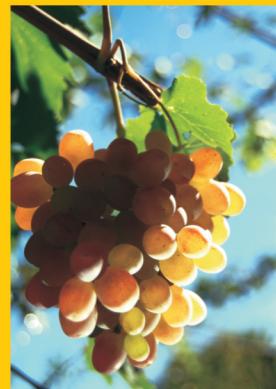




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# Republic of Tajikistan

## Priorities for Sustainable Growth: A Strategy for Agriculture Sector Development in Tajikistan



Staatssekretariat für Wirtschaft  
Secretariat d'Etat à l'économie  
Segretariato di Stato dell'economia  
State Secretariat for Economic  
Affairs

**seco**

## **PRIORITIES FOR SUSTAINABLE GROWTH:**

***A Strategy for Agriculture Sector Development in Tajikistan***

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## **CURRENCY AND EQUIVALENT UNITS**

(as of May 1, 2006)

Currency Unit = Somoni  
US\$1 = 3.2139 Somoni  
1 Somoni = US\$0.3111

## **WEIGHTS AND MEASURES** **Metric System**

## **ACRONYMS AND ABBREVIATIONS**

AAH	Action Against Hunger
ADB	Asian Development Bank
AIB	Agro-Investment Bank
asl	above sea level
BCS	Body Condition Score
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
CSIP	Centralized State Investment Program
DLC	District Land Committee
DM	Dry Matter
FDI	Foreign Direct Investment
GAO	Gross Agriculture Output
GBAO	Gorno Badakhshan Autonomous Oblast
GDP	Gross Domestic Product
GOSCOMSTAT	National Statistical Committee
ha	Hectare
IC	Independent Commission
IMF	International Monetary Fund
MoA	Ministry of Agriculture
MWRLR	Ministry of Water Resources and Land Reclamation
NBT	National Bank of Tajikistan
O&M	Operations and Maintenance
PIP	Public Investment Program
PPP	Purchasing Power Parity
PRSP	Poverty Reduction Strategy Paper
RRS	Raiions of Republic Subordination
SCLRM	State Committee for Land Resources and
Management	
TA	Technical Assistance
TLSS	Tajikistan Living Standards Survey
TFP	Total Factor Productivity
TUGE	Tajik Universal Goods Exchange
USSR	Union of Soviet Socialist Republics
UTAP	Unified tax for Agriculture Producers
VAT	Value added tax
WB	World Bank
WUA	Water User Association

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## **SWISS COOPERATION WITH TAJIKISTAN.**

The Government of Switzerland is contributing (only) grants for the development and the well-being of Tajikistan since 1997th. Tajikistan, as a member of the Swiss Constituency Groups in the International Monetary Fund, World Bank is a so-called priority country for Swiss Cooperation.

The Swiss Program in Tajikistan includes a technical, financial, and a humanitarian component. The implementation is monitored by the Swiss Cooperation Office in Tajikistan, established in 1999. Since 2001 the office also houses the Swiss Consular Agency.

In the year of 2005 the overall program budget of Switzerland in Tajikistan amounts to more than 9.6 million USD. Contributions are mainly coming from the Swiss Agency for Development and Cooperation (SDC) in 5.1 mln. USD, and the Swiss State Secretariat for Economic Affairs (SECO) in 4.5 mln. USD. This includes benefits from regional programs worth between 4 to 5 million USD.

Since 1993, SECO has provided Tajikistan with financial and technical assistance amounting to about CHF 37 million. This economic cooperation has been focused mainly on infrastructure financing (electricity, water, telecommunication), macroeconomic support. More recently, further significant support in the field of private sector and trade promotion has been initiated.

For the implementation of its program during the period 2006-2009, SECO plans – subject to continued progress in the transition (economic and political) of the country and to satisfactory performance in the implementation of bilateral projects – the mobilization of an envelope of about CHF 20 million. Poverty alleviation is cross cutting priority in the framework of newly prepared Swiss strategy covering the period until 2010.

## EXECUTIVE SUMMARY

### **I. SECTOR ISSUES**

#### **1.1 Sector growth is strong but unsustainable**

Agriculture sector growth has made a powerful contribution to post-war economic recovery in Tajikistan, accounting for approximately one third of overall economic growth from 1998 to 2004. Sector output increased by 65% in real terms during this period, and has now returned to the level extant at independence in 1990. Rural poverty has fallen significantly in response to these trends; with 65% of rural people below the poverty line (\$2.15/day PPP) in 2004, compared to 82% in 1999. Political and economic stability and economy wide growth provided the base for this impressive performance, and the substantial associated increase in household food production. In addition, a huge inflow of remittance income has fuelled both the demand for agricultural products, and the means to produce them. Current forecasts suggest that these trends will continue in the short-term, although this outlook could easily change. Tajikistan's narrow economic base, combined with its location and geography render it deeply vulnerable to shocks in world commodity prices, climatic events and the vagaries of Central Asian politics – despite a substantial strengthening of its economy.

Impressive though it is, current agriculture sector growth is not sustainable. Available evidence suggests that it has been driven largely by the external factors noted above, which are easily reversed, rather than substantive changes to sector resources, incentives and the behavior of factor and commodity markets. First, an extensive, on-going program of policy reform, particularly in the area of land ownership, has yet to make a substantial impact on incentives or factor markets. Second, sustainable growth requires positive net investment, yet the sector's capital base has declined as obsolete plant has fallen into disuse and not been replaced. Third, commodity markets remain weak, with a limited capacity to translate increased demand into improved production incentives. Indeed markets remain highly fragmented and are easily saturated by increased production. And fourth, growth in crop production, which accounts for 80% of sector output, has been largely driven by low value food and cereal crops. Cotton production, which dominates sector output, has stagnated. A more sustainable basis for future growth is required, based on deeper factor markets for land and capital, stronger commodity markets, increased technology transfer, and improved producer incentives.

#### **1.2 Limited impact of reform**

Agricultural policy reform has been implemented, but its impact on sector development has been limited. Sweeping changes to price and trade policy, production subsidies, financial institutions and land policy have yet to elicit corresponding changes in producer incentives and the behavior of factor and commodity markets. Farmer decisions about what to produce, how to allocate their land and who to do business with are still driven by central-planning style production targets and enforced by local government, despite new laws which specify producers' freedom to choose; and the privatization of cotton credit and processing has not increased competition or efficiency. Reforms designed to increase the market orientation of agriculture have been followed by an increase in subsistence production. Major deficiencies in the reform process include:

- Ineffective land privatization**

Land reform was initiated in 1992 with the aim to "privatize" the existing sovkhoz and kolkhoz farms by breaking them into smaller, collective "dehqon" farms and conferring inheritable use rights on the owners. Reform was extended in 1996 to allow individuals or groups in the dehqon farms to use their share of the land to create a separate farming entity. Progress was slow until 2004, due to limited institutional capacity and political will. As of January 1<sup>st</sup>, 2006, some 18,300 individual and family dehqon farms had been created, plus a further 8,740 collective dehqon farms. They now account for 41% and 20% of arable land use, respectively. Average farm size has fallen significantly in the process, although not to the extent that it compromises the ability to benefit from economies of scale.

Limited in its objectives, the privatization program has also been limited in its achievements. Government has given priority to the issue of Land Share certificates, which name all members of the dehqon farms but do not confer individual use rights. Less emphasis has been given to the issue of Land Use titles which confer the full use rights needed to benefit from private ownership. Moreover, the land use rights created have been heavily circumscribed by vaguely worded legislation which gives wide discretionary powers to state and local government to confiscate agricultural land in the event that it is used “irrationally”. Local governments use these powers as an implicit or explicit threat to take land from farmers in the event that production targets are not met. Hence there is no security to the tenure of the newly acquired use rights, and limited freedom of land use. In addition, most of the collective dehqon farms were formed with minimal explanation to their members, and they have continued to operate under collective management, led by former brigade leaders. The new “owners” of these farms thus continue to work for wages. Finally, measures to encourage leasing are not yet an element of land reform, and nor is the creation of a land market. Privatization has occurred in name only. With neither secure tenure, nor the freedom for farmers’ to use their land as they choose, land privatization has not significantly improved producer incentives.

Land privatization established a platform for the creation of individual and family based dehqon farms, nevertheless, and these farms are now the largest category of land use and land ownership. The procedure is complex, non-transparent and expensive however (official fees plus “unofficial” payments). These constraints reduce the incentive for farmers to leave the collective dehqon farms, particularly when they know that their land can be arbitrarily confiscated afterwards. The second phase of privatization has thus been dominated by wealthier, politically well-connected individuals and families who are well-informed about the privatization process, and able to take advantage of its lack of transparency. Lower income farm households are still bound to the collective dehqon farms, with the attendant risk that these farms will become local centers of poverty.

- ***Cotton policy diminishes incentives and depresses output***

Government control of cotton production and marketing remains the overriding focus of sector policy, based on central planning style production targets and local government coercion to achieve them. These policies have resulted in low productivity, stagnating output, and the accumulation of an unpaid producer debt estimated by government at \$US 280 million.

Local governments coerce farmers to plant 70% of their arable land to cotton, with the threat that their land will be expropriated for “irrational use” if they don’t comply. This precludes efficient allocation and use of farm resources, lowers producer incentives to raise output and productivity, and reduces the ability to use much-needed restorative crop rotations. Markets are also weak and distorted. In principle, the numerous private sector gins and investors that now process and market cotton provide an appropriate base for competition. In practice, local government coerces producers to work with specific gins and investors, creating a system of local and regional monopsonies. Assured of adequate raw material, the ginneries have no need to compete by raising outturn rates or improving efficiency. They also appropriate most of the byproducts of cotton processing, which should either be paid for or returned to the producer, further reducing producer incomes. Investors have an even tighter hold on cotton producers, and an even bigger impact on sector output. By charging above market prices on farm inputs and paying below market prices for cotton fiber, they squeeze profits and oblige farmers to rely on them for inputs and seasonal finance, so assuring access to cheap cotton fiber.

The current regulatory environment further reduces incentives to increase productivity and output, and lowers cotton sector income. Anomalies in the official pricing formula reduce sector revenue by: over-adjusting the conversion from export to domestic prices, applying the formula as a maximum rather than a minimum price, precluding hedging, and levying taxes on an inflated base. The soviet grading system in use limits producer incentives to raise quality, and precludes access to the higher and more profitable grades used in international grading systems. Weighing and grading are performed by inspectors employed by the ginneries and exporters themselves, with minimal transparency and no independent monitoring.

Producers' also have limited access to high performing seed varieties, due to the breakdown of state seed farms on the one hand and excessive restrictions on imported seeds on the other. Many farmers have received no new seed since independence and must use seed from the previous harvest. Genetic potential, and the capacity to raise yields, has fallen as a result. Cross-contamination of medium and long staple varieties is also reducing the uniformity of cotton fiber, so reducing quality and price.

These policies also compromise overall sector development by, distorting the allocation of land and labor and the markets for credit and farm inputs; lowering, rather than raising public and private revenues from cotton; and precluding the development of a more diversified production base. Hence, while resolution of the debt crisis is the most pressing issue, it is not the most fundamental. The real issue is the need to re-define the respective roles of government and the private sector, and to ensure that each performs these roles in a fully transparent manner. Unless these broader issues are resolved, cotton production and sector growth will remain low and the debt crisis could re-occur.

- ***Inadequate institutional change***

Slow institutional change and inadequate grassroots awareness of the implications of reform have further weakened the response to reform. Policies have changed but public institutions have not. Most of the public institutions responsible for implementing the new policies still operate according to central planning principles, with production targets and coercion as the basis for planning and policy implementation. Local government structures and activities are particularly resistant to change. Limited budgetary resources, poorly trained staff, low salaries and corruption make it even more difficult to change these norms.

Effective public institutions are essential in Tajikistan, as private sector institutions are weak and reform still has far to go. A clear definition of the public roles and responsibilities required as a result of reform is the starting point for institutional change, accompanied by support for institutional re-organization and staff training. This will require considerable commitment by government and the donor community, as pre-independence institutional norms are deeply entrenched and there are strong vested interests seeking to preserve the status quo. Rural people also need to be made more aware of the rights and opportunities created by reform, and given more support to take advantage of them.

### **1.3      *Limited Access to Rural Finance***

Lending for agriculture is well below sector requirements, estimated at US\$100-130 million annually for investment and US\$90-100 million for seasonal finance. Actual capital investment is currently estimated at US\$ 55 million, of which US\$ 30 million comes from the public sector. Investors' were able to meet the US\$75-80 million seasonal requirement for cotton prior to the debt crisis, but lending for other branches of agriculture is negligible. Cotton producers thus have reasonable access to credit, but they are unable to choose who they borrow from and are highly vulnerable to exploitation, as demonstrated by the current debt crisis. Non-cotton farmers have very limited access to finance. Loans are mostly short-term, even from donor credit lines, and interest rates are high.

The inability to meet the demand for rural finance is due primarily to the small size and weak capacity of Tajikistan's financial sector, although it is expanding rapidly. Commercial bank assets are only 8% of GDP and their lending is 4.5% of GDP. Of this amount, less than 10% goes to agriculture. Most deposits are still short-term (< 12 months) which limits the capacity for medium and long-term lending. Micro-finance institutions are also expanding, with 60,000 clients and a total loan portfolio of US\$ 14 million in 2004, but their lending is mostly urban. All bank and non-bank financial institutions have a weak capacity to appraise and manage agricultural loans. Lending is also constrained by the inability to use land as collateral, the paucity of other collateral instruments, and the limited range of loan products. Leasing is also constrained by a shortage of skills and capital.

The cotton debt crisis has exposed not only the weakness of cotton finance, but also the limited financial and institutional resources of the other institutions lending for agriculture. A sustainable increase in access to rural finance will require much greater emphasis on the development of alternative sources of finance for all of agriculture, in addition to resolution of the cotton debt crisis. The capacity for agricultural loan appraisal and management also needs to be strengthened, new collateral instruments introduced and new loan products developed, which are suited to agriculture in general and small-scale farmers in particular.

#### **1.4 Weak Markets for Agricultural Commodities and Farm Inputs**

Markets for (non-cotton) agricultural commodities and farm inputs are weak and fragmented. Regional rather than national markets prevail (RRS/Dushanbe, Sughd, GBAO and Khatlon), as market integration is severely constrained by Tajikistan's pronounced physical barriers to internal trade and high transaction costs. Nationally, demand is impaired by low population in the main urban centers and low overall purchasing power. Regionally, demand is higher and more stable in the markets of RRS/Dushanbe and Sughd, while the markets in Khatlon and GBAO are easily saturated and subject to high price variability. Farm input markets are distorted by the monopsony powers of cotton investors who supply 75% of fertilizers and other farm inputs to captive clients, at above market prices. Other input suppliers are unable to expand as a consequence, despite offering lower prices. Producers lack adequate incentive to move from subsistence to commercial production as a result, and price signals are not conducive to optimal resource allocation.

Producers are poorly equipped to deal with these problems. As modern, collective marketing activity (cooperatives, producer associations etc) is weakly developed, a proven mechanism for lowering transaction costs and improving efficiency is barely used. Weak market information systems further limit farmer ability and incentives to expand market activity, together with a regulatory environment which is costly and difficult to understand. Finally, poor access to seasonal finance limits the capacity to produce for higher priced seasonal markets. Marketed surplus remains low as a consequence, despite significant increases in real prices and production for many products, and farmers tend to produce for local and regional markets.

Commodity markets have expanded nevertheless, in response to price liberalization, the privatization of transport and growing domestic demand for food and agricultural products. Increased exports to the Russian market have also contributed to this growth. Market development has been characterized by increased differentiation of regional markets, however, rather than increased market integration and the emergence of national markets for agricultural commodities.

#### **1.5 Flawed Policy is Inhibiting Rural Poverty Reduction**

While rural poverty has declined, it has fallen less than urban poverty and remains very high even though agriculture is one of the fastest growing sectors of the Tajik economy. Policies associated with land use and cotton production are the main causes of this disappointing performance.

Rural poverty is highest among households that rely solely on farm income. Hence, policies that influence farmer incentives to raise farm output and productivity will affect the incomes of poorer households. Empirical analysis shows that land privatization has had no discernible influence on rural poverty levels, as measured by the impact of Land Share Certificates and Land Use Titles. This is because *de facto* state control of land use for cotton production and wide powers of land expropriation negate the impact of land privatization, leaving farmers without secure tenure and the freedom to use their land as they wish. Producer incentives fall as a result, lowering the rate of poverty reduction.

Further analysis shows that cotton policies are the major cause of high rural poverty rates and lower than expected rural poverty reduction. While poverty falls by 3% in response to a 10% increase in farm wages, it falls by only 1% in response to a 10% increase in cotton yields. This is because producers obtain such a small share of the return from increased output, due to inefficiencies and exploitation in processing and marketing. Low cotton incomes also explain the high poverty rates in Khatlon and Sughd, which are the main cotton growing areas. Farm income from cotton will not increase until the policies that allow low competition and producer exploitation are reformed.

In contrast, there is ample evidence across regions, commodities and farm types that incomes do rise in response to appropriate reform -- increasing the rate of rural poverty reduction. Crop producers in peri-urban areas, close to strong urban markets, have benefited most from reform; followed by livestock producers in mountain areas. Their ability to respond fully to reform has been restricted, however, by poor access to credit and farm inputs, and lack of secure land use rights.

### ***1.6 Considerable Potential for Increased Productivity and Output***

Crop production accounts for 80% of the value of sector output and has been the main engine of growth, with production levels now back to those extant at independence. This growth has been driven by increased yields and higher prices for non-cotton crops, as the value of cotton production has been static. Yields of all crops can be raised further yet, in response to improved seed varieties, better crop husbandry and reduced post-harvest losses. There is also ample potential to expand export production of fresh and processed fruit and vegetable commodities to traditional CIS markets. Wider use of restorative crop rotations will also improve soil structure and fertility and arrest the growing incidence of soil erosion, to the benefit of cotton, cereal and fodder crop production.

A combination of higher prices, increased livestock numbers and increased productivity has driven the growth in livestock production. Livestock productivity remains very low, however, as a result of poor nutrition, especially during winter. Losses and disease are high as a consequence. Increased fodder production, as part of restorative crop rotations, is the starting point for improved nutrition and livestock productivity, together with improved animal husbandry. The ability to winter more animals is also the key to making better use of Tajikistan's under-used summer pasture resources. Beyond this immediate imperative, there is significant potential to increase both intensive and pasture based livestock production in response to simple, low-cost changes in feed production and conservation, animal husbandry and pasture management.

## ***II. A SECTOR STRATEGY BASED ON PRIORITIES for SUSTAINABLE GROWTH***

Land privatization and reform of the cotton sub-sector are the pillars on which a viable strategy for agriculture sector development should be based. However these reforms are a necessary but not sufficient condition for continued growth of rural incomes. Sustainable growth also requires improved access to rural finance and a more diversified production base, with increased livestock and horticultural production. Cross-cutting measures to strengthen public institutions and agricultural markets are also critical to sector development.

### ***2.1. Extend and Deepen the Benefits of Land Reform***

The goal of land reform should be to complete the second phase of land privatization within the next three years, and create a land tenure system conducive to increased production and investment. All farmers who seek to leave the collective dehqon farms should do so, and individual land use titles should be issued to all land owners. This process should be accompanied by an immediate halt to local government interference in land privatization and land use. Specific actions include:

- Terminate local government interference in land privatization and land use, and the application of land use targets for cotton production.
- Review and amend land legislation to ensure that it unambiguously defines suitable land ownership, use and inheritance rights, and the conditions under which land can be expropriated. Amendment of the law which currently allows local government to expropriate land in the event that it is used "irrationally" should be an immediate priority, but the broad aim should be to develop legislation which confers land tenure rights that encourage production and investment, and protects these rights.
- Strengthen the judicial agencies responsible for land ownership use, to ensure that they are independent, transparent and accessible; and that they provide adequate protection for land users.

- Strengthen the capacity of the administrative agencies responsible for land ownership and use (cadastre, land registry etc) to ensure that they are independent, transparent and accessible; and that they provide an adequate service. Priority should be given to the development of a modern, centralized land registry, but all relevant agencies should receive support for modernization, re-organization and staff training.
- Strengthen the capacity of the State Land Committee to develop accessible, transparent, low cost procedures for privatizing land.
- Inform and educate farmers about current land legislation and relevant agencies, the land rights they have acquired as a result of reform, and the means to protect these rights.
- Develop an appropriate legal and administrative basis for land leasing.

These measures will provide the basis for secure land use rights, and make the institutions responsible for land administration more transparent, independent and accountable.

## **2.2 Cotton Sector Reform**

A strong, competitive cotton sector is vital, not only to the agricultural sector but also to the economy as a whole. Reform of the policies and institutions which regulate the cotton sector will not only raise cotton production and profitability, but also help to realize the sector-wide benefits from other elements of reform. Recognizing these imperatives, the following measures have been designed to enhance farm income, export earnings and tax revenue in response to increased cotton production.

Resolution of the cotton debt crisis is the immediate issue to be addressed. Debt resolution will be conducted on a case by case basis, based on a detailed analysis of each participating farm to determine: how much debt is actually owed, the level of debt write-off (where relevant), repayment terms for remaining debt, and the assignment of this debt to individual farms and/or land parcels within a collective. Participation will be voluntary, but all decisions will be legally binding. Once debt resolution has been agreed, producers should be free to contract with any enterprise they choose in order to finance, process and market their cotton.

Government intervention in the cotton sector should be re-oriented to create an environment more conducive to sustainable recovery and growth. A framework for future public action is outlined below, based on strategic planning, the establishment of suitable mechanisms for grading and certification, and regulations and procedures that allow an adequate supply of appropriate, high quality cotton seed.

- Terminate government use of national production targets and local government control of arable land use in cotton growing areas, as the basis for setting and achieving strategic plans. The objectives of strategic planning for the cotton sector should be to (i) improve incentives by ensuring that producers' are free to use their resources as they choose, and can benefit fully from their labor and management; (ii) ensure full competition among processors, marketing agents and input suppliers; and (iii) to create a modern, transparent regulatory environment.
- Terminate local government control of where producers obtain credit and gin their cotton, and introduce and enforce anti-monopoly policies and procedures to ensure that investors' and ginneries engage in full competition.
- Abolish all internal movement controls of cotton to ensure that producers can process and market their cotton wherever they choose.
- Introduce a new cotton grading system based on the USDA classification system
- Establish an independent, internationally certified grading agency which operates with full transparency in the interests of producers, processors and buyers.
- Reform seed regulations to allow the import of improved varieties of cotton seed, and establish appropriate mechanisms for monitoring seed quality and providing adequate information to users.

Government should also rationalize cotton tax and price policy by:

- Reducing the discounts in the TUGE pricing formula,
- Assessing the export tax on an ex-works cotton fiber price rather than an *fob* price

- Removing the current requirements which: set official prices as minimum rather than maximum prices, restrict exporters to sales on *fob* terms, and oblige exporters to fix prices at the date of receipt of pre-payment.

Both the private and public sectors will benefit from these changes, as a result of higher export prices, higher producer prices and sector income, and increased tax revenue.

Sustainable growth of cotton production and exports will also depend on strong private sector activity, based on active competition between processors, marketing agents and input suppliers, and more efficient on-farm production. The policy changes described above to allow producers to choose where they process and market their cotton are the starting point for achieving this objective. Obliged to compete for seed cotton through higher prices, ginneries will be forced to improve outturn rates and management efficiency in order to obtain adequate raw material. They will also have to pay a fair price for byproducts. Without local government coercion of producers', investors' will also be obliged to compete with each other, through more favorable pricing of both farm inputs and cotton fiber.

This competition should be broadened and strengthened by encouraging other agents to enter the market. The introduction of an auction system run by the TUGE would provide an important new dimension to the market in this context, by bringing more international buyers to Tajikistan and allowing producers to market their own output. These auctions would also provide an additional source of market information for producers. This information, together with the new certification system, would also put producers in a much better position to judge whether processing and marketing enterprises are paying fair prices.

### **2.3     *Improve Access to Rural Finance***

The cotton debt crisis has highlighted both the danger of heavy reliance on commodity based credit and the extreme weakness of the current alternatives to cotton credit. Measures to improve access to rural finance must thus be broad-based, encompassing initiatives to strengthen all bank and non-bank financial institutions, and the capacity and incentives for rural lending.

**Financial Deepening:** The constraints faced by bank and non-bank financial institutions can be redressed by the following initiatives to strengthen both urban and rural lending.

- Relax the restrictions on foreign ownership and management of commercial banks, in order to strengthen the quality of management and increase access to capital.
- Develop primary and secondary financial markets.
- Strengthen commercial bank management and the quality of supervision by the National Bank of Tajikistan. Coupled with increased competition, these measures will improve efficiency, allow lower interest spreads, and reduce loan interest rates.
- Improve the incentives and reduce the risks of lending by strengthening the legal framework for secured transactions
- Improve the capacity to collateralize loans by developing reliable, accessible registries for moveable and immovable assets.
- Widen the potential range of collateral instruments, including the introduction of warehouse receipts.
- Strengthen the institutional and capital base for leasing.
- Increase donor support for non-bank financial institutions through technical assistance and concessional credit lines.

**Rural Lending:** The following, additional measures will support the expansion of rural lending.

- Resolve the cotton debt crisis.
- Strengthen the capacity of bank and non-bank financial institutions to appraise agricultural loans, and manage an agricultural loan portfolio.

- Increase the access of rural lenders to concessional credit lines, particularly for medium and long-term credit.
- Broaden the base for rural credit through support for supplier credit, credit cooperatives and leasing companies.

Numerous programs have already begun to address these issues. This support should be increased and expanded, with greater emphasis on access to rural finance, diversification of the financial sector (institutions and instruments), and the development of strong skills for rural lending.

## **2.4 Diversify the Production Base**

A more diversified production base will further enhance the capacity for sustainable growth and poverty reduction. Increased horticulture and livestock production offer significant, readily accessible potential in this context, as both are proven elements of the agricultural sector with the ability to grow. Diversification also creates more opportunities for households to stabilize income, an important factor for small-scale cotton producers who need a stronger capacity to offset adverse changes in world cotton prices. At sector level, greater emphasis on livestock and horticulture production and exports broadens and strengthens the basis for growth.

### **2.4.1 Raise Livestock Productivity and Production**

Inadequate feed intake, particularly during winter, is the fundamental constraint to livestock production. Estimates of aggregate feed production and aggregate livestock feed requirements show that available feed is 40%-67% of basic requirements on an annualized basis, and that this percentage falls sharply in winter. If the livestock sector is to increase its contribution to agricultural output and realize its obvious potential, either livestock numbers must fall or feed production must rise. Given that livestock numbers continue to rise, increased feed production coupled with improved livestock husbandry are the basis for progress.

Policies and programs to support the following measures are the basis for achieving this progress:

- Increase the production of fodder crops, particularly alfalfa, and their role in crop rotations. Maize and improved pasture should also be better managed to raise yields and the quality of output.
- Improve the quantity and quality of conserved winter feed through better weed control, harvesting and conservation practices.
- Strengthen the community management of near and village pastures to reduce overgrazing.
- Improve the community level grazing management of summer pastures, and the costs and returns of herding.
- Improve the roads, tracks and bridges which give access to summer grazing areas.
- Prevent year round mating and synchronize breeding to achieve calving/lambing in spring when pasture growth resumes after winter.
- Improve farmer knowledge of modern, low-cost techniques of grazing and pasture management, feed rations, the management of young stock and livestock disease prevention.

Through improved feeding and management, producers will be able to increase milk production per lactation and reduce the breeding interval – the key determinants of livestock productivity. Potential benefits from these changes are significant. Annual milk production could be increased by at least 50%, the total number of calves reared could be more than doubled, lambing percentages could be increased to 100% and kidding percentages to 150%.

### **2.4.2 Expand Horticulture Production and Exports**

There is a significant capacity to expand horticulture production and sales on both domestic and export markets. Government has recognized this with a development plan that aims to double fruit production by 2010, by increasing cropped area, introducing new varieties and rehabilitating orchards. The strategy outlines a broader approach, based on measures to (i) revitalize production and processing; (ii) improve the environment for private sector activity; and (iii) improve market integration and efficiency. As 80% of all households (rural and urban) are involved in horticulture production, the benefits of this expansion will be widely shared.

As the markets in which Tajik horticultural products compete are changing rapidly, measures to increase output must be accompanied by measures that improve the ability to compete on these markets. The objective should be to increase value-added rather than production, by re-orienting and raising production and processing, based on the following initiatives:

- Identify and introduce the varieties of fruit and vegetables that correspond to consumer demand in major domestic and export markets.
- Introduce modern, low-cost farm management systems to improve yields and product quality.
- Introduce more appropriate contractual agreements between producers and processors, with greater incentives to improve product quality.
- Increase access to seasonal credit to finance fertilizer, chemicals and new seed varieties
- Increase access to medium-term credit to facilitate the planting of orchards, and investment in processing plant, and storage and packaging facilities.
- Provide technical assistance to processors to help them improve efficiency, increase product quality, develop new products, identify new markets and develop and implement medium-term business and investment plans.

Government can also do much to improve the environment for private sector activity, by lowering the costs and the risks of business activity. Priority should be given to the following measures:

- Harmonize official product standards with international standards.
- Work with commodity or industry groups to develop market information systems
- Reduce the high transport and transaction costs incurred by the need to bribe traffic police and customs officials.
- Improve contract enforcement through legislative reform and measures to strengthen the courts.
- Continue efforts to negotiate trade, transport and border crossing agreements as a means to lower export costs and improve access to international markets.
- Remove the disincentives created by the current tax system, with particular emphasis on reducing corruption and improving the efficiency for assessing and reimbursing VAT.

New approaches to agro-processing and marketing are needed to resolve both demand and supply constraints, based on pooled supply and the establishment of horizontal and vertical market linkages. By working together, smallholders will acquire the economies of scale necessary to engage in processing, exporting and bargaining. Pooled resources will also give them the opportunity to vertically integrate and enter other areas, such as adding value by sorting and packing. It can also reduce risks and increase bargaining power towards buyers, shuttle-traders, input suppliers, etc. Most importantly, it should increase producers' share of retail prices.

Mechanisms to increased cooperation between these value-adding groups, including producers, processors and packers, will further increase efficiency. The creation of specific "platforms", or vertical alliances for various commodities will increase market integration by allowing all stakeholders to meet, exchange information, differentiate products and their specific strategic needs, and enhance coordination within each supply chain. It will also increase stakeholders' awareness of market needs and competition and how to react to new market conditions. Two separate platforms should be promoted initially, fruit trees and annual fruits and vegetables. These platforms should be informal to begin with, but should aim to develop legal recognition and powers of contract enforcement in the longer term.

## ***2.5 Institutional reform and strengthening***

Far-reaching institutional reform and strengthening is required at all levels of government as the basis for implementing new, market-oriented policies. Central Government should lead these reforms by re-defining roles and responsibilities at all levels of government. Local governments should receive particular attention in this regard, in order to change their focus from the enforcement of central planning style production targets and control of private sector activity, to the development and administration of local infrastructure and services.

Beyond this broad imperative central government measures are needed to ensure that: scarce government and donor resources for public investment are allocated to programs which enhance growth and poverty reduction; restrictions on the foreign ownership and management of Tajik commercial banks are removed, as a means to facilitate foreign investment in the banking sector; a national transport strategy is developed and funded, with clear priorities for investment in specific road and rail links; and current tax policy is reviewed to ensure that net taxes (after transfers) on producers, cotton exports and collective activity (farm associations and water user groups) are affordable for the majority of farmers. The capacity for agriculture policy formulation should be strengthened, and eventually transferred from the Presidents Office to the Ministry of Agriculture.

The Ministry of Agriculture should clearly define its roles and responsibilities, with an emphasis on policy formulation, animal health, phytosanitary regulation, research and extension, and information provision. Public participation in plant and animal breeding should be transferred to the private sector, and relevant laws and regulations should be amended to facilitate private sector import of improved seed varieties. Donor support should be obtained to re-structure the ministry in response to this mandate, and to train staff accordingly.

The Ministry of Water Resources and Land Reclamation should also re-define its roles and responsibilities, with emphasis on policy formulation; the regulation, monitoring and analysis of water use; setting and collecting water use fees; drafting of water use laws and regulations; the design and establishment of institutional structures for river-basin based water resource management; maintaining selected irrigation infrastructure; and the facilitation of water resource management by Water User Associations (WUAs). All public participation in the design, construction and maintenance of irrigation infrastructure should be transferred to the private sector. Variable water-use fees which reflect the true costs of water extraction and utilization should also be introduced, together with measures to broaden and strengthen the role of WUAs.

## ***2.6 Strengthen and integrate agricultural markets***

Much can be done to improve market integration through measures to lower unit transactions costs. Collective marketing activity is a powerful and underused vehicle to this end, with the added advantage that it also improves market access, and bargaining power. Guidance on organization, product selection and quality control, and contract negotiation are all essential inputs to this process. Commodity supply chain development offers a further means to lower transaction costs and improve efficiency. Farm input markets will benefit from the removal of investor monopsonies, improved access to seasonal finance, and easier access to imported seeds. Full market integration will require significant improvements to transport infrastructure, however, together with a reduction of bribes and corruption, and more efficient border transit.

## **I. INTRODUCTION**

### **1.1 Background**

Agriculture sector growth has made a powerful contribution to post-war economic recovery in Tajikistan, accounting for approximately one third of overall economic growth from 1998 to 2004. Sector output increased by 65% in real terms during this period, and has now returned to the level extant at independence in 1990. Total factor productivity (TFP) has also increased, by 3% per year. Rural poverty has fallen significantly in response to these trends; with 65% of rural people below the poverty line (\$2.15/day PPP) in 2004, compared to 82% in 1999. Political and economic stability and economy wide growth provided the base for this impressive performance, and the substantial associated increase in household food production. In addition, a huge inflow of remittance income has fuelled both the demand for agricultural products, and the means to produce them. Current forecasts suggest that these economy-wide trends will continue.

Despite this progress, there is legitimate concern that this growth is unsustainable. Evidence suggests that it has been driven largely by the external factors noted above, rather than substantive changes to resources, incentives and the behavior of factor and commodity markets. First, an extensive program of policy reform, particularly in the area of land ownership, has yet to make a substantial impact on the incentive structure for agricultural workers cultivating the majority of arable land. Second, sustainable growth requires positive net investment. Yet declining capital and out-migration have been the major sources of increased TFP, rather than increased output in response to higher input use and increased technology adoption. Third, commodity markets remain weak, with a limited capacity to translate increased demand into improved production incentives. And fourth, growth in crop production, which accounts for 80% of sector output, has been largely driven by low value food and cereal crops. Cotton production, which dominates sector output, has stagnated. A more sustainable basis for future growth is required, based on deeper factor markets for land and capital, stronger commodity markets, increased technology transfer, and improved producer incentives.

The strategy for agriculture sector development presented below responds directly to these concerns, identifying the priority reforms and actions required to achieve sustainable growth. Chapters I and II provide the context for strategy design. Current macro-economic trends and their implications for future sector development, and an overview of agriculture in the economy are described in chapter I; and the implications of recent sector growth for rural poverty are reviewed in chapter II. The key policy and institutional issues affecting sector development are reviewed in chapter III. The strategy is outlined in chapters IV, V and VI. Chapter IV focuses on the pillars of sustainable sector growth - land privatization and cotton sector reform; and chapter V outlines the principal measures needed to broaden the base for sustainable growth of rural incomes – rural finance and increased livestock and horticulture production. Further measures to strengthen public institutions and agricultural markets are presented as cross-cutting issues. Chapter VI concludes the strategy with the basis for sequencing reform and a policy and program matrix.

### **1.2 Macro-Economic Characteristics, Trends and Implications for Sector Development**

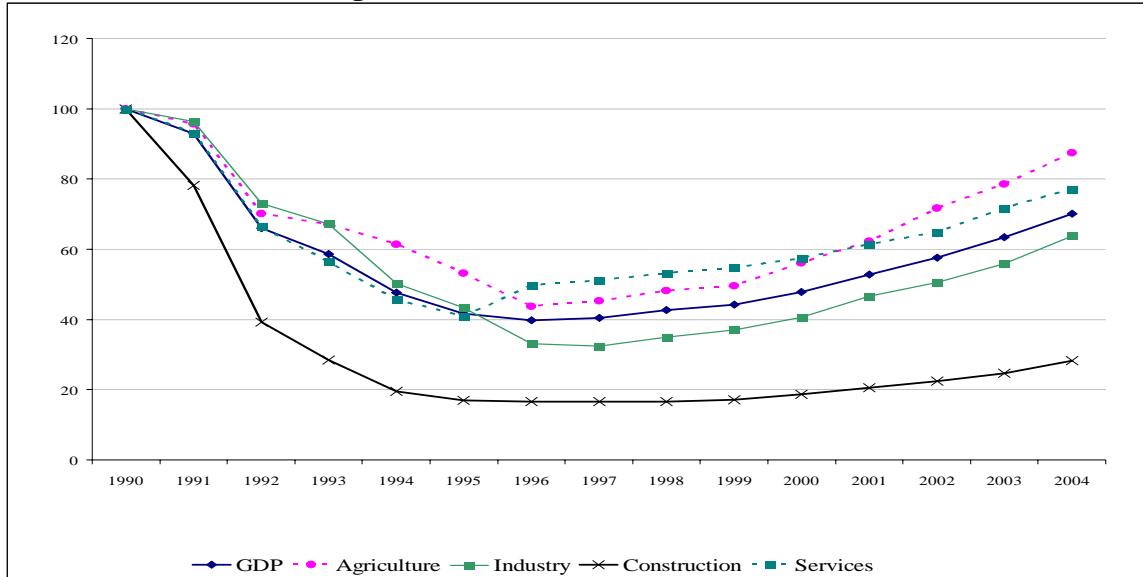
Tajikistan is a small, open, landlocked economy, with a narrow economic base dominated by the production of aluminum, cotton and electricity<sup>1</sup>. Sparsely inhabited mountain terrain accounts for 70% of the total area of 143,100 km<sup>2</sup>, splits the country into four disparate regions, and makes transport between them difficult. In the winter months all road and rail travel between north and south must pass through neighboring Uzbekistan. The rail link through Uzbekistan also carries 95% of exports. These characteristics make Tajikistan's economy highly vulnerable to the vagaries of regional politics, international markets and climate.

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<sup>1</sup> Aluminum, cotton and fruit and vegetables constitute 40% of GDP, 70% of exports and 10% of fiscal revenue (IMF, 2005).

The poorest member of the former USSR, Tajikistan's economic development was further compromised after independence in 1990 by an abrupt termination of economic support from Russia, and a civil war from 1992-1997. By 1997, GDP had fallen by 60% to \$175/capita. Economic recovery began in 1997, after the end of the civil war. Improved political and economic stability provided the base for this recovery, which was enhanced by favorable prices for cotton and aluminum, strong regional economic growth (particularly in Russia), a substantial flow of remittance income from Russia<sup>2</sup>, and increased support from the international community. Agriculture and the service sector have been the major beneficiaries of these influences (Figure 1).

**Figure 1: GDP and Sector Growth Rates**



GDP has grown by 8-10% per annum since 2000, and the IMF forecasts growth of 6-7% per annum for 2006-2007. Fiscal and monetary policy has also been strengthened during this period, increasing economic stability. Inflation fell from 39% in 2001 to 7.0% in December 2005; the fiscal deficit has remained at less than 3% of GDP, despite a significant increase in internally funded public investment; the current account balance has remained stable (at 3.7% of GDP) since 2002, despite increased imports; and external debt has been halved since 2001 following debt write-offs by Russia and Pakistan. These trends are detailed in Table 1.

Tajikistan remains deeply poor (GDP of \$310/capita in 2004) despite this progress. The domestic market is constrained by a small population and low incomes, and the country's geography and location create formidable barriers to both internal and external trade. Infrastructure development is difficult and expensive, and several key road projects have yet to be fully funded. A weak tax base (16% of GDP) inhibits not only public investment in infrastructure but also the capacity to maintain existing infrastructure. Slow and incomplete reform continues to impede private sector development, and there are significant capacity constraints in both the public and private sectors. High transaction costs caused by widespread corruption and inappropriate regulation are further impediments to private sector growth. Private investment is inhibited by the small size of the banking sector (total lending in 2005 was only 4.5% of GDP, and deposits were only 5% of GDP), high interest rates and limited access to medium-term capital. The non-bank financial institutions which lend for cotton production are more important sources of credit than banks, providing 75% of the total credit to the private sector; but these institutions are now in serious financial difficulty. Tajikistan's extreme vulnerability to external shocks adds a further dimension to these challenges and constraints. Just as positive changes in international markets (cotton and aluminum), regional politics (transport through Uzbekistan) and the Russian economy (remittances and trade) can significantly enhance growth, adverse changes in these factors can severely retard it. The ability to absorb these shocks is further compromised by the country's narrow economic base.

<sup>2</sup> Estimates of remittance income in 2004 range from \$252 million to \$587 million per year, equivalent to 12%-28% of GDP (World Bank, 2006)

<b>Tajikistan: Key Economic Indicators</b>						
<b>Indicators</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
GDP, US\$ mln	1,087	980	1,104	1,238	1,553	2,078
GDP growth, percent	3.7	8.3	10.2	9.1	10.2	10.6
CPI inflation, average, percent	27.5	32.9	38.6	12.2	16.4	7.1
In percent of GDP unless otherwise indicated						
Total Revenues and Grants	13.5	13.8	14.9	16.6	17.3	17.9
Total Expenditures and Net Lending	16.6	19.3	17.9	19.0	19.1	20.6
Current Expenditures	13.2	12.6	13.0	13.6	12.6	12.5
Capital Expenditures	4.4	6.7	5.0	5.4	6.5	8.1
Of which: Externally funded PIP	0.9	4.0	2.1	2.3	2.7	3.1
Fiscal Balance <sup>3</sup>	-3.1	-5.6	-3.1	-2.4	-1.8	-2.7
Current account balance	-0.9	-6.2	-6.6	-2.7	-1.3	-3.9
Exports	61.3	80.4	59.0	56.5	51.4	44.0
Aluminum, in percent of exports	42.6	53.8	61.1	57.0	53.8	62.6
Cotton, in percent of exports	13.9	11.7	11.0	18.3	24.1	17.7
Imports	63.7	82.8	70.4	66.6	64.6	60.0
Alumina, in percent of imports	18.7	24.5	23.8	22.8	23.5	26.8
Oil products, in percent of imports	8.6	7.7	9.4	8.5	7.9	8.2
Energy, in percent of imports	25.9	25.1	12.7	9.9	6.1	5.3
Worker remittances, US\$ m	n.a.	3.5	47.5	65.4	189.3	312.7
In millions of US dollars						
External Debt Stock	1,233	1,226	1,017	1,007	1,031	822
Memo Item:						
Exchange Rate, TJS per US\$ 1.00	1.24	1.82	2.32	2.73	3.06	2.96
Gross International Reserves, US\$ m	58.1	87.2	95.7	96.2	135.4	189.3
In months of imports	1.0	1.3	1.5	1.4	1.6	1.8

Sources: Goscomstat, Ministry of Finance, IMF and WB staff estimates

Under these conditions continued prudence in fiscal and monetary policy remain essential pre-conditions for economic growth, together with deeper reforms to facilitate private sector activity. Effective management of exchange rates, public investment, taxation and financial sector development will be especially important for the agriculture sector. Exchange rate stability has increased as a result of more effective exchange rate management by the National Bank of Tajikistan (NBT). The real exchange rate continues to appreciate moderately, nevertheless, although it is not yet a threat to competitiveness as wages remain low by regional standards. The current outlook for inflation and exchange rate stability is thus favorable, but it will ultimately depend on the impact of remittances and trade flows on the external current account deficit – both of which are largely exogenous. A budget deficit of 0.5% of GDP is forecast for 2006, based on increased public expenditure and higher tax revenue. Much of the increase in public expenditure will result from increased public sector salaries.

<sup>3</sup> Including Public Investment Program

Tajikistan has an open trade policy, with an export to GDP ratio of 47% in 2005. Tariffs are low (7.5% on average) and there are few, official non-tariff restrictions to trade. Significant natural and regulatory barriers to trade exist, however, due to the country's isolation and land locked position, and the need to ship goods through Uzbekistan or Kyrgyzstan. These barriers not only impose significant transaction costs, but also create uncertainty and instability in trade relationships. Trade is characterized by reliance on a small number of export commodities. Cotton, aluminum and electricity account for approximately 85% of exports, which creates a high level of vulnerability to changes in world prices. This combination of geographic isolation, high transaction costs, and vulnerability to world prices creates a challenging environment for international trade. It also underlines the need for a more diversified economic base -- a need to which agriculture can respond.

### **1.3 Agriculture in the Economy**

With 24% of GDP, 66% of employment, 26% of exports, and 39% of tax revenue the agriculture sector is a major component of the Tajik economy. Sixty-four percent of the population (4.3 million people), depend on agriculture for their livelihoods. As noted above, the sector has accounted for one-third of observed economic growth since 1997; and this growth has made a major contribution to the fall in rural poverty.

#### **1.3.1 Land Use and Irrigation**

The agricultural resource base is characterized by limited arable land, heavy reliance on irrigation for crop production, and substantial areas of permanent pastures. Of the 4.1 million ha of agriculture land, some 850,000 ha are arable, equivalent to only 0.21 ha/capita of the rural population. Approximately 85% of arable land is irrigated (720,000 ha), but only 515,000 ha is currently in use<sup>4</sup>. Low-cost, river-fed gravity systems supply approximately two-thirds of irrigation, and pump systems the rest. Cotton, wheat, fruit and vegetables are the main irrigated crops. In contrast to the high pressure on arable land, the 3.3 million ha of permanent pasture provide a stronger resource base for livestock production. All land is owned by the state. Productivity is very low, not only in comparison to Western Europe, but also compared to other, similar developing countries (Table 2).

<b>Table 2: Comparisons of Agriculture Land Use, Input Use and Productivity</b>									
	<b>Value-Added/ha (arable)<sup>a</sup></b>	<b>Arable Land per capita<sup>b</sup></b>	<b>% Arable Land Irrigated<sup>b</sup></b>	<b>Fertiliser Use Kg/ha arable land<sup>b</sup></b>	<b>Wheat Yield<sup>c</sup> ton/ha</b>	<b>Cotton Yield<sup>c</sup> ton/ha</b>	<b>Potato Yield<sup>c</sup> ton/ha</b>	<b>Milk Yield<sup>c</sup> Lt/cow</b>	
Armenia	\$1126	0.16	50.2	157	2.19	na	14.71	1781	
Azerbaijan	\$484	0.22	72.6	63	2.58	1.52	13.08	1070	
Uzbekistan	\$651	0.18	88.7	1614	3.72	2.27	16.45	1592	
Kyrgyzstan	\$411	0.27	75.6	208	2.37	2.63	18.44	2148	
Tajikistan	\$350	0.21	68.0	175	1.87	1.91	17.87	762	
EU-15	na	0.21	19.8	2032	5.55	3.13	35.25	6181	

<sup>a</sup>Data for 2002; <sup>b</sup>Data for 2004; <sup>c</sup>Average for 2002-2004.

Sources: World Bank Indicators (Value-Added \$US); FAOSTAT Agriculture.

Sustainable water resource use is critical for agriculture sector growth. Recognizing this, donors and government have initiated numerous programs of rehabilitation and legislative and institutional reform, including the establishment of Water User Associations (WUAs). Investment and operational needs far exceed available resources however, and irrigation and drainage systems in many areas continue to deteriorate. Expenditure on operations and maintenance (O&M) has fallen from \$88/ha in 1990 to \$14.30/ha in 2003; versus requirements of \$21-28/ha for gravity fed systems and \$60-\$150/ha for pump-fed systems (ADB, 2004). Land privatization has also contributed to this deterioration, as no agency or institution has been assigned responsibility for the secondary drainage and irrigation canals which were formerly the responsibility of the kolkhoz and sovkhoz. Salinity has increased as a result.

<sup>4</sup> Approximately 90,000 ha has been abandoned and a further 115,000 ha have been lost to salinization.

### 1.3.2 Farm Structure and Land Ownership

Farm structure is based on three systems of farm ownership and production: (1) large, capital-intensive state and collective farms carried over from the soviet system; (2) smaller, dehqon farms created from state and collective farms as a result of land reform, which confer inheritable usufruct rights on their new owners; and (3) labor-intensive household plots of 0.1- 0.3 ha, which government grants to all households (Table 3).

**Table 3: Characteristics of the Main Farm Categories in Tajikistan, 2003**

	Household Plots	Dehqon Farms	State and Collective Farms	Total, All Farms
Number of Farms	Na	19,565	267	Na
Average Arable Land Area	0.1-0.3 ha	21 ha	354 ha	Na
Arable Land (ha)	140,000	444,000	228,000	812,000
% of Total	17.2%	54.7%	28.1%	100.0%
Irrigated Land (ha)	80,000	318,000	177,000	592,006
% of Total	13.9%	55.3%	30.8%	100.0%
Crop Yields				
Cotton	Na	1.85	1.82	Na
Wheat	2.17	1.90	1.90	Na
Number of Cattle	1,062,124	42,601	114,254	1,218,979
% of Total	87.1%	3.5%	9.4%	100.0%
Number of Sheep and Goats	1,907,884	146,859	537,720	2,592,463
% of Total	73.6%	5.7%	20.7%	100.0%
Gross Agric Output (thousand Somoni)	540,267	197,483	271,119	1,009,229
% Contribution	53.6%	19.6%	26.0%	100.0%
GAO/hectare arable land	2771 Somoni/ha	822 Somoni/ha	600 Somoni/ha	1138 Somoni/ha
Contribution to Sector Growth: (1999-2003)	50.8%	36.9%	12.3%	100.0%

Sources: Goscomstat; Own calculations,

These three categories differ not only in terms of area and factor intensity, but also in the rights of individual owners to choose what they produce and to appropriate the returns. State and collective farms pay a wage to their members, and provide little opportunity for individual gain or incentive. In principle, dehqon farmers have more individual incentive to raise production and benefit from their labor and investment. In practice continued application of production targets for cotton, and the retention of collective management systems limits these benefits. Production on household plots is largely free of state interference. Households can choose what they produce, and consume or sell their output as they wish.

These differences in incentives have a much greater impact on output than differences in size and/or factor intensity. Despite their small size and limited land base, household plots are not only the largest source of output but also the most productive and fastest growing (Table 3). Dehqon farms have yet to markedly improve their production and productivity relative to state farms, due to the limited improvement in producer incentives.

### 1.3.3 Trends in Agricultural Output

The structure of agricultural output changed significantly after independence, due to changes in the pattern of crop production and a fall in livestock numbers (Table 4). The contribution of crops increased from 60% to 80% of gross agricultural output as a result. The following changes are of particular significance:

- A significant fall in the area of fodder crops;

- A substantial increase in the area sown to wheat after 1995;
  - The area allocated to cotton production declined initially but has recovered gradually since 1997, and is now close to pre-independence levels;
  - A steady increase in the total area cropped since 1995, which now exceeds the total area sown prior to independence.

Of these trends, the increase in wheat production and other food crops is the most significant change. Food supply increased as a result, and this undoubtedly contributed to the reduction in poverty. Crop production has also grown much faster than livestock production, accounting for 80% of sector growth from 1999-2003. But lower value food and cereal crops now account for almost half of arable land use, reducing the sector's capacity to contribute to future economic growth. The environmental impact of these changes is also of concern in that much of the increased area allocated to wheat production is on marginal land. Continued expansion of the total area cultivated suggests that this trend is continuing. Given the high risk of soil erosion on Tajik agricultural land, increased pressure on marginal land is a matter of great concern. The growing incidence of land subsidence in rural areas attests to the environmental consequences of this trend.

**Table 4:** Changes in the Composition of Crop and Livestock Output

	Average Crop Area		Change (ha)	% Change	Crop Composition (%)	
	1991-1995	1999-2003			1991-1995	1999-2003
Cotton	281,700	260,200	-21,500	-7.6%	35.6%	30.4%
Wheat	179,200	327,600	148,400	82.8%	22.6%	38.2%
Other Cereals	80,200	69,500	-10,700	-13.3%	10.1%	8.1%
Industrial Crops	14,800	34,900	20,100	135.5%	1.9%	4.1%
Potatoes	11,900	23,800	11,900	100.0%	1.5%	2.8%
Veg & Melons	36,200	41,700	5,500	15.1%	4.6%	4.9%
Fodder Crops	188,200	98,900	-89,300	-47.4%	23.8%	11.6%
Average Numbers		Change in #		% Change		
Cattle	2,102,400	1,540,600	-561,800	-26.7%	na	Na
Sheep and goats	4,257,400	3,535,600	-721,800	-17.0%	na	Na
Pigs	40,900	1,000	-39,900	-97.6%	na	Na
Horses	55,000	71,800	16,800	30.5%	na	Na

Source: Goscomstat

Crop yields have also increased substantially since 1998 (Table 5), due largely to increased fertilizer use. Political and economic stability has not only resulted in better access to fertilizer, but also greater incentive to use it. Fertilizer use remains inadequate nevertheless, together with poor access to improved seeds and seasonal credit. Wider use of restorative crop rotations is also needed to improve soil structure and fertility, which have been heavily depleted by over-cropping cotton. With increased fertilizer use, better seed and improved crop husbandry there is considerable potential to further increase yields and so production and productivity. These are all low-cost, scale neutral improvements to management, which are readily accessible to small-scale farmers and generate rapid returns.

**Table 5:** Trends in Crop Yields, 1998-2003 (tons/ha)

	Average Yield 1998-99	Average Yield 2002-03	% Change in Yield
Wheat	1.2	1.9	59.4%
Barley	1.1	1.9	63.7%
Cotton	1.4	1.9	36.3%
Vegetables	11.4	15.0	32.6%
Potatoes	11.1	16.6	50.0%
Melons	7.3	11.2	53.9%

Source: Goscomstat

While livestock numbers fell after independence, the overall structure of production changed little (Table 4), with cattle and sheep still the main sources of farm income, (except for pig production, which has almost disappeared). Recovery has been slow for sheep and cattle, due to the loss of fodder crops, which severely limits the number of animals that can be wintered. In contrast, goat, yak and horse numbers have increased steadily and now exceed the numbers extant at independence. The most important changes for livestock production are due to changes in ownership, and the relative importance of small versus large-scale production systems. Small-holder production systems now predominate and continue to expand, while livestock production is static on state and collective farms.

### **1.3.4 Agricultural Mechanization**

An inadequate stock of farm machinery is widely viewed by producers and domestic policy makers as a major constraint to crop production. Indeed, most of the current machinery park consists of obsolete, soviet-era tractors and equipment in poor repair; and official statistics show a significant decline in the number of tractors, harvesters and farm equipment (Table 6).

<b>Trends in Farm Machinery Numbers and Use: 1991-2004</b>					
	<b>1991</b>	<b>1996</b>	<b>2000</b>	<b>2004</b>	<b>% Change</b>
Tractors	35156	32374	24007	21150	-39.8%
Arable land/tractor (ha)	22.9	23.4	30.4	33.8	47.5%
# Farms/tractor	Na	0.1	0.6	0.8	na
Ploughs	9439	8280	5566	4879	-48.3%
Arable land/plough (ha)	85.3	91.7	131.2	146.5	71.7%
# Farms/plough	Na	0.4	2.4	3.4	Na
Seeders	6242	5465	4191	3915	-37.3%
Arable land/seeder (ha)	129.1	138.9	174.2	182.6	41.5%
# Farms/seeder	Na	0.6	3.2	4.2	na
Grain Harvesters	1470	1497	1199	1038	-29.4%
Cereal Area/harvester (ha)	548	507	609	689	25.7%
# Farms/harvester	Na	2.1	11.0	15.2	Na
Cotton Harvesters	3065	Na	na	867	-71.7%
Cotton Area/harvester (ha)	263	Na	na	825	213.8%
# Farms/harvester	Na	Na	na	15.8	na

Despite this decline, the official statistics suggest that there are still enough tractors in aggregate, relative to the area cultivated and the number of farms. More harvesters and cultivation equipment are needed, however, and this may be a more critical constraint given the time bound nature of cultivation and harvesting. Official statistics also afford little insight into the difficulties of repairing and maintaining such old tractors and equipment, especially when cash is limited; and the implicit costs incurred by reliance on outdated equipment and cultivation practices.

Substantial investment in tractors, harvesters and farm equipment is not a panacea for agricultural mechanization. New approaches to mechanization are required first, which respond to the new reality of small farms and low cost production systems; and which take full advantage of modern, low cost cultivation practices and appropriately scaled tractors, harvesters and equipment. Producer access to farm machinery must also be improved, especially for low income households. More village based machinery hire operators are needed, and new forms of joint ownership should be developed. These measures offer cost effective ways to improve access to farm machinery without incurring the full costs of ownership.

### 1.3.5 Agricultural Trade

Agricultural trade is very narrowly based. Cotton accounts for 75%-90% of exports, and fresh and processed fruit and vegetables for a further 8%-15% (Table 7). Export revenue from cotton is vulnerable to changes in world prices, and export revenue from fruit and vegetables is vulnerable to changes in the Russian market, which absorbs approximately 95% of this trade. The Russian food market is evolving quickly as consumer income grows and international supermarkets expand, which is making it increasingly difficult for Tajik products to compete. An active, unofficial trade in fruit and vegetables with neighboring countries is also vulnerable to political events. Wheat, flour and edible oils are the main food imports, but these account for less than 5% of total imports. Most farm inputs (fertilizer, agricultural chemicals and fuel) are imported from neighboring countries. While this reduces transport costs, it also lowers input quality and renders supply vulnerable to regional political instability. These factors demonstrate the need for a much more diversified trade base, in terms of both commodities and markets.

	<b>Trade in Agricultural Products ('000 \$US)</b>				
	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>Exports</b>					
Cotton	76,696	68,725	Na	118,444	186,320
Processed Fruit and Veg	7,139	10,445	Na	8,424	8,983
Fresh Fruit and Veg	7,147	7,017	Na	6,180	7,598
Silk and Silk Products	236	174	Na	1,960	1,216
Animal Skins	173	314	Na	150	595
Tobacco	4,760	5,557	Na	870	964
Total	96,151	92,232	Na	136,028	205,676
As % of Total Exports	14.0%	11.8%	Na	18.4%	25.8%
<b>Selected Imports</b>					
Wheat and Flour	45,628	44,786	Na	35,801	32,231
Other Cereals	591	118	Na	287	405
Edible Oil	2,297	5,736	Na	895	3,308
Total	48,516	50,640	Na	36,983	35,944
As % of Total Imports	7.3%	7.5%	Na	5.1%	4.1%
<b>Memorandum:</b>					
Cotton as % of Ag Exports	79.8%	74.5%	Na	87.0%	90.5%
% Fruit and Veg Exports to Russia	91.6%	97.7%	Na	93.3%	99.0%

Source: Goscomstat

Producers and processors will need to place much more emphasis on product quality in the future, in order to remain competitive on both export and domestic markets. Higher quality products also offer more potential to increase added value and break into new export markets. Donor support will be critical in this context. The public agencies and regulations which currently set and monitor product standards are outmoded and inappropriate; and the private sector currently lacks the experience, resources and expertise to respond to the requirements of sophisticated modern markets.

## **II. SECTOR GROWTH AND RURAL POVERTY REDUCTION**

The significant fall in rural poverty since 1999 shows that economic growth can be a powerful vehicle for poverty reduction. The rural economy also provides a vital safety net in periods of economic hardship. But while the number of rural people below the poverty line has fallen substantially, rural poverty rates have fallen less than urban poverty. Urban poverty fell by 35% from 1999 to 2003 (from 69% to 45%), versus a 20% fall in rural poverty (from 80% to 65%). Given that agriculture was one of the fastest growing sectors of the economy during this period, it is pertinent to examine the reasons for this difference. Of the 3.8 million people living below the poverty line in Tajikistan, 80% (3.0 million people) live in rural areas.

This chapter considers this issue and its implications for agriculture sector development. It begins with an overview of the characteristics of rural poverty and food security, and the determinants of rural poverty reduction. The characteristics of agriculture sector growth are then reviewed and conclusions drawn as to how this growth can be better translated into rural poverty reduction.

### **2.1 Characteristics of Rural Poverty and Food Security**

Analysis of the Tajikistan Living Standards Survey (TLSS) for 1999 and 2003 shows that rural poverty exceeds urban poverty by a wide margin. In both 1999 and 2003, rural poverty was more pervasive, deeper and more severe than urban poverty (Table 8). Regionally, rural poverty was highest and deepest in the cotton growing areas of Khatlon and Sughd, and these two regions also made the least progress in terms of poverty reduction. Rural poverty fell by 6.9% and 12.8% in Khatlon and Sughd respectively, from 1999 to 2003, versus an overall decline of 15.9% in rural poverty. Rural poverty declined much faster in RRS and GBAO. Indeed rural poverty levels were less than urban poverty levels in RRS in 2003, indicating the advantages of a more diversified production base and proximity to a large urban market. Analysis by location adds support to this conclusion, in that peri-urban households had both the lowest level of rural poverty and the highest rate of poverty reduction (from 72.9% in 1999 to 49.7% in 2003). The valley farmers who produce Tajikistan's cotton had both the highest levels of rural poverty and the lowest rate of rural poverty reduction, with poverty rates of 83.4% in 1999 and 68.6% in 2003.

Aggregate measures of household food consumption give a misleading impression that food security is not a major issue in rural areas. Average daily calorie consumption per capita exceeded minimum dietary requirements (2170 kcal) in all regions and all locations in 2003, except GBAO (2008 kcals). This perception of adequate food security is inconsistent with high observed levels of child malnutrition, however, and the more general indicators of rural poverty. Disaggregated analysis shows that food consumption is well below minimum requirements in the lowest income quintile (Q1), and marginally below minimum requirements in Q2. Protein consumption is also very low among Q1 households – indicating that food insecurity is due to inadequacies in both the level and quality of food consumption. Moreover, cereals provide over 80% of the protein requirements for lower income households. These trends are consistent across all regions' and locations and show that food insecurity is indeed a major issue for the poorest rural households.

Extremely low access to basic services is a further indicator of the magnitude of rural poverty. Twenty-two percent of rural households had access to piped water in 2003, 10% had access to piped heating, and only 5% had access to telephones. Poor access to clean water and an inadequate, low quality diet are the main causes of high child malnutrition. Urban households have significantly better access to these basic services.

**Table 8: Poverty Measures (%) in Different Regions of Tajikistan, 1999 and 2003**

	2003			1999		
	Headcount poverty	Poverty gap	Poverty severity	Headcount poverty	Poverty gap	Poverty severity
Dushanbe,	33.33	10.13	4.59	53.98	17.31	7.45
GBAO, urban	37.50	9.86	3.95	93.75	46.50	25.99
GBAO, rural	60.83	20.48	8.96	87.50	42.94	24.96
RRS, urban	45.00	12.98	4.92	56.25	21.61	10.40
RRS, rural	40.00	12.85	5.82	70.57	27.58	14.14
Sugd, urban	51.00	18.80	9.30	75.00	31.17	16.37
Sugd, rural	67.56	22.40	10.10	80.32	33.65	17.15
Khatlon, urban	70.91	30.79	16.43	82.03	34.10	17.92
Khatlon, rural	77.50	31.60	15.69	84.38	37.64	20.47
Tajikistan, urban	44.67	15.61	7.52	68.75	26.98	13.60
Tajikistan, rural	63.75	22.97	10.78	79.67	34.04	18.01
Tajikistan, total	56.78	20.28	9.59	76.70	32.12	16.81
Valleys, rural	68.56	25.79	12.48	83.38	36.21	19.28
Mountain areas, rural	60.20	20.24	8.90	76.91	33.05	17.56
Peri-urban areas, rural	49.69	17.92	8.79	72.92	28.90	14.78

Source: TLSS 1999, 2003

## 2.2 The Determinants of Rural Poverty and Poverty Reduction

Empirical analysis shows that a wide range of factors determine rural poverty status, many of which have direct policy relevance. Of the “non-policy” parameters, two household demographic factors have a strong impact on poverty at all levels of analysis. Poverty rises with household size and falls with education, for both urban and rural households, and in all regions. Pronounced regional differences were also observed. Rural households were most likely to be poor in GBAO and Soghd, and urban households were most likely to be poor in RRS. Both rural and urban households were equally likely to be poor in Khatlon, indicative of the depressed nature of Khatlon’s regional economy. Increased distance to major urban centres also increases poverty, consistent with the impact of high transaction costs on economic activity.

Income levels and composition had a major impact on poverty. Descriptive analysis shows that rural households that rely solely on farm income are much more likely to be poor than households with income from both farm and non-farm business. At a national level, the marginal effect of non-farm income on rural poverty was higher than any other policy-related variables, although further analysis shows that the magnitude of this effect differs widely by region.

Non-farm business activity was not observed among TLSS sample households in GBAO, and very low levels of activity were observed in Khatlon. In contrast non-farm income, was more common in RRS and Sughd, and had a strong positive impact on poverty reduction. Wage employment levels had little observable impact on rural poverty in all regions, a result attributed to very low prevailing wage rates.

Given that poverty occurs more widely among households that rely solely on farm income, it is pertinent to consider the impact of measures to raise farm income. Analysis of cotton production, which is strongly linked to high poverty levels, shows that poverty falls in response to higher cotton farm wages and increased cotton yields. The marked difference between the level of response to these two factors is also instructive. The response elasticity for cotton wages is strong, with a 10% increase in wages leading to a 3% reduction in rural poverty. This is income that farmers receive directly. However a 10% increase in cotton yields during the same period, only leads to a 1% reduction in rural poverty. This discrepancy suggests that farmers are unable to translate increased cotton yields and output into a substantial increase in income.

Remittance income is observed in 31% of rural households versus 23% of urban households. Higher remittance incomes are also associated with lower poverty levels, although causality appears to flow from wealth to remittances rather than in the opposite direction. Most rural migrants originated from RRS (the least poor region), and both migration and remittance income are highest in the upper income quartile. This suggests that migrants from less poor households have a greater capacity to meet the costs of migration (immigration, travel, job search etc), and are perhaps able to find work more easily due to better education.

Unlike most countries land and livestock ownership have a very weak impact on rural poverty in Tajikistan. Land reform has resulted in a more even distribution of land ownership, but this redistribution has not reduced rural poverty, an outcome attributed to inappropriate land privatization and land use policies. Initially, land privatization emphasized the creation of collective dehqon farms, and the issue of Land Share Certificates that named the joint owners of the collective but didn't give them individual rights. As management decisions were still made by former brigade leaders, and the remaining "owners" continued to work as paid laborers, this approach did little to change incentives or income. More recently, land privatization has allowed individuals to take their share of the collective dehqon and create individual farms. The owners of these farms receive a Land Use Title which gives them full land use rights. They also have greater freedom to apply these rights. However the ability to use their land is still heavily circumscribed by local government. In cotton areas local authorities coerce farmers to use 70% of their arable land for cotton, and in all areas local government has wide discretionary powers to appropriate land in the event that it is used "irrationally".

Thus, while land privatization has resulted in a more equitable distribution of land, farmers still lack adequate security of tenure, the freedom to produce and market as they choose, and the incentive to raise production and invest. Its impact on poverty has been negligible as a consequence. Regression analysis shows that the issue of land share certificates has no effect on poverty levels, and that the impact of land use titles is extremely small. A one percent increase in the number of land use titles issued results in a 0.06% decrease in the proportion of households below the poverty line.

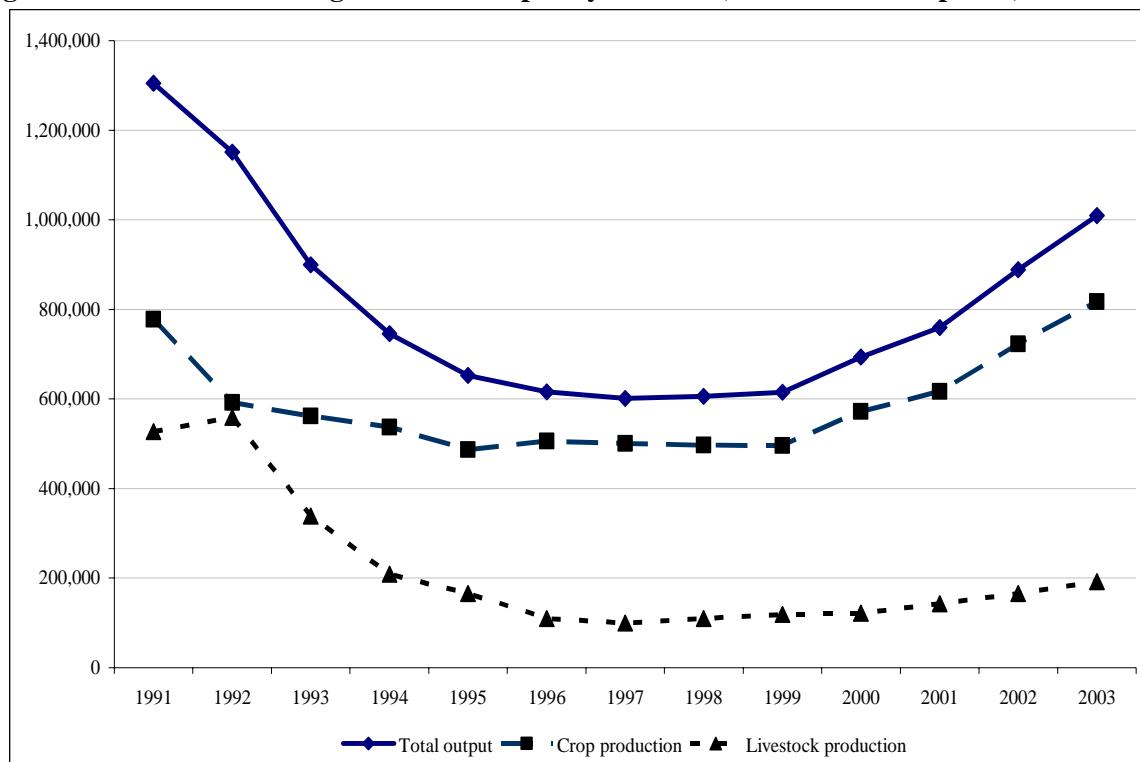
Livestock are widely owned. Within regions, there is no major difference in ownership levels across income quintiles, and these differences actually narrowed slightly from 1999 to 2003. Greater differences occur between regions, with lower levels of livestock ownership in RRS and high levels of ownership in GBAO. Most of the growth in livestock output value is due to higher prices, which lowers the ability of poor households to increase animal protein consumption. Livestock productivity increased slightly but remained very low and livestock numbers increased mainly in mountain areas where grazing land is more abundant. Other than in GBAO, these changes generated limited benefits for lower income rural households, particularly in the valley areas where rural poverty is concentrated.

## 2.3 Analysis of Sector Growth

Empirical analysis of poverty reduction from 1999 to 2003 shows that it was driven largely by growth, with a minimal contribution from income redistribution. Both the contribution of growth and the decline in income inequality were much higher in urban than in rural areas, resulting in the higher reduction in urban poverty. Note that agricultural sector growth is essential for rural poverty reduction, not only for farmers but also for non-farm rural households who benefit substantially from the strong multiplier effects of agriculture growth. These multiplier effects are high for agriculture because they are oriented towards domestically produced goods and services that make use of underemployed labour.

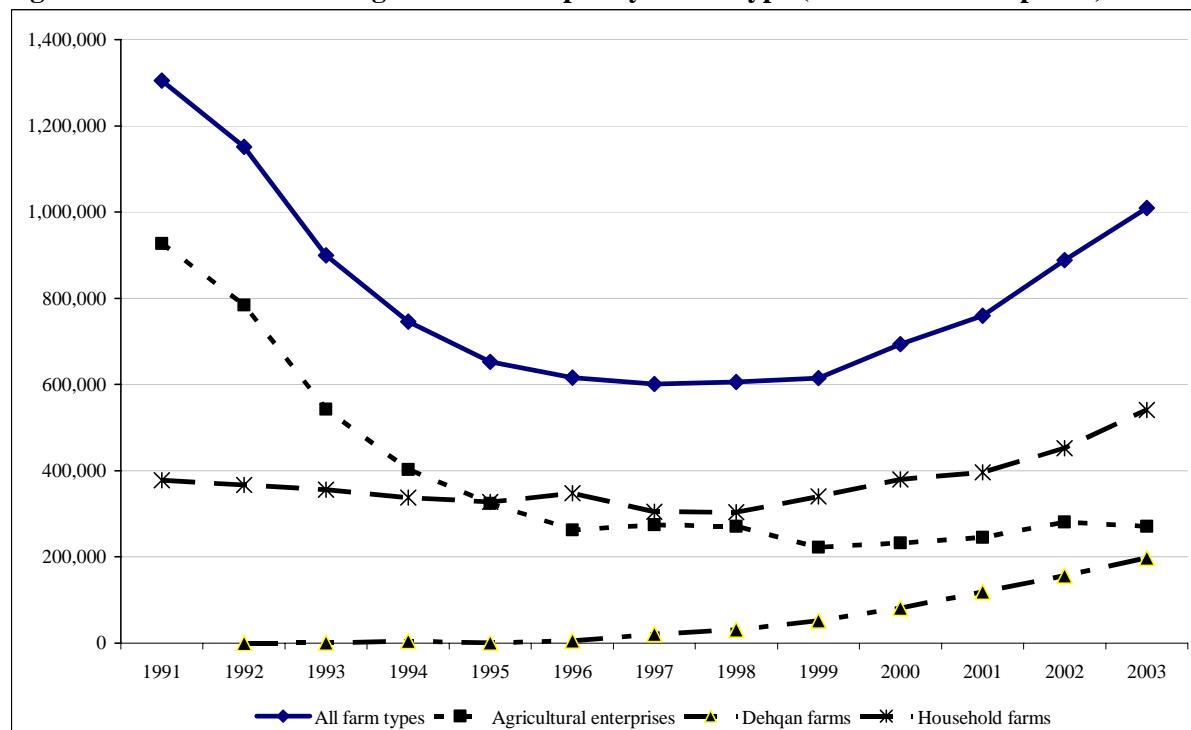
Crop production has been the main engine of growth, not only because it dominates total sector output, but also because growth started earlier than livestock production and has been much stronger (Figure 2). Crops accounted for 81% of sector output in 2003 and crop output grew by 65% from 1999-2003, contributing 81% of observed sector growth. Significantly, this growth derived from crops other than cotton. Livestock production did not begin to recover until 1997, but then grew by 61% from 1999 to 2003. There are strong incentives to increase livestock production owing to its relative freedom from state intervention, but farmers lack the resources to feed them and keep them healthy. Removing these constraints would release a powerful, sustainable source of sector growth.

**Figure 2: Trends in Gross Agricultural Output by Product (in constant 2000 prices)**



Household plots have replaced state and collective farms as the major source of agricultural output, and have become the major source of sector growth (Figure 3). They accounted for 54% of sector output in 2003 and grew by 59% from 1999-2003, which represents 51% of observed sector growth. However their small size and inability to expand severely limits their capacity for continued growth. Much of the growth on dehqon farms is due to the transfer of land, labor and capital resources from state farms, as part of land privatization. Increases in the productivity of dehqon farms have been modest, due to land privatization and land use policies – as discussed above.

**Figure 3: Trends in Agricultural Output by Farm Type (in constant 2000 prices)**



Recent analysis by the IMF shows an increase in TFP since 1998 (Table 9). Associated analysis shows a steady decline in capital from 1990-2001, due to the run-down of state and collective farms and the shift to subsistence farming. Sector recovery has resulted in an increase in the marginal productivity of capital since 1996. Agriculture labor increased until 1996 due to the shedding of labor in other sectors and its shift into agriculture. A marked reduction then occurred in the growth of agriculture labor due to out-migration. The marginal productivity of labor thus fell steadily until 1997, but has increased moderately since. These trends are not a basis for sustainable growth. Disinvestment and the shift to subsistence farming must be replaced with investment in modern technology and a shift to commercial farming if growth is to continue. TFP should be raised by increasing output, rather than by reducing factor inputs.

**Table 9: Average Annual Growth Rate of Output, Capital, Labor and TFP**

	1991-95	1996-2000	2001-2004
<b>Agriculture</b>			
Capital	-2.4	-5.2	-3.2
Labor	5.7	0.9	1.8
Output	-26.3	2.4	7.1
TFP	-23.1	1.5	3.6

Source: IMF Country Report No. 05/131. April 2005.

### 2.3.1 Cotton Production

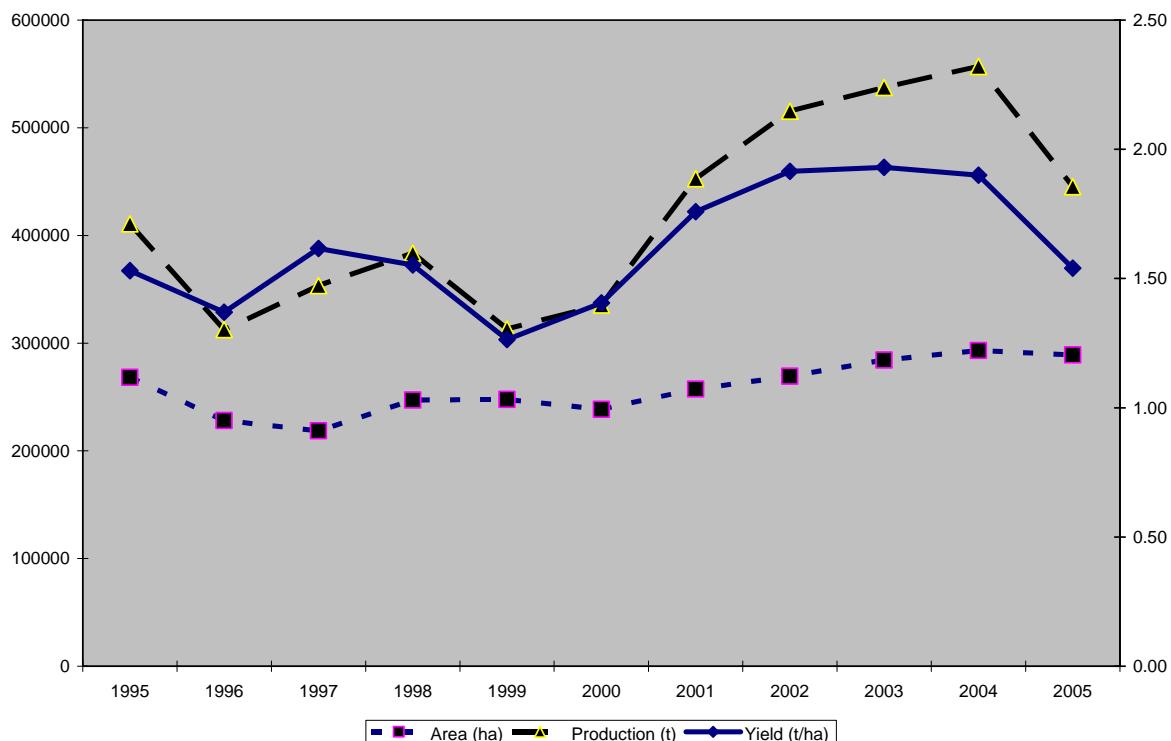
Cotton is the most important component of the agricultural sector, with one third of cropped area, and more than half of the value of total sector output. Trends in the value of cotton output thus have a major impact on overall sector growth. And because cotton is the main source of income for rural households in the poorest regions (Khatlon and Sughd), growth in cotton output value is the prime determinant of rural poverty reduction. The value of cotton output has stagnated since economic recovery began in 1998, due to offsetting trends in production and prices (Table 10). This stagnation has reduced overall sector growth and rural poverty reduction.

**Table 10:****Trends in Cotton Production and Export Prices**

	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Area Cropped (ha)	247,800	238,608	257,369	269,197	284,367	293,227
Yield (t/ha)	1.26	1.41	1.76	1.91	1.93	1.54
Production (t)	313,125	335,427	452,735	515,478	537,358	445,244
Average Export Price (cotton fiber, \$US/ton)	989	1168	948	933	1291	1214

Sources: GOSCOMSTAT

Marked yield increases after 1999 drove the increase in production, together with a modest increase in area (Figure 4). Improved access to inputs contributed to the yield increases, but poor input supply remains a major constraint. Fertilizer and chemicals are not only expensive and of poor quality, they are typically also delivered too late to be used effectively. Minimal access to improved seed also severely lowers yield potential and reduces quality. The cotton debt crisis has further restricted input use, by limiting access to working capital. More importantly, empirical analysis (described above) shows that this yield increase has a minimal impact on poverty. Adverse climatic conditions led to lower yields and production in 2005, and the area planted to cotton is forecast to fall by approximately 10% in 2006.

**Figure 4:****Trends in Cotton Production**

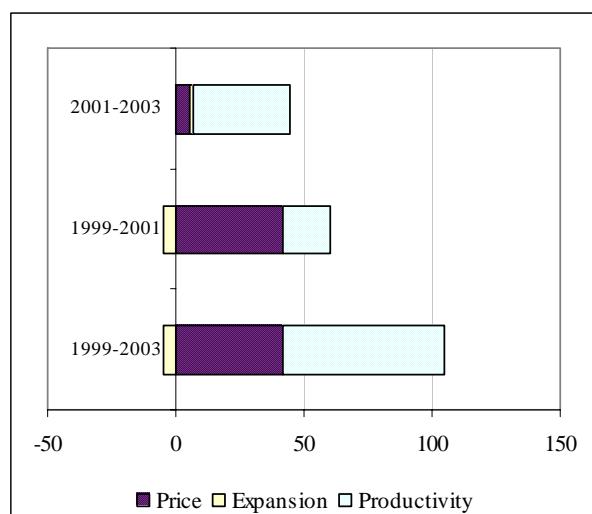
A fall in export prices from 2000-2002 offset the increase in production, with a consequent fall in the value of production. Export prices have recovered since, but are unlikely to return to the peak prices obtained from 1995-1997. Lower international prices are not the real reason for poor cotton sector growth. Cotton producers in neighboring countries are obtaining higher household incomes with similar yields and international prices. Household income from cotton has been low because producers have received a very low share of the value of the cotton supply chain. Inadequate competition among the ginneries and investors who control processing and marketing, has allowed them to extract excess profits, at farmer expense.

### 2.3.2 Non-Cotton Crops and Livestock Production

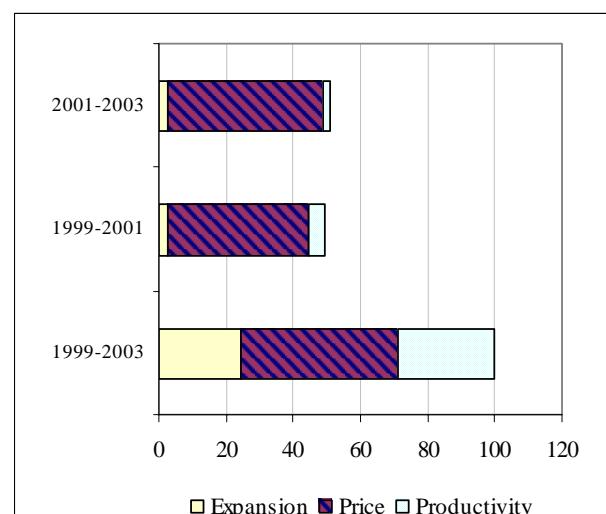
Agriculture sector growth and rural poverty reduction have been driven by crops other than cotton, and by livestock production. Analysis of the sources of this growth generates further insight into the relationship between growth and poverty reduction. This analysis covers cereals, potatoes, vegetables, melons, tobacco, milk, meat, eggs, wool, grapes, fruit and berries; which together accounted for 95% of gross agricultural output (GAO), excluding cotton, and 77% of total GAO in 2003.

Yield increases were the major source of growth for (non-cotton) crop production from 1999-2003, followed by increased producer prices (Figure 5). There was little change in crop area. Crop yields increased because producers' had better access to inputs as a result of improved political and economic stability, and more incentive to use their labor and capital to increase food production. Higher prices drove the growth in livestock production (Figure 6); consistent with economy wide growth and increased demand for livestock products. Productivity and livestock numbers also increased, but to a lesser degree.

**Figure 5: Sources of Crop Growth**



**Figure 6: Sources of Livestock Growth**



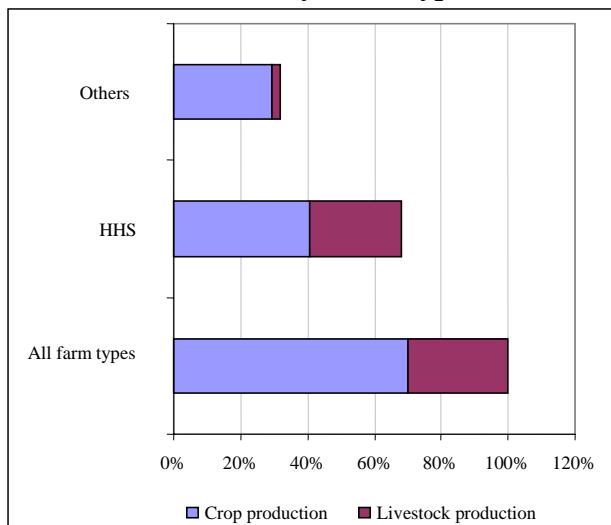
Household plots accounted for more than two thirds of growth (Figure 7). They also achieved a more balanced pattern of growth relative to dehqon and collective farms, where growth was dominated by crop production. Productivity increases (crop and livestock yields) were the main source of growth for all farm types (Figure 8), although once again household plots achieved a more balance contribution from increased prices and increases in crop area and livestock numbers (expansion effects).

Regional patterns of growth in crop and livestock production differed over time, providing important insight into the behavior of commodity markets and their capacity to absorb increased output.

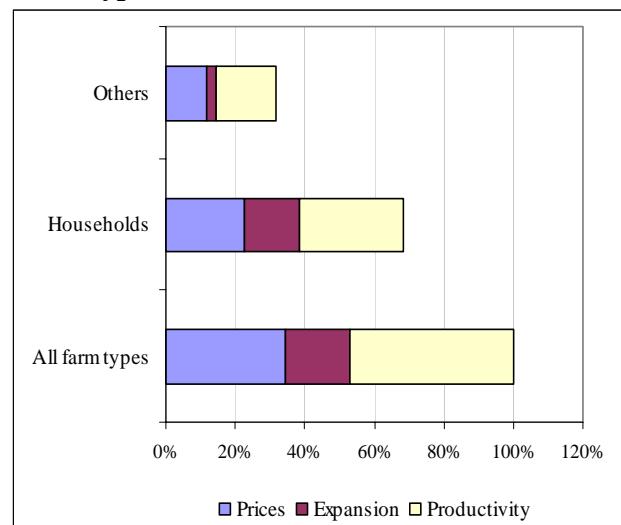
- In Khatlon initial growth in crop output in 1999-2001 was driven by increased prices. This led to a substantial increase in yields and output in 2001-2003 and a subsequent fall in prices. GBAO also experienced a rapid crop expansion in 1999-2001, accompanied by a fall in prices; with relatively low subsequent growth in 2001-2003. In both regions this pattern of increased crop production followed by falling prices demonstrates the risks incurred by expanding production in regions where local markets are depressed or easily saturated, and transactions costs are high.
- More sustainable increases in crop production occurred in RRS and Sugg, which have access to larger markets (Dushanbe and Khujand with its processing capacity and proximity to regional export markets). In both cases increased crop production in 1999-2001 was followed by higher or stable prices in 2001-2003 and so further increases in production.

- The importance of access to markets was also demonstrated for growth in livestock production in RRS, where growth increased markedly in 2001-2003 as demand and purchasing power increased in Dushanbe. There were no other discernible regional trends for growth in livestock production.

**Figure 7: Contribution of Crop and Livestock Production to Growth by Farm Type**



**Figure 8: Sources of Agricultural Growth by Farm Type**



Lack of data limited the analysis of horticulture production (fruit, berries and grapes) to trends in national output. The results show marked changes in the respective impacts of productivity (yields) and prices from one period to the next. Higher yields in 1999-2001 were accompanied by a marked fall in prices, although the overall value of output still increased by 25% for fruits and berries and 45% for grapes. A sharp decrease in yields occurred in 2001-2003, especially for grapes, which in turn led to increased prices. The overall value of output thus fell slightly during this period. These trends are a further indication of the weak capacity of domestic markets to absorb increased production, and the need to strengthen markets in tandem with measures to increase production.

## 2.4 Translating Growth into Poverty Reduction

Weak growth in the value of cotton production is the major cause of lower than expected rural poverty reduction. It also explains the high poverty rates in Khatlon and Sughd, which are the main cotton growing areas. Khatlon is particularly vulnerable to weak cotton growth as alternative income opportunities are scarce. Rural households have limited access to non-farm income sources and remittances, agricultural commodity markets are weak and the regional economy is depressed. At a more general level, the current approach to land privatization and land use has slowed poverty reduction in all regions.

The detrimental impact of cotton production and land privatization on rural poverty reduction are the result of inappropriate policy. Full land privatization is required, together with freedom for farmers to use their land as they wish. In the cotton sector, farm incomes will not increase until the policies that allow inadequate competition and producer exploitation are changed. There is ample evidence across regions, commodities and farm types, that growth will increase in response to these reforms and accelerate the rate of rural poverty reduction. Producers and agri-business enterprises in non-cotton areas have been the major beneficiaries of reform, although their benefits have been modest. Crop producers in peri-urban areas, close to strong urban markets, have gained the most; followed by livestock producers in mountain areas. But their ability to respond fully to the opportunities created by reform has been restricted by poor access to credit and farm inputs and lack of secure land use rights.

### **III. AGRICULTURE POLICIES and INSTITUTIONS – ISSUES for REFORM**

The agriculture sector has yet to reap the full benefits of policy reform. Sweeping changes to price and trade policy, production subsidies and financial institutions have not elicited corresponding changes in producer incentives or the behavior of factor and commodity markets. Reforms designed to increase the market orientation of agriculture have been followed by an increase in subsistence production. Markets for farm inputs remain weak and output markets are easily saturated by increased marketed surplus. The privatization of cotton credit and processing has not increased competition or efficiency. Land privatization has not improved security of tenure, or farmers' freedom to use their land as they choose; and production systems have changed little. Farmer decisions about what to produce, how to allocate their land and who to do business with are still driven by central-planning style production targets, despite new laws which specify producers' freedom to choose.

Three factors explain this disappointing response to reform:

- Producer incentives have improved little
- Factor and commodity markets remain weak and distorted
- Policies have changed but public and private institutions have not.

These issues are reviewed in the ensuing discussion of agriculture sector policy and institutions.

#### **3.1 The Nature and Implications of Current Policy**

Direct government intervention through price and trade policy is minimal. There are no price controls, no producer or export subsidies, no licenses or quotas on imports and exports, and tariffs are low. A 10% export tax is levied on cotton fiber, which generates approximately \$US 15 million annually; but this is more than offset by an implicit subsidy on irrigation water, equivalent to approximately \$US 25 million (assuming subsidized energy costs). Farmers also pay a land tax (the unified agricultural tax), but are exempt from most income, profit and social security taxes, and from VAT. Higher water use fees and lower export taxes would provide a more rational basis for farm level taxation.

Total budget spending on agriculture has increased steadily since 2000, in both nominal and real terms, although agriculture's share of total budget spending has remained fairly constant at approximately 3% (Table 11). Budget resources remain severely limited in absolute terms, however, due to Tajikistan's limited fiscal resources. The range and quality of public service provision is heavily compromised as a result.

<b>Table 11: Annual Public Expenditure for Agriculture (All Ministries and Institutions)</b>						
(‘000 Somoni)	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Agriculture Spending (nominal)	8447.2	9474.7	16585.0	22749.2	31600.00	41400.0
Agriculture Spending (real 2000=1000)	8447.2	6837.0	10661.5	12573.5	16035.5	19967.2
As % of Total Budget Expenditure	3.2%	2.5%	3.2%	2.9%	3.4%	3.2%

Sources: GOSCOMSTAT, Ministry of Finance, IMF

Ostensibly, this low level of direct government intervention minimizes distortions to market behavior, improves producer incentives, and creates an environment conducive to competitive, market-oriented agricultural production. In reality government continues to intervene widely in factor and commodity markets, using other, less transparent policy instruments. State control of cotton production and marketing remains the overriding focus of agricultural policy. But local government coercion is now the basis for controlling land use and production systems, and obliging farmers to grow cotton; and private sector ginning and export monopsonies have replaced the public agencies which formerly assumed these responsibilities. Hence, the markets for cotton, credit and farm inputs remain deeply distorted. Slow implementation of land privatization has further preserved state control of agricultural production.

### 3.1.1 Ineffective Land Reform

Land reform was initiated in 1992 with the aim to “privatize” the existing sovkhoz and kolkhoz farms by breaking them into smaller, collective “dehqon” farms and conferring inheritable use rights on the owners. The scope of reform was extended in 1996 to allow individuals or groups in the dehqon to use their share of the land to create a separate farming entity. Reform was very slow until 2004, due in part to the delays caused by civil war, but also to limited institutional capacity and political will. Progress was particularly slow in the main cotton growing areas. It then accelerated following a Presidential decree in 2004 to complete privatization by December 31<sup>st</sup>, 2005.

As of January 1<sup>st</sup>, 2006, some 18,300 individual and family dehqon farms had been created, plus a further 8,740 collective dehqons. They now account for 41% and 20% of arable land use, respectively (Table 12). Average farm size has fallen significantly in the process, although not to the extent that it compromises the ability to benefit from economies of scale. Not all agricultural land is to be privatized as government will retain ownership of state crop and livestock breeding farms.

<b>Land Privatization in Tajikistan: 2000-2006</b>					
	<b>Jan/2000</b>	<b>Jan/2002</b>	<b>Jan/2004</b>	<b>Jan/2005</b>	<b>Jan/2006</b>
<b>Collective Dehqon Farms</b>					
Number	10,395	6,897	6,455	7,916	8,740
Average Arable Land/farm (ha)	7	29	21	19	18
Average Agricultural Land/farm (ha)	174	332	231	283	171
% of Total Arable Land	8.7%	24.4%	16.8%	18.2%	19.4%
<b>Individual and Family Dehqon Farms</b>					
Number	1,141	4,779	13,110	15,406	18,300
Average Arable Land/farm (ha)	64	18	21	20	18
Average Agricultural Land/farm (ha)	501	280	231	159	171
% of Total Arable Land	8.8%	10.25%	34.1%	38.0%	40.6%
Number Land Share Certificates Issued	95,693	243,781	465,476	515,144	615,225
Number Land Use Titles Issued	13,742	13,714	16,639	19,922	27,294
<b>Memorandum – State Farms</b>					
Number	508	342	267	239	193
Average Arable Land/farm (ha)	584	532	354	336	332
% of Total Arable Land	35.6%	21.9%	11.6%	9.8%	7.9%

Source: State Land Committee

Limited in its objectives, the privatization program has also been limited in its achievements. Government has given priority to the issue of Land Share certificates, which name all members of the dehqon but do not confer individual use rights. Much less emphasis has been given to the issue of Land Use titles which confer the full use rights needed to benefit from private ownership (Table 12). Moreover, the land use rights created have been heavily circumscribed by vaguely worded legislation which gives wide discretionary powers to state and local government to confiscate agricultural land in the event that it is used “irrationally”. Local governments openly use these powers as an implicit or explicit threat to take land from farmers in the event that production targets are not met, particularly in cotton growing areas. As most farmers are poorly informed about the content of this legislation and have weak recourse to the courts, they have little choice but to accept this situation and use their land as they are told. Hence there is no security to the tenure of their newly acquired use rights, and limited freedom of land use. In addition, most of the collective dehqon farms were formed with minimal explanation to their members, and they have continued to operate under collective management, led by former brigade leaders. Unaware of the implications of privatization, the new “owners” of these farms continue to work for wages, as before. Finally, measures to encourage long-term leasing of agriculture land are not yet an element of land reform, and nor is the creation of a land market.

Farmer access to and understanding of the privatization process is extremely low. Their ability to establish their own farms is severely compromised by a combination of poorly written legislation, with inadequate definition of individual rights and the means to protect these rights; minimal efforts to inform them of the content and implications of the privatization program and associated legislation; and limited guidance on how to tackle the complex administrative procedures necessary for privatization, and minimize the high cost of this process. Recent survey evidence by Action Against Hunger (AAH) from five cotton growing districts shows that only 8% of farmers knew how to apply to create a dehqon farm and many did not know what a dehqon farm was. When asked to rate their knowledge of land laws, 85% declared that they had no knowledge. Few of the collective dehqons surveyed had issued land share certificates to their members, despite provision for this in the law.

Privatization has occurred in name only and has not significantly enhanced farmers' freedom to use their land as they choose. Indeed it is not clear that this was ever an objective of land reform. Privatization has also failed to ensure the security of tenure, which is critical for investment. With neither secure tenure, nor the freedom to use their land as they choose, it is not surprising that land privatization has not significantly improved producer incentives.

Land privatization established a platform for the creation of individual and family based dehqon farms, nevertheless, and these farms are now the largest category of land use and land ownership. The procedure is complex, non-transparent and expensive however (official fees plus "unofficial" payments), and is controlled by District Land Committees (DLC) under the control of the Hukumat. These constraints reduce the incentive for farmers to leave the collective dehqon, particularly when they know that their land can be arbitrarily confiscated afterwards. The second phase of privatization has thus been dominated by wealthier, politically well-connected individuals and families who are well-informed about the privatization process, and able to take advantage of its lack of transparency. Many have used this opportunity to acquire significant areas of the best quality land.

Lower income farm families are still bound to the collective dehqons. Indeed there is now a risk that collective dehqons will become local centers of rural poverty, left behind by the more progressive producers' who have established their own dehqon farms. Stronger, more direct support is needed to help these lower income producers' to obtain land use titles'. A number of donor and NGO projects are working to enhance the access of all farmers to the privatization process, with good results, but their activities lack the breadth to make a significant sector wide impact.

Secure land use rights, which allow farmers to choose how they use their land, are a pre-condition for sustainable growth. They increase the incentives to use land to its potential, to undertake investments which enhance its productivity, and to use their land in an environmentally sustainable manner. Ownership rights, in conjunction with a well-functioning land market, promote more efficient allocation of land (from low producing to high producing farmers) and improve access to credit. These conditions have yet to apply in Tajikistan.

### **3.1.2 Distortions, Disincentives and Reduced Incomes – The Impact of Cotton Policy**

Current cotton policies distort the allocation of land and labor and the markets for credit and farm inputs; preclude the development of a sustainable, diversified production base; and lower farm incomes and public revenues from cotton. The cotton debt crisis is the most visible outcome of these policies, but the impact is much wider. The present combination of state control and private monopsonies constrains not only cotton production and exports but also overall sector development.

Following independence, Government financed cotton production from the central budget through AgroInvestBank (AIB). However, budgetary pressures led Government to enter into a partnership with the Swiss cotton trading company P. Reinhart in 1997, which provided the required financing against cotton deliveries, backed by a government guarantee. In 1998, the government guarantee was replaced with a "commercial" financing scheme in which Reinhart worked with a number of local agents (referred to as financiers, futurists or investors). This framework is still the basis for organizing cotton production and marketing.

Cotton investors arrange the acquisition of seasonal farm inputs for cotton producers in return for rights to market the cotton fiber, through Reinhart. In the absence of other lenders the investors' have gradually assumed control of both input supply and export marketing. Questionable pricing arrangements for both inputs and cotton fiber have further reinforced their control, by squeezing profit margins and creating dubious "debts" which farmers are now struggling to repay. Currently estimated at \$US 280 million, these debts have now paralyzed the cotton sector, because indebted farmers are unable to obtain credit elsewhere. Indebted farmers are also reluctant to privatize and invest in their land, creating a further impediment to agriculture sector growth. Government has now initiated a program to resolve these debts, with support from the international community.

In principle, the private sector gins and investors who process and market cotton provide an appropriate base for competition in the cotton sector. They are numerous and well dispersed and no single operator dominates the market. In practice, local government coerces producers to work with specific gins and investors, creating a system of local and regional monopsonies. Assured of adequate raw material, the ginneries have no need to compete by raising outturn rates or improving efficiency. They also appropriate most of the byproducts of cotton processing, which should either be paid for or returned to the producer, further reducing producer incomes. Investors have an even tighter hold on cotton producers, and an even bigger impact on sector output. By charging above market prices on farm inputs and paying below market prices for cotton fiber – they squeeze farm profits and limit the ability of farmers to generate adequate working capital from either their own resources or from other lenders. Crop liens give the investors' even greater control over loss-making farmers. Resolution of the cotton-debt crisis offers an opportunity to break this tied-client link, provided it is accompanied by support for other sources of farm credit and the development of alternative sources of collateral.

Official policy towards seed cotton production is based on the annual preparation of national "production plans," which are apportioned to oblasts and raions. Local governments then coerce farmers in cotton growing areas to plant 70% of their arable land to cotton, as the basis for realising these production plans. Progress is reported by national media on a daily basis. Hence, despite official claims to the contrary, seed cotton production is still driven by central planning style production targets and compulsion, rather than measures to improve producer incentives.

While seed cotton has the potential to be profitable, current land use policies for cotton reduce rather than increase production and profitability. First, the requirement to allocate most arable land to cotton precludes efficient allocation and use of farm resources. Not all arable land has the capacity for viable cotton production, particularly where fertility has been eroded by salinization and inadequate fertilizer use. In other cases, this land could be used for higher returning fruit and vegetable crops. Second, farmers are obliged to use crop rotations which preclude sustainable land use and reduce soil fertility. With 70% of their arable land planted to cotton, and most of the rest planted to wheat for domestic consumption, there is little margin to plant the fodder crops essential for restoring soil fertility. This inability to grow fodder crops has also become the major constraint to livestock production in cotton growing areas – depriving farm households of a valuable income source and the sector of a means to broaden the production base for agriculture. Finally, coercion results in low producer incentives to raise output and productivity – a huge loss in a sector where output and yields are so low.

Current regulations for pricing, classifying and taxing cotton are a further drain on cotton sector income. Comparison of the official pricing formula with similar formulas used in other countries shows that the adjustments used to convert the export (*cif*) price back to an *fob* price are too high, depriving the sector of legitimate revenue. Moreover, government applies this formula as a maximum, set price – depriving exporters of the ability to sell at higher prices when buyers are prepared to pay more. There is also inadequate flexibility in the terms of sale and delivery. Exporters must fix their prices at the date of receipt of pre-payments, which prevents them from hedging their price risks, and/or taking advantage of favorable changes in market prices. Finally, an inflated base is used for levying export taxes (export returns, plus associated processing and marketing costs); further depriving exporters of legitimate revenue and the opportunity to pass this revenue back to producers. Processing and transport costs should be excluded from this base.

Grading is based on the old Soviet system which adjusts solely for color, with no discounts for trash or nep content. Both are key pricing parameters for international traders, and a critical element of international (USDA) grading systems. Product quality, market prices and export earnings are lower as a result. Producers have little direct incentive to raise quality, and the inability to classify according to international systems precludes access to higher value grades. In addition, weighing and grading are performed by licensed inspectors employed by the ginneries and exporters themselves, with minimal transparency and no independent monitoring. This further increases their opportunities to exploit producers.

Finally, producers' have limited access to high performing seed varieties, due to the breakdown of state seed farms on the one hand and excessive restrictions on the use of imported seeds on the other. Many farmers have received no new seed since independence and are obliged to use seed from the previous harvest. Genetic potential, and the capacity to increase yields, has declined as a result. Cross-contamination of medium and long staple varieties is also reducing the uniformity of baled cotton fiber, thus reducing quality and price.

### **3.1.3 Inadequate Access to Rural Finance**

Current lending for agriculture is well below sector requirements. The Asian Development Bank has conservatively estimated capital investment needs in agriculture at US\$ 700 million over the next 7 years, equivalent to US\$ 100-US\$ 130 million annually. This investment is needed for irrigation infrastructure (\$500 million), farm machinery (\$60 million), cotton processing (\$45 million), food processing (\$30 million), and other needs (\$20 million), in order to sustain agricultural growth rates of 6-7%. This is in addition to rural investment needs in roads, power supplies and telecommunication. Actual capital investment in the agriculture sector is estimated at \$30 million from the public sector and \$25 million from the private sector, approximately half of total requirements. Seasonal lending requirements for cotton are estimated at US\$ 75-80 million annually, plus a further US\$ 15-20 million for non-cotton farming activities. Cotton investor's were able to meet most of the requirement for seasonal cotton finance, prior to the cotton debt crisis, but seasonal lending for other branches of agriculture is negligible. Most funding for primary production comes from projects, with an outstanding agricultural portfolio of less than US\$ 5 million.

The cotton debt crisis has exposed not only the weakness of cotton finance, but also the limited financial and institutional resources of the other institutions lending for agriculture. A sustainable increase in access to rural finance will require much greater emphasis on the development of alternative sources of finance for all of agriculture, in addition to resolution of the cotton debt crisis.

Tajikistan's financial sector comprises the central bank, 12 commercial banks, and numerous non-bank financial institutions (including the cotton investors'). The commercial banking sector is extremely small, with an asset to GDP ratio of only 8 percent, and a loan to GDP ratio of 4.5 percent. It is also highly concentrated, with the four largest banks controlling 70 percent of total banking assets, 80 percent of household deposits and 70 percent of non-government loans<sup>5</sup>. Loans are dominated by industry (43.5%) and trade (38.5%), with only 9.6% in agriculture. Deposits are a mere 5 percent of GDP, and more than 80 percent have maturities of less than one year, which makes medium to long term investment lending difficult. Seventy percent of deposits are in foreign currency.

The commercial banking sector is growing and strengthening, nevertheless, in response to improved macroeconomic stability, better enforcement of prudential requirements, and improved management. Consolidation reduced the number of banks from 33 in 2001 to 12 in 2005, and the minimum capital requirement has increased to US\$ 5 million as of Jan 1<sup>st</sup>, 2006. Portfolio quality has also improved, with a decline in non-performing loans from 43 percent in 2001, to 9 percent in 2005, and a deposit insurance scheme has been introduced. Lending grew by approximately 30% in 2005, in response to increased demand, increased liquidity and a reduction in the reserve ratio (from 18% to 15%). Credit risk remains a significant concern, which banks try to manage through high collateral requirements, guarantors, short lending periods, and high lending margins. Loan interest rates currently average 20%, versus average deposit rates of 9%.

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<sup>5</sup> The four largest banks are Agroinvestbank (AIB), Orienbank, Tajiksoderotbank, and Amonatbank (saving bank)

The micro-finance sector is growing even more quickly. In April 2005 it had an outreach of around 60,000 clients, and an outstanding loan portfolio of US\$ 14 million, split among: (i) micro finance institutions (MFIs; US\$ 6 million); (ii) commercial bank micro lending programs (US\$ 4.8 million); and (iii) non-institutional projects and programs (US\$ 3.2 million). Specifically:

- Of the 17 MFIs, two thirds of the outstanding balance is held by only four institutions. Most of the other MFIs are very small, with limited outreach<sup>6</sup>;
- Among the banks, there are: (i) a specialized microfinance bank (the First Microfinance Bank of Tajikistan<sup>7</sup>) with an outstanding loan portfolio of US\$ 1.3 million; and (ii) four commercial banks with micro finance programs, with support from donors, particularly EBRD, with an outstanding loan portfolio of US\$ 3.5 million as of April 2005;
- among projects and programs, the two main ones are: the World Bank-supported set of 6 non bank financial institutions, with an outstanding loan portfolio of US\$ 1.2 million, and the UNDP supported Jamoat Revolving Funds (with an outstanding loan portfolio of US\$ 1.9 million).

Average loan size varies from US\$ 35 to US\$ 2,600, and interest rates vary from 2-4% per month. Loan recovery rates are high in the well run MFIs and programs, at around 98%. The legal and regulatory environment was strengthened by the 2004 Micro Finance Law, which also allows for deposit taking among qualifying MFIs, although none to date has initiated this service. Overall, the industry is still very fragmented and in need of considerable support to strengthen managerial and lending capability, and develop new financial products.

Hence, despite their recent growth, most bank and non-bank financial institutions remain weak, and cautious in their lending. Their loan portfolios are largely short term, a reflection of their short term liabilities, risk aversion, poor lending skills, and inadequate financial instruments. Further work is needed to strengthen corporate governance, general banking skills, and product development. Within this context the main constraints to agricultural lending are:

- *Weak, urban-focused, financial institutions.* Most bank and non-bank financial institutions remain very weak and focus their lending activities in urban areas, although there is growing interest in moving into rural areas.
- *Lack of collateral.* In an atmosphere of heavy reliance on physical collateral, the uncertainty surrounding land user rights and the absence of a functional land market makes land unsuitable as collateral. Yet this is the most significant asset in the agricultural production process.
- *Cotton debt resolution.* Initiatives are ongoing to resolve the cotton debt problem with the investors. Some other financial institutions are lending to farms with no debt.
- *Inadequate Financial Instruments.* Most financial institutions offer a limited menu of financial products, mostly simple traditional loans. Some financial institutions have begun leasing, but it remains limited due to lack of experience and a shortage of long term capital.
- *Weak Lending skills.* Most financial institutions lack adequate skills in loan appraisal and collateral valuation, and particularly in risk appraisal and risk management. This is worse for agricultural loans due to the special characteristics of agricultural investments.
- *Lack of Long Term Financial Resources.* Owing to a shortage of long term resources, financial institutions are unable to make medium and long-term loans for investment.
- *High Interest Rates.* As indicated above, banks charge high spreads in the absence of better risk assessment mechanisms.

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<sup>6</sup> The four major MFIs are: (i) the National Association of Business Women of Tajikistan, the largest MFI with US\$ 2 million outstanding loan portfolio; (ii) Humo, with US\$ 800,000 outstanding loan portfolio; (iii) ACTED, with US\$ 760,000 outstanding loan portfolio, and (iv) MDTM-ACDI/VOCA with US\$ 650,000.

<sup>7</sup> The principal shareholder is Agha Khan Foundation, with other investors including IFC, KfW, and CIDA.

### 3.1.4 Weak Markets for Agricultural Commodities and Farm Inputs

The markets for agricultural commodities and farm inputs remain weak and distorted. Producers lack adequate incentive to move from subsistence to commercial production as a result, and price signals are not conducive to optimal resource allocation. Inappropriate control of cotton production and marketing is a prime cause of these problems, but all market behavior is heavily compromised by inadequate competition, inappropriate policy and Tajikistan's geography and climate.

#### 3.1.4.1 Shallow, Poorly Integrated Markets for Non-Cotton Commodities

There are formidable challenges to the development of strong, well-integrated markets for agricultural commodities. Transport infrastructure is weak due to the high cost of building and maintaining roads and railways given Tajikistan's mountainous terrain and long, harsh winters. Market integration is severely constrained as a consequence, especially during winter when mountain roads become impassable and transport through Uzbekistan is the only land link between Khujand and Dushanbe for 4-5 months of the year. Winter transport costs more than treble as a consequence (Table 13), and supply is erratic due to problems at the Uzbek border. Although a competitive private transport sector keeps the direct cost of transport low, this accounts for only 20%-30% of total transport costs. Residual transaction costs associated with bribery and border control measures account for the remaining 70%-80% of transport costs. Complex regulation and poor information systems further increase transactions costs. Four distinct regional market zones have evolved as a consequence (RRS/Dushanbe, Sughd, GBAO and Khatlon), with widely differing characteristics

<b>Table 13: Transport costs from Khujand to Dushanbe</b>		
	<b>Summer (via Anzob Pass)</b>	<b>Winter (via Uzbekistan)</b>
Distance	340 km	930 km
Total Cost/ton (for a 10 ton truck)	\$70	\$260
Direct transport costs/ton	\$13-\$23	\$26-\$67
Residual costs/ton (bribes, transit costs)	\$47-\$57	\$193-\$234

Source: World Bank Trade Diagnostic Study

Producers are poorly equipped to deal with these problems. As modern, collective marketing activity (cooperatives, producer associations etc) is weakly developed, a proven mechanism for lowering transaction costs is barely used. Weak market information systems further limit farmer ability and incentives to expand market activity, together with a regulatory environment which is costly and difficult to understand. Finally, poor access to seasonal finance limits the capacity to produce for higher priced seasonal markets (for those willing to bear the risk). Marketed surplus remains low as a consequence, despite significant increases in real prices and production for many products (Table 14), and farmers tend to produce for local and regional markets.

<b>Table 14: Market Trends (1999-2003): Selected Agricultural Products</b>			
	<b>% Change in Real Prices</b>	<b>% Increase in Production</b>	<b>Sales as % of Production</b>
Wheat	12.8%	80.8%	Na
Potatoes	198.7%	97.4%	3.2%
Vegetables	53.3%	53.1%	22.4%
Fruit & Berries	30.6%	11.2%	9.6%
Milk	16.4%	51.9%	7.4%

Source: GOSCOMSTAT

Commodity markets have expanded nevertheless, in response to price liberalization, privatization of the transport sector and growing domestic demand for food and agricultural products. Increased exports to the Russian market have also contributed to this growth. Market development has been characterized by increased differentiation of regional markets, however, rather than increased market integration and the emergence of national markets for agricultural commodities. These regional markets are relatively strong in RRS/Dushanbe and Soghd, due to favorable production conditions, year-round access to large urban centers with higher income consumers, and access to an agro-processing sector.

Soghd has the added advantage of ready access to export markets in Uzbekistan and Kyrgyzstan, through both formal and informal market channels. Demand in Khatlon and surrounding areas is depressed by the region's weak economy, high poverty levels and the low consequent purchasing power of its population. GBAO also suffers from high poverty and low purchasing power, and has the additional constraint of a very small population (200,000 people). These two, weaker regional markets are easily saturated by increased production, and prices are more unstable as a result.

Both economy-wide and sector specific measures are needed to integrate and deepen these markets. The economy-wide measures will be the most difficult to implement. Improved road and rail infrastructure is fundamental to market integration, for example, but the financial requirements far exceed the resources of government and donors. An estimated US\$ 1 billion (75% of GDP) is required to rehabilitate the existing road system; of which US\$ 750 million (50% of GDP) is needed to develop three planned major road links to neighboring countries. Government has only secured financing for 20% of these costs, and even if all funding were obtained this work will take many years to complete. In the interim, measures to promote market development should be located near major access roads or roads that will be developed in the near future. Further, economy-wide measures are needed to reduce the high transaction costs associated with the bribes extracted by road police and regulatory officials, and to change the command economy culture of control which still pervades local government. These changes will also occur slowly, in association with wider reform of government regulation and the public service. Finally, a concerted effort is needed to improve political and trade relations with Uzbekistan, as the basis for more efficient border transit and a reduction of the high transactions costs incurred in Uzbekistan.

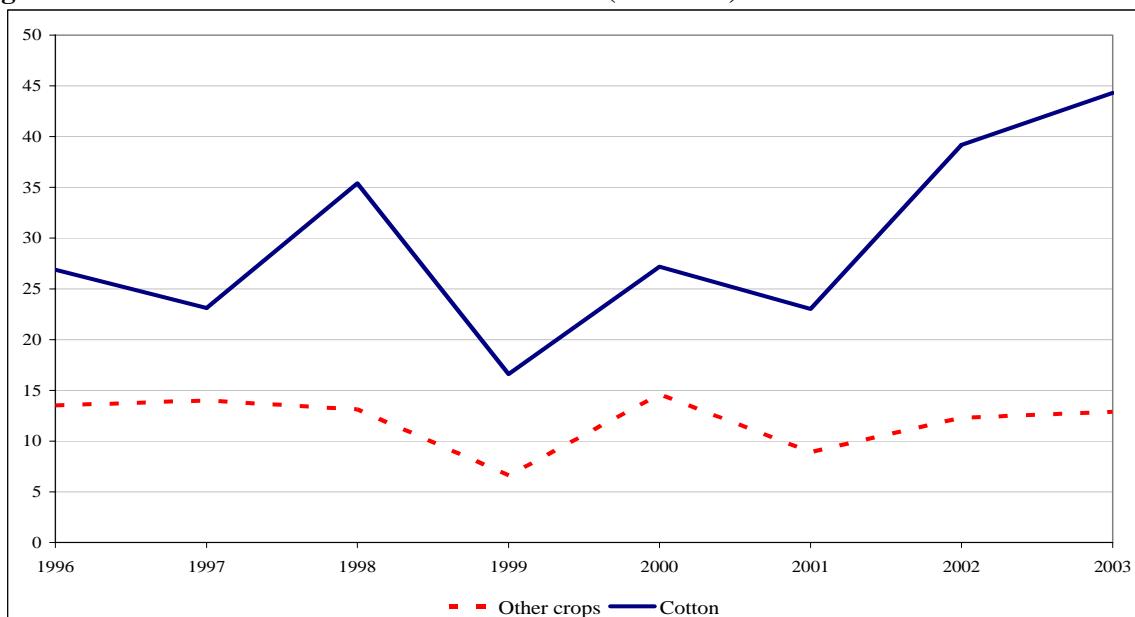
More immediate impact can be made at the sector level, particularly through measures to strengthen collective marketing activity and reduce unit transaction costs. Guidance on organization, product selection and quality control, and contract negotiation are all essential inputs to this process. Improved access to finance is also critical, as noted above. Producers need seasonal credit to finance post-harvest storage in anticipation of higher prices. Agro-processors need seasonal credit to facilitate contract production, and investment credit to upgrade their plants. Increased access to credit thus has strong potential benefits for both supply and demand. Any support for producers needs to be targeted and implemented judiciously however. There is little point expanding production of seasonal crops in remote areas, unless it is accompanied by improved access to seasonal credit, storage and assured access to reliable transport to markets outside the region.

### **3.1.4.2 Distorted Markets for Farm Inputs**

Ostensibly, conditions for farm input markets have improved considerably in recent years, in response to liberalized prices, increased private sector activity and increased demand. Among the cotton producers who account for most farm input use, demand has increased in response to government pressure to increase the area planted to cotton. Demand from non-cotton producers has also increased in response to falling real prices for fertilizer, seed and fuel; and increased producer prices. Trends in mineral fertilizer use illustrate the impact of these factors (Figure 9).

Policy induced distortions are pervasive nevertheless, to the detriment of farm incomes and sector output. As with the markets for farm output, overall market behavior is severely distorted by the cotton sector – which accounts for most input use, including 75% of fertilizer. The continued use of production targets as the basis for land allocation is the fundamental source of this distortion. But it is exacerbated by the cotton investors, who control the supply and prices of farm inputs for cotton producers. This leaves little room for other input suppliers. Limited access to seasonal credit further constrains the ability of non-cotton producers to obtain farm inputs. These factors are evident from recent patterns of fertilizer use which show a dramatic increase in fertilizer use for cotton, despite falling cotton prices; while fertilizer use for other crops increased much less, despite a substantial increase in producer prices (Table 15). The combination of government production targets, and cotton investor domination of the fertilizer market not only distorts demand, it also crowds out other input suppliers with the capacity to provide lower priced fertilizer and more reliable delivery.

**Figure 9:** Trends in mineral fertilizer use (000' tons)



**Table 15:** Characteristics of Fertilizer Use, 1999-2003

	Cotton	Other Crops
Fertilizer Use 1999 (tons)	16,600	6,600
% Increase in Fertilizer Use, 1999-2003	166.9%	95.5%
Fertilizer Use in 2003 (tons)	44,300	12,900
% Change in Real Fertilizer Prices (1999-2003)	-49.6%	-49.6%
% Change in Real Cotton Prices (1999-2003)	-64.3%	Na
% Change in Real Wheat Prices (1999-2003)	na	12.8%
% Change in Real Vegetable Prices (1999-2003)	na	53.3%

Source: GOSCOMSTAT

Given better access to seasonal finance from other sources, cotton producers would seek other suppliers in order to obtain better input prices and more reliable delivery. The resultant increase in competition would strengthen the non-investor component of the input supply market and create a more level playing field, to the benefit of producers and overall sector output. For this to happen, local government support for the current investor monopsonies should be terminated, in association with resolution of the cotton debt crisis. Non-cotton farmers' will also need improved access to credit.

Policy reform is also needed to increase farmer access to imported seeds, and to break the current monopoly of state owned seed breeding and multiplication institutions. Improved seed varieties from other countries should be added to the official seed list to facilitate imports, and the seed breeding and multiplication institutions should be privatized. More modern systems for seed testing and quality control should be introduced at the same time, to ensure that farmers are well-informed about the new seed varieties and are protected from buying inferior seeds.

### 3.2 Priorities for Institutional Reform

Slow institutional change and inadequate grassroots awareness of the implications of reform have further weakened the response to reform. Policies have changed but public and private institutions have not, with local government being particularly resistant to change. The state retains major responsibilities in Tajikistan as private sector institutions are weak and reform still has far to go. But current activity is still motivated by command economy perceptions of government roles, rather than the role of government in a market economy. Limited budgetary resources, poorly trained staff, low salaries and corruption make it even more difficult to change these norms.

Three main public institutions serve agriculture, the Ministry of Agriculture (MoA), the Ministry of Water Resources and Land Reclamation (MWRLR), and the State Land Committee (SLC). These are supported by local government counterparts at oblast and raion level, plus various universities and research institutions. The challenge is to strengthen these institutions and improve the quality of the services they provide, without exceeding their limited resources. Clear priorities for reform are essential in this context<sup>8</sup>, as outlined below.

### **3.2.1 Clarify and Focus Public Roles and Responsibilities**

A re-definition of public roles and responsibilities, based on the needs of a market-oriented economy, is the starting point for institutional change. Public institutions should focus on doing better the things that only government can do, and avoid doing things that impede or should be done by the private sector. The legitimate roles of government in agriculture include: policy and strategy formulation, regulation, public health, border control, taxation, the administration of land and water resources, and the provision of information. Government also has a responsibility to ensure that rural people are fully aware of the rights and opportunities created by reform, and to create an environment which enables them to benefit from reform.

Acceptance of these roles will need to be followed by institutional reform to ensure that public institutions have a clear mandate to conduct these activities, and the resources to implement them. Training will be essential in this context to ensure that staff members understand their new roles, and have the capacity to fulfill them. Public institutions will also need to terminate roles and activities that lie outside their newly defined realms of responsibility. Reform of local government activity will be critical in this context. Local governments should focus on providing local public services, and halt their manipulation and control of reform.

### **3.2.2 Improve the Quality of Public Service Provision**

Various ministries and offices share responsibility for providing public services to the agriculture sector, with the President's Office responsible for policy and strategy formulation and the line Ministries responsible for regulation and policy implementation, especially the Ministry of Agriculture (MoA).

The capacity for policy and strategy formulation remains weak. Current policies for cotton production and land reform are impeding sector development, and a credible medium-term strategy sector has yet to emerge from the President's Office. Continued reliance on central planning style production targets as the basis for strategic planning, and local government coercion as the basis for policy implementation also highlights the need to re-train and re-orient policy makers. Future policy should be based on clear, strategic objectives which are consistent with both economy-wide reform programs and the objectives of the Poverty Reduction Strategy Paper (PRSP). Measures to strengthen capacity should focus initially on the President's Office, but the medium-term objective should be to develop this capacity within the MoA.

The MoA is a small ministry (120-130 people) with a broad mandate to develop agriculture, meet the nation's food requirements, manage land use and improve industrial and economic relations. In reality, most of its staff and budget are involved in the regulation of animal health, seed and plant protection, and plant and animal breeding. The ministry also has an oversight role over the research program and budget implemented by the Agrarian Academy of Science in conjunction with various research institutions and universities. With a budget of only 8 million Somoni for 2005 and limited staff, the resources available for these roles obviously constrain the ministry's effectiveness. Additional resources alone will not markedly improve the quality of service provision, however, as these services are still organized and implemented according to pre-independence principles.

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<sup>8</sup> These priorities are also consistent with the broad framework for public sector reform developed in the recent World Bank Public Expenditure and Investment Review (2004).

A comprehensive review and modernization of current laws, structures and regulatory practices should be the starting point for measures to improve service provision by the MoA, accompanied by technical assistance to guide re-organization and re-train staff.

### **3.2.3 Rationalize Water Use Management**

The Ministry of Water Resources, and Land Reclamation (MWRLR) is responsible for the planning, allocation and monitoring of water use by all sectors of the economy (urban, industrial and rural), establishing and collecting water use fees, the maintenance of irrigation and drainage systems, and the regulation of water use and water users. These responsibilities are discharged at oblast and rayon level, by numerous subordinated agencies and institutions. The MWRLR<sup>9</sup> had approximately 8000 staff and a total budget of 25 million Somoni in 2004 – of which approximately 20% (5 million Somoni) was funded by the state.

As with other public institutions, the MWRLR now operates in a new policy and economic environment, to which it has yet to fully adapt. Given the importance of irrigation to Tajik agriculture, especially for cotton, further change of institutional norms and structures is crucial for sustainable development. The main issues to be addressed are as follows:

- The financial resources directed to operation and maintenance (O&M) of the irrigation and drainage system have fallen from \$88/ha in 1990 to \$14.3/ha in 2003, resulting in the loss of 88,000 ha of irrigated land and a decline in O&M for the rest. Expenditure levels must increase to \$21-\$28/ha for gravity fed systems and \$60-\$150/ha for pump-fed systems, in order to provide adequate levels of O&M. As most of this increase in O&M expenditure will come from producers, farm incomes must increase accordingly.
- Weak enforcement of private sector obligations to government further limits public expenditure for water resource management. Unpaid water-use fees are estimated at \$6 million annually<sup>10</sup>, which is more than 55% of total budget expenditure on agriculture in 2004.
- Land privatization has also contributed to the deterioration of physical infrastructure, as no agency or institution has been assigned responsibility for the secondary drainage and irrigation canals which were formerly the responsibility of the kolkhoz and sovkhoz. Clear assignment of the ownership and responsibility for these canals is now required.
- The increasing reliance on water user fees to meet the costs of water provision (up from 59% in 2000 to 75% in 2003) is a vital change in the approach to water resource management. But significant further reform is needed to make it effective. First, the current flat fee of \$6/1000m<sup>3</sup> should be replaced by a variable fee which reflects the actual costs of water delivery for gravity (\$8/ha) versus pump (\$18/ha) irrigation. Second, the efficiency of water delivery needs to be increased as a pre-cursor to the enforcement of water fee payments (collection rates are currently around 50%), and to justify future increases in fee rates as a result of higher electricity costs and the need to fully cover O&M costs. Finally, further strengthening of the legislative and operational framework for Water User Associations (WUAs) is required, accompanied by an expansion of their activity, as the basis for demand-led water provision.
- A comprehensive re-organization of the MWRLR and its subsidiary operations is required, including the establishment of river basins as the basis for water resource management; and the privatization of construction and maintenance units and other peripheral activities. This transformation should be accompanied by preparation of a national inventory of irrigation assets and a national investment plan, as the basis for future support by donors and government.

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<sup>9</sup> Discussion of the MWRLR and irrigation is based largely on the ADB Farm Debt Resolution and Policy Reform Report, 2004.

<sup>10</sup> Asian Development Bank: Cotton Debt Report, 2004.

### **3.2.4 Strengthen the Capacity for Land Reform and Land Use Management**

The State Land Committee, together with its subordinate agencies<sup>11</sup>, is responsible for the management of land resources – a mandate which includes: the maintenance of a cadastre, land mapping, land use classification, the issue of land certificates, and land privatization. These activities are implemented through District Land Committees, which are heavily influenced by local government. Current funding from the state budget is approximately 5 million Somoni. This limited funding, together with a heavy loss of professional and technical staff and the additional work load associated with land privatization have made it difficult for the SLC to fulfill its mandate. Adjustment to its new roles has been slowed as result and there is a significant need to re-train staff. Donors are now responding to these needs with a range of technical assistance programs.

The immediate priority is to change the SLC's authority and composition in order to facilitate land privatization. As part of a wider program of legislative and institutional reform, the SLC should be given broader powers to control land privatization and subsequent land use. Local government involvement in DLCs should be reduced, its broad discretionary powers to determine land use should be restricted and the SLC's corresponding powers to act independently in these matters should be strengthened. Both donors and government generally agree on these issues, although government has yet to follow up its agreement with concrete action.

### **3.3 Public Investment in Agriculture**

Public investment derives from the donor-financed Public Investment Program (PIP) and the state funded Centralized State Investment Program (CSIP), which currently amount to approximately \$30 million and \$20 million, respectively. Both programs have a limited capacity to expand funding beyond this level, the PIP due to an IMF imposed ceiling of 3% of GDP on external debt and the CSIP due to low capacity for public revenue generation. Severe capacity constraints impose further limits on the ability to manage and disburse these funds. Future growth in public investment will thus be dependent on GDP growth, debt servicing capacity and institutional capacity.

In a country as poor as Tajikistan, decisions on how to allocate the financial resources available for public investment, both within and between sectors, are critical for sustainable growth. Infrastructure investment (energy, transport, communication) currently dominates the PIP (Table 16) despite the need for increased investment in social services in support of the PRSP. Agriculture and irrigation/rural water supply are the next most important thrust of the PIP. Expenditure on infrastructure (public buildings, transport and energy) also accounts for 70% of the CSIP. The agriculture sector thus benefits from a significant allocation of total available resources, not only directly but also indirectly through public investment in transport. This share may fall in the future, as donors seek to raise public investment in social services in support of the PRSP.

**Table 16: Functional Allocation of the Public Investment Program (2001-2006)**

(% of Total)	2001	2002	2003	2004	2005	2006
Infrastructure	18.8	18.1	69.9	60.6	61.3	40.9
Agriculture	23.1	15.1	8.0	7.1	8.7	17.9
Irrigation and Water Supply	2.6	16.0	10.0	9.4	12.5	10.1
Social Services	26.9	45.6	12.1	9.2	10.2	16.2
Other	28.5	5.1	0.0	13.8	7.2	14.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Public Expenditure and Investment Review, World Bank, 2004

<sup>11</sup> GIRPROZEM (land registry, land use classification); Markaz Zamin (processes and issues land certificates); FAZO (land mapping).

Within the agricultural portfolio the PIP has focused on support for land reform, credit, the rehabilitation of physical infrastructure for irrigation and drainage, and strengthening the institutional infrastructure for water resource management – particularly WUAs. Support for other elements of institutional reform has been limited, as has support to develop and strengthen agricultural markets. Both warrant increased support in the future. Deeper institutional reform and improved access to markets are both pre-requisites for sustainable growth. All further investment in irrigation and drainage should also ensure that the MWRLR has the financial and human resources to handle associated increases in recurrent costs.

Future project selection should also be based more closely on the impact of investment on poverty. Indeed there is a continued need for a clearer definition of objectives and priorities at both national and sector level, as the starting point for decisions on public investment. This is particularly evident in the CSIP which finances numerous projects of a commercial nature (e.g. cinemas, hippodrome, catering), and does not use economic analysis as a criterion for project selection. The integration of the PIP and CSIP, as proposed by the World Bank Public Expenditure and Investment Review, and their alignment with the PRSP, is the starting point for responding to these weaknesses and increasing the impact of public investment.

## **IV. THE PILLARS OF A SECTOR STRATEGY**

The preceding analysis shows that land privatization and reform of the cotton sub-sector are the pillars on which a viable strategy for agriculture sector development must be based. These are the pre-conditions for sustainable agriculture sector growth. The ensuing discussion outlines the measures needed to build this foundation over the next 3-5 years. Reform will require considerable commitment by government and the donor community, as pre-independence policies and institutional norms remain deeply entrenched and there are strong vested interests seeking to preserve the status quo.

### **4.1 Extending and Deepening the Benefits of Land Reform**

The goal of land reform should be to complete the second phase of land privatization within the next three years, and create a land tenure system conducive to increased production and investment. All farmers who seek to leave the collective dehqons should do so, and individual land use titles should be issued to all land owners. This process should be accompanied by an immediate halt to local government interference in land privatization and land use; and an emphasis on measures to encourage and facilitate freedom of land use. Specific actions include:

- Terminate local government interference in land privatization and land use, and the application of land use targets for cotton production.
- Review and amend land legislation to ensure that it unambiguously defines suitable land ownership, use and inheritance rights, and the conditions under which land can be expropriated. Amendment of the law which currently allows local government to expropriate land in the event that it is used “irrationally” should be an immediate priority, but the broad aim should be to develop legislation which confers land tenure rights that encourage production and investment, and protects these rights.
- Strengthen the judicial agencies responsible for land ownership use, to ensure that they are independent, transparent and accessible; and that they provide adequate protection for land users.
- Strengthen the capacity of the administrative agencies responsible for land ownership and use (cadastre, land registry etc) to ensure that they are independent, transparent and accessible; and that they provide an adequate service. Priority should be given to the development of a modern, centralized land registry, but all relevant agencies should receive support for modernization, re-organization and staff training.
- Strengthen the capacity of the State Land Committee to develop accessible, transparent, low cost procedures for privatizing land.
- Inform and educate farmers about current land legislation and relevant agencies, the land rights they have acquired as a result of reform, and the means to protect these rights.
- Develop an appropriate legal and administrative basis for land leasing.

These measures will provide the basis for secure land use rights, and make the institutions responsible for land administration more transparent, independent and accountable.

Donors should also support the development of modern forms of collective activity based on marketing, input supply, machinery use, and credit. This facilitates individual farm ownership for those who seek it, without foregoing the advantages of collective activity; and develops more appropriate forms of group activity than those used in the sovkhoz and kolkhoz.

The international community is already addressing many of these issues. Regional and pilot programs by the World Bank, UNDP and Aga Khan Foundation have demonstrated the benefits of land privatization. The World Bank recently initiated a further project to support land privatization in another 30 (mostly mountain) raions, increase farmer awareness of land privatization, and support the development of a modern land registry. Other donors are working in the areas of land legislation (USAID), and policy dialogue (FAO). The full benefit of these programs has been muted, however, by government reluctance to abandon its pre-independence policy stance towards land ownership and land use. Increased donor support will depend on a stronger government commitment to accelerate and complete land privatization, and ensure full freedom of land use.

## **4.2 Cotton Sector Reform**

Reform of the policies and institutions which regulate the cotton sector is essential, not only to raise cotton production and profitability, but also to realize the sector-wide benefits from other elements of reform. Resolution of the cotton debt crisis is the most pressing issue to be addressed in this context, although it is not the most fundamental. The real issues arise from the need to re-define the respective roles of government and the private sector, and to ensure that each performs their roles in a fully transparent manner. Unless these broader issues are resolved, the debt crisis could re-occur.

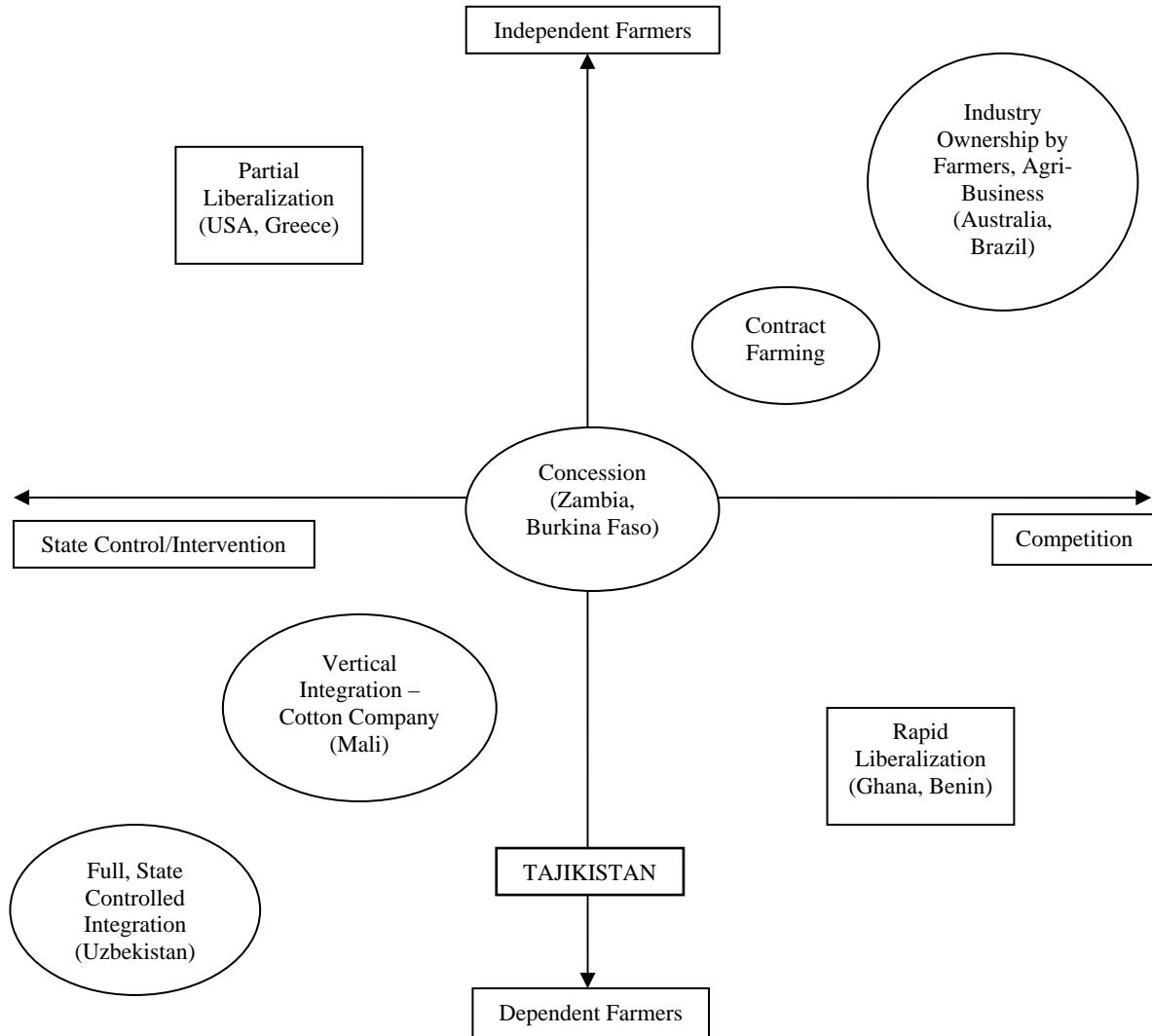
The recommendations that follow are fully cognizant of the importance of cotton, not only to the agricultural sector but also to the economy as a whole. Their objective is to enhance farm income, export earnings and tax revenue in response to increased cotton production.

### **4.2.1 Lessons from International Experience**

International experience provides valuable lessons on the implications of alternative policy models for cotton production, and the most appropriate form of government intervention. The main approaches to cotton sector organization and policy are summarized in Box 1 (below). A comparison of output and performance between the countries using these models shows that productivity and competitiveness increase significantly in response to a shift from full, state controlled integration to models based on industry ownership by farmers and agri-business.

Further insight is generated by categorizing these models in terms of the degree of state control versus competition on the one hand, and the degree of autonomy that farmers have to make economic decisions on the other, as presented in the typology below. The most competitive, high producing countries occur in the top right quadrant and the lowest performing countries occur in the bottom left quadrant. The notional diagonal from bottom left to top right can be viewed as a stylized path of reform, leading to higher performance and competitiveness. Of course many countries deviate from this path, due to differences in production systems, resources and the political support for reform. Some of these countries choose partial liberalization (top left quadrant), with either a limited degree of market liberalization and competition, or strong continued intervention through subsidies. Other countries have opted for more rapid liberalization (bottom right quadrant), although this has typically led to distorted markets. In both cases, policies which shift countries away from the diagonal lead to lower performance.

Within this typology, Tajikistan can be placed midway between the bottom quadrants, at the lower end of the vertical axis representing farmer independence. State control remains high, the liberalization which has occurred has created local monopsonies and distorted markets, and cotton producers have very little autonomy to make economic decisions.



This typology of organizational models also provides valuable insight into the types of policy that inhibit sustainable cotton sector growth and those which enhance it.

Comparison across countries shows that cotton sectors' in decline, or which are unsustainable (economically, socially or environmentally), usually have some or all of the following attributes:

- Lack of a fair and predictable pricing system for producers
- State intervention in production, ginning and marketing activities
- Producers lack ownership and empowerment
- Transactions and contractual arrangements lack transparency, and are subject to political interference
- Uncompetitive pricing of inputs, ginning and financial services.

In contrast, successful cotton sector models are characterized by the following attributes.

- Individual farms/farmers that control their assets and are able to make economic decisions.
- Strong, representative farmer organizations
- Professional enterprises, often foreign companies or joint ventures, which bring in outside capital and technology.

- A sound, enforceable legal and regulatory framework
- Producer prices for seed cotton paid on the basis of a known pricing formula.
- A competitive environment, accompanied by suitable rules of entry
- Government activity focused on essential regulatory activities
- Transparency and accountability.

The policy framework which currently applies in Tajikistan contains all of the attributes which characterize unsuccessful models and very few of the attributes which characterize successful models. Two areas are in particular need of attention if Tajikistan is to keep up with its competitors:

- (i) A farm level environment which lacks: full control by producers over the means of production, strong farmer organizations, and a liberal environment in which to secure inputs and services (including ginning,) at competitive prices;
- (ii) A ginning and export environment which creates inappropriate incentives for processing, export marketing and input supply. Tajik cotton producers bear the brunt of this deficiency, but ultimately it undermines the competitiveness of the entire cotton industry.

#### **Box 1: Cotton Sector Organization Models**

There are five main forms of cotton sector organization among the countries with whom Tajikistan competes on world cotton markets.

##### **Full, State Controlled Integration:**

This structure is based on full, vertical and horizontal integration of all production and marketing activities. Most or all decisions about production, input use, finance, processing and marketing are made by public agencies. Producers have little input into these decisions and typically work for wages. The collective sovkhoz and kovkhoz typical of centrally planned economies exemplify this model.

##### **Vertical Integration (Cotton Companies, Marketing Boards)**

Vertical integration is typically implemented through a “cotton company,” in which the state retains full or majority control. A foreign partner/professional operator generally provides technical and managerial assistance to the cotton company, usually as a joint shareholder with government. Operation is based on a legal and regulatory framework that grants the cotton company exclusive rights over input supply, cotton collection, ginning and marketing – creating a legal monopsony. Farmers receive a guaranteed price for their seed cotton, which is generally set at the beginning of the cropping season. Seasonal finance for inputs is provided under a tripartite agreement between producers, government and a state or commercial bank. The cotton company also provides technical support and advisory services to producers. Various forms of this model exist in francophone Africa. The Marketing Boards which operated in Anglophone Africa during the 1980s and 1990s are a somewhat less integrated version of this model. They had exclusive rights over foreign trade and exports, but were not directly responsible for credit, input supply and technical advisory services.

##### **Concession**

The concession model is typically based on the operation of several ginning companies. A monopsony is granted to each gin in a limited area/region (geographic or territorial concessions) to regulate competition between ginners. In principle this structure should operate for a limited period of time, as part of a transition to an open market with free competition and contract farming between farmers and ginners. This model is used in Zambia, Mozambique, and more recently in Burkina Faso.

##### **Contract Farming**

Contract farming allows individual farmers or farmer groups to freely contract the sale of their raw cotton, and the further processing and export of cotton lint, to agro-industrial operators.

##### **Industry Ownership by Farmers and Agribusiness**

In this system, ginning is done by service providers who are either contracted by farmer groups or owned by the farmers themselves. Countries such as Australia and Brazil which use this model are among the highest performing and most competitive in the world.

Measures to address these immediate deficiencies are outlined in section 4.2.3 below. Further progress along the path of structural reform outlined above is a longer term objective. Government will need to carefully prepare and manage each stage of this transition, building the private and public sector institutions needed to support the organizational model deemed most appropriate at each stage of development.

#### **4.2.2 Debt Resolution**

As a first step towards resolving the cotton debt crisis government has now created an “Independent Commission” (IC) to lead and guide the process of debt resolution. Established by Presidential Decree, this commission of 16 people comprises senior representatives of all ministries and public agencies affected by the cotton debt plus one representative of the World Bank and one from the Asian Development Bank. A working committee of five members of the IC has also been formed to manage the implementation of debt resolution, to be conducted by international and local consultants under the auspices of a World Bank project. Strong leadership will be needed to ensure that the IC acts independently, beyond the influence of powerful vested interests in both the public and private sectors. Effective leadership will also be needed to balance the need for rapid implementation of the debt resolution process against the pressure to support quick but inappropriate solutions.

Debt resolution will be conducted on a case by case basis. A study is currently underway to determine the modalities for this process and train staff to implement it. Results of this study will provide guidelines on: how final debt should be determined, the criteria for assessing debt write-off, the extent to which negotiation and/or arbitration will be incorporated into the debt resolution process, and the basis for recourse to bankruptcy procedures. Guidance will also be provided on how to treat debt incurred for capital purchases (machinery, irrigation etc). Once this system is in place a detailed analysis will be made of each participating farm to determine: how much debt is actually owed, the level of debt write-off (where relevant), repayment terms for remaining debt, and the assignment of this debt to individual farms and/or land parcels within a collective. Participation by farmers will be voluntary, but all decisions will be legally binding. Implementation will begin in mid 2006, and is expected to take 2-3 years.

Once debt resolution has been agreed, producers should be free to contract with any enterprise they choose in order to finance, process and market their cotton.

#### **4.2.3 Re-Orient Government Intervention**

As noted above, the current form and level of government intervention in the cotton sector is not conducive to sustainable growth. The following issues are of particular importance:

- (i) Farmers currently produce in response to coercion by local government, rather than the positive incentive created by favorable prices and the prospect of favorable returns.
- (ii) Government tacitly supports the local monopsonies established by the gins and investors, rather than promoting competition. This removes the incentive for gineries to improve outturn rates, and for investors to provide inputs of acceptable price and quality, in a timely manner. Producers have little choice but to accept low quality goods and services at inflated prices, which lowers their returns and reduces their incentive to raise production.
- (iii) Government unwillingness to deregulate the seed industry further prejudices cotton production, by depriving farmers of access to high potential imported seed varieties.
- (iv) The current cotton grading system differs markedly from the internationally recognized USDA system, and is less accessible to international buyers. It is also administered in a highly non-transparent manner, which deprives producers of a fair price and government of tax revenue.

These roles and policies are inappropriate in a market economy. Some protect vested interests and should be terminated; others would benefit from re-design. A more appropriate framework for public involvement in the cotton sector is outlined below, based on strategic planning, the establishment of suitable mechanisms for grading and certification, and regulations and procedures that allow an adequate supply of appropriate, high quality cotton seed.

- Terminate government use of national production targets and local government control of arable land use in cotton growing areas, as the basis for setting and achieving strategic plans. The objectives of strategic planning for the cotton sector should be to (i) improve incentives by ensuring that producers' are free to use their resources as they choose, and can benefit fully from their labor and management; (ii) ensure full competition among processors, marketing agents and input suppliers; and (iii) to create a modern, transparent regulatory environment.
- Terminate local government control of where producers obtain credit and gin their cotton, and introduce and enforce anti-monopoly policies and procedures to ensure that investors' and ginneries engage in full competition.
- Abolish all internal movement controls of cotton to ensure that producers can process and market their cotton wherever they choose.
- Introduce a new cotton grading system based on the USDA classification system
- Establish an independent, internationally certified grading agency which operates with full transparency in the interests of producers, processors and buyers.
- Reform seed regulations to allow the import of improved varieties of cotton seed, and establish appropriate mechanisms for monitoring seed quality and providing adequate information to users.

#### **4.2.4 Rationalize Cotton Tax and Price Policy**

Government faces difficult trade-offs as it attempts to increase low current levels of tax revenue (16% of GDP) without discouraging investment, distorting incentives or prejudicing poverty. As a major sector of the economy, with a strong cash flow, cotton is justifiably viewed as an important source of tax revenue. In an average year cotton export taxes generate approximately \$15 million, equivalent to 35% of total tax revenue. The sector is also a major locus of poverty however, and needs a policy environment which facilitates growth. Policy decisions on price setting, and the level and form of taxation thus have wide implications, not only for agriculture but also for the economy as a whole.

The 10% tax levied on cotton fiber exports is based on a pricing formula administered by the TUGE. This formula, which discounts prevailing *cif* world cotton prices back to domestic *fob* cotton prices, is as follows:

$$\text{FOB price for Tajik 2^{nd} Grade Cotton} = [(\text{World Cotton price} - 4.5\%) - \$\text{US } 60/\text{mt}] - 5\%$$

(Where the world cotton price is the prevailing "A" Cotton Index price, *cif*).

In a business environment as opaque as the cotton sector, a mechanism like this provides a transparent means to determine prices and assess taxes. However the current formula imposes additional, implicit taxes on cotton production and exports, for the following reasons:

- (i) Comparison of the TUGE formula with the *cif* to *fob* discount applied to Uzbek cotton shows that the adjustments are much too high. This reduces the derived export price and the associated producer price, and has deprived the sector of an estimated \$US 12 million annually since 1995. Both private and public revenue (taxes) have been reduced as a result. Note also that these losses are more pronounced when international prices rise, because the formula uses fixed discounts even though the actual costs between *cif* and *fob* do not change when international prices rise.

(ii) The derived *fob* price used to assess the export tax includes transport and handling costs, while the exporter actually receives a (lower) ex-works price. By levying the tax on the exporter's costs as well as his revenue, the effective tax rate on cotton fiber is higher than 10%. This increases costs for the exporter, and so for the sector.

(iii) The fixed discounts from *cif* to *fob* prices mean that effective tax rates increase as international prices fall, which makes the export tax regressive.

(iv) To ensure compliance with this pricing mechanism exporters are not permitted to accept higher prices than those derived – even if they are offered by prospective buyers. The formula thus creates a maximum, set price which is often below actual market prices.

(v) Price setting is further restricted by a requirement that exporters fix prices at the date of receipt of pre-payment. This precludes hedging as a means to offset the risks of price variation and prevents exporters from obtaining full market prices.

These distortions and losses reduce export revenues, at the expense of both the private and public sectors. They should be halted by:

- Reducing the discounts in the TUGE pricing formula,
- Assessing the export tax on an ex-works cotton fiber price rather than an *fob* price
- Removing the current requirements which: set official prices as minimum rather than maximum prices, restrict exporters to sales on *fob* terms, and oblige exporters to fix prices at the date of receipt of pre-payment.

Both the private and public sectors will benefit from these changes, as a result of higher export prices, higher producer prices and sector income, and increased tax revenue. Responsibility for price and tax administration should also be transferred from the TUGE to the Ministries of Agriculture and Finance, and the TUGE's role as a marketing and brokering agency should be broadened and strengthened.

#### **4.2.4 Increase Competition and Efficiency and Raise Producer Returns**

Sustainable growth of cotton production and exports will also depend on strong private sector activity, based on active competition between processors, marketing agents and input suppliers, and more efficient on-farm production. The policy changes described above to allow producers to choose where they process and market their cotton are the starting point for achieving this objective. Obliged to compete for seed cotton through higher prices, ginneries will be forced to improve outturn rates and management efficiency in order to obtain adequate raw material. They will also have to pay a fair price for byproducts. Without local government coercion of producers', investors' will also be obliged to compete with each other, through more favorable pricing of both farm inputs and cotton fiber.

This competition should be broadened and strengthened by encouraging other agents to enter the market. The introduction of an auction system run by the TUGE would provide an important new dimension to the market in this context, by bringing more international buyers to Tajikistan and allowing producers to market their own output. These auctions would also provide an additional source of market information for producers. This information, together with the new certification system, would put producers in a much better position to judge whether processing and marketing enterprises are paying fair prices. Donors and government should work together to develop the TUGE's capacity to conduct these auctions, and to broaden its marketing activities for all agricultural commodities.

Increased access to other sources of credit would add a further source of competition, and assist farmers to break their dependence on the investors. It would also create more competition for both seasonal finance and input supply. New forms of contractual relationships between producers and lenders should also be developed, which employ collateral substitutes other than crop liens, and allow producers to repay their loans with cash (after selling the cotton themselves).

Clearer price signals from a more competitive market for cotton processing and export will have important implications for the sector as a whole. The distorted land use patterns in cotton growing areas preclude the use of crop rotations with the potential to raise soil fertility and crop yields, and limit production of other profitable crop and livestock enterprises. Given higher producer prices and the freedom to choose how much land to allocate to cotton, farmers are more likely to allocate their land, labor and capital in a manner which improves both incomes and the sustainability of land use.

## **V. BROADENING THE BASE for SUSTAINABLE GROWTH**

The reform of policies that distort key markets and inhibit competition is a necessary but not sufficient condition for continued growth of rural incomes. Sustainable growth also requires improved access to rural finance, a more diversified production base with increased livestock and horticultural production, and the ability to market a wider range of products on domestic and export markets.

### **5.1 Increased Access to Rural Finance**

The cotton debt crisis has highlighted both the danger of heavy reliance on commodity based credit and the extreme weakness of the current alternatives to cotton credit. Measures to improve access to rural finance must thus be broad-based, encompassing initiatives to strengthen all bank and non-bank financial institutions, as well as the capacity for rural lending.

***Financial Deepening:*** The constraints faced by bank and non-bank financial institutions can be redressed by the following initiatives to strengthen both urban and rural lending.

- Relax the restrictions on foreign ownership and management of commercial banks, in order to strengthen the quality of management and increase access to capital.
- Develop primary and secondary financial markets.
- Strengthen commercial bank management and the quality of supervision by the National Bank of Tajikistan. Coupled with increased competition, these measures will improve efficiency, allow lower interest spreads, and reduce loan interest rates.
- Improve the incentives and reduce the risks of lending by strengthening the legal framework for secured transactions
- Improve the capacity to collateralize loans by developing reliable, accessible registries for moveable and immoveable assets.
- Widen the potential range of collateral instruments, including the introduction of warehouse receipts.
- Strengthen the institutional and capital base for leasing.
- Increase donor support for non-bank financial institutions through technical assistance and concessional credit lines.

***Rural Lending:*** The following, additional measures will support the expansion of rural lending.

- Resolve the cotton debt crisis.
- Strengthen the capacity of bank and non-bank financial institutions to appraise agricultural loans, and manage an agricultural loan portfolio.
- Increase the access of rural lenders to concessional credit lines, particularly for medium and long-term credit.
- Broaden the base for rural credit through support for supplier credit, credit cooperatives and leasing companies.

Numerous programs have already begun to address these issues. These include (i) the development of a secondary market for treasury securities, which will permit collateralizing inter-bank loans and improve the use of bank resources; (ii) USAID initiatives to strengthen the central bank's supervisory capability, so improving bank performance; (iii) ADB led efforts to improve the central bank's capability to supervise micro finance institutions, and pilot the transformation of NGO micro credit programs into MFIs in accordance with the new MFI law; (iv) the promotion of commercially run, farmer-owned institutions to provide credit and other services to their members, including the IFC/Swiss pilot of a farmer owned service company (SugdAgroServ), and IDA supported, locally owned, non-bank financial organizations; (v) EBRD led support to commercial banks to improve their loan appraisal and monitoring skills for small loans and to provide lending resources through the Tajikistan Micro and Small Enterprise Facility; and (vi) USAID initiatives to assist small businesses to improve their financial management and make them more "bankable".

This support should be increased and expanded, with greater emphasis on access to rural finance, diversification of the financial sector (institutions and instruments), and the development of strong skills for rural lending.

## 5.2 Diversification of Sector Output

A more diversified production base will further enhance the capacity for sustainable growth and poverty reduction. Increased horticulture and livestock production offer significant, readily accessible potential in this context, as both are proven elements of the agricultural sector with the ability to grow. Such diversification also facilitates increased use of restorative crop rotations, which raise soil fertility and allow higher cotton production from a smaller area. Farmer returns and the competitiveness of Tajik cotton will rise accordingly. And diversification creates more opportunities for households to stabilize income, an important factor for small-scale cotton producers who need a stronger capacity to offset adverse changes in world cotton prices. At sector level, greater emphasis on livestock and horticulture production and exports broadens and strengthens the basis for growth.

### 5.2.1 Raising Livestock Productivity and Production

Small-scale farms and low-cost management systems now dominate livestock production. Animals are housed during the winter, from November to March, and fed a ration of poor quality hay and wheat straw. Wealthier farmers supplement winter feed rations with cotton cake when they can afford it, but most farmers are confronted with a severe shortage of winter feed. Fodder cropping fell to approximately 100,000 ha during the war, and farmers have found it difficult to increase fodder production for winter feed since then. Local governments' require 70% of arable land to be used for cotton, and the area planted to wheat has expanded to meet household food requirements. Resultant feed availability for winter is well below requirements and livestock end the winter in an emaciated condition. Information collected during field visits shows that mature older cattle survive on 7 to 8 feed units per day, versus a requirement of 14-16 feed units/day.<sup>12</sup>

After winter, most animals are moved to winter pastures until the dry season begins to impede pasture growth and water supply, and are then herded to summer pastures in March-April. This involves a trek of 400-600 kilometers, and takes 6-12 weeks. Herds average 11 km/day during these treks, at a time when they are still in poor condition after the winter, and sheep and goats are close to parturition. Reproductive performance and the growth rates of young stock suffer markedly as a consequence. Summer grazing continues until October, when the animals are trekked back to winter and autumn pastures, completing the migratory pattern. Cows and large cattle graze year round on village plots or in household yards. Where possible they are also grazed on a daily basis on marginal lands near the village, although this practice increasingly conflicts with the production of wheat on this land. Village land and near village pastures have become seriously overgrazed as a result.

This management system is consistent with the underlying resource base – an abundance of permanent pasture and minimal access to grain based feed. Livestock production is heavily constrained nevertheless by the imbalance between winter fodder production and summer grazing resources (Table 17). Current fodder production meets less than half of the winter feed requirements for livestock, while distant summer pastures have the potential to feed the current livestock complement<sup>13</sup>. Increased winter fodder production is thus a pre-condition for increased livestock production and productivity, and the basis for more effective use of Tajikistan's pasture resources.

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<sup>12</sup> Based on body condition scores (BCS), which vary from 1 = emaciated to 5 = fat. The estimated value for most cows and young cattle was 1-2.

<sup>13</sup> Based on the following assumptions: Total animal live weight of 549,135 tons, assuming average liveweights (kg) of cows 350, beef cattle 300, sheep 45, goats 35, horses 500 and yaks 450. Assuming a herbage dry matter (DM) intake of 35% of body weight and pasture utilization (amount actually consumed) of 50%, total annual food consumed is 384,395 tons. The 3.3 million hectares of pasture yields 6.6 million tons of DM, assuming an average of 2 tons DM/ha.

<b>Table 17:</b>		<b>Seasonal Livestock Fodder and Grazing Resources</b>
Winter Fodder	100,000 ha	Arable land, in village
Early Winter Pastures	1,139,000 ha	Medium altitude, far from village (300-500 m asl)
Spring/Autumn Pastures	411,000 ha	Low altitude, near village (200 m asl)
Summer Pastures	1,535,000 ha	High altitude, far from village (500-1000 m asl)

Source: GOSCOMSTAT

Productivity is very low as a result of this inadequate nutrition. Low calving and lambing percentages and long conception periods severely reduce the number of progeny born per year. In 2003 cows on state farms, with access to an entire male, averaged only 63 calves per 100 cows. Sheep reared about 70 offspring for 100 ewes in 2004 (with a range of 57-90 between Oblasts), and goats reared 125-130 offspring per 100 does. (There are no equivalent performance records for private farms). The poor condition of breeding stock also results in low birth weights, and increased mortality, and growth rates are low for the animals that do survive. Production also suffers, with milk yields of 2-4 liters/day.

Inappropriate management practices exacerbate the problems created by under nutrition, and further reduce production and productivity. Mating occurs all year round, rather than being timed to ensure that birth coincides with spring pasture growth; and females are allowed to mate too young. Bad housing, with inadequate ventilation also increases the risk of disease. Selected indicators of livestock productivity are presented in Table 18 below.

<b>Livestock Productivity Indicators in Tajikistan</b>					
	<b>Cattle</b>	<b>Sheep</b>	<b>Goat</b>	<b>Horse</b>	<b>Yak</b>
Progeny reared per 100 females mated	60	70	125-130	na	60-80
Calving Interval (months)	17-18				
Birth weight (kg)	25	3	2.5	40	30
Age at weaning (months)	7	3 – 4	2.5 – 3	8	7
Live weight at weaning (kg)	50-60	10-12	8-10	70-100	50-70
Growth Rates (grams/day)	na	69	65-78	na	na
Age at Slaughter	2-4 years	1.5 years	Na	na	na
Carcass Weight (kg)	< 200	na	Na	na	na
Milk Production (kg/cow/year)	640	na	Na	na	na

Source: GOSCOMSTAT, World Bank estimates

Poor nutrition and management also pre-dispose to animal disease and contribute to high observed livestock mortality rates. Most diseases are related to digestive and respiratory disorders, with cattle mortality rates from infectious disease estimated at 14% annually. Pasteurelosis, pox and parasitic worms are present in sheep and goats. Mortality levels are unknown although when vaccination was not carried out in 2004, an estimated 30% of sheep and goats in the private sector were infected by pasteurelosis. Brucellosis and parasites are the main causes of low productivity, for all ruminants. Helminthes are the main internal parasites, including flat worms and gastro-intestinal roundworms. Foot and mouth disease is a serious infectious problem among cattle and a major outbreak in 2002 led to the slaughter of all infected animals. Outbreaks of animal disease also pose a significant threat to human health.

Shortages of vaccines impede disease control, although farmers tend not to vaccinate for infectious diseases as they correctly perceive it as a preventative measure and prefer to take the risk. When there is an outbreak, the national policy is to slaughter. However the absence of recording among private farmers means that the extent of the problem is unknown. Farmers may also be reticent to report outbreaks so that containment measures are not applied.

Under these conditions, the genetic potential of Tajik livestock is not a major constraint to increased productivity and production. The overriding priority is to increase feed intake as the basis for realizing *existing* genetic potential, rather than trying to improve genetic capability. Measures to improve livestock husbandry and reduce disease should also be given higher priority than genetic improvement, as they offer an affordable means to obtain a rapid, significant increase in output. Animal breeding programs should not be stopped, but their current importance and contribution should not be exaggerated and more effort should be made to relocate them to the private sector.

These are the issues and constraints that must be addressed if the livestock sector is to raise its contribution to agricultural output and realize its obvious potential. The inadequacy of feed intake in general, and winter feed in particular, is the fundamental constraint. Estimates of aggregate feed production and aggregate livestock feed requirements show that available feed is 40%-67% of basic requirements on an annualized basis, and that this percentage falls sharply in winter. If productivity and production are to increase, either livestock numbers must fall or feed production must rise.

Given that livestock numbers continue to grow increased feed output coupled with improved livestock husbandry are the only realistic solutions. Policies and programs to support the following measures are the basis for achieving these objectives:

- Increase the production of fodder crops, particularly alfalfa, and their role in crop rotations. Maize and improved pasture should also be better managed to raise yields and the quality of output.
- Improve the quantity and quality of conserved winter feed through better weed control, harvesting and conservation practices.
- Strengthen the community management of near and village pastures to reduce overgrazing.
- Improve the community level grazing management of summer pastures, and the costs and returns of herding.
- Improve the roads, tracks and bridges which give access to summer grazing areas.
- Prevent year round mating and synchronize breeding to achieve calving/lambing in spring when pasture growth resumes after winter.
- Improve farmer knowledge of modern, low-cost techniques of grazing and pasture management, feed rations, the management of young stock and livestock disease prevention.

Through improved feeding and management, producers will be able to increase milk production per lactation and reduce the breeding interval – the key determinants of livestock productivity. Potential benefits from these changes are significant. Annual milk production could be increased by at least 50%, the total number of calves reared could be more than doubled, lambing percentages could be increased to 100% and kidding percentages to 150%. NGO project activity has already shown that these increases in productivity are feasible, in response to low cost management changes by producers. Under ACTED's program in the Bokhtar district of Khatlon, old cows of the local breed in very poor condition (BCS of 2) were put through a relatively short period (30 to 40 days) of stall feeding on cotton seed oil cake and chopped straw. They subsequently produced a calf of 20 kg and were producing 7 liters of milk/day in early lactation.

### **5.2.2 Expanding Horticulture Production and Exports**

Tajikistan was one of the major producers of fruits and vegetables in the FSU, with annual exports of 100,000 tons of fruit, 60,000 tons of vegetables and 30,000-40,000 tons of canned food prior to 1990. Production and exports fell dramatically from 1985-2000, due to inadequate maintenance, falling yields and the loss of export markets. Fruit output has stagnated since, while vegetable production has recovered to levels above those obtained at independence -- driven by increased output of potatoes for self-consumption. Production of other vegetables has changed little.

Recent production (for 2004) is estimated at 682,000 tons of vegetables and 247,000 tons of fruit.<sup>14</sup> Small-scale, low input production systems predominate and yields are low. Worse, yields continue to decline for tree crops due to older trees and inadequate maintenance. Over 70% of output is produced from about 700,000 household plots (average 0.13 ha), which use little mineral fertilizer or pesticides. Most of their production is used for home-consumption and in-kind payment for wages, and the residual is sold. The remaining, larger producers also use little fertilizer, although this is because they lack access to capital. Access to extension and training services is poor,<sup>15</sup> which partly explains the limited range of varieties and their obsolescence (most varieties are decades old). Given greater access to fertilizer, other inputs and extension services, total output could be increased substantially through higher yields and lower crop and post-harvest losses.

<sup>14</sup> The main products are melons, watermelons, apples, apricots, grapes, pears, onions, tomatoes and lemons. Other fruits and vegetables include pomegranates, berries, cherries, strawberries, cucumbers and peppers.

<sup>15</sup> In Sughd, more than two-thirds of producers have no access to extension and training services, Made, 2004

The domestic market handles 10-15% of total horticulture output and 40-50% of traded surplus. Supply is erratic however, as most marketed output is a residual. Domestic markets are dominated by small players, at both wholesale and retail levels. Wholesalers typically work with one to three trucks, and are often producers themselves. Other, “shuttle-traders” are truck-owners who buy and sell wherever they see a margin. There is little organized assembly, minimal attention to building long-term relationships between producers and buyers, and no concept of pooling supply to reduce marketing costs. The long, poorly organized marketing chains that result lead to high trading margins (up to 75% observed in Dushanbe, in April and June). Packaging is minimal. Buyers provide crates when they are available, but trucks filled with ungraded and unpacked fruit are common in the markets, particularly in the main season. Product quality is low as a result. Retail trade is dominated by bazaars, 75% of which are owned by a soviet-era cooperative (Tojikmatlubot). These too are dominated by small individual traders. Dushanbe is the largest fresh produce market, with two wholesale markets and five retail markets, but each region sends its produce to specific markets.

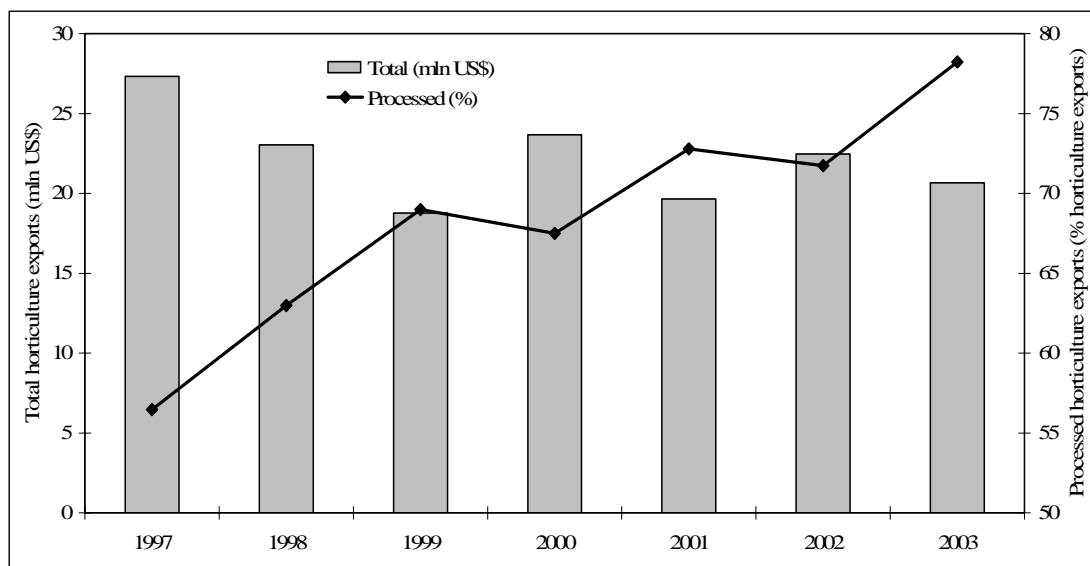
A similar volume of horticulture output is processed, and most of the final product is exported. Canned and dried products are processed by both industrial scale enterprises and several hundred small-scale processors, but even the largest enterprises are relatively small. Of the 32 canning plants in operation only 4 have a capacity of over 10 million liters, 6 have a capacity of 1-10 million liters, and the rest have a capacity less than 1 million liters. These plants produce juices, pickles, jams and tomato paste. This limited product range, together with lack of storage and the difficulty of sourcing raw material limits the processing period of most plants to 5-5.5 months. Poor cash flow, poor access to credit and low profitability are the main constraints to raw material supply, and raw material prices are low as a result. Contractual agreements between producers and processors are loose and provide minimal incentive, and barter and in-kind payment occurs frequently. With the exception of one large enterprise with a Tetra Pak line, all processors use similar technology and most equipment dates back to the 1930s. Most packing is in glass jars, as opposed to the plasticized cardboard containers now used for international trade. Capacity utilization in the larger plants is very low (about 30%). Smaller plants are more labor intensive and report higher capacity utilization, but their profit margins are low (less than 5%). The drying sector consists of industrial dryers for vegetables and small-scale fruit dryers using solar energy. Vegetable dryers are new to the sector and often use gas or electric drying for onions and other vegetables for export. Many of the small-scale drying enterprises are also producers themselves. Profitability in this sector is higher, with gross margins estimated at over 10%. Management is weak, and all processors report severe capital and liquidity constraints. Little effort has been made to develop attractive packaging or a Tajik product image.

Quality control and grading are still based on the old Soviet Goststandardt system. This system is incompatible with modern quality control systems, which impose higher standards and distinguish between (official) technical, food safety issues and (voluntary) quality standards imposed by retailers. This distinction is critical in more sophisticated, high value markets. The upper end of the Russian food market has now become highly differentiated, for example, due to the imposition of quality standards imposed by retailers rather than government. European products, with high quality packaging and branding now account for 5% of this market; and high quality Russian brands account for a further 25%. Lower quality, low priced products supply the remaining 70%, and Tajik fresh and processed products are sold in this segment.

Approximately 20% of fresh produce is exported and 80% of processed output, although export volumes are highly dependent on total production. Export marketing is slightly more organized and relies on contacts in traditional market outlets, but the actors are small. Russia is the destination for 95% of horticultural exports, and Tajik products have an established position in the dried fruit market. Tajik dried fruits accounted for around 20% of all dried product imports by Russia in 2003 versus 4% of fruit juice imports. These links to Russian markets have mixed implications for the future of horticultural exports.

On the one hand, Tajik products have the advantage that they are well-known in a growing market<sup>16</sup>, which creates important opportunities for export growth. Tajikistan can also supply off-season products. But Tajikistan is a small player in the Russian market and its position is weakening due to strong competition from other countries, especially for fresh produce. High transport costs, slow border clearance and the difficulty of meeting higher quality standards have reduced competitiveness, especially in the high value markets for fresh produce. Fresh produce thus fell from 44% to 22% of total exports from 1997-2003, while the share of lower value processed products increased (Figure 10). Dried fruit exports have declined, fruit juice exports have remained stable and exports of dried onions and vegetables have increased. Competitiveness is also reduced because yields are lower than in neighboring countries and are declining for fruits, berries and melons.<sup>17</sup> Post-harvest losses are also high at 30%-50%.

**Figure 10: Value of Fresh and Processed Horticulture Exports (million US\$), 1997-2003**



Source : FAO Statistics, various years

Spot transactions are the basis for most market activity rather than pooled supply. Information sharing is limited and infrequent as a result, trust is low and expertise is not pooled. This leads producers to cultivate what they know, increasing their marketing risks. Most interviewed farmers complained about market conditions but few had changed their cropping patterns. Extension services and marketing organizations should be promoted, starting with high value products such as dried apricots or onions.

Limited market information is a further constraint, particularly an understanding of what consumers in foreign markets are looking for. This is the starting point for choosing new varieties and production strategies, and updating processing technology, packaging and marketing. Knowledge of consumer demand in major markets is also critical for the design and introduction of voluntary quality standards. Better information on the types of fruits and vegetables in demand, seasonal patterns of demand, and requirements for sorting and packing will improve access to higher value markets. IFC has begun this process by identifying a number of late vegetables and early fruits for the premium markets in Moscow. Cucumber, peppers, tomatoes, radish and herbs can be supplied from November until the end of April. Plums receive a price premium from mid-May to mid-June, peaches from mid-June to mid-July, and apricots from May to end-July.

<sup>16</sup> For example the imports of apples grew from US\$50 million in 1999 to almost US\$200 in 2003

<sup>17</sup> Fruit yields are about one third of yield in Uzbekistan, while the vegetables are about 2/3 of Uzbekistan's levels

High transport and transaction costs constrain both domestic and export markets. Poor transport infrastructure and the spatial dislocation of production/processing and major urban centers result in fragmented domestic markets. About 80% of all agro-processing output originates in the Sughd region, where most of the processing capacity is located, while the majority of the population and the capital city are located in the South. But the mountain pass linking these regions is closed for almost half the year, and goods must be transported through Uzbekistan during this period at much higher costs. Unit costs are further increased by the small size of regional domestic markets, due to low population and the home production of fruit and vegetables on household plots.

Transport and transaction costs are an even bigger threat to the competitiveness of horticultural exports. Recognizing this, Government is negotiating with neighboring countries to create a “green corridor” for exports to Russia. But this will only be successful if the high transaction costs associated with bribery and inefficient customs procedures can be reduced. It takes at least 10-12 days to transport goods to Russia, and it can take more than three weeks. Customs procedures can add 3-5 days to transport times, and bribes can double the cost of transit. Although, the back-loading of freezer wagons from Russia offers the opportunity to lower transport costs, a requirement that trains cannot leave Tajikistan with less than 25 wagons restricts the ability to reduce costs in this way.

Table 19 provides a breakdown of current road and rail transport and other transaction costs to Russia, for different products. The equivalent cost to send an 18 ton container with apples from the United States to Saint Petersburg is US\$5,500; and to send a similar sized container with fruits and vegetables from Belgium to the same town is US\$4,000. Central government action to improve transport infrastructure and the efficiency of border procedures are essential responses to these problems, together with successful negotiation of the “green corridor”.

**Table 19: Export Costs for Fresh and Dried Fruits (US\$/wagon or truck and US\$/ton), 2005**

	Train (US\$/wagon 43 tons) Dried fruit and vegetables	Train (US\$/wagon 43 tons) Fresh apples	Truck (20-28 tons) Premium fresh fruits
Value of goods	15,000	7,000	10,000
Transport	2,500	3,500	5,500
Other costs	5,500	2,000	4,500
Total/unit	23,000	12,500	20,000
Total / ton	534	300	800
Total transport + other/ton	190	130	400
Share of transport + other/ton	0.36	0.43	0.5

Source: IFC and own estimates

Despite these problems there is a significant capacity to expand production and sales on both domestic and export markets. Government has recognized this with a development plan that aims to double fruit production by 2010, by increasing cropped area, introducing new varieties and rehabilitating orchards. The ensuing discussion outlines a broader approach to development, based on measures to (i) revitalize production and processing; (ii) improve the environment for private sector activity; and (iii) improve market integration and efficiency. As 80% of all households (rural and urban) are involved in horticulture production, the benefits of this expansion will be widely shared.

### 5.2.2.1 Revitalize Production and Processing

The markets in which Tajik horticultural products compete are changing rapidly. Imports are an increasing component of domestic markets and the ability to compete on export markets requires constant innovation to raise quality, lower prices and meet changing consumer demand. A strategy based on doubling output will have little impact in this context, unless it is accompanied by measures that improve the ability to compete on these markets. The objective should be to increase value-added rather than production, by re-orienting and raising production and processing, based on the following measures:

- Identify and introduce the varieties of fruit and vegetables that correspond to consumer demand in major domestic and export markets.
- Introduce modern, low-cost farm management systems to improve yields and product quality.
- Introduce more appropriate contractual agreements between producers and processors, with greater incentives to improve product quality.
- Increase access to seasonal credit to finance fertilizer, chemicals and new seed varieties
- Increase access to medium-term credit to facilitate the planting of orchards, and investment in processing plant, and storage and packaging facilities.
- Provide technical assistance to processors to help them improve efficiency, increase product quality, develop new products, identify new markets and develop and implement medium-term business and investment plans.

### **5.2.2.2 Improve the Environment for Private Sector Activity**

Government can do much to improve the environment for private sector activity, by lowering the costs and the risks of business activity. Priority should be given to the following measures:

- Harmonize official product standards with international standards.
- Work with commodity or industry groups to develop market information systems
- Reduce the high transport and transaction costs incurred by the need to bribe traffic police and customs officials.
- Improve contract enforcement through legislative reform and measures to strengthen the courts.
- Continue efforts to negotiate trade, transport and border crossing agreements as a means to lower export costs and improve access to international markets.
- Remove the disincentives created by the current tax system, with particular emphasis on reducing corruption and improving the efficiency for assessing and reimbursing VAT.

### **5.2.2.3 Increase Market Efficiency, Integration and Innovation**

Marketing is the weakest element of the horticulture sector. A highly fragmented structure dominated by small producers and processors results in long marketing chains and high marketing margins; distrust between producers and buyers discourages the joint activity needed to redress this constraint; and information is lacking throughout the supply chain. Costs and risks are high as a consequence, for all participants in the supply chain. These constraints have also limited innovation, with minimal development of new products, new markets, and new marketing institutions.

New approaches to agro-processing and marketing are needed to resolve both demand and supply constraints, based on pooled supply and the establishment of horizontal and vertical market linkages. Pooling supply at each level of the supply chain will also enhance market efficiency and value. By working together, smallholders will acquire the economies of scale necessary to engage in processing, exporting and bargaining. Pooled resources will also give them the opportunity to vertically integrate and enter other areas, such as adding value by sorting and packing. It can also reduce risks and increase bargaining power towards buyers, shuttle-traders, input suppliers, etc. Most importantly, it should increase producers' share of retail prices.

There are numerous institutional forms for pooling supply and working together, including associations, cooperatives, partnerships, and corporate entities. They differ in terms of their legal status, objectives (profit versus non-profit), business status (taxable or not), ownership of group assets, and the liability of members. Members themselves should decide on the preferred organizational structure, depending on the rationale for working together and the characteristics of potential members. International experience with producer organizations is summarized in Box 2.

Mechanisms to increased cooperation between these value-adding groups, including producers, processors and packers, will also increase efficiency. The creation of specific “platforms”, or vertical alliances for various commodities will increase market integration by allowing all stakeholders to meet, exchange information, differentiate products and their specific strategic needs, and enhance coordination within each supply chain. It will also increase stakeholders’ awareness of market needs and competition and how to react to new market conditions. Experience shows that producer’s organizations are weaker than those of processors or exporters, and that this can impede negotiation and action. Technical assistance should thus be designed to give producer associations more support and more time to develop. Up-grading and vertical integration should follow, once these platforms are in place. Vertical alliances also spread risk, help the sector to create more appropriate product standards, and enhance producer control of their output.

Two separate platforms should be promoted initially, fruit trees and annual fruits and vegetables. These platforms should be informal to begin with, but should aim to develop legal recognition and powers of contract enforcement in the longer term. This implies that Government should recognize these organizations and their members as representative of their sub-sectors, although the organizations themselves should remain independent of government.

More emphasis should also be placed on developing new products and new markets, particularly at the more lucrative, high-value end of food markets. For this to occur, Tajik producers and exporters will need to develop supply chains for specific products. In addition to higher product standards, this will require more sophisticated production, processing and marketing strategies; upgraded technology, and better access to capital and foreign expertise. IFC has initiated this process by supporting the development of a partnership between a private trader based in Moscow, a private investor in Tajikistan and professional growers. The donor community should also support measures to explore the feasibility of new products, and the extent to which a Tajik national brand or product image could be developed to advantage.

To be effective, all of these changes will need to be accompanied by new ways of thinking. At the farm level, production will need to be based on production estimates rather than national or regional production plans; actual production costs rather than official norms; and the need to meet customers’ needs rather than production plans. Objectives will be increasingly driven by the need to raise quality, yields, and profitability rather than volume; and by the ability to meet the needs of specific clients rather than to produce for a vaguely defined “market”.

## **Box 2: Producer Organizations – Lessons from International Experience**

### **The Roles of Producer Organizations**

In both developed and developing countries, producer organizations play two important roles.

#### **1. Pooling output from many small-scale producers**

By pooling supply, small-scale producers can create a cost-effective means to standardize output, improve access to inputs and services (extension, market information), store and market output, and reduce transport and transaction costs. Their competitiveness on domestic and export markets improves as a result. Supply can be pooled on either a commodity basis or a regional/community basis. This structure also provides a platform for technical assistance.

#### **2. Improving the coordination along modern supply chains**

Modern supply chains require good coordination at each level to ensure that the client's requirements are met. A producer organization facilitates logistics, quality control, and consistency and timeliness of delivery -- in a cost-effective manner. It is particularly useful for export supply chains where there are stringent requirements for traceability, compliance with sanitary and phyto-sanitary standards, and food safety standards.

### **Conditions for Effective Action**

Experience shows that producer organizations are most effective when the following conditions are met:

- The establishment of a producer organization is not a goal in itself. It should be part of a wider program of agriculture sector development.
- Producer organizations, by themselves, do not create value. There is little to be gained from creating many producer organizations with weak activities and/or constituencies.
- The optimum conditions for producer organizations to emerge and grow occur when there is a well-defined activity that will link stakeholders, and create momentum and goodwill for the organization (e.g. quality control, implementation of a strategy for a specific supply chain). If the activity has little momentum, the organization is unlikely to develop, strengthen and survive.
- The organization should focus on a commodity or small group of commodities, where the knowledge base and development strategies have been sufficiently worked out. Participants should be able to quickly see the value added that the organization can bring, the services they can expect and, in the long run, be prepared to pay for.
- Producer organizations should be built bottom up, starting from the local/regional level where the commodity and activities are located. They should be strongly rooted at producer level, and attempts to build national organizations should only be made when needed.
- Producer organizations should be real, independent actors in the economy and not instruments of government. But they do need a clear legal framework in order to exist and operate.

### **Potential Activities for Producer Organizations in Tajikistan**

1. *Commodity Specific Associations/Organizations and Interprofessions* where the various participants in the supply chain can discuss their problems, search for solutions and build a platform for discussion with government.
2. *Export Infrastructure*: producer organizations play an important role in modernizing and managing export facilities; full or partial ownership of terminals, cold storage, etc; and influence the management of ports, rail, and airports.
3. *Partnerships Between Out-Grower Schemes and Foreign Investors*: Producer organizations serve as the link between producers (outgrowers) and foreign buyers or technical partners.
4. *Support to Small-scale Agro-Processing*: Technical assistance and expertise can be mobilized through producer organizations to improve, upgrade and upscale the use of adapted agro-processing technologies at grassroots level. Such technical assistance would be used to identify new markets or market niches.

## **VI. A ROAD MAP FOR SECTOR DEVELOPMENT**

The core elements of strategy design and implementation are presented in this chapter, to provide a road map for sector development. Sequencing issues are reviewed first, followed by a policy and program matrix that summarizes the rationale and measures associated with major components of the strategy.

### **6.1 Sequencing Reform**

The sequencing of reform and international support has a major impact on the success of all medium-term strategies for sector development (agriculture or otherwise). Measures designed to create the pre-conditions for subsequent action should be introduced first, particularly when they have wide impact and can be implemented relatively quickly. Initiatives likely to produce a rapid impact should also be introduced early, as they help to build support and momentum for the strategy.

Numerous measures are consistent with these criteria, particularly those associated with land privatization and cotton sector reform – the two pillars of sector development. These are as follows:

#### *Land Privatization*

- Terminate local government coercion of producers to use 70% of their arable land for cotton, and allow them to use their land as they choose.
- Terminate local government threats to producers to expropriate their land in the event of “irrational” use, and limit any expropriation to land needed for public use.

#### *Cotton Sector Reform*

- Abolish internal movement controls on seed cotton and cotton fiber and ensure that cotton can move freely for processing and marketing.
- Halt local government coercion of producers to use designated investors and/or ginneries, and ensure that producers have the freedom to choose where they obtain seasonal credit and farm inputs, and where they gin and sell their cotton.
- Adopt international standards for cotton grading.
- Establish an independent certification agency, which is recognized by international buyers.

These measures remove the major, immediate impediments to production and marketing by giving farmers the freedom to use their land as they choose, and the freedom to choose the processing and marketing agents with whom they engage. They also remove support for local monopsonies and create an environment that is conducive to full competition. Until these changes are made, there is little to be gained from the other proposed measures associated with land privatization and cotton sector reform. Rapid, effective action of this nature also sends a clear signal to the international community that government is committed to reform. Recognizing this commitment, donors are more likely to provide project and program support.

Government will also need to demonstrate early support for a just debt resolution by ensuring that the Independent Commission acts fairly and independently, and is not subverted by the powerful vested interests that dominate the cotton sector.

Additional measures suited to early implementation include:

- Initiate reform of the regulations and procedures that govern the import of improved varieties of cotton seed.
- Initiate the establishment of an auction system for cotton, which allows domestic producers and processors to sell to international buyers.
- Donor support for rural credit in the form of technical assistance and credit lines
- Donor funded technical assistance for horticulture and livestock production and marketing.

The remaining components of the strategy should be introduced once the above reforms and programs are in place.

## **6.2 Policy and Program Matrix**

The main elements of the strategy and the broad pattern for sequencing short and medium-term actions are summarized in the program and policy matrix below. In addition to land reform, cotton sector reform, rural finance and diversification; public institutions and agricultural markets are included in the matrix as cross-cutting issues that are critical to sector development. Note also that there are many medium-term measures that can be initiated early in the strategy, including those noted in the previous section. They are categorized as medium-term in the sense that successful implementation is likely to take 3-5 years, so they should be initiated early whenever appropriate.

As agriculture sector development will have a major impact on poverty reduction, it is important that the agriculture sector strategy is incorporated into Tajikistan's forthcoming national Poverty Reduction Strategy. The timetable for agriculture strategy implementation, 2006-2012, has been chosen with this in mind as it corresponds to the timetable for the national poverty reduction strategy.

## AGRICULTURE SECTOR STRATEGY for TAJIKISTAN: POLICY and PROGRAM MATRIX

<b>POLICY PRIORITIES and OBJECTIVES</b>	<b>ISSUES and CONSTRAINTS</b>	<b>SHORT-TERM RESPONSE (2006-2008)</b>	<b>MEDIUM-TERM RESPONSE (2006-2012)</b>	<b>EXPECTED OUTCOMES</b>
<p><b>LAND REFORM</b></p> <p><b><i>Objectives:</i></b> <b>A land reform which creates secure, well-defined, readily obtainable individual use and transfer rights as the basis for agriculture production</b></p>	<p>1. Land reform has been slow (60% of arable land privatized), with government emphasis on creating collective dehqon farms. Although nominally private, the management of these farms has changed little and individual incentives to invest and raise output remain very low.</p> <p>2. A high proportion of farmers have left the collective dehqons and created individual dehqon farms (40% of arable land), but the process is slow, opaque and expensive.</p> <p>3. Local governments distort land use by coercing farmers to plant 70% of their arable land to cotton, based on their powers to expropriate land in the event of “irrational use”.</p> <p>4. The collective and individual dehqon farms which have been established lack security of tenure and the freedom to use their land as they choose. Laws are unclear, courts are weak, and government control of land use is inappropriate, arbitrary and excessive.</p>	<p>1. Terminate local government coercion of farmers to use arable land for cotton production.</p> <p>2. Restrict local government powers to expropriate land and terminate the use of threats to confiscate land not used for cotton production on the grounds of “irrational use.”</p> <p>3. Complete the second phase of privatization for all farmers seeking to create individual dehqon farms, by: providing them with more information, increasing the simplicity and transparency of the privatization process, and reducing the costs incurred.</p> <p>4. Increase the independence of State and Local Land Committees from government interference.</p> <p>5. Modernize the Land Registry</p> <p>6. Inform and educate farmers about current land legislation and relevant agencies, the land rights they have acquired as a result of reform, and the means to protect these rights.</p>	<p>1. Improve the clarity of current land legislation and strengthen the capacity of the court system to enforce it.</p> <p>2. Strengthen the capacity of the administrative agencies responsible for land ownership and use (cadastre, land registry etc) to ensure that they are independent, transparent and accessible.</p> <p>3. Support the development of an active market for land leasing.</p>	<p>1. A land tenure system which gives farmers the freedom to use their land as they choose, and provides full security of tenure.</p> <p>2. Increased incentives to raise output and invest, and a corresponding increase in production and household incomes.</p> <p>3. An active market for leasing land</p>

POLICY PRIORITIES and OBJECTIVES	ISSUES and CONSTRAINTS	SHORT-TERM RESPONSE (2006-2008)	MEDIUM-TERM RESPONSE (2006-2012)	EXPECTED OUTCOMES
<b>COTTON SECTOR RECOVERY</b> <i>Objectives:</i> <b>Resolve the cotton debt crisis and develop policies that are conducive to increased productivity, competitive markets and reduced poverty among cotton producers</b>	<p>1. Cotton sector debt has become a major impediment to cotton production. It is also inhibiting land privatization and access to credit. The Independent Commission established to resolve these debts is not yet operational.</p> <p>2. Inappropriate policy is the underlying cause of the debt crisis, and the high incidence of poverty in cotton areas.</p> <p>3. Current policies suppress competition rather than encourage it, through support for monopsony control of processing, credit, input supply and marketing; and reduce producer incentives by coercing farmers to use 70% of arable land for cotton production.</p> <p>4. The current systems for pricing seed cotton and fiber, grading and quality control, and obtaining improved seed varieties should be revised and modernized to raise the competitiveness of Tajik cotton.</p>	<p>1. Strong, sustained government and donor support for the Independent Commission established to resolve the cotton debt crisis.</p> <p>2. Case by case resolution of the cotton debt crisis</p> <p>3. Terminate local government coercion of farmers to use 70% of arable land for cotton production.</p> <p>4. Terminate implicit government support for the local and regional monopsonies which control cotton processing, marketing, input supply and credit.</p> <p>5. Abolish internal movement controls on seed cotton and cotton fiber.</p> <p>6. Reform the current mechanism used to assess export prices and levy export taxes.</p> <p>7. Introduce internationally accepted grading systems and a modern, independent certification system.</p>	<p>1. Increase producer access to improved seed varieties, by reforming seed regulations to facilitate imports and strengthening the capacity for seed testing and multiplication.</p> <p>2. Support the TUGE to develop an auction system which allows domestic producers and processors to sell to international buyers.</p>	<p>1. A competitive environment for processing, marketing, input supply and credit; more favorable input and output prices for producers; and a higher producer share of the cotton value chain</p> <p>2. Improved incentives for cotton production, and a substantial consequent increase in output and exports.</p> <p>3. Sustainable growth in cotton production and productivity; and an increase in the competitiveness of Tajik cotton on world markets.</p> <p>4. An increase in cotton producer incomes, and an associated reduction of rural poverty in cotton growing areas.</p>

POLICY PRIORITIES and OBJECTIVES	ISSUES and CONSTRAINTS	SHORT-TERM RESPONSE (2006-2008)	MEDIUM-TERM RESPONSE (2006-2012)	EXPECTED OUTCOMES
<b>RURAL FINANCE</b>  <i>Objectives:</i> Improve access to rural finance	<p>1. A weak financial system that lacks the capital, expertise and incentives to lend to farmers and agro-processors. Interest rates are high, and medium and long-term capital is scarce.</p> <p>2. Most commercial banks are small and poorly managed and there is low public confidence in the banking system. Short-term deposits are their main source of capital, as foreign ownership is prohibited by government.</p> <p>3. New laws provide the basis for non-bank financial institutions to expand, but they lack capital and expertise and have a limited rural presence.</p> <p>4. Most rural credit is seasonal finance to cotton producers, provided by private sector cotton investors – most of whom are in financial difficulty as a result of the cotton debt crisis.</p> <p>5. State ownership of land limits the collateral that farmers can offer to potential lenders, and weak contract enforcement limits the capacity for loan recovery in the event of default.</p>	<p>1. Resolution of the cotton debt crisis and removal of the monopsony powers enjoyed by cotton investors over cotton credit (as described above).</p> <p>2. Broaden the base for rural lending through support for a wider range of bank and non-bank financial institutions.</p> <p>3. Continue donor support for: training in agricultural lending, the development of new lending instruments and forms of (non-land) collateral suited to rural borrowers, expansion into rural areas, and credit lines for agriculture and agro-processing.</p> <p>4. Legislative reform to allow foreign ownership of commercial banks, as a means to increase bank capital and improve bank management; and so strengthen their capacity for rural lending.</p> <p>5. Strengthen the institutional and capital base for leasing.</p>	<p>1. Strengthen the legal basis for secured transactions</p> <p>2. Strengthen the legal and administrative basis for loan recovery.</p> <p>3. Continue to strengthen commercial bank supervision by the National Bank of Tajikistan.</p> <p>4. Improve the capacity to collateralize loans by developing reliable, accessible registries for moveable and immoveable assets.</p> <p>5. Develop primary and secondary capital markets.</p>	<p>1. Improved access to capital and a consequent increase in investment, technology adoption and productivity.</p> <p>2. A wider range of bank and non-bank financial institutions engaged in rural lending, and reduced dependence on cotton investors for seasonal finance.</p> <p>3. A stronger capacity for rural lending based on well-informed loan appraisal and risk assessment.</p> <p>4. A wider range of loan products and collateral instruments, suited to rural lending.</p>

POLICY PRIORITIES and OBJECTIVES	ISSUES and CONSTRAINTS	SHORT-TERM RESPONSE (2006-2008)	MEDIUM-TERM RESPONSE (2006-2012)	EXPECTED OUTCOMES
<b>DIVERSIFICATION</b>  <i>Objectives:</i> <b>To broaden and strengthen the base for sustainable agriculture sector growth by raising livestock productivity and production</b>	<p>1. A resource base for livestock production characterized by extensive pastures for summer grazing, but low fodder production.</p> <p>2. Very low productivity due largely to undernutrition, particularly during winter.</p> <p>3. Poor livestock management exacerbates the impact of undernutrition on productivity and contributes to high mortality</p> <p>4. Current emphasis on cotton and wheat limits the scope to increase fodder production</p>	<p>1. Improve farmer knowledge of modern low cost techniques of pasture and livestock management</p> <p>2. Increase the production of fodder crops, particularly alfalfa</p> <p>3. Improve the quantity and quality of conserved winter feed</p> <p>4. Prevent year round mating and synchronize calving/lambing to the spring recovery of pasture growth</p>	<p>1. Strengthen the community management of near pastures to reduce overgrazing.</p> <p>2. Improve the management of summer grazing</p> <p>3. Improve access to summer grazing areas</p>	<p>1. A substantial increase in livestock productivity and production as a result of better feeding (particularly during winter), and improved livestock management.</p> <p>2. Higher and more stable farm incomes</p>
<b>To broaden and strengthen the base for sustainable agriculture sector growth by increasing the value-added of horticultural production</b>	<p>1. Declining production and exports of high value fruit and vegetable products.</p> <p>2. Established reputation in Russian market, but increasing difficulty meeting quality requirements</p> <p>3. High transport and transaction costs due to poor infrastructure, border transit problems and corruption.</p> <p>4. Fragmented production and marketing structures with high associated marketing margins</p> <p>5. Agro-processing sector constrained by outdated technology, poor information, poor access to capital and weak management</p>	<p>1. Identify new varieties of fruit and vegetables which correspond to consumer demand in major markets</p> <p>2. Introduce modern, low cost management systems to improve yields and product quality.</p> <p>3. Expand the role of producer organizations as a means to increase efficiency, through pooled supply and improved supply chain management.</p> <p>4. Provide technical assistance to processors to improve efficiency, increase quality, develop new products, diversify markets and upgrade plant</p>	<p>1. Harmonize official product standards with international standards, and support the adoption of industry based (voluntary) quality standards.</p> <p>2. Increase access to short and medium-term credit.</p> <p>3. Introduce more appropriate contractual agreements between buyers and sellers, and strengthen contract enforcement</p>	<p>1. Increased output of high value products for sale on domestic and export markets</p> <p>2. Increased efficiency of assembly and marketing, with lower marketing costs, higher returns and increased competitiveness on domestic and export markets.</p> <p>3. Stronger links between producers, processors and buyers in final markets</p> <p>4. Better access to high value export markets</p> <p>6. Increase in value-added from horticultural production at sector level, and higher household income</p>

POLICY PRIORITIES and OBJECTIVES	ISSUES and CONSTRAINTS	SHORT-TERM RESPONSE (2006-2008)	MEDIUM-TERM RESPONSE (2006-2012)	EXPECTED OUTCOMES
<p><b>PUBLIC INSTITUTIONS</b></p> <p><i>Objectives:</i> <b>Define new roles and responsibilities for public institutions consistent with Tajikistan's current economic policy, and strengthen their capacity to implement these roles and responsibilities for agriculture</b></p>	<p>1. Slow reform of the public institutions responsible for agricultural sector development is inhibiting sector reform and development. Policies have changed but institutions have not.</p> <p>2. Most of the public institutions involved in agriculture are still organized and managed as they were before independence. Many still view production targets and coercion as the basis for planning and policy implementation. Local government is particularly resistant to change,</p> <p>3. A systematic re-definition of public roles and responsibilities has yet to occur, followed by restructuring and staff training. The quality of public service provision is very low as a result.</p> <p>4. Low public sector wages reduce staff incentives, and limited budgets reduce access to the resources needed for adequate service provision. Corruption is pervasive.</p>	<p>1. Shift the focus of government intervention from direct control of sector activities to the formulation of appropriate policies and regulations, the protection of public safety, the establishment and monitoring of appropriate product standards, and the provision of services which the private sector is unwilling or unable to perform.</p> <p>2. Terminate inappropriate local government intervention in reform and private sector activity.</p> <p>3. Strengthen the capacity for policy formulation and planning in the Presidents Office.</p> <p>4. Strengthen the capacity of the Ministry of Agriculture to implement regulatory activities through re-organization, re-training and the modernization of regulatory laws and practices.</p> <p>5. Widen the role of Water User Associations and prepare a national inventory of irrigation assets and a national investment plan.</p>	<p>1. Transfer responsibility for policy formulation to the Ministry of Agriculture</p> <p>2. Establish river basins as the basis for water resource management, and progressively raise water use fees to reflect the actual costs of O&amp;M.</p> <p>3. Economy-wide reform of public sector wages and staffing levels, as the basis for improved public service provision.</p> <p>4. Economy-wide implementation of budget reforms, in association with the medium-term expenditure framework.</p> <p>5. Integrate the CSIP into the PIP and align public investment in agricultural projects with the objectives of the PRSP.</p>	<p>Improved public service provision and an improved environment for private sector activity.</p>

POLICY PRIORITIES and OBJECTIVES	ISSUES and CONSTRAINTS	SHORT-TERM RESPONSE (2006-2008)	MEDIUM-TERM RESPONSE (2006-2012)	EXPECTED OUTCOMES
<b>AGRICULTURAL MARKETS</b> <i>Objectives:</i> <b>Strengthen agricultural markets by increasing competition, reducing transaction costs and improving market integration; in order to improve the incentives for producers to move from subsistence to commercial production</b>	<p>1. Agricultural markets are highly distorted and inefficient due to inappropriate government regulation and inadequate competition.</p> <p>2. Local monopsonies for cotton processing and marketing reduce producer incentives; and are a major cause of declining cotton production, exports and the cotton debt crisis.</p> <p>3. Farm input markets are also distorted by the monopsony position of cotton investors. Input prices are high and service is poor as a result.</p> <p>4. Tajikistan's geography, climate and weak infrastructure lead to high transaction costs, poor market integration and lower returns. Transport through Uzbekistan is the only land link between north and south for 4-5 months/year.</p> <p>5. These deficiencies are exacerbated by inadequacies in: market information, product selection, quality control, and weak links along the marketing chain.</p>	<p>1. Remove the implicit and explicit controls that prevent active competition in the markets for cotton, credit and farm inputs.</p> <p>2. Increase donor and government support for producer organizations and collective marketing activity as a means to improve: marketing efficiency, access to market information, product selection and quality control, access to new markets, and contract negotiation.</p> <p>3. Transfer the TUGE's current responsibility for cotton pricing and tax assessment to relevant ministries and strengthen the TUGE's capacity to act as a marketing and brokering agency for all commodities.</p> <p>4. Develop market information systems and disseminate regular market information for all major commodities in all major regional markets.</p> <p>5. Strengthen the knowledge of consumer requirements in all major markets.</p>	<p>1. Improve essential road and rail links, and the quality of communications; and increase the efficiency and frequency of air travel to and from Tajikistan.</p> <p>2. Reduce the road side bribes extracted by police and customs officials; which significantly increase transactions costs.</p> <p>3. Reduce the costs and time required for border transit through Uzbekistan,</p> <p>4. Continue efforts to negotiate trade, transport and border agreements to lower export costs; and continue to promote establishment of the green corridor through neighboring countries into Russia and Europe.</p>	<p>1. Increased market activity, to the benefit of producers and consumers.</p> <p>2. Higher returns to market transactions, greater incentives to produce for markets and more efficient resource allocation (in response to undistorted prices).</p> <p>3. Increased competitiveness of Tajik agricultural products on domestic and international markets.</p>

## REFERENCES

- Abdulai, A., (2005). "Tajikistan Agriculture Sector Strategy: Agriculture and Poverty under Economic Reforms in Tajikistan"
- Abdulai, A. and D. Aubert. (2004). Nonparametric and parametric analysis of calorie consumption in Tanzania. *Food Policy* **29**(2), pp. 113-129.
- Adams, R. (1999). Nonfarm Income, Inequality and Land in Rural Egypt. *PRMPO/MNSED*. Washington, DC: World Bank.
- Asian Development Bank. (2001) "Agricultural Sector Assessment Project (ASAP), Tajikistan." Revised Final Report. ULG Northumbrian Ltd. January 2001.
- Aga Khan Foundation. Land Reform and Land Tenure in the Rasht Region. 2003.
- Asian Development Bank. "Agricultural Sector Assessment Project (ASAP), Tajikistan." Revised Final Report. ULG Northumbrian Ltd. January 2001.
- Asian Development Bank. Farm Debt Resolution and Policy Reforms. Interim Report. SCANAGRI in association with NIAB and MNT Consulting. March, 2004.
- Baulch, R. and J. Hoddinott (2000). Economic Mobility and Poverty Dynamics in Developing Countries. *Journal of Development Studies* **36**, 1-24.
- Bigsten, A., Kebede, B. and A. Shimeles. (2002). Growth and Poverty Reduction in Ethiopia: Evidence from Household Panel Surveys. *World Development*, **31**(1), pp. 87-106.
- Bravo-Baumann, A., (2005). "Tajikistan Agriculture Sector Strategy: Livestock Value Chains in Tajikistan"
- Crole-Rees, A., (2005). "Tajikistan Agriculture Sector Strategy: Doubling Tajik horticulture production until 2010: reality or utopia?"
- Datt, G. and M. Ravallion (1992). Growth and Redistribution Components of Changes in Poverty Measures : A Decomposition with Applications to Brazil and India in the 1980s. *Journal of Development Economics* **38**, pp-275-295.
- FAO. (2005) "The Review of the Land tax and Single tax for Agricultural Producers in Conformity with the new Tax Code of the Republic of Tajikistan. April 8, 2005.
- Foster, J., J. Greer, and E. Thorbecke (1984). A Class of Decomposable Poverty Measures. *Econometrica* **42**, pp. 761-766.
- Government of Tajikistan. (2005). Second Progress Report Poverty Reduction Strategy Paper Implementation. Republic of Tajikistan, June 2005.
- Haddad, L. and A. Akhter. (2002). Chronic and Transitory Poverty: Evidence from Egypt, 1997-99. *World Development*, **31**(1), pp. 71-85.
- IMF. (2003). "Republic of Tajikistan: Selected Issues and Statistical Appendix." Country Report No. 03/5. January, 2003.
- IMF. (2004). "Republic of Tajikistan: Third Review of the Three Year Arrangement Under the Poverty Reduction and Growth Facility, and Request for Waiver of Performance Criterion – Staff Report." Country Report No. 04/248. August, 2004.

- International Finance Corporation. (2003). "Business Environment in Tajikistan as seen by Small and Medium Businesses." Internal Report, World Bank Group.
- Lanjouw, J and P. Lanjouw. (2001). The Rural Nonfarm Sector: Issues and Evidence from Developing Countries. *Agricultural Economics*, **26**, 1-23.
- Nolan, T., (2005). "Tajikistan Agriculture Sector Strategy: Main Principles Underlying Grassland Management for Practical Livestock Farming"
- Nyberg, A. and S. Rozelle. (1999). "Accelerating China's Rural Transformation." Washington DC: World Bank, August 1999.
- O'Mara, F., (2005). "Tajikistan Agriculture Sector Strategy: Animal Nutrition and Livestock Productivity"
- Ravallion, M. (2001). Growth, Inequality and Poverty: Looking Beyond Averages. *World Development* **29**, pp. 1803-1815.
- Reardon, T. (1997). Using Evidence of Household Income Diversification to Inform Study of the Rural Nonfarm Labor Market in Africa. *World Development*, **25**, pp. 735-748.
- Reardon, T. (1998). Rural Nonfarm Income in Developing Countries. In the State of Food and Agriculture 1998. Rome: Food and Agriculture Organization of the United Nations.
- Sadler, M., (2005). "Cotton in the Global Context" ECSSD Working Paper (in progress)
- Sadler, M., (2005). "Tajikistan Agriculture Sector Strategy: Cotton Sector Review"
- Schiff, M. and A. Valdes (1992). *The Political Economy of Agricultural Pricing Policy in Developing Countries, Volume IV: A Systhesis of the Economics in Developing Countries*, John Hopkins University Press, Baltimore, Maryland.
- Subramanian, S. and A. Deaton. (1996). The Demand for Food and Calories. *Journal of Political Economy* **104**, 133-162.
- Swedish Institute for Public Administration (SIPU). (2003). Land Reform in Tajikistan: Assessment and Recommendations on the Way Forward. Final Report. October, 2003.
- Ukaeva, U., (2005). "Tajikistan Agriculture Sector Strategy: Decomposition of Agricultural Growth in Tajikistan"
- USAID. "Land Reform and Farm Re-Organization in Tajikistan: Policy Issues Paper." USAID/ARD CAR Land Tenure Reform Project.
- USAID. Land Reform and Farm Re-Organization in Tajikistan: Policy Issues Paper. USAID/ARD CAR Land Tenure Reform Project.
- Valdes, A. (1973). Trade Policy and its Effect on the External Agricultural Trade of Chile 1945-1965, *American Journal of Agricultural Economics* **55**, pp. 154-164.
- Van Engelen, A., (2005). "Tajikistan Agriculture Sector Strategy: Report on visit to Sughd Oblast"
- World Bank. (2001). "Tajikistan: Towards Accelerated Economic Growth." Country Economic Memorandum. January, 2001.

- World Bank. (2003). "Country Assistance Strategy for The Republic of Tajikistan." February 2003.
- World Bank. (2003). "Note on Finance and Marketing in the Cotton Sector of Kazakhstan, Kyrgyzstan, and Tajikistan," World Bank, July, 2003.
- World Bank. (2004). "A Strategic Financial Sector Assessment, Practical Suggestions to Increase Access to Finance, Intermediation and Public Confidence in the Tajikistan Banking Sector." Draft Report. May, 2004.
- World Bank. (2004). "Tajikistan: Investment Climate Assessment (ICA)," World Bank, June 2004.
- World Bank. (2004). "Tajikistan: Public Expenditure and Institutional Review." Volume I., Washington, DC: World Bank.
- World Bank. (2004). "Tajikistan: Poverty and Social Impact Analysis of Cotton Farmland Privatization. June," Washington, DC: World Bank.
- World Bank. (2004). "Tajikistan Poverty Assessment Update: Main Report," Washington, DC: World Bank, June, 2004.
- World Bank (2001). "Tajikistan – Towards Accelerated Economic Growth. A Country Economic Memorandum." Report No. 22013-Tj, Washington (DC).
- World Bank (2004). "Tajikistan: Public Expenditure and Institutional Review," Volume I. World Bank, June, 2004.
- World Food Program. (2003). "Situation Analysis of Food Security in Tajikistan: Baseline Chronic Food Insecurity." Vulnerability Analysis and Mapping Unit. World Food Program, Rome, Italy. March 2003.
- World Food Program. (2005). "Household Food Security and Vulnerability Survey in Rural Tajikistan." World Food Program, Rome, Italy.