An Establishment of Agroclusters - a key for Development of Agro-Processing Industry in Uzbekistan

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Problem statement

• **Agriculture’s role in the economy**
  - annual rate 7.0 %, sector’s share in GDP declined from 32% to 17.6 % between 1995 and 2013

• **One of the main producers of fruits and vegetables in the CIS**
  - high quality products, fertile land, inexpensive labor resources, wide variety of government incentives

• **A small scale of fruit and vegetable farm producers with low levels of mechanization**
  - needs substantial investments for the distribution chain developed; quality standards

• **Unprocessed agricultural products, a lack of adequate packaging and storage facilities**
  - Surpluses and steeply falling prices in season and imported high price products off-season(e.g. apple, pear)

• **Potential solution might be application of agro-food clusters**
  - Enhance competitiveness of Uzbekistan’s agricultural and agro-food sector, sustainable growth of the agricultural industry and improved livelihood in rural areas
Main policies towards development of agricultural processing in Uzbekistan

✓ The State development program for 2011-2015 years: e.g. establishment, reconstruction & modernization 232 processing plants for vegetables & grapes, with an estimated capacity of 195.0 thousand tons.
✓ The program focusing on enhance of economic sustainability of farms, efficiently use of land and water resources, invent modern technologies, a development of new industries in rural areas.
✓ An improvement of the extension services and R&D to households and farms, and processing companies
✓ Low interest bank subsidies for purchase of mini-technologies and equipment for leasing
✓ A create of favorable conditions for the processing companies: e.g. tax free production 5 years for farms and dehkans, for introducing advanced technology;
✓ Improve marketing infrastructure in the domestic and foreign markets, create new jobs in rural areas
Forecasting main crops yields, tonn/ha
## Development Strategy of Agro-processing Industry

<table>
<thead>
<tr>
<th>Stage</th>
<th>Strategy</th>
<th>Target/Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage 1:</strong></td>
<td><strong>Improving infrastructure</strong></td>
<td>Reducing losses after harvesting, enhance of post-harvest management</td>
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<tr>
<td>2013-2015</td>
<td>• Establish stable raw material procurement system</td>
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<td></td>
<td>• Expend low-temperature logistics and storage</td>
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<td><strong>Stage 2:</strong></td>
<td><strong>Industrializing Agro-processing Industry</strong></td>
<td><strong>Diversifying Agro-processing Industry</strong></td>
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<tr>
<td>2015-2020</td>
<td>• Support agro-industrial complexes (or agribusiness companies),</td>
<td>• Develop more consumer attracting products (e.g. readymade, frozen, etc.)</td>
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<td></td>
<td>• Address issues such as energy provision, roads reconstruction, financial services, etc.</td>
<td>• Increasing level of processing</td>
</tr>
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<td>• Operate training program for skilled workers</td>
<td>• New job creation in rural areas</td>
</tr>
<tr>
<td><strong>Stage 3:</strong></td>
<td><strong>Globalizing Agro-processing Industry</strong></td>
<td><strong>Optimized Capacity of agro-processing</strong></td>
</tr>
<tr>
<td>2020-2030</td>
<td>• Induce to establish multinational Agro-processing companies.</td>
<td>• Increased value-added</td>
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<td></td>
<td>• Settle down Agro/Food Cluster with high-tech risk management</td>
<td>• Increased farm income</td>
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Definition of the agro cluster:
"the geographic concentrations of inter connected companies and institutions in a particular field" (Porter, 1998).

The estimation formula for the Clustering Coefficient ($C_C$) is demonstrated below:

$$C_C = C_p \times C_s \times C_{proc} \times C_{pcp}$$

$C_c$ - shows the coefficient of clustering potential;
$C_p$ – represents the coefficient of production;
$C_s$ - denotes specialization coefficient;
$C_{proc}$ - indicates processing industry coefficient; and
$C_{pcp}$ - per capita production coefficient.

Potential of clustering in fruit and vegetable subsector has Samarkand and Tashkent regions, as well as all regions of Fergana valley.
Selection of Candidate Areas for the Pilot Clustering in Samarkand

**Potential cluster areas in the region are the eastern districts:**

- Eastern districts, non-cotton cultivating
- Bulungur, Urgut, Taylak, Jambay and Samarkand Counties
- Selected based on coefficient of clustering potential
- **Urgut** predominantly tobacco growing area ➔ not considered candidate
- Remaining districts are eligible for clustering
- On average 80-85% farms in these districts specialize in fruits & vegetables
Suggested districts for Pilot Project in Samarkand

• Bulungur District:
  • **Tomato**-Processing Special Zone (Cluster)
    – Tomato: Cultivated by 2,000 ha
    – Production capacity: up to 4,000 ha

• Jomboy District:
  • **Apple**-Processing Special Zone (Cluster)
    – Apple: Cultivated by 1430 ha (300 ha new intensive orchards)
    – Production capacity: Over 300 ha
    – Low-temperature Storage: currently 15 ton capacity (5,000 ton Storage under construction)
Population: 160,5 thousand person;
  - 16 local communities which include 112 villages;
  - 24,8 thousand (32% labor forces) people are working in agriculture.
Total area is 35,0 thousand ha; Crop area is 14,3 thousand ha (40,8%);
Tomato planted area and gross yield in farms of Bulungur at 2006-2012

Tomato planted areas in farms of Bulungur, ha

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>3724</td>
</tr>
<tr>
<td>2007</td>
<td>3495</td>
</tr>
<tr>
<td>2008</td>
<td>3490</td>
</tr>
<tr>
<td>2009</td>
<td>4054</td>
</tr>
<tr>
<td>2010</td>
<td>3680</td>
</tr>
<tr>
<td>2011</td>
<td>1700</td>
</tr>
<tr>
<td>2012</td>
<td>1940</td>
</tr>
</tbody>
</table>

Harvested tomato in farms of Bulungur, thn tonn

<table>
<thead>
<tr>
<th>Year</th>
<th>Harvested (tonn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>133,6</td>
</tr>
<tr>
<td>2007</td>
<td>119,0</td>
</tr>
<tr>
<td>2008</td>
<td>105,2</td>
</tr>
<tr>
<td>2009</td>
<td>123,6</td>
</tr>
<tr>
<td>2010</td>
<td>159,9</td>
</tr>
<tr>
<td>2011</td>
<td>67,9</td>
</tr>
<tr>
<td>2012</td>
<td>75,9</td>
</tr>
</tbody>
</table>
Bulungur: SWOT (Strengths)

• The favorable climatic conditions: good water provision, good soil quality for vegetables.
• Surplus of skilled labor resources, traditions grow tomato more than half century
• Have a good logistic infrastructure: national/international roads, railway road. Further distance of district not exceeds 50 km from Samarkand International airport.
• Tremendous surplus of volume of production per capita of tomato (production/population ratio)
• Have a potential for selling tomato for export
Bulungur: SWOT (Weaknesses)

• The yield per hectare is lower: average yield of tomato is 21 tonn/ha, it might increased up to 32 tonn/ha.
• Undeveloped modern market infrastructure: an urgent need for large storage facilities, collection points, refrigerators, and packaging plants.
• High amount of water losses: traditional irrigation system, lack of water provision in downstream communities.
• The disparity of prices: vegetable products and input resources.
• Not properly working extension services in tomato supply chain
• A lack of modern mini processing companies for tomatoes
• Not existing local projects/program, allows attract domestic and foreign investment
Bulungur: SWOT (Opportunity)

• The local administration show very good enthusiasm to be in tomato potential cluster
• Can be increased tomato planting areas for 2 times, instead of decreasing other crops, or it can be extend as second crop, after harvesting grain, good for rotation
• Exists potential processing companies that worked in past times and not operating nowadays
• Have a good connection with a Samarkand Agricultural University, that allows researchers knowhow easily implements to production
Bulungur: SWOT (Threats)

• Lack of regional strategy to prepare for the risks and mitigation, as district’s water provision depends on neighbor country.

• High competition and protectionism in world food markets, unregulated trade.

• The lack of effective water transport links to domestic and world food markets
Population: 146,9 thousand person;
  - 8 local communities which include 150 villages;
  - 17,5 thousand (31% labor forces) people are working in agriculture.

Total area is 55,9 ha;
Crop are is 24,9 ha (44,5%);
Apple areas and gross yield in farms of Jambay at 2006-2012

Apple planted areas in farms of Jambay

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>2373</td>
<td>1383</td>
<td>1428</td>
<td>1428</td>
<td>1428</td>
<td>1428</td>
<td>1428</td>
</tr>
</tbody>
</table>

Harvested apple in farms of Jambay, thn tonn

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
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<tbody>
<tr>
<td>Tonn</td>
<td>222.9</td>
<td>131.9</td>
<td>12.8</td>
<td>12.2</td>
<td>12.3</td>
<td>13.6</td>
<td>13.5</td>
</tr>
</tbody>
</table>
Jambay: SWOT (Strengths)

• The favorable climatic condition for orchards, especially for apple
• The district is more industrialized: it impact to increase of rural enhance. There are five companies representing food production sector: e.g. “Lazzat-Meva” (apple and tomato juices, jams), “Samaoil-Zenit” (dried fruits), “Samarkand Aqua-Line” (apple juice, jams, bottled mineral water).
• Have issued state program (PA-1621, 27.09.2011): encouraged producing fruits and vegetable instead of grow cotton. In result, last year 300 ha of new apple trees is planted.
• Surplus of skilled labor resources, who has knowledge for grow apple.
• Have a good logistic infrastructure, that national/international road, railway road passes through the district. Good connection to Samarkand city and Samarkand International airport.
• Have a surplus of volume production per capita of apples, it will increase more in future
Jambay: SWOT (Weaknesses)

- A lack modern market infrastructure
- Not implementing modern water saving technology for orchards yet.
- Not working properly of extension services in growing, processing, and marketing areas.
- Lack of modern processing technologies
- Not existing local projects/program, allows attract foreign investment
- Weak cooperation links between farmers and processors
- Cost of intensive (high productive) orchard trees is higher, that bought from EU or other countries. Not existing local experimental research stations
- Not existing grading system for apples for export oriented products
• The local administration are very interesting to be in the apple potential cluster
• Increase of high yield apple planting areas, instead of decreasing other crops
• The district is located in the center of apple growing area of Samarkand region. Processing companies may get commodities from other districts, as Bulungur, Taylak, Samarkand and Akdarya etc.
• Processing plants is not fully working on their capacities. For instance “Lazzat-Meva” uses only 7-8% of the total potential production capacity(2012). It may be increased in the future
Jambay: SWOT (Threats)

- Lack of regional strategy to prepare for the risks and mitigation
- High competition and protectionism in world food markets, unregulated trade.
- The lack of effective water transport links to domestic and world food markets.
Network connection in Samarkand
Facilitating institutions

- Bulungur and Jambay district local governments
- Storehouse
- Commercial banks
- Foreign and local investors (e.g. South Korea, Germany or China)
- University and research (e.g. Samarkand Agricultural University)
- Insuring companies
Role of National and regional governments

- should help farmers and traders to have efficient **food marketing system** by investing in marketing infrastructures,
- have to provide public goods, such as grading, safety inspection, and **market information**, to market participants.
- to help farmers to organize cooperatives in order to have efficient food marketing system and counterveiling power to traders or **large-scale distribution firms**.

Bulungur tomato and Jambay apple clusters will be **pioneer** of organic and low chemical products, which not existing in Uzbekistan’s market.
Development stages of agroclusters in Uzbekistan

2013-2015
- Create a basis of agroclusters, pilot projects, experiments, etc.

2015-2020
- More industrial oriented or (agriculture + industry) products

2020-2030
- Export oriented or (agriculture + industry + services).
<table>
<thead>
<tr>
<th>Channel</th>
<th>Current Situation</th>
<th>2014</th>
<th>2015-2020</th>
<th>2021-2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>Establish at Samarkand Ag. Uni. laboratory, knowledge disseminations among units,</td>
<td>Implementation of pilot project results and national specifics, enhance of farm income, more research oriented production, prepare of good qualified personal</td>
<td>Establish Multinational companies, support agro and traditional production tourism, diversify production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>enhance of linkage effect</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Post-Harvesting</td>
<td>Less of storage facilities, weak linkage effects btw units</td>
<td>State program encourage building new and maintaining existing warehouses, Post – harvest project in Samarkand Ag. Uni., knowledge disseminations among units</td>
<td>Decrease of post-harvest losses to min., enhance of linkage effects btw. units, establish distribution centers, solve of transportation and energy provision issues</td>
<td>Establish modern distribution centers, post-harvest research center</td>
</tr>
<tr>
<td>Processing</td>
<td>Less diversified production, low procurement prices of raw materials, energy provision problems</td>
<td>Research lab at Samarkand Ag.Uni., curricula development for prepare BSc, MA and PhD students, pilot project results dissemination</td>
<td>Building tomato processing factory, enhance of linkage effect among units, research station</td>
<td>R&amp;D, marketing agencies, packaging and design of export oriented products</td>
</tr>
<tr>
<td>Marketing</td>
<td>In initial stage, less linkage effects btw units</td>
<td>The issue of State program or Presidential act about clusters</td>
<td>Phytosanitary Center, extension services for personal</td>
<td>Enhance of units income, establish agro and traditional tourism objects</td>
</tr>
</tbody>
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Support:

- Ministry of Agriculture and Water resources
- Bulungur (Jambay) district municipality
- Samarkand Region Government
- Bulungur (Jambay) community (Mahalla markazi)
- WUA of Bulungur (Jambay) district
- International donors

**Project team:**

- Bulungur (Jambay) municipality.
- SAI.
- Bulungur (Jambay) Farmers Association.
- Bulungur Tomato and Jambay apple Processing Factories (when opened)
- WUA Bulungur (Jambay) district.
- Agrobank
- Transport.
- Bulungur (Jambay) community (Mahalla markazi)
- International companies
THANK YOU