

Agricultural Development in Uzbekistan: Agricultural Reforms versus Transboundary Water Issues

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Abstract

Agriculture is one of the basic and vital sectors of the national economy of Uzbekistan. From the historical background, in the harsh context of progressively growing number of population and specialization of domestic production for cotton monoculture, economic crisis in the early years of independence revealed the need for extending the horizon of agriculture after facing the difficulties in providing the population and industries with necessary agricultural products. Therefore, government pays great attention to agricultural development and continuously has been taking measures for further strengthening and enhancing the efficiency of agricultural sector. In turn, development in agricultural sector have faced several challenges in water use for irrigation, climate change, desertification and deforestation due to transboundary rivers shared among all five states of Central Asia. Attempts to electricity generation growth, diversified agricultural policy and its orientation have been radically changing the regional climate by breaking the terms and conditions of agreements on joint water allocation among neighboring states. Efficiency and impact analysis serve as the core research methods for proposing relevant recommendations and possible solutions for further improvement of agricultural system development based on research findings and drawn conclusions.

1. Introduction

Agriculture is an important economic sector and plays the central role in the development of Uzbekistan (Sutton and et al, 2013). This sector provides the population with the necessary food and various industries with raw materials. Therefore, being one of the biggest industries, agriculture is one of the priorities of key reform areas in Uzbekistan.

Agricultural policy and structure changed radically after the national independence due to transition to market economy from centrally planned economic system of the former USSR. Cancellation of communistic view, establishment of different ownership types and freely determination of prices based on the supply and demand equilibrium made the national economy go in a different development path. Under the initiative of the government, several forward steps were taken to radical reforms in agricultural sector. According to national development principles, economic reforms in agricultural system carried out in gradual stages. Land ownership for individuals and private farming was the primary phase which is famous for the extreme socio-economic difficulties occurred on the threshold of Soviet dissolution. In 1989 Uzbekistan allocated 0.25 ha per family for small private farmlands in order to prevent deteriorating living condition of population. That risky decision was strongly criticized among other soviet republics and evaluated as an aggressive and radical act against the central government. Yet, after independence, population of all member states suffered from shortage of daily consumer products because of monosectoral specialization and absolute public land use of individual economies in the Soviet era, while Uzbekistan mitigated supply chain crisis risk with household farming. Supply chain crisis risk still exists, but from different factor: transboundary water basin misuse.

Amu Darya and Syr Darya are the main rivers of Central Asia which meets nearly 70 per cent of water need of region for both household and agricultural use. Upstream states of these rivers boosted construction of hydropower stations and dams in order to increase electricity export capacity of their economies by posing cluster risks for agriculture in downstream countries. Achieved agreement on shared water usage among neighboring countries is out of legal force which, in turn, may pose political and environmental risk on food supply chain of downstream economies. Uzbek agricultural sector has been suffering from seasonal water shortages in spring and summer, unexpected floods in late autumn, winter and early spring, as well as topsoil loss and land degradation due to change in the level of underground waters, desertification and deforestation.

Literature review

Central Asian agricultural development context is not a novice issue for international academic rounds and groups of policy makers. Efforts to optimize the effects of reformed agricultural sector, new agribusiness enterprises and industrial progress were the key achievements of public policy (Khan, 2007). Transition to market economic system and the elimination of roots of the communistic structure revived the supply and demand based market condition in national economy. As a result of gradual transition strategy, Uzbekistan created its own expanding agricultural input-output market (Babu and Tashmatov, 2006). In Uzbekistan government increased wheat growing areas and developed wheat production technologies in order to ensure food

security, launched a quota based system for cotton and wheat producers, reformed land ownership and tenure, and introduced new type of farmers who acts independently under governmental support (Abdullayev et.al, 2009). Early stages of water crisis and single sector production specialization have been debated since late 1960s. After 30 years of ineffective controversies, Uzbekistan began taking actions for attracting the attention of global community to Aral Sea disaster and desertification. Different national approaches to water management caused accelerated effect of transboundary Syr Darya and Amu Darya river basin problems. Growing effect of economic diversification is mitigating the risk of life quality deterioration in the whole region. Nowadays countries are decreasing the agricultural land use and attempting to boost industrial production (Wegerich, 2004).

2. Agricultural development through multidimensional reforms

In the last 20 years agricultural sector of Uzbekistan underwent series of market oriented reforms such as introduction of business activity, different types of land ownership, permit to use natural resources for agricultural businesses, different types of agro-industrial plants, financial and technical support of the government (Illustration 1). Multifaceted reforms have led to improvement in all aspects of life of population and increase in economic performance. Crop diversification, yield maximization and land use optimization frameworks were launched and have been operating in some parts of the country with considerable successes which can be seen in enhanced life quality of population, market saturation and ongoing industrial modernization programs. Decreasing rate of poverty, quality growth and economic activeness in people's life reflect the socio-economic wellbeing.

Illustration 1. Agricultural reforms in Uzbekistan



Agrarian reform has led to significant positive changes in agricultural production: production growth, increasing crop yields and livestock productivity. Gradual reduction in cotton fields has been directed for cereals, vegetables, potatoes, forage crops which enabled to prevent shortages and rising prices of food in early transition and global financial crisis periods. During 2000-2014 years grain production doubled and potatoes potato growing tripled through expansion irrigated land for cereals.

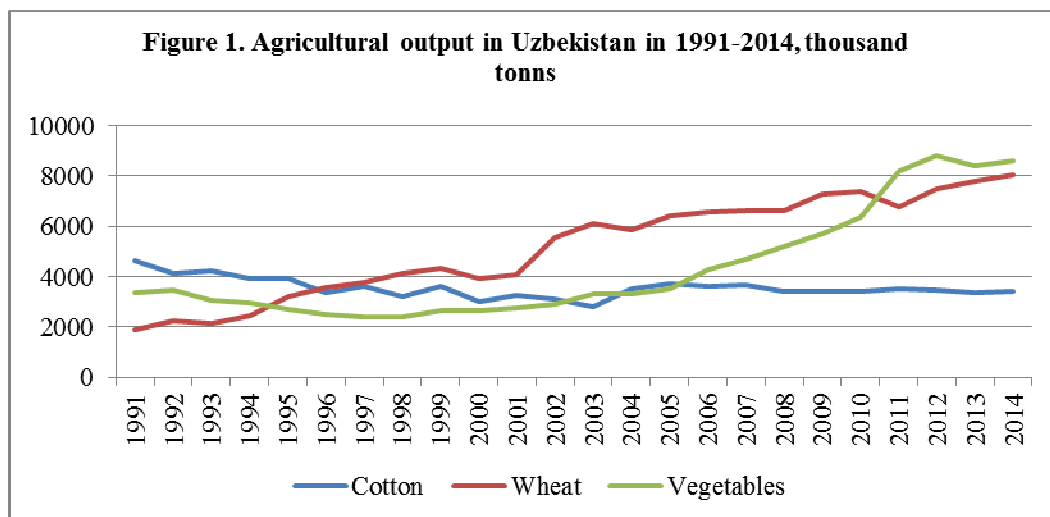
Cotton production is of particular importance in achieving sustainable economic development of the country. It is known that Uzbekistan is one of the leading places in production and export of cotton fiber. Supply chain crisis from 1991 to 1995 made the government cut cotton fields and expand wheat and vegetable areas on irrigated land.

In recent years, as a result of changes climate and population growth increased the global demand for horticultural products, potatoes and other types of foods in the world. Uzbekistan has implemented large-scale measures to increase production for the domestic food market saturation. Over the years 1990-2013 the area under vegetable crops increased. Only in the last 13 years the volume of fruit and vegetable production increased by 3.2 times. As noted above, during the years of independence fruit and vegetable production has dramatically increased.

Livestock is considered progressively developing in Uzbekistan and nowadays it accounts for about 45 per cent of annual agricultural production. The main distinguishing feature of the sector is that most of the livestock products is supplied in family-owned small-sized farms with an average grazing area of 0,15 hectares. Livestock production in family farms is of great social significance and important source of income and provision for a significant share of population. Comparison of livestock ownership between the period of former USSR and period of independence shows an anecdotal view. In communistic period citizens are not allowed to own livestock and all their wealth belonged to the government. In contrast, independence period promoted the ownership of livestock and improved the facilities for farmers by improving rural infrastructure, low interest rate loans, special privileges and tax exemptions for startups. With a view for the development of livestock in personal subsidiary and farmer households, the government arised the question of granting the Ministry of Labor and Social Welfare, as well as commercial banks for allocating loans for cattle purchase. One of the priorities is to meet the needs of the population of livestock products, increase supply to the market of meat, milk, eggs, fish and other products. During 2000-2013 the production of livestock and egg production increased by 212 per cent and 347 per cent respectively.

2.1. Land ownership and agribusiness reforms

The first step towards agrarian reform began with reorganization of land use and ownership system. Uzbekistan introduced the new form of land ownership and agri-business. Soviet inherited collective and cooperative farms turned to family owned and private farms in consistent with western model of agribusiness. All related policies and procedures adapted to market oriented economic performance. Cluster of measures taken to establish sound and modern agribusiness system included wide horizon of interconnected reforms in the related fields of public policy.



Source: State Statistics Committee of the Republic of Uzbekistan, 2015

2.2. Core economic reforms in agriculture

Transition to market economy requires the change in people's mind from communistic views which obscured the business initiatives, private ownership, entrepreneurial activity, freedom of choice due to inherited fears from ex-soviet government policy. After the launch of privatization and decentralization policy in 1992, people understood the essence of land ownership, agricultural investment promotion, introduction of agricultural business climate, favorable tax rates for agricultural activity, export facilitation privileges, personnel training and capacity building schemes, financial and material support for farmers through new financial inclusion programs, market access development and pricing policy for agricultural producers were the key actions forward agricultural sector reforms.

1. **Preferential loans for farmers and household farming.** Farmers, food producers and households have an access to preferential lending, tranche loans and privileged banking services for agricultural machinery, technologies, fertilizers and seeds fully guaranteed by the government. In 2013 365 billion and in 2014 412 billion Uzbek soums were presented as a preferential and tranche lending for farming.
2. **Single land tax for agricultural producers.** Simplified taxation method for small and medium sized enterprises is common for all CIS countries. But Uzbekistan use simplified taxation for farmers and

livestock owners, called fixed tax, in order to ensure their financial stability through cutting their tax burden. Fixed tax for agricultural sector players is a single transfer of tax which is similar to corporate tax in principle. It differs in tax rate averaging 15 per cent depending on location, natural convenience and climate, access to water, infrastructure and labor. Single fixed tax exempts the farmers from property tax, income tax and social welfare and infrastructure development taxes.

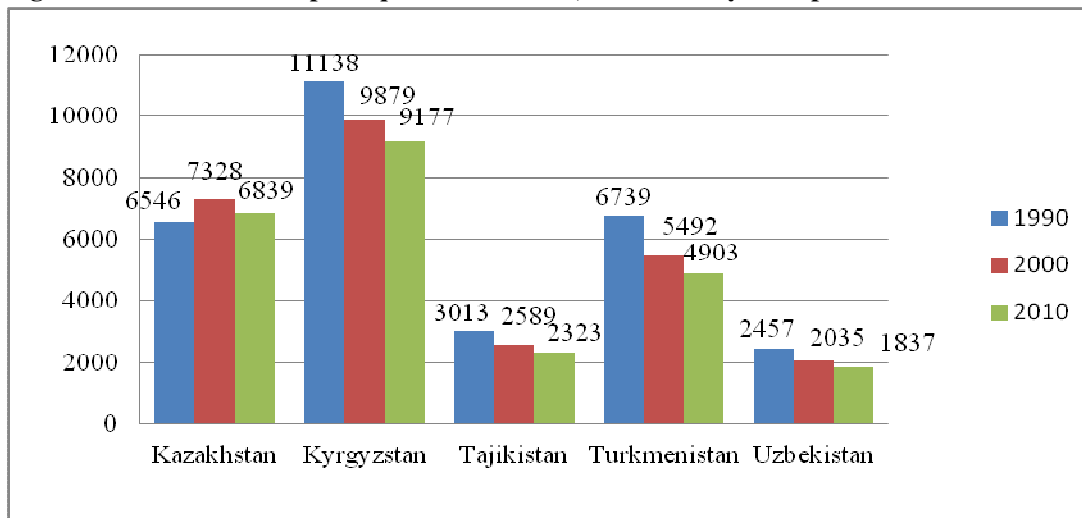
3. **Leasing for agricultural machinery and technology.** Leasing is a novice term for post-communist societies because of its existence after independence in post-Soviet states. Lease relations introduced to Uzbek business sector in 1997. Leasing volume for agricultural production reached 302 billion Uzbek soums which made up 37,6 per cent of total lease provided by 75 leasing companies and 24 commercial banks.
4. **New agricultural insurance.** Climate change, Aral Sea disaster and seasonal water shortages derived from transboundary water supply problems make national agricultural sector vulnerable to potential natural risks. In order to protect the farmers from hidden natural and systematic economic risks Uzbekistan launched a special agricultural insurance scheme for farmers and households involved in small size family farming. Nowadays subscribers of agro-insurance scheme reached 66 000 farmers joined under UzAgroInsurance Insurance Company.

As a result of the agrarian reform in agriculture and other agro-industries, Uzbekistan underwent significant socio-economic changes. Transition from administrative planning and distribution system to market-oriented economy transformed the economic, financial and legal conditions of agricultural sector management. Their outcomes can be seen in food production capacity, high level of food market saturation, export oriented and competitive production facilities, agricultural foreign and domestic investments and improvement in life quality of population.

2.3. Water shortage and desertification effects on agricultural system

Water shortages, Aral Sea disaster and desertification process have been the main factors of vanishing the effects of reforms since two decades. Water supply for agricultural use has been a controversy among Central Asian countries. Growing body of evidence shows that agricultural development is hindering by water crisis in Central Asia region. Transboundary rivers, especially, Amu Darya and Syr Darya are hugely wasted by up-stream countries. These rivers are mountainous and their delta is distributed by at least three countries of the region. Use of transboundary river basins and their tributaries for construction of huge water dams and hydropower stations by Kyrgyzstan and Tajikistan become the key negative factor of Aral Sea loss and desertification in Central Asia. In the last decade neighboring states faced disagreements over water usage for agricultural purposes. Agricultural expansion and massive hydropower construction is increasing and water distribution and supply for irrigation fitting to seasonal character which can be seen in seasonal droughts and floods. As a result, droughts in summer cause crop loss and floods in late winter and spring lead to topsoil loss. Moreover, desertification and degradation issues rooted from the distortion of shared water basin use negotiations by Tajikistan and Kyrgyzstan become the key factors of serious natural, economic and social problems like reduction in agricultural output, environmental change, extinction of native animals and plants, unemployment and loss of local farmer's income. Therefore, current state of agricultural policy of Uzbekistan arises the question of "cost-benefit" analysis of agricultural reforms, existing long-term external shocks and hidden impacts on food supply management in condition of economic transition and rapid population growth.

Figure 2. Water resources per capita in 1990-2010, cub. metres/year/cap



Source: Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, 2012

As shown in the Figure 2, Uzbekistan's water consumption decreased by 25 per cent since 1990 because of inappropriate water basin exploitation practices of upstream countries of main water supplier rivers – Amu Darya and Syr Darya. Most vulnerable areas of the country began crop rotation method in order to keep the topsoil quality, agricultural production volume, food supply and farmers' income. Farmers in these areas are exempted or presented low-rate from fixed tax owing to water shortage and consequent land degradation.

Recommendation and Conclusion

World agriculture is rapidly changing its face. Instead of the traditional use of dozens of years of technologies, comes a new, hundreds of research centers around the world are working to improve the effectiveness of various areas of the agricultural sector. We should not forget that in today's circumstances, agriculture cannot develop in isolation. Today, creating an interconnected agricultural system is essential to the success of the country, where agriculture is the primary link closely related to the processing industry, storage and refrigeration facilities, agricultural, chemical manufacturers and financial services. Therefore, in the near future in Uzbekistan it is necessary to concentrate on following measures of further reforms:

- Developing the cooperation of agricultural sector with financial sector and chemical industry;
- Introduction of leading practices in agricultural system of foreign countries, especially in farm management and innovative farming;

In order to prevent negative effects of water shortages and environmental changes, following measures are proposed as a recommendation:

- Creating new crop varieties and hybrids resistant to adverse conditions, diseases and pests;
- Expanding the drip watering system in areas suffering from existing and potential water shortage and desertification.
- Building and reconstructing new reclamation and water allocation stations, drainages and underground water points;
- Developing R&D strategies in order to find new methods of effective water usage and counter-desertification measures.

Some of proposed recommendations are included in government's agricultural and ecological reform strategy and under implementation. From empirical aspect, continuing the economic and technical empowerment programs for farmers and households enables agricultural supply to keep the pace with growing need. If these measures are taken, government policy for agricultural development will cope with the negative effects of transboundary water basin exploitation in Central Asia.

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