

ECONOMIC ANALYSIS

A. Introduction

1. The Horticulture Value Chain Development Project (HVCDP) will finance a range of enterprises to implement viable subprojects in horticulture production and post-harvest handling, storage, and processing. All subproject financing will be demand-driven based on potential subborrowers' proposals submitted to participating financial institutions (PFIs). All subprojects, subborrowers, and subloans will be required to satisfy HVCDP eligibility criteria. Subproject proposals will include a detailed market assessment and technical and financial analyses in the form of a business plan. PFIs will appraise business plans and determine the subloans' terms and conditions according to their prevailing credit policies and risk strategies and appropriate commercial criteria. In this respect, it is not possible to state in advance exactly what types or how many subprojects will be financed, though it is expected they will comprise a blend of production and post-harvest activities throughout Uzbekistan.

B. Economic Overview

2. Uzbekistan's economy has grown consistently in recent years. During 2010–2013, gross domestic product (GDP) grew at annual rates of more than 8.0%, reaching \$66.7 billion in 2015. The economy proved extremely resilient to the downward pressures exerted from 2008 onwards on other economies by the global financial crisis.¹ Despite an economic downturn in the Russian Federation, Uzbekistan's major trading partner and source of remittances, the Uzbek economy is expected to maintain GDP growth rates of 6.9% in 2016 and 7.3% in 2017. Overall poverty, according to national poverty line estimates, declined from 27.5% of the population in 2001 to 13.7% in 2014 as a result of rapid economic growth and the creation of new small businesses and employment; large Government of Uzbekistan investments in education, health, and infrastructure; increases in public sector salaries; and increased remittances.² Along with overall economic growth, agricultural GDP in Uzbekistan has grown significantly. From 2010 to 2014, it grew at annual rates ranging from 6.3% (2014) to 7.1% (2012). The agriculture sector is projected to grow by 6.0% in 2016 and 6.5% in 2017, according to the Asian Development Outlook. However, the expansion of and higher rate of growth in other sectors, largely as a result of significant government-financed investment programs, resulted in a decline in the agriculture sector's contribution to GDP. In 2000, agriculture accounted for 34.4% of GDP. This had fallen to 29.5% by 2005 and to 18.3% by 2015. Meanwhile, the combined share of fruits and vegetables (including potatoes) increased from 5.2% to 10.6%.

C. Project Rationale

3. Since 2014 the government has implemented several policies within the agriculture sector that have addressed issues such as farm restructuring and introducing private usufruct rights on former cooperative and state land. This has been accompanied by diversification in cropping patterns away from traditional cotton and wheat crops to higher-value fruit and vegetable crops. However, agriculture continues to have low productivity and be labor intensive. Government policy for the fruit and vegetable sector is to facilitate private sector, market-driven development. The most recent policy initiative in the sector was implemented under a

¹ The World Bank estimates in \$. <http://www.worldbank.org/en/country/uzbekistan> (accessed 30 August 2016).

² On the basis of \$1.90 purchasing power parity criterion, an estimated 68.1% of the population was below the poverty line in 2012. Asian Development Bank. 2016. *Basic Statistics 2016*. Manila.

government resolution that established a state procurement system for fruit and vegetables.³ Details of the resolution's implementation are limited, but it is intended that fruit and vegetable product procurement—for delivery to processors and for storage to ensure adequate off-season supply—be entrusted to Uzbekozikovkatholding⁴, and responsibility for fresh fruit and vegetable export be given to Uzagroexport, a government agency established for the purpose.

4. Such policy initiatives may provide an impetus to horticulture development. However, limited access to equity and long-term debt financing for producers and enterprises throughout the value chain is a constraint to sector development. The horticulture sector does not receive preferential financing under government programs, as in the case of cotton and wheat production. Financial institutions have a largely negative perception of profitability and creditworthiness in agriculture, indicated by a disproportionately low level of credit disbursed in agriculture compared to its GDP contribution. In the fruit and vegetable sector, this is exacerbated by a lack of acceptable collateral among many small-scale producers or collateral with low realizable values among agribusiness enterprises. An analysis of the portfolio of 10 major banks at the end of 2015 indicates that lending to horticulture (categorized as vegetables, orchards and vineyards, and greenhouses) accounted for only 0.3% of the banks' gross portfolios. This compares with the agriculture sector's 18.3% contribution to GDP in 2015 and the horticulture sector's 10.6% contribution.

D. Demand Analysis

5. Horticulture production has grown significantly during the last decade. In 2005, production was estimated at 6.6 million tons. By 2015, production had reached 19.0 million tons, representing a 12.5% average annual growth rate. This has had a marked impact upon average Uzbek food consumption patterns. In the early 2000s, per capita consumption of fruit in Uzbekistan was below the average for Commonwealth of Independent States (CIS) countries, and well below the average for developed countries. The growth in supply has resulted in an increase in consumption of fruit and vegetables. Per capita consumption of vegetables doubled from 2003 to 2013, and that of fruit increased by 2.1 times for vine crops (e.g., melons), by 2.4 times for stone fruits, and by 2.6 times for grapes. As a result, the share of fruit and vegetables in the average Uzbek daily energy supply has also increased. Demand in Uzbekistan will derive principally from changing demand patterns as household incomes rise and consumers demand improved fruit and vegetable quality and safety, and a higher proportion of processed products. According to Ministry of Agriculture and Water Resources (MAWR) data, in 2015, an estimated 80% of fruit and vegetables was consumed fresh, 14% was processed, 3% exported, and 3% retained for seed.

6. Exports are expected to be the major source of demand. Growth in exports' volume, diversity, and value was considerable between 2005 and 2015. According to MAWR data, the volume of exports increased by 1.8 times, and the value 18-fold. MAWR forecasts that fruit and vegetable exports will rise by an average annual rate of 30.0% until 2020. This estimate appears ambitious, and actual growth may be slightly lower. However, the average annual rate of export growth from 2000 to 2013 was 25.7%, increasing from \$68.7 million in 2000 to \$1.35 billion in 2013. While this growth was from a low base, it was achieved despite government agriculture sector policy that focused on cotton and wheat and effectively constrained

³ Resolution 2520 on 12 April 2016.

⁴ A joint stock company in charge of food and foodstuff business.

horticulture access to land, inputs, machinery, and finance. Now that the government is supporting horticulture development, for instance through export promotion via Uzagroexport and provision of finance through HVCDP, export increases of this level may be achievable.

E. Analysis of Indicative Subprojects

7. Various indicative subprojects that could be financed under the project have been analyzed for financial and economic viability. These include the production of tomato both under standard greenhouse technology and hydroponic cultivation, an intensive orchard (cherry), an intensive vineyard (table grapes), field-level production of vegetables on a small farm, a fruit tree nursery, a cold storage unit, and a fruit processing plant. Subproject investment costs range from \$10,000 to \$1.9 million, allowing for a broad range of subborrowers. All investments are financially viable with financial internal rates of return from 15% to 33%, compared with an estimated weighted average cost of capital of 3.7%. The corresponding economic rates of returns are in the range of 12-50% compared to the 12-percent economic opportunity cost of capital, suggesting economic viability. Sensitivity analysis indicates that, with the exception of the fruit tree nursery and fruit processing outlet, the investments are robust regarding adverse movements in revenues (including output volumes and/or prices) and investment and operating costs. The fruit tree nursery and fruit processing outlet are sensitive to a fall in revenue and an increase in operating costs. For the fruit tree nursery, a fall in revenue is mitigated by the high demand for fruit tree seedlings from supply farmers wishing to invest in new or rehabilitate existing orchards. The investment may be more vulnerable to increases in the cost of rootstocks, which account for 65% of operating costs, especially if these are imported. For fruit processing, growing demand for premium quality fruit juices, especially in the increasing domestic market, will mitigate revenue risks, while an increased, stable supply of raw material (fruit) from expanding domestic production will limit adverse movements in operating costs. All subproject proposals submitted for financing will have to present a detailed market, technical, and financial analysis to identify such risks and, where necessary, propose mitigation measures.

8. The summary of key parameters of indicative farm and agribusiness investments outline the financial and economic estimated results:

Summary of Key Parameters of Indicative Farm and Agribusiness Investments

Item	Standard Greenhouse (Tomato) (1 ha)	Hydroponic Greenhouse (Tomato) (1 ha)	Grape (1 ha)	Cherry (1 ha)	Private Farm Production (Cabbage) (1 ha)	Fruit Tree Nursery (1 ha)	Cold Store (5,000 m ²)	Fruit Processing (12,000 tons)
Total incremental output per year (units)	35,000 kg	120,500 kg	45,000 kg	30,000 kg	30,000 kg	47,500 seedling	n/a	n/a
Total cost of investment (\$ '000 per enterprise)	121.66	758.65	31.40	9.74	14.53	28.58	151.41	1,928.21
Total revenue (\$ '000 per enterprise per year)	41.88	226.58	53.85	61.54	5.13	113.68	76.92	8,235.04
Total operating and fixed costs (\$ '000 per enterprise per year)	3.18	8.09	34.02	41.77	1.68	81.49	27.96	7,174.89
Net profit (\$ '000 per enterprise per year)	35.56	201.50	15.79	15.15	3.07	29.77	45.29	980.64
Return on assets (%)	29.2	26.6	50.3	155.6	21.1	104.2	29.9	50.9
Return on equity (%)	116.9	106.2	201.3	621.7	84.5	416.9	119.7	203.4
FIRR (%)	29.4	19.1	15.0	20.9	17.2	16.3	17.1	32.7
Switching values (%) on FIRR before financing and tax								
Revenues	57.1	49.4	14.4	15.6	30.1	11.4	30.1	8.2
Investment costs	161.6	106.2	166.9	669.5	84.0	279.7	105.7	258.7
Operating costs	751.7	1,211.0	18.7	19.0	88.6	13.5	72.7	9.2
EIRR (%)	15.4	12.1	29.8	50.0	14.2	16.0	12.2	19.9

EIRR = economic internal rate of return, FIRR = financial internal rate of return, ha = hectare, kg = kilogram, m² = square meter, n/a = not applicable.

Note: FIRRs and EIRRs estimated on a 10-year cash flow.

Source: Asian Development Bank estimates.

F. Employment and Social Impact

9. Employment will increase as a result of project investments. The majority of employment opportunities created will, however, be for skilled laborers who possess the required technical knowledge and skills for intensive greenhouse or orchard production. Since the analysis has been based on indicative models and project investments will be demand-driven, it is not possible to estimate the project's overall employment impact, though it is expected to be significant. Equally, it is not possible to undertake a distribution analysis for the project.

G. Risks

10. There are several potential market and business risks to attaining subproject financial viability and overall project economic benefits:

- (i) Market access and the volume of exports to CIS countries and beyond will be affected by increasing competition from other CIS and neighboring countries;
- (ii) The delayed introduction of quality standards and certification will delay access to higher-value markets such as the European Union, Middle East, and East Asia. Competing fruit- and vegetable-exporting countries are already adopting enhanced agricultural practices, such as Global Good Agriculture Practice (GlobalGap), and improved sanitary and phytosanitary standards and certification;
- (iii) The government's continued interference in the free-market operation, for instance in border closures or restrictions on the form of transport allowed for exports, may act as a disincentive to realizing export potential and farm and agribusiness investment;
- (iv) While seemingly intended to stabilize the market and prices for fruit and vegetables, mandating state institutions to manage the storage and marketing (including export) of fresh fruit and vegetables represents a degree of interference in the horticulture sector's free-market operation. It is, as yet, uncertain what the longer-term impact of this (and the control given to Uzagroexport over exporters' foreign exchange earnings) will be, but it may act as a disincentive to exporters and investment in horticulture production, with a knock-on effect for processing enterprises;
- (v) Exporters are required to make unofficial payments for customs clearance to facilitate free movement of their produce. This may be somewhat mitigated for fresh produce by the requirement that all fresh produce be exported through Uzagroexport;
- (vi) Producers and processors fail to embrace providing better-quality, international-standard product to penetrate new, more sophisticated, and higher-value markets, including increasingly quality-conscious Uzbek consumers (evidenced by the growth in supermarket outlets);
- (vii) PFIs fail to identify sufficient lending opportunities for disbursement of the credit line and provision of funds for on-farm and enterprise investment, and to adequately appraise, supervise, and recover loans leading to poor-quality loan portfolios, thereby undermining banks' future lending ability;
- (viii) Government agencies influence subborrower selection and credit decision-making by PFIs; and
- (x) Macroeconomic downturn leads to a decline in consumer demand for non-staple foods, and increasing interest rates that make loans and investments less attractive and viable.