out the potentially vulnerable groups (women left behind by male out-migration,

landless farmers, unemployed youth, the elderly etc) how are these groups distributed geographically and how will they be affected?

- **How will non-farming agriculture-related activities be affected?** In other words what will the knock-on effects for rural households be?
- **How will liberalization affect social organization and cohesion?** Will the social fabric of agriculture households and communities be affected? If so how?
- **What is the relationship between agriculture liberalization and land tenure?** Who has access to what and how will access to assets affect decision making around agriculture?

IV. OPTIONS FOR THE FUTURE

271. The preparation of the 11th and 12th Plans is an historic opportunity for Government to establish new policy directions. When faced with such a major turning-point, it is important to keep the big picture in view. It is easy to lose sight of the overall vision, and to become distracted by the minutiae of detailed policy adjustments.

272. The vision suggested by this report is one of competitiveness through responsiveness. Growth would come from a private sector⁴⁷ that is empowered to respond to consumers' demand for quality food. The role of Government would be to respond to the private sector's demand for first-rate public goods⁴⁸. Governance changes in producer groupings and management changes in the MARH would make them in turn more responsive to the needs of farmers and traders. Targeted social programmes would address the needs of the poor and vulnerable more effectively than the farm subsidies that they would replace.

Table 19 illustrates how the themes of competitiveness and responsiveness appear in the report's recommendations on the different areas of agricultural policy-making. The remainder of this section will look at these areas in more detail⁴⁹.

273. Although the policy options are presented below in an "à la carte" list, those that involve removing price distortions are more important than the rest. Price liberalisation is an "apex" reform. This is because farmers can only take full advantage of other reforms if the price system rewards them for doing so. So each individual recommendation below should be understood as part of an integrated hierarchy of actions. In order to illustrate the linkages between them, Box 5 presents a more detailed roadmap for the phasing and prioritisation of reforms.

Table 19. High-level agricultural strategy options for the Tunisian Government

Subject	Rebalance the existing emphasis on ...	With increased emphasis on ...
Trade policy and Food security	Self-sufficiency	Competitiveness and consumer access to food
Sector growth & Production	Production	Responsiveness to consumer demand
	Quantity targets	Quality strategy
Professional organisations and support services	Prescribed models	Responsiveness to farmers' perceived needs

⁴⁷ Producers, processors, traders, exporters etc

⁴⁸ for example quality regulation

⁴⁹ The background papers also provide a large quantity of detailed recommendations on specific crop supply chains.

Natural resources	Quantitative physical investment targets	Understanding and managing the incentives that drive natural resource use
MARH resources	Quantitative physical investment targets	Responsiveness to farmers' perceived needs
Finance	Directed subsidies	Incentivising lenders
Rural land	Titling and consolidation	Understanding and managing the incentives that drive resource use
Social aspects	Agricultural subsidies	Targeted active and passive social programmes

A. POLICY AND INSTITUTIONAL FRAMEWORK

(1) Trade Policy

The suggested strategy is that trade policy should be used to encourage farmers to reallocate land, labour and investment in response to domestic and international market demand. This would initially involve:

- (a) A substantial phased reduction -- beginning immediately and completed in a few years -- of tariff protection for hard and soft wheat, accompanied by a matching reduction in the guaranteed producer price (for as long as that instrument remains in place). More analysis would be needed of the best design and sequencing of tariff-reduction, price-reduction and privatization of the Office des Céréales' functions.
- (b) The total liberalisation of barley imports, and also of livestock concentrate and its components. This would not only benefit livestock producers, but would also encourage farmers to move out of a crop in which they are not competitive.

(2) Domestic Policies

The proposed strategy here is to allow supply chains to respond to domestic consumer demand. This would involve:

- (a) Measuring the incidence of benefits from consumer wheat price subsidies and, if they are large enough, identifying how to provide such resource transfers alongside a liberalised domestic cereals market;
- (b) Transferring Office des Céréales commercial operations to the private sector. Trade in cereals would be undertaken by private enterprises. A privately-governed interprofessional organisation would be responsible for supporting the physical exchange of products, creating a system of forward pricing, risk management and the standardisation of contracting practices.
- (c) Establishing a small strategic cereals reserve, with releases to be targeted at vulnerable consumers in times of exceptional crisis. This reserve would not be used for market intervention.

- (c) In partnership with private sector organisations, developing a food safety and animal health assurance system, applied to products for export and domestic consumption in an integrated manner.
- (d) Removing controls on retail margins and other price controls. Competition in food markets will ensure reasonable margins and the Ministry should focus its interventions on identifying and attacking collusive behaviour.
- (e) Developing appropriate norms and standards in conjunction with (privately-governed) inter-professional organisations.
- (f) Ensuring that the objectives defined for the Ministry of Agriculture under Performance-Based Budgeting emphasise quality.

Box 5. Phasing and prioritisation of reforms

The experience of other reforming countries helps us to distinguish between reforms that are urgent, high-priority and relatively easy, and those that need to be implemented more gradually. Of course, a much more detailed analysis is needed to map out the best path for Tunisia. However, one can still sketch in broad terms how reform might be prioritised.

Priority actions that are politically less difficult

- (1) The allocation by transparent public auction of import quotas (e.g. for cereals, sugar) and export quotas (e.g. olive oil). This would greatly improve transparency and efficiency, and encourage private investment and competition. The fiscal impact could be positive if private bidders can use quotas more efficiently than public boards.
- (2) The elimination of export controls, except for subsidised products.
- (3) The privatisation of the Cereals Board's transport, port and retail operations.
- (4) The elimination of retail margin controls (assuming, as CNEA has reported, that they are widely circumvented. If not, this recommendation joins those below.)

Actions to be implemented more gradually

- (1) The reduction of tariffs and the increase of quotas for cereals, accompanied by a temporary programme of area-based cash transfers. The experience of Mexico, Turkey and Romania is that such programmes can be set up quickly.
- (2) The abolition of the Cereals Board's domestic purchasing.
 - a. The first phase would involve sub-contracting its purchasing to private traders. During this phase, transport subsidies for isolated areas would maintain the single domestic price. At this stage, the producer would feel no negative effects.
 - b. The second phase would involve the gradual removal of the transport subsidies, which would bring about price liberalisation. This is when the temporary cash transfer programme would be introduced.
 - c. The third phase would open the way for direct sales by private companies to millers. It will be essential that the Cereals Board's operations are not allowed to discourage private trading.
 - d. In the final phase, the Cereals Board would stop its commercial operations altogether. Whilst it is emphasised that social and economic analysis does NOT justify cereals consumption subsidies, Government may wish to maintain them by via subsidies to mills and/or private traders.

B. PROFESSIONAL ORGANIZATIONS AND SUPPORT SERVICES

The suggested approach is to encourage producer groupings to become more responsive to the perceived needs of their members. Elements of this strategy would include:

- (a) Redefining the governance arrangements for UTAP and other associations (GIPs, GDA, GIC etc..) to encourage the perception that they are owned by farmers and not arms of government.
- (b) Create a diversity of legal frameworks for farmer organisations and avoid imposing the GDAP model as a standard solution. Whilst maintaining the new SMSA concept, develop a legal basis for farmer-governed, independent, profit-making cooperatives, updating cooperative legislation and regulations to be in line with best practice defined by the international cooperative movement.
- (c) Redefining Government's role as providing a facilitating framework rather than becoming directly involved in management. A semi-public agency with majority farmer ownership would promote farmers' groupings and agricultural extension. This would primarily involve capacity-building, linking different types of organisation and helping cooperatives form unions and apex organizations.
- (d) Using actual Government services, rather than the associative sector, to perform core government functions like regulating phytosanitary standards and food safety.

C. MANAGEMENT OF WATER

The broad approach in the irrigation sector would be to make the use-value of water, rather than physical investment targets, the driver of policies and plans. This would involve:

- (a) A shift in emphasis from water-mobilisation to integrated water management.
- (b) The use of cost-benefit analysis to determine least-cost ways of achieving the country's water mobilisation objectives.
- (c) Strengthening the capacity of the central services of the MARH, with emphasis on strengthening the use of economic analysis.
- (d) The extension of the two-part tariff. It would also be useful to consider the introduction of replacement costs in the calculation of the fees.
- (e) The phasing out of subsidies for the replacement of water-saving equipment.
- (f) Ending the policy of providing water at a reduced price for cereals.
- (g) Continuing the transfer of downstream water management to user groups.
- (h) Monitoring the conversion of GICs into GDAPs to see whether these multi-purpose groupings can really serve as water-management bodies and cooperatives at the same time.

D. RESOURCING THE AGRICULTURAL SECTOR

The broad approach to the financing of the agricultural sector would be to adjust the incentives framework under which the financial sector and the MARH itself operates, so as to make lenders and the MARH budget more responsive to supply chains' needs. This would involve:

- (a) The MARH should prepare for and commit itself fully to Performance-Based Budgeting. This will involve: creating a PBB management cell within the MARH, bringing together the functions of strategic planning, administration, finance and investment; establishing an implementation plan and mobilizing the required technical assistance; launching a communication and training campaign for MARH staff at all levels; and developing a long-term staffing and human resource development plan, taking account of the MARH's new role and the high rate of retirements expected in coming years.
- (b) A study of the demand for credit and decision-making in the credit market.
- (c) Adopting international best practices in micro-finance, such as: allowing micro-finance institutions to set rates that cover their costs, the use of subsidies for start-up costs only, the dismantling of competing "social" credit schemes and legislation facilitating the creation and growth of micro-finance institutions.
- (d) Recasting the relationship between Government and the BNA so as to clarify the incentives framework for BNA management.
- (e) Shifting the drought response away from ad hoc input subsidies towards transparent transfers. The fiscal impact of such programmes could be mitigated by the purchase of drought re-insurance.

E. RURAL LAND

The overall suggestion is that Government should study farmers' land-use strategies and support the creation of a flexible market in which these strategies can be pursued more easily.

- (a) It is essential to understand phenomena such as absenteeism, fragmentation, frozen titles and an ageing farming population as part of Tunisia's current social and cultural transition.
- (b) Government should study the relationship between land tenure and land use.
- (c) Government will then be able to adopt specific policies in the light of the study's findings. They could include:
 - The creation of a simplified single land code;
 - The creation of local one-stop shops for land transactions;
 - Legislation and communication campaigns to promote recognition of the Certificat de Possession;
 - Fiscal incentives to land consolidation;
 - Utilisation of the Carte Agricole to inform land-use planning;

- Creation of an effective institutional mechanism to enforce land-use planning decisions;
- Provisions permitting emphyteotic and other long-term leases for foreigners.

F. SOCIAL PERSPECTIVES ON AGRICULTURAL LIBERALIZATION

The approach suggested is to deploy targeted social programmes, which will achieve Government's social objectives more effectively and at less cost than farm subsidies. Special elements of this approach would include :

- (a) Structuring farmer-Government consultations (e.g. on research and extension) and the governance of farmers' organisations so as to ensure diversity of representation.
- (b) Increased emphasis on the provision of regular extension services to women.
- (c) A Poverty and Social Impact Assessment (PSIA), focusing on the distributional impacts of proposed policy reforms on the well-being of different stakeholder groups, with particular attention to the poor and vulnerable.
- (d) Improved dissemination and inter-ministerial collaboration on the analysis of labour market data.
- (e) The improved targeting of Active Labour Market Programs on the rural poor, with emphasis on job searches and retraining.
- (f) Strengthened and expanded community development organisations e.g. ODESYFANO.

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ANNEX 1. THE ECONOMICS OF LIBERALISATION

High producer prices might appear beneficial in a country that is concerned about rural welfare. Economic theory, on the other hand, indicates that there are important costs attached to farm protection. Except in very special circumstances, these costs always outweigh the benefits:

- a) Farm protection encourages farmers to undertake activities for which the costs (labour, water, purchased inputs and capital) are actually greater than the value to the nation of the output, in terms of saved imports. Another way of looking at the same process is to say that support for agriculture discourages resources such as labour, water and investment capital from being allocated to other sectors, even if they can be used more productively in industry and services.
- b) Differences in the level of protection encourage the farmer to shift resources out of less protected activities into more protected activities, even though the value to the nation in terms of saved imports is less.
- c) The apparent gain to the economy from higher farm prices is not actually a gain at all. This is because the higher prices are actually being paid for by other Tunisians when they pay for agricultural produce. Tunisian consumers pay higher prices for fruit, vegetables and dairy produce. The Tunisian Government and taxpayer pay more for the wheat that is then passed on to the consumer at a subsidised price. The Tunisian livestock farmer pays a higher price for fodder.

Several other important economic issues are not directly captured by the models:

- d) Farm price support and input subsidies are ineffective tools for protecting rural social welfare, because the benefits of support are proportional to a farm's productive capacity. The worst-off receive least benefit.
- e) High prices encourage producers to accelerate the rate at which they use sustainable natural resources, such as water, rangelands and fish stocks, as well as to overuse inputs such as fertilizer and other chemicals, which often has negative environmental impacts.
- f) Distorted price signals cause investors -- both public and private -- to devote too much capital to over-protected importable products and too little to exportables. In a dynamic context, the negative effects of this misallocation of investment on productivity growth accumulate over time, resulting in ever-increasing costs to national income.

This study estimated the impact of artificially high farm prices upon the Tunisian economy. Four types of analysis were used to estimate the impacts of agricultural price

protection in Tunisia (Ideaconsult, 2005): consumer budget simulations, computable generable equilibrium models, linear programming farm models and domestic resource cost analysis. The methodology was based upon an earlier Bank study (World Bank, 2000), and the scenarios were tailored to the most recent data and policy questions.

- *Consumer budget simulations.* Using national survey data (INS, 2000) it was possible to estimate the effect of agricultural price liberalisation upon consumers' welfare. The model answered the question: what change in consumers' incomes would compensate them for agricultural price liberalisation, firstly if their purchases remained the same and secondly if they could adjust their purchases to take account of changed relative prices?
- A *Computable General Equilibrium (CGE)* model simulated the national economy by a series of equations calibrated to fit observed Tunisian data. The model assumes that the economy has a fixed supply of labour and investment capital, which will be allocated between agriculture and other sectors on the basis of their rates of return. A high rate of protection for agriculture will therefore encourage the allocation of labour and capital to farming, even though they could contribute more to the national economy in industry and services. The model's predictions take the form of a one-off jump in GDP resulting from liberalisation, which sets the economy on a new growth path. The total benefits are presented as the difference between Tunisia's with- and without-liberalisation annual GDPs, summed over 25 years.

Such CGE models assume that industry and services will reabsorb any investment capital and labour released by agricultural sector liberalisation. However, the findings of separate studies (Casero and Varoudakis 2004, World Bank 2004) on financial and labour markets suggest that this assumption should be accepted with caution. In the financial market, the lack of credit rating information and a culture of lending against collateral mean that the availability of security, rather than the supply of capital, may be the binding constraint upon non-farm investment. Unemployment rates (17% in Tunis in 2001) also suggest that crude labour supply is not a binding constraint upon non-farm employment.

To take account of market imperfections, a "cost of adjustment" element was built into the simulations. It is intended to reflect the cost of retraining labour and upgrading investment, and is therefore a function of the size of the adjustment. In the case of full liberalisation, for example, it is estimated to be just under 1 billion DT over 25 years.

A variant simulation modelled the liberalisation of field crop [grandes cultures] (essentially cereals and oilseeds) prices alone. It lets labour and capital be reallocated within agriculture, and thus relies much less on the assumption that industry and services will absorb them.

- *Domestic resource cost analysis.* This compares the economic cost of producing a commodity with its price on the world market. The ratio of the former to the

latter is a measure of competitiveness. A domestic resource cost ratio greater than 1 means that the product is definitely uncompetitive. A ratio lower than 1 means that it might be competitive if quality and other non-price issues can be addressed.

- *Linear programming simulations.* The impacts of farm price liberalisation were simulated for sixty specimen farm types. Each farm model was based upon the technical coefficients and input prices that were collected during the preparation of the “*Carte Agricole*”. For realism, the technical coefficients are based upon actual observations, not upon ideal farming techniques, and shadow [économique] prices were used for labour and water. Farm behaviour was then modelled on the assumption that profit-maximising farmers will reallocate land and water between crops in response to relative price signals. Although the analysis did not allow us to simulate how factor markets as a whole will respond to price changes, it did highlight which farm types, crops and zones will be winners and losers.

ANNEX 2. THE “CARTE AGRICOLE”

The Carte Agricole, recently completed at a cost of 5 million DT, is a Geographical Information Systems (GIS) application that identifies the agro-economic potential of Tunisia's land resource to a high degree of detail. It was the basis for the analysis of Tunisia's agricultural competitiveness in section III.A above.

The challenge now facing the MARH is of ensuring that this considerable investment is put to good use, that its data are kept up-to-date and that the greatest possible number of users has access to it. Indeed, there is a risk that the model's integrity might be compromised without an effective system for updating its database. The MARH has chosen a decentralized approach to database management, where each CRDA is responsible for maintaining its own data. Although this will help keep the CRDAs committed and involved, it increases the risk that data quality will deteriorate. At the same time, the practical value of the Carte Agricole will depend largely upon its dissemination outside the MARH, for example among inter-professional groupings, banks, universities in Tunisia and abroad, investors, the MDCI, the Ministère du Plan and institutions involved in land-use planning. An information management plan for the Carte Agricole would be the first step towards ensuring that it remains a useful resource management tool in the long run.

ANNEX 3. TERRES DOMANIALES

Around 0.5 million ha of prime arable land belong to the state estate, and are managed through one of four systems: operation by parastatal “agro-combinats”, operation by the Ministry of Agriculture itself (around 100,000 ha), leases to private individuals on the basis of recommendations made by regional and national “commissions d’attribution des terres domaniales” composed of government and union representatives, or usufruct agreements with unités coopératives de production agricole or young agricultural graduates. Government policy and current legislation rule out the privatisation of such land except in exceptional circumstances, such as the re-issuing of land that has been expropriated during land consolidation exercises.

Government’s management of the terres domaniales reflects a number of conflicting objectives:

- keeping a body of prime agricultural land under the control of the state;
- creating employment opportunities for young farmers and agricultural graduates;
- greater national self-sufficiency in cereals, for example via the attribution of 62,000 ha to cereal-production (CNEA 2005a);
- while not necessarily maximising government revenue from the estate, at least minimising government subventions to those who farm it.

It was beyond the scope of this study to examine the efficiency with which this substantial land resource is being managed. There is limited information in the public domain on this subject.⁵⁰ Based upon average cropland value estimates for Tunisia (World Bank 2005), it is estimated that this lands are capable of producing a surplus for reinvestment or remittance to government of at least USD 60 million per year, or 0.3% of GDP. If the Government wishes to mobilise the state estate for economic development, a first step might be to benchmark the profitability of its farms against their potential. This would give the Government an indication of the cost of pursuing the multiple objectives listed above. The standard budgets of the Carte Agricole (see below) can provide a point of reference.

⁵⁰ A study in 2002 of 55 Sociétés de Mise en Valeur et de Développement Agricole, groups of agricultural graduates with usufruct agreements, found that only 29% had “bonnes perspectives”. 78% had yields which were equal to or less than the regional averages, despite high quality landholdings and preferential access to credit.

ANNEX 4. FORESTS AND RANGELANDS

1. Forests and rangelands cover an estimated area of 5.5 million hectares, or a third of the country. The forest area is 1.2 million hectares, of which 1 million hectares are forest in the strict sense of the term (including 515,000 ha of plantations) and about 170,000 ha consists of scrubland. Three quarters of the forests are in the north- and centre-west of the country. The natural forests are made up of oak (cork, zeen and green), pine (Aleppo and maritime) and thuya; the artificial forests mostly consist of eucalyptus, acacia and pine ("pignon", Aleppo and radiata).
2. Forests and rangelands are an important foundation of the rural economy, especially in the relatively poor areas in the west. Overall, they meet 15-20% of the fodder needs of the national herd⁵¹ and about 15% of energy needs. The population living in forestry and grazing areas is estimated to be around 1 million, or 10% of the total population and 25% of the rural population. Their main activities are livestock, subsistence agriculture, and forestry work. Rangelands cover nearly 4.3 million hectares, of which 2.5 million hectares are collective land, 1.1 million hectares private land, and 743,000 hectares under esparto grass. As well as their role as a factor of production, forests and rangelands provide essential environmental functions: they protect against soil erosion and dam siltation.
3. Tunisia's commitment to preserving its environmental resources is well known. The 10th Environment Plan provides an integrated structure and serves as a framework for the detailed and ambitious Five Year Plan objectives (see table below). For example, between 1990 and 2005 Tunisia's area under forests increased by 4.3%, at a rate of 11 square kilometres per year, while it fell by 0.1% in North Africa and the Middle East overall (World Bank, Little Green Data Book, 2006).

Challenges

4. Unfortunately, population growth and a shift towards sedentary settlement are leading to the degradation of forests and rangelands. Three million hectares have been degraded by cultivation, overgrazing (including esparto land), water and wind erosion, illegal land-clearance, charcoal production, fires and pests. For forests, cultivation, widespread overgrazing and fires are leading to the loss of 2,600 ha per year, a loss valued at 0.1% of GNP (World Bank, Environment at a

⁵¹ Under a million cattle, mostly in the north, and about eight million sheep and goats concentrated in the centre and south.

Glance: Tunisia 2004). Rangeland degradation is equally apparent, though no detailed studies are available. It appears as a reduction of soil coverage and the nutritional value of plant growth. Around 8 million ha in the south-west are affected by desertification. The area under esparto is falling by around 1.5% per year, and yields have dropped from 4.5 Q/ha to 3.0 Q/ha.

5. However, it is clear that the economic value of forest products is well below potential. For example, many studies report that income from non-wood forest products could increase significantly if there were a favourable regulatory framework for the private sector to invest. One study estimates that they have a potential value of DT 125 million per year.
6. So the challenge facing Tunisia can be summed up in one question: how can one encourage the rural population to conserve and even invest in fragile forests and rangelands, both for income-generation and environmental reasons ? To pursue this analysis, one has to distinguish between two cases:
 - a. Where the state, its agent or a private operator manages use-rights on its own account (e.g. commercial operation of a state forest, plantations and private rangelands);
 - b. Where there are common property rights (e.g. public and collective rangelands, wood collection rights), and use is governed by the informal decisions of the user. In this case, the state can obviously only influence users' decisions indirectly, by putting an appropriate incentives framework in place.

The efforts and successes of the MARH have until now been concentrated in the first of the two cases above. However, one can observe the first steps towards the encouragement of local communities to manage common property rights efficiently and sustainably.

7. Although the data below are provisional, they illustrate the successes and failures of the 10th Plan. In general, where a public or private operation is managing the resource on its own account, the Plan objectives have been met. But where the public environmental interest is the main concern, they have not.

Table. Forest and rangeland achievements of the 10th Plan

(hectares)	2002/11 Strategy Objectives	10th Plan (2002/06) Objectives	2002 - 2005
Forest Plantations	190,000	59,000	49,000
In state forest lands	70,000	12,000	16,000
Roadsides and urban areas	20,000	6,000	1,000
Beside water bodies	20,000	10,000	4,400
Windbreaks in irrigation schemes	30,000	10,000	1,700
Private plantations	50,000	16,000	26,000
Rangelands	210,000	56,000	38,000
In state forest lands	100,000	25,000	9,000
Collective rangelands, governed by forest law	40,000	10,000	4,000
On private land	70,000	21,000	24,800

A public or private operator managing user rights on its own account

8. The logic of classic development planning, with the Government fixing objectives, financing objectives and controlling the resulting asset, has proved itself well suited to public plantations on state lands. The Plan's achievements in this regard have been 125% of the target. Moreover, budgetary allocations to forests and rangelands show an increasing appreciation of their importance. The rate of growth was 27% between the 10th and 11th Plans, compared with 5% for public investment overall and 16% for the water sector. In 2003, total investment in forests and rangelands was 13.9% of all investments, compared with 4.7% in 1987.
9. Commercial operations on state forest lands appear to meet Government expectations. The Régie d'Exploitation Forestière (REF), which comes directly **under the MARH**, manages the sale of standing timber, cork production and marketing, and the sale of the right to harvest non-wood forest products. The REF's income is **about DT 13 million per year, of which DT 6 million is for cork** (7,920 tonnes in 2004) and DT 4 million for wood. The Société Nationale de la Cellulose et du Papier Alfa (SNCPA) provides incomes of around DT 2.3 million for 6,000 pickers, and the export of esparto paper brings in around DT 12 million per year.
10. But is the state's direct management of state forests optimal ? Firstly, the **economic performance of state forests** has not been benchmarked against its **potential**. It seems, for example (see above) that non-wood forest products are **seriously under-performing**. **At first sight**, the current levels of marketing are still far short of their potential, for example in wood for the construction industry and aromatic and medicinal plants. Secondly, the Government's financial and personnel capacity is already a constraint, if one considers that only 270,000 ha, less than a third of the state forest, are covered by up-to-date management plans

and these plans only cover basic operations (cutting, infrastructure and clearings). The impression is that the State does not have the operational flexibility to make the most of its forest resources.

11. Although private sector management can be more flexible and responsive to the market, its involvement in the management of the state forest is limited. In the past, the Forest Code required a process of use-rights allocation that ruled out any long-term planning and investment. The only way that the private sector could become involved was by obtaining government subsidies for reforestation on private land and through temporary occupation contracts for forestry and livestock operations. However, changes to the code in 2005 have made it possible for private operators and GFICs to obtain renewable concessions for 5 years.
12. Although it is only 9% of total investment, private investment in forests and rangelands is rising. The Plan's area target was 118% achieved. Private grazing improvements are attractive, mostly thanks to the subsidies from the Office de l'Élevage et des Pâturages (OEP). The same goes for rangeland improvements, where 76,000 ha of the 100,000 ha target have been realized. Finally, 33,800 ha of thornless cactus, out of a target of 40,000, have been created as a source of fruit and forage.

The management of common use rights

13. However, the MARH has been less successful in creating an effective incentives framework for ensuring the participation of rural communities in the management of common environmental resources. Seen in its historic context, the degradation of such resources is partly due to the weakening of the collective social groupings that used to be their main users (see section III.E on rural land). The state has been unable to revive their role in sustainable resource management.
14. For the 4.5 million hectares of rangelands of all kinds, the main problems have been relationships between users and ambiguities in the land tenure situation. A complicating factor is that many users are primarily farmers, and only take an interest in natural resource management when a profitable opportunity arises. Conseils de Gestion des Parcours Collectifs have been set up at Governorate level to address the issue of user organisation. These councils have limited resources, and do not always appear genuinely representative of all rangeland users. Finally, there are the controversial subsidies for animal feed, which are blamed for overstocking.
15. To combat the over-exploitation of non-private forests, Government relies almost entirely upon regulation. The forest code, for which the MARH's forests Directorate General is responsible, recognises open access rights for local populations regarding dead wood and brush, grazing, the gleaning of certain forest products and the cultivation of specific landholdings. These rights are limited to the needs of the user's household. The state assumes responsibility for enforcing these regulations.

16. However, it is evident that the state's ability to enforce its regulations is less than its ambition. There are institutional constraints. The CRDAs' forestry sections do not have the required human and financial resources for enforcement, a specific example of the MARH's general resource shortage (see section III.D). This problem is likely to become more serious in future, given the high retirement rate and operating budget constraints.
17. This observation reflects the new general consensus on natural resource management. Both in developed and developing countries, it is recognised that user communities are often better socio-politically adapted to natural resource management than the state. The classic work on this theme, Elinor Ostrom's "Governing the Commons"⁵², analyses management systems for forests, pastures and irrigation water in Switzerland, the Philippines, Spain and Japan. On this basis, it proposes certain principles as necessary for the effective control of resource over-exploitation:
 - a. Clearly demarcated physical boundaries;
 - b. That use should be monitored either by users or people designated by users;
 - c. A system of progressive penalties for rule-breaking;
 - d. That users should govern conflict resolution and rule amendment.⁵³
18. The MARH is moving towards community forest and rangeland management. The Code Forestier was revised in 1988 to enable community participation. A decree of 1996 allows for the creation of GICs for forestry activities (GFICs – there are currently 41). Two promising initiatives are underway with the DGF: The Integrated Forestry Management Project (with Japanese co-financing) and the Project for Agro-Pastoral Development and Promotion of Local Initiatives in the South (with IFAD co-financing). The DGF is accumulating in this way some highly useful experience in participatory resource management.

Options for the future

19. A first objective would be to make more of the commercial potential of the state forest. The MARH could commission a "benchmarking" study to compare actual performance with potential and with the productivity of other comparable forest areas (e.g. Australia, South Africa, Andalusia, Greece). Then the MARH could consider how better to mobilise the management advantages of the private sector. Three types of action are recommended in this regard: (i) developing simple and operational concession models (ii) selecting zones for concessions for specified purposes e.g. non wood forest products (iii) actively and transparently marketing concessions to private operators and GFICs.

⁵² E. Ostrom (1990) *Governing the Commons*. Cambridge University Press.

⁵³ Ostrom concludes that "if this study does nothing more than shatter the convictions of many policy analysts that the only way to solve common pool resource problems is for external authorities to impose full private property rights or centralized regulation, it will have accomplished one major purpose."

20. The long term disappearance of forests and rangelands would be a catastrophe. It is clear that the regulatory approach has reached its limits and will now need to give way to the gradual introduction of community resource management. The experiences of the two pilot projects should be consolidated and scaled up as soon as possible. The MARH should consider how better to incentivised resource conservation in the collective interest. In this regard, Biocarbon Financing could complement fiscal resources. In Nicaragua, Costa Rica and Colombia, for example, a World Bank forestry and livestock project provides financial rewards to farmers for reforestation, which is measured using satellite imaging. In the long-term improvements in the welfare of forest communities is a precondition for conservation.
21. In short, the MARH could concentrate on its core functions (policy formulation, defining norms, overseeing development projects) and share or delegate other activities. Such an approach, however, would require the DGF's human resource mix to change, with strengthening needed particularly in non-technical areas (natural resource management, rural sociology, microeconomics, financial management and so on). The forthcoming implementation of performance-based budgeting in the MARH should be seized as an opportunity to redefine the DGF's objectives from first principles, especially where its own institutional capacity is concerned.