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

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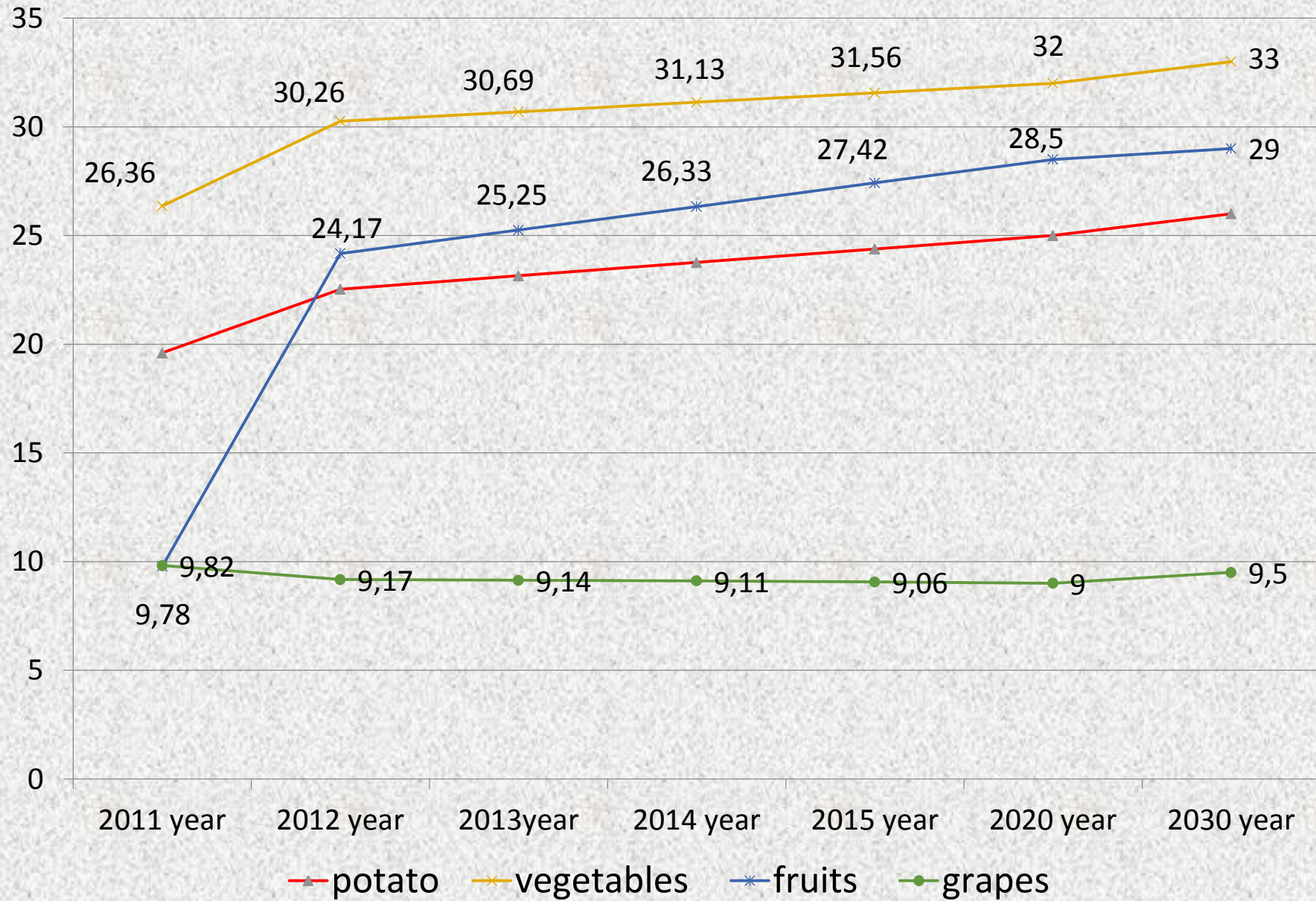**Golib Sanaev,** PhD student of Kangwon National University, Republic of Korea

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 yeilds, tonn/ha

potato — **vegetables** — **fruits** — **grapes**

Development Strategy of Agro-processing Industry

Stage	Strategy	Target/Expected Results
Stage1: 2013-2015	**Improving infrastructure** • Establish stable raw material procurement system • Expend low-temperature logistics and storage	Reducing losses after harvesting, enhance of post-harvest management
Stage 2: 2015-2020	**Industrializing Agro-processing Industry** • Support agro-industrial complexes (or agribusiness companies), • Address issues such as energy provision, roads reconstruction, financial services, etc. • Operate training program for skilled workers	**Diversifying Agro-processing Industry** • Develop more consumer attracting products (e.g. readymade, frozen, etc.) • Increasing level of processing • New job creation in rural areas
Stage 3: 2020-2030	**Globalizing Agro-processing Industry** • Induce to establish multinational Agro-processing companies. • Settle down Agro/Food Cluster with high-tech risk management	**Optimized Capacity of agro-processing** • Increased value-added • Increased farm income

Data and methodology

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:

$$C_c = C_p * C_s * C_{proc} * C_{pcp}$$

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)

Bulungur district(tomato cluster)

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;
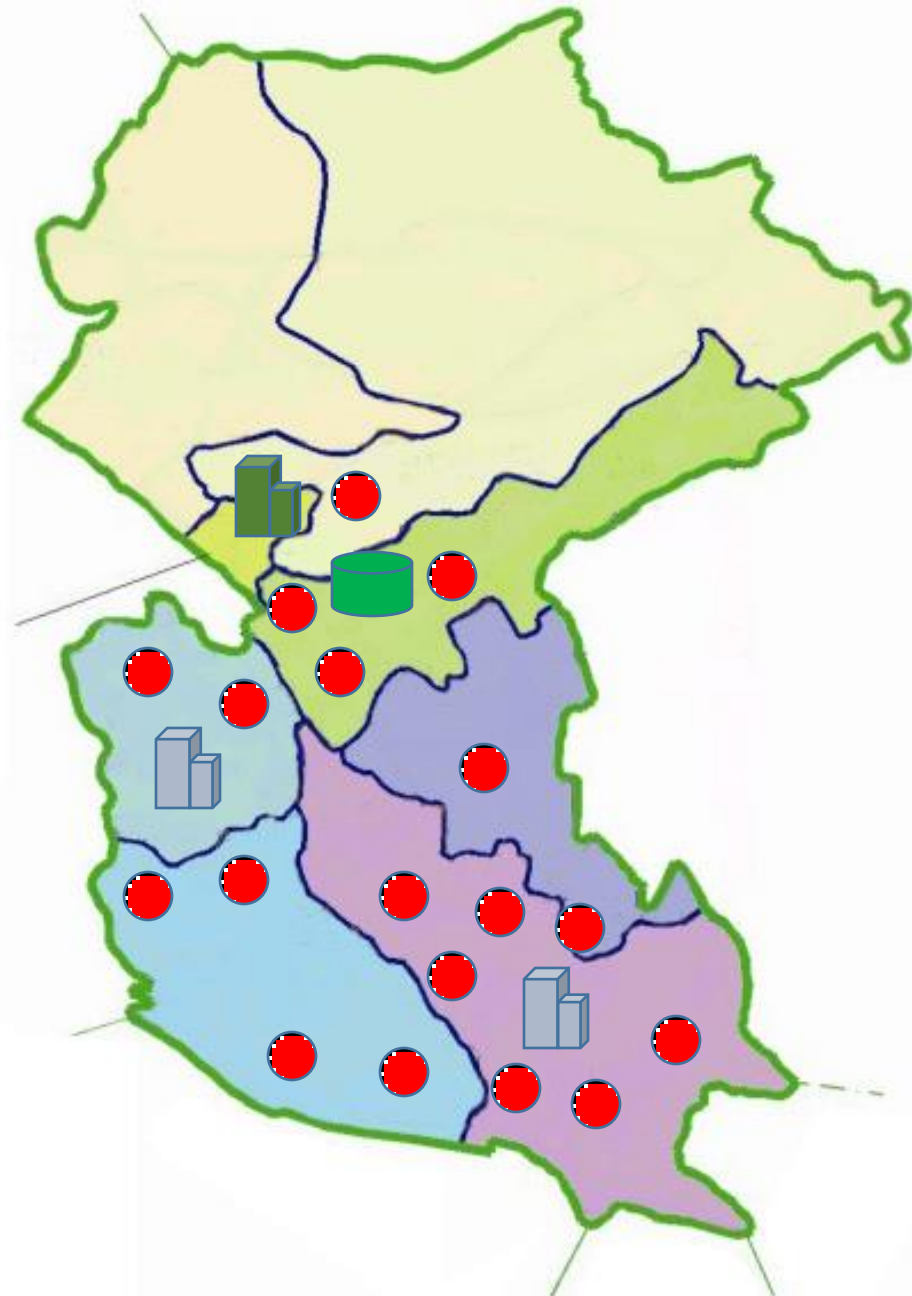Crop area is 14,3 thousand ha (40,8%);

Tomato fields

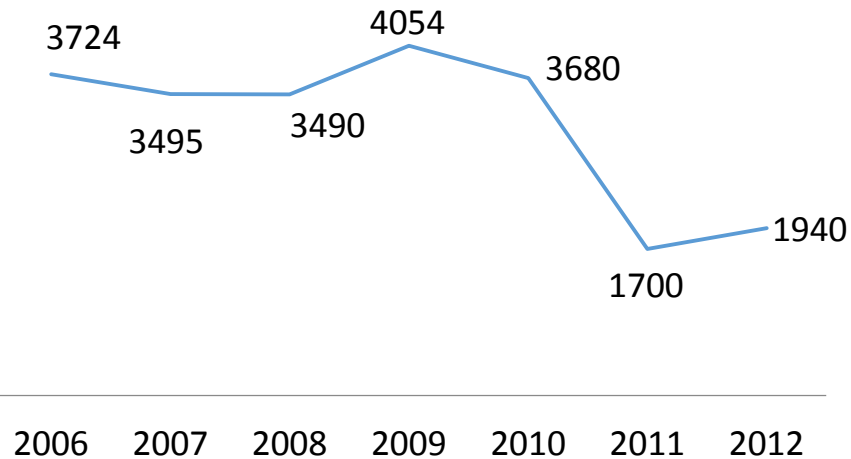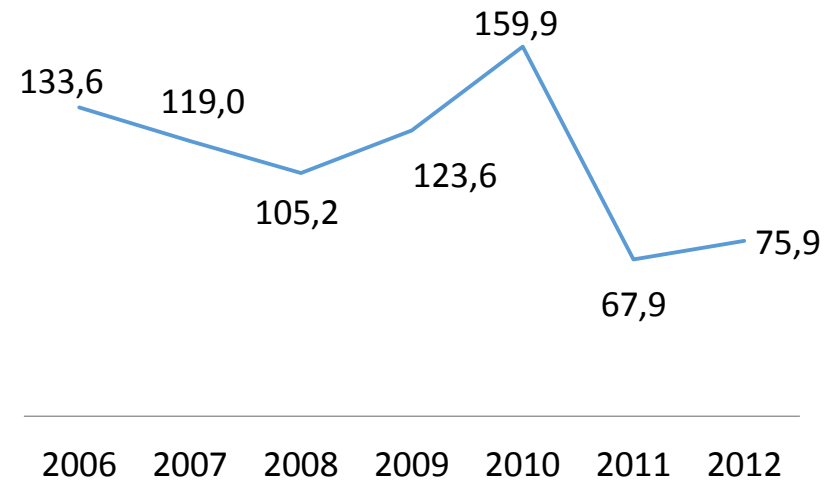**Existing processing plants**

Future processing plants

Warehouse

Tomato planted area and gross yield in farms of Bulungur at 2006-2012

Tomato planted areas in farms of Bulungr, ha

3724
3495
3490
4054
3680
1700
1940

2006   2007   2008   2009   2010   2011   2012

Harvested tomato in farms of Bulungur, thn tonn

133,6
119,0
105,2
123,6
159,9
67,9
75,9

2006   2007   2008   2009   2010   2011   2012

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

Jambay district(apple cluster)

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%);
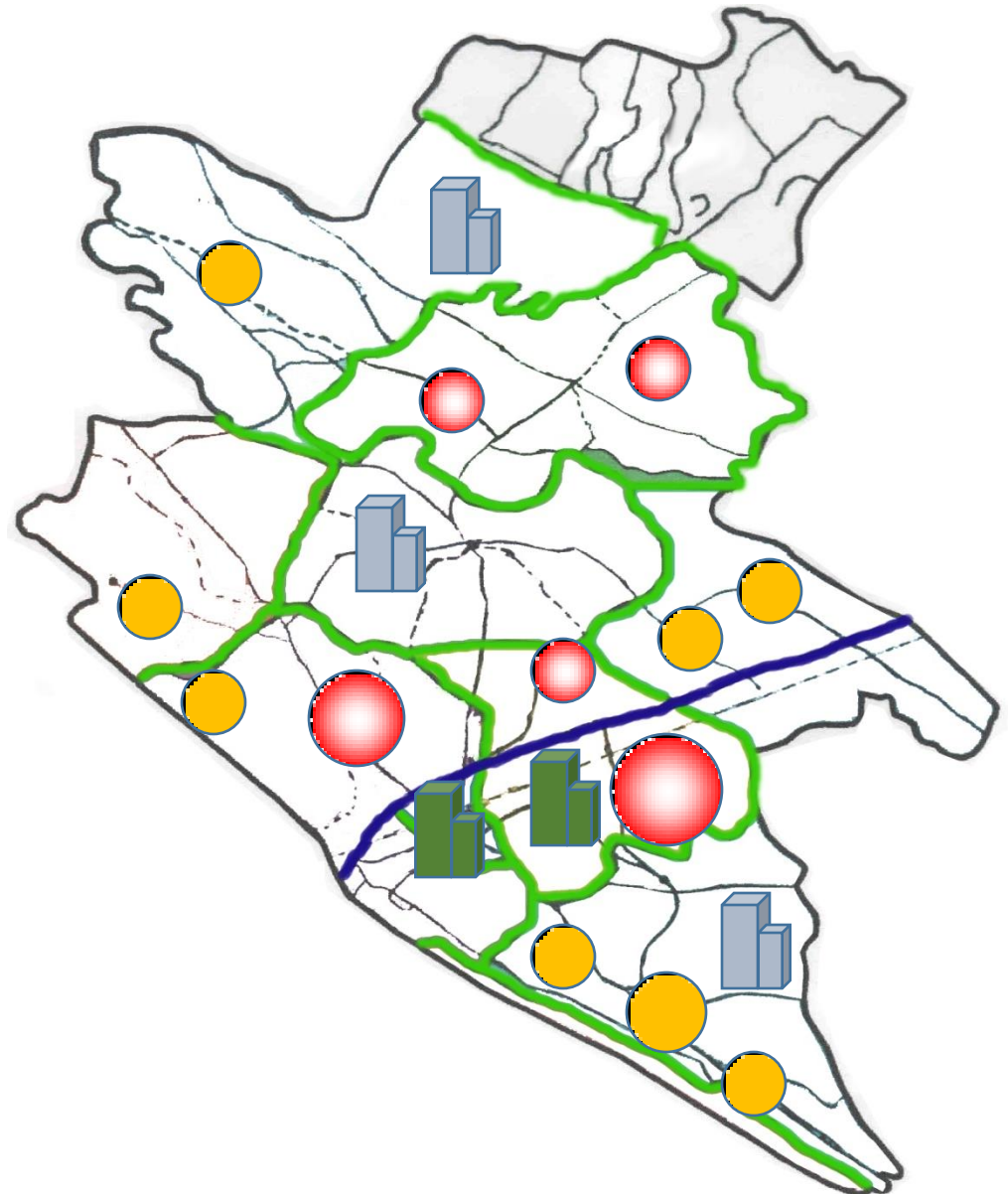
Existing apple orchards
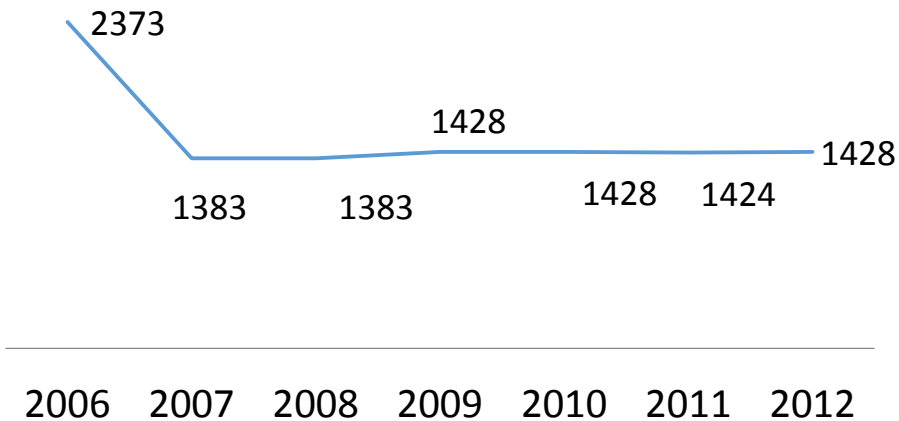
Future apple orchards

Existing processing plants

Future processing plants

Apple areas and gross yield in farms of Jambay at 2006-2012

Apple planted areas in farms of Jambay

2373

1428   1428

1383   1383   1428   1424

2006   2007   2008   2009   2010   2011   2012

Harvested apple in farms of Jambay, thn tonn

222,9

131,9

12,8   12,2   12,3   13,6

13,5

2006   2007   2008   2009   2010   2011   2012
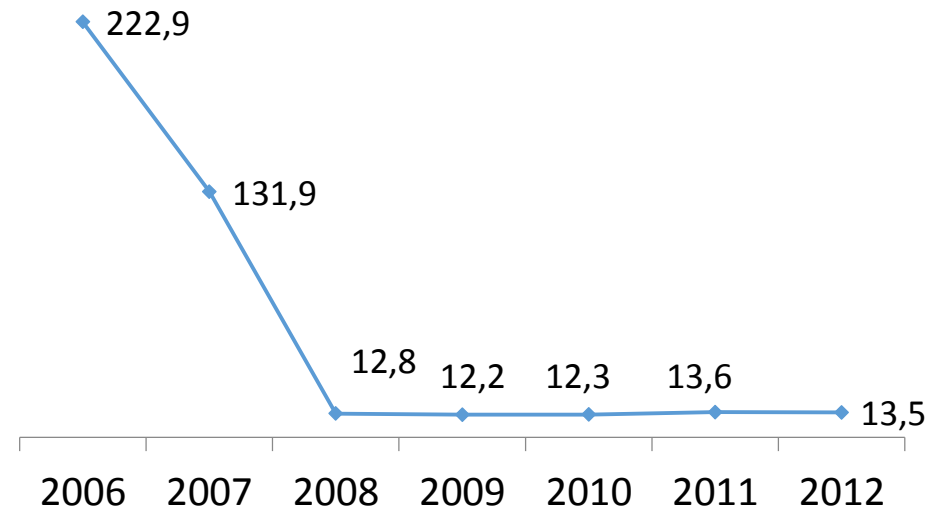
Jambay: SWOT (Strengths)

- 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

Jambay: SWOT (Opportunity)

- 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
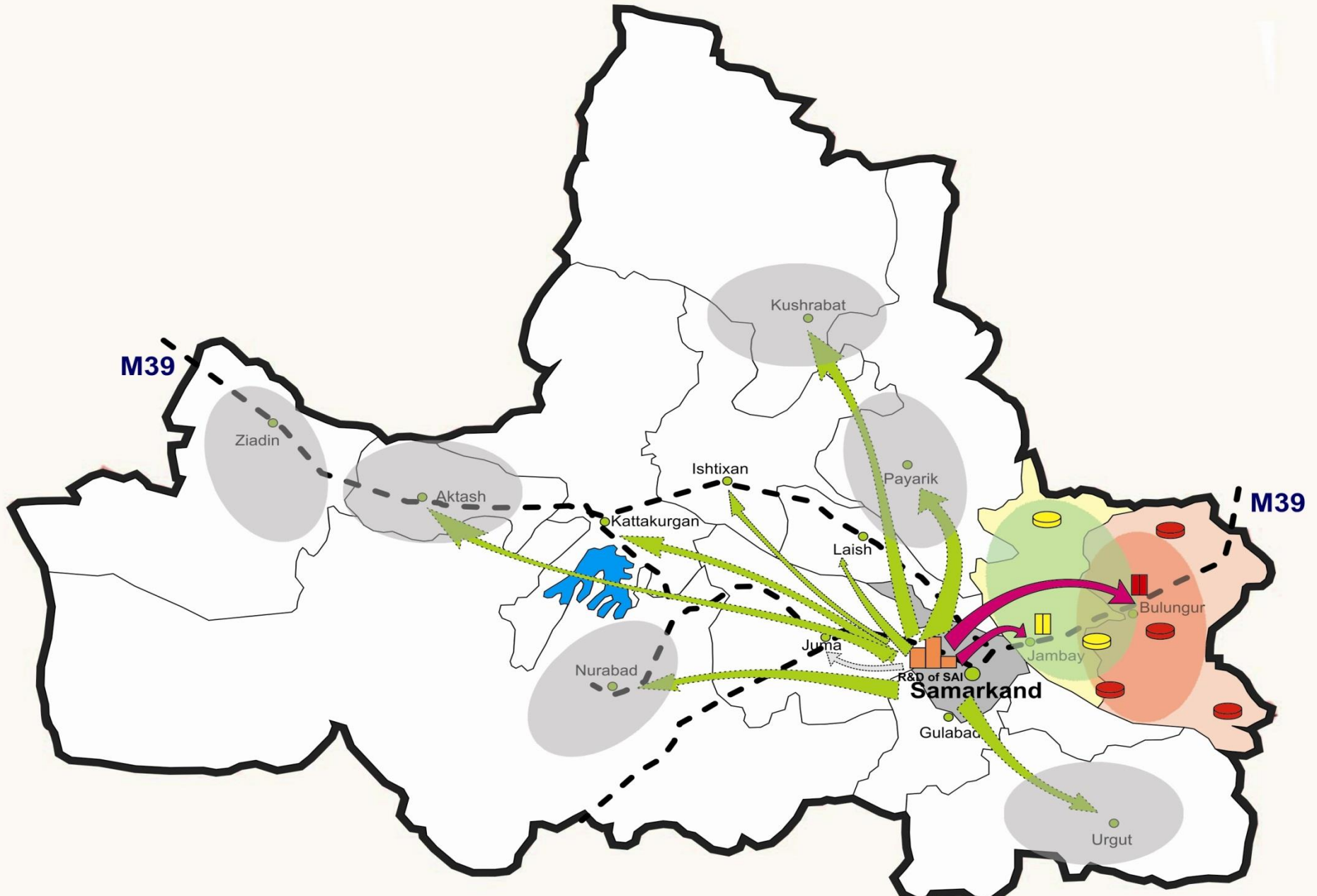
Facilitating institutions

Bulungur and Jambay district local governments

Storehouse

Commercial banks

Foreign and local investors

(e.g. South Korea, Germany or China)

University and research
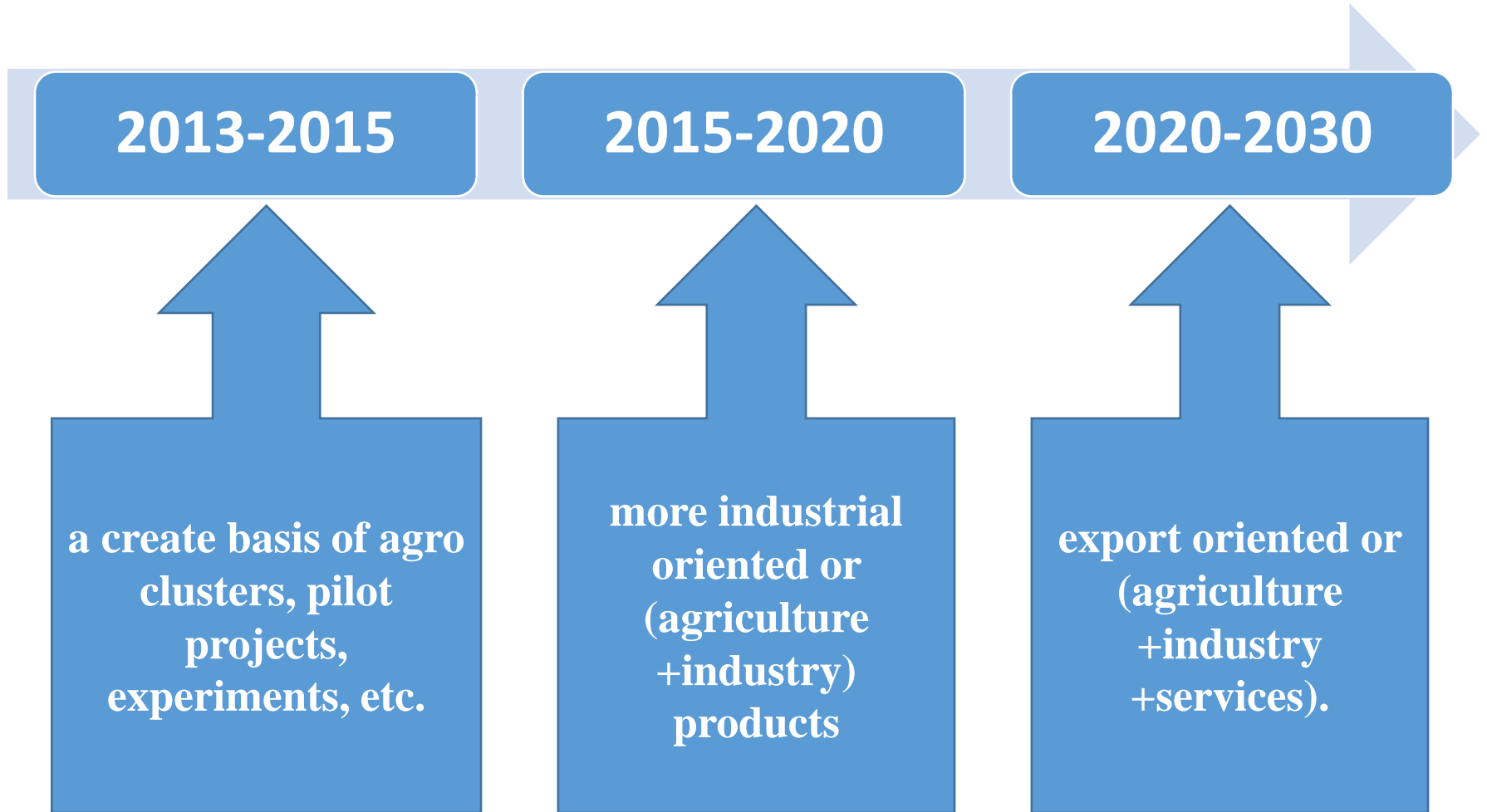
(e.g. Samarkand Agricultural University),

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 counter-veiling 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	2015-2020	2020-2030
a create basis of agro clusters, pilot projects, experiments, etc.	more industrial oriented or (agriculture +industry) products	export oriented or (agriculture +industry +services).

Channels' strategy of development

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

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