



**MINISTRY OF FOOD,  
AGRICULTURE AND  
LIGHT INDUSTRY**



# **Production of Vegetable and Fruit Horticulture Value Chain in Mongolia**

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## The flag of the Republic of China (Taiwan) is a vertical tricolor. It consists of a red field on the left, a blue field in the center, and a white field on the right. In the center of the red field is a yellow sun emblem, which is a stylized representation of the sun with rays, a circle, and a yin-yang symbol.

**Legend:**

- ROADS
- SELECTED TOWNS AND CITIES
- NATIONAL CAPITAL
- INTERNATIONAL BOUNDARIES
- RIVERS

**Scale:** 0 200 400 KILOMETERS / 0 250 MILES

**Geographical Features:**

- Cities/Towns:** Ulaanbaatar (National Capital), Darkhan, Erdenet, Bogdai-Org, Tsetserleg, Tsahagsay, Arvayshar, Bayankhongor, Altai, Bulgan, Dalandzadgal, Soyotkhund, Choybalzan, Oudartaran, Borzhyn, Erenhot, To Borzhyn, To Ulan-Ude, To Hothot.
- Rivers/Lakes:** Selenge River, Khovd Lake, Gobi Desert, Kherlen Göl, Har-Hon Göl.
- Neighboring Countries:** RUSSIAN FEDERATION (North), CHINA (South).

**Map Notes:**

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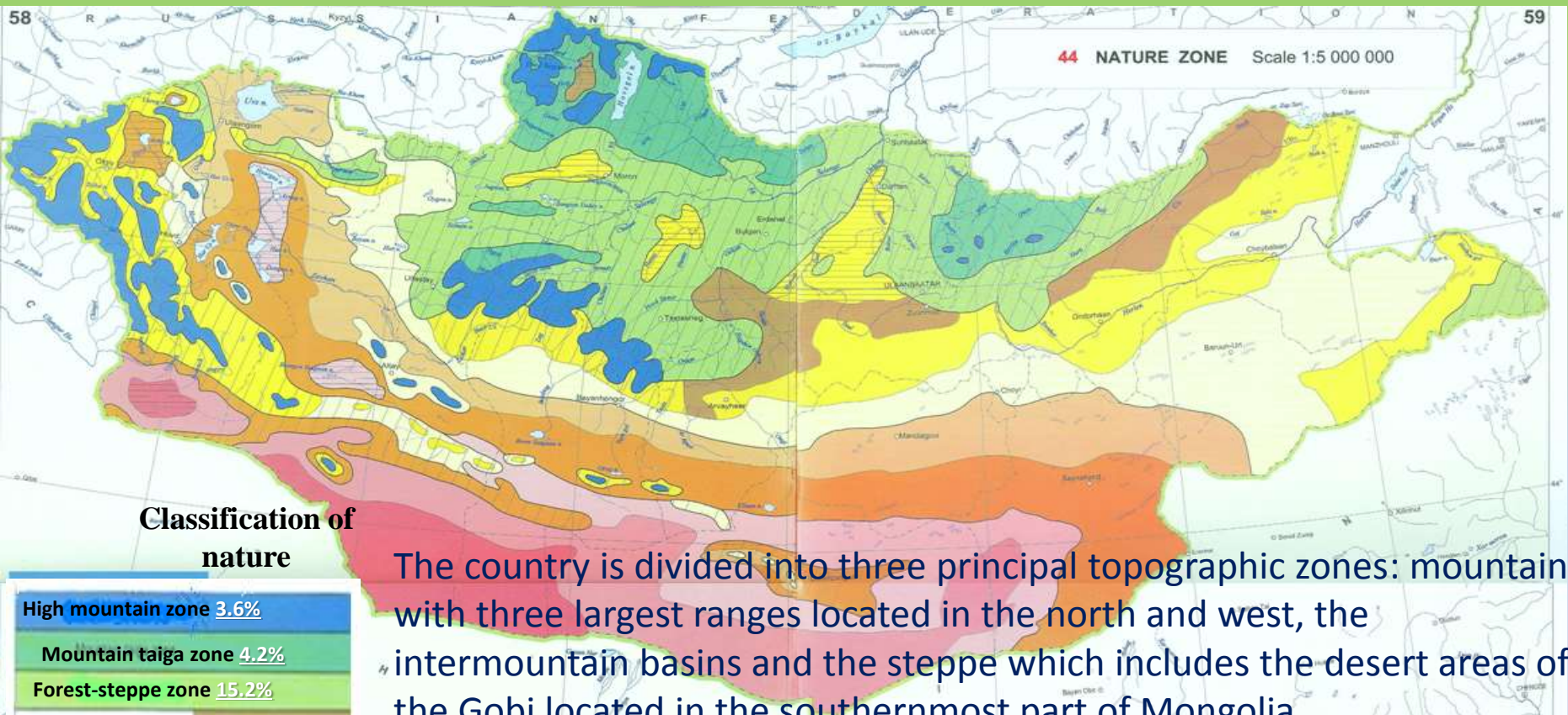
# Economy

- Mongolia's manufacturing sector of the economy are **AGRICULTURE** and **MINING**.
- Agriculture sector is an intensively growing main traditional economic sector.





# Nature zone



High mountain zone <u>3.6%</u>	
Mountain taiga zone <u>4.2%</u>	
Forest-steppe zone <u>15.2%</u>	
Steppe zone 34.2%	Meadow-steppe
	Steppe
	Dry steppe
Govi zone <u>23.4%</u>	Desert-steppe
	Semi-desert
	Striped desert
Desert zone <u>19.1%</u>	Desert
	Extra arid desert



High mountain zone



Steppe zone



Forest-steppe zone



Govi zone



Desert zone



# Agricultural sector

- **Agricultural sector produces 21.7% of total GDP .**
- **80% livestock and 20% crop sector.**
- **40% of total working force is worked in agricultural sector.**
- **Main crops are wheat-100% , potato -100%, vegetables-60% / local market total consumption /**
- **Meat , and dairy products -100%**
- **Total livestock at the end of 2017 has reached approximately 62 million herds.**
- **Main agricultural export product: Leather, organic cashmere, meat, sheep and camel wool .**

# Crop sector policy

- The general crop sector policies are following:
  - Self sufficiency of the stable crop production such as wheat, potato and main vegetable species.
  - Sustainable supply of safety and ecologically pure crop production to the consumers.
  - Support technical rehabilitation and innovative technology;
  - Reduction of the poverty in rural area through income diversification.
  - Increase the capacity of storing facilities and elevators;
  - Create vegetable and fruit value chain.



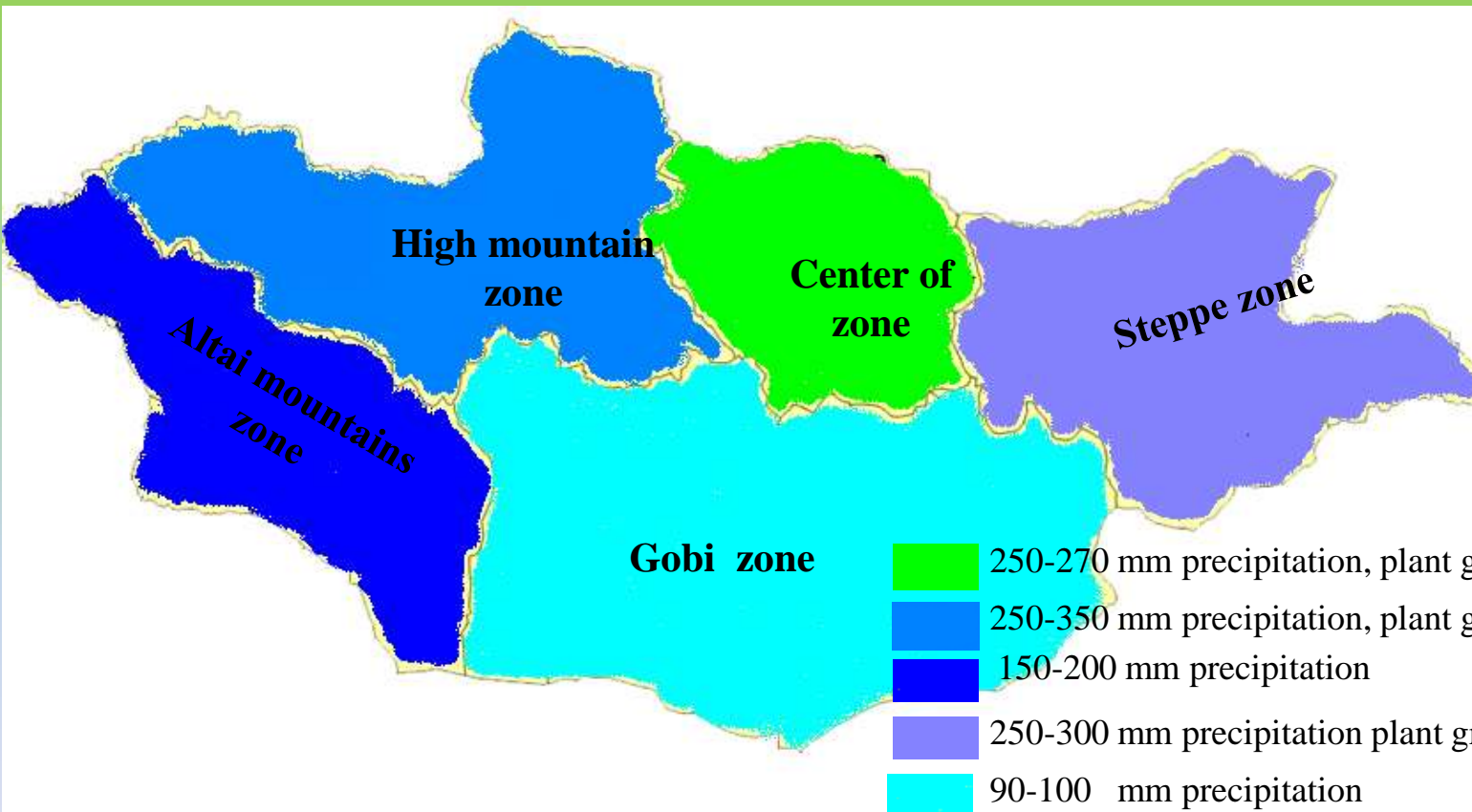
# Main crops;

- Wheat, barley, rye for food and fodder,
- Oats, maize, annual and perennial leguminous crops for fodder,
- Rapeseed for oil,
- Potatoes,
- 23 types of vegetables,
- 8 types of fruits for food.

Currently, Mongolian farmers have more than 890.0 thousand hectares of agricultural field in which 350.0 thousand hectares for crop, 16.0 thousand hectare for potato, 8.1 thousand hectares for vegetable and 6.0 thousand hectares for fruits.



# Agriculture zone



№	Region	Population thousand	Vegetables			% of domestic product
			Production /ton/	Consumption /ton/	% of cons.	
1	Western	378.9	19585	22827.6	85.8	45.2
2	Mountain	570.0	14350	34340.7	41.8	22.0
3	Central	480.2	56505.0	28930.6	195.3	102.9
4	Eastern	203.8	5159	13642.6	37.8	19.9
5	Ulaanbaatar	1363.0	6603.0	91240.6	7.2	3.8
	Total	2995.9	102202.0	185507.4	55.1	



# VEGETABLE PRODUCTION

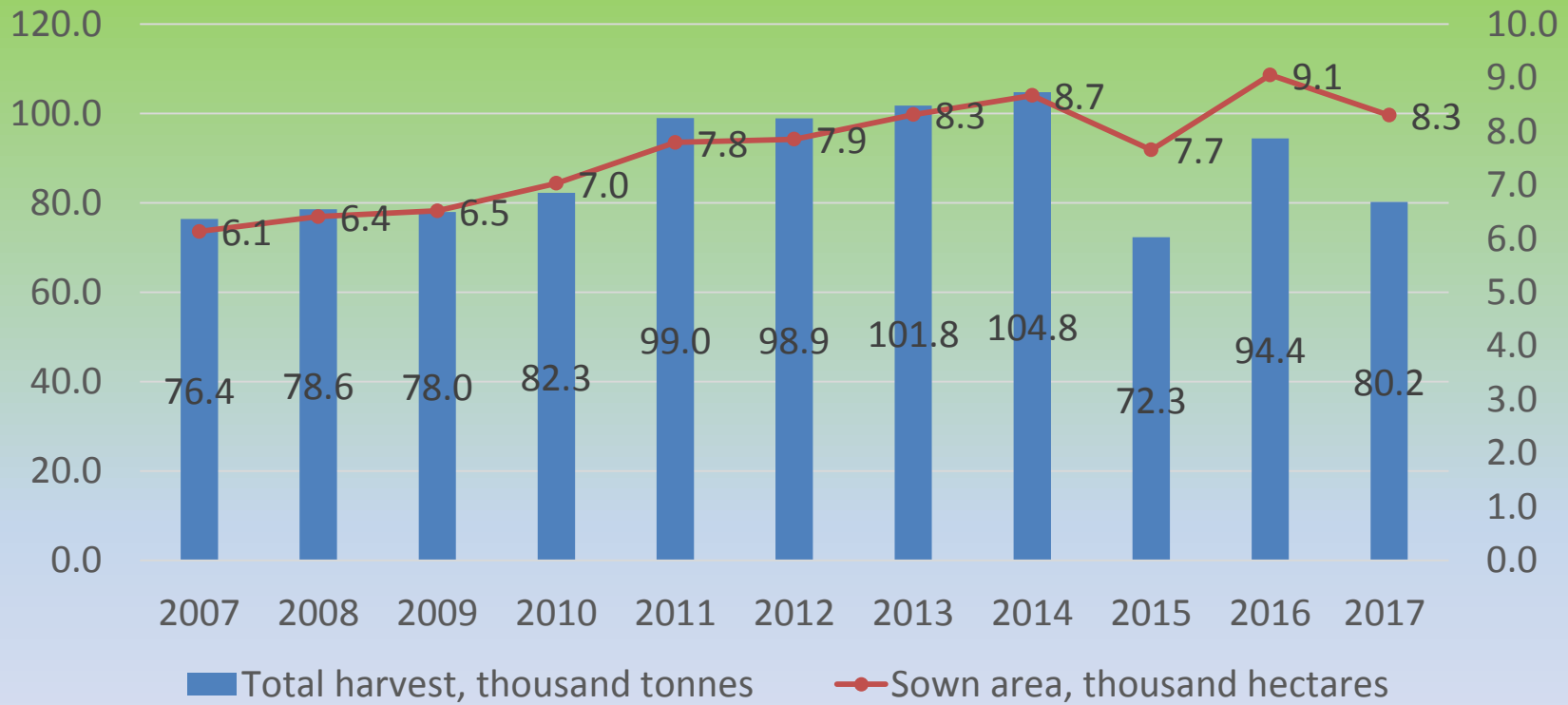


“In accordance with Guidance of the Daily Consumed Vegetables of the People, a person should consume 200 gram vegetables for a day”.

- **Future objective:** Attain self sufficiency vegetable and develop crop production.
- The action plan of Government reflects the goal to fully provide vegetable consumption of total population with domestic production.



# Vegetable production



- Consumption of vegetable increases every year regarding growing population and its changing lifestyle.
- 40% of the whole vegetable demand is covered through import.
- The amount of harvesting doesn't really satisfy even though the cultivation territory increased.
- There is an increasing demand of integrating new modern technology in vegetable production and greenhouse development.

- *In open field*

- Cabbage
- Carrot
- Beet
- Radish
- Onion
- Garlic
- Watermelon
- Pumpkin

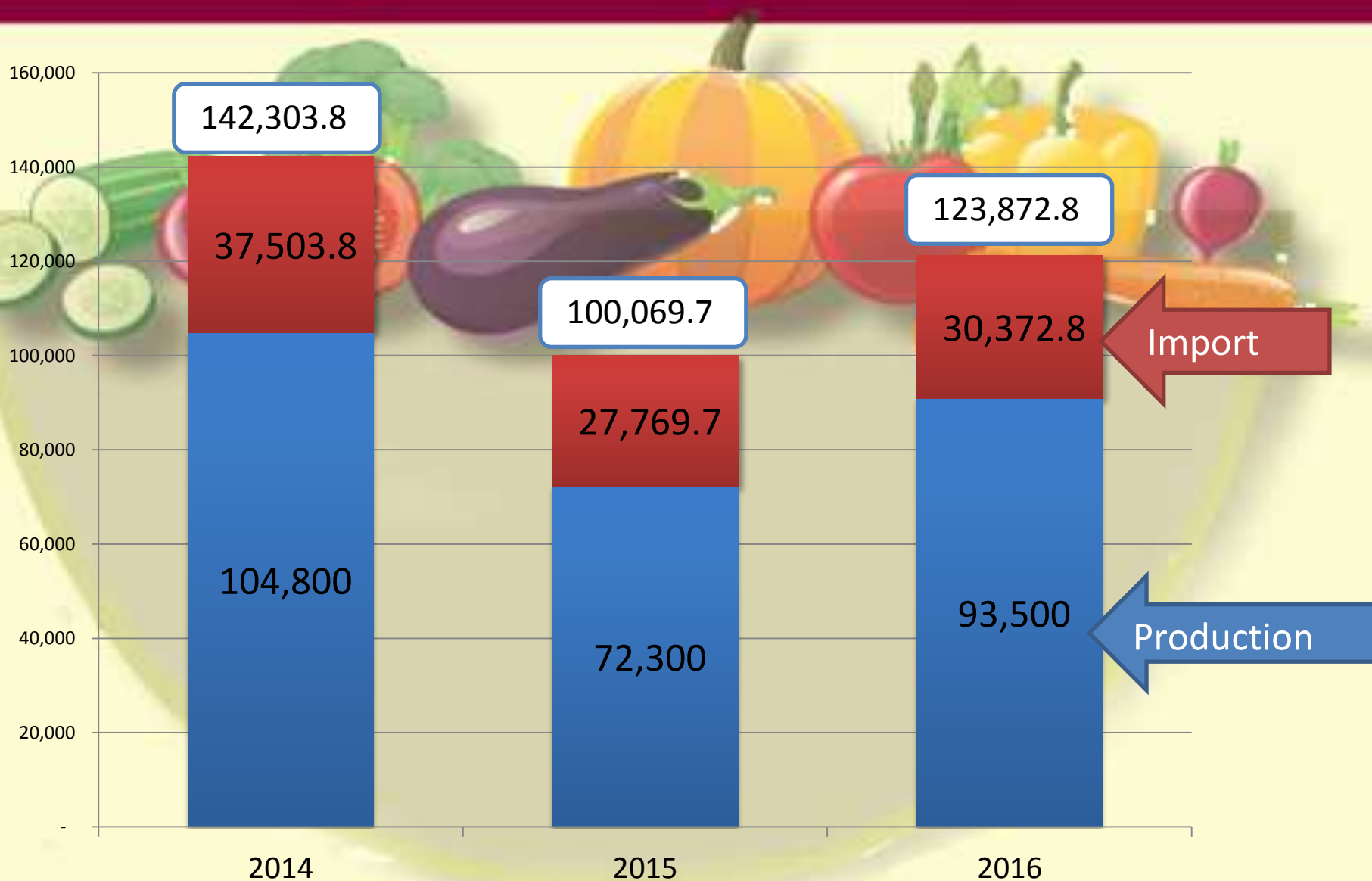


- *In greenhouse*

- Cucumber
- Tomato
- Paprika, pepper
- Lettuce
- Broccoli

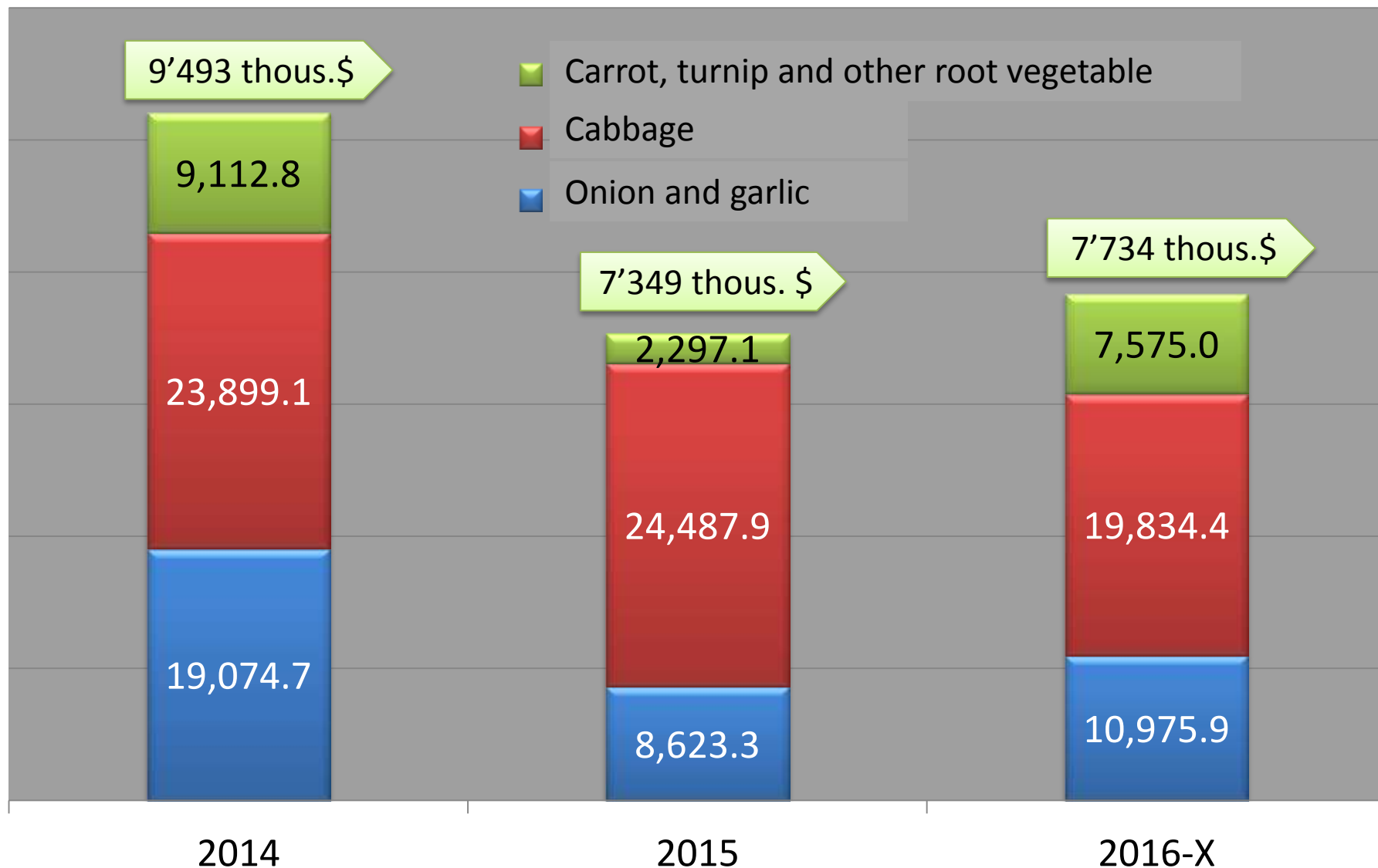


# Total consumption (production+import)





# Importation of vegetable



# Vegetable production

Table 1. Vegetable cultivation area and production

№	Vegetables	Cultivation area (ha)	Production Amount (tons)
1	Cabbage	1,574.40	25,190.40
2	Carrot	2,358.40	28,300.80
3	Turnips	1,398.40	16,780.80
4	Beets	192.4	2,308.80
5	Radish	164.5	1,974.00
6	Onion	805.6	12,105.60
7	Garlic	154.4	1,500.70
8	Cucumber	45.48	5,922.00
9	Tomato	22.8	9,120.00
10	Watermelon	30.2	2,040.00
11	Lettuce	15	570.00
12	Pumpkin	182	2,736.00
13	Broccoli	2.1	40.00
14	Others	273.6	1,736.00
<b>Total</b>		<b>8,149.28</b>	<b>102,125.10</b>



Mongolian population demands 187.6 thousands of tonnes vegetable in a year. However, we are still importing vegetable from other countries. We consider, this happens because of our postharvest processing is not developed.

# Post harvest

**Table 3. Post harvest losses for vegetable**

№	Postharvest handling procedure	Post harvest losses, percent	
		Vegetables	Onion
1	Harvesting	2%	2%
2	Transport and storage	2%	2%
3	First sorting and cleaning	4%	3%
4	Second sorting and cleaning	2%	1%
5	Drying	-	2%
6	Cleaning during store	15%	15%
7	Transport to factory and market	2%	3%
8	Packaging	2%	3%
9	Consumer cleaning after using	1%	2%
Total		30%	32%



In Mongolia, an impact of weather condition to vegetable and fruit production is very high. Early and cold spring creates a risk in vegetable and fruit production and it doesn't allow growing early vegetables outdoor also it causes damage to fruits and berries such as early flower shattering and empty fruit setting et.c. Also, a number of pest and diseases occur during growing season causing a yield loss of 15-20%. During harvest time the yield loss reaches to 20-25%.



# Cultivated fruit and berry species in Mongolia

Sea-buckthorn /90%/ , Black currant, Apple, Plum, Raspberry, Strawberry, Cherry.







- **Sea buckthorn**
  - Endemic berry adapted to Mongolian harsh climate (wild & cultivated). 90% of total fruit cultivated area.
  - Its needs and demands have been increasing year by year both at domestic and world market because of its great importance of treatment and beauty, and very rich of biological active substances, vitamins and mineral elements.

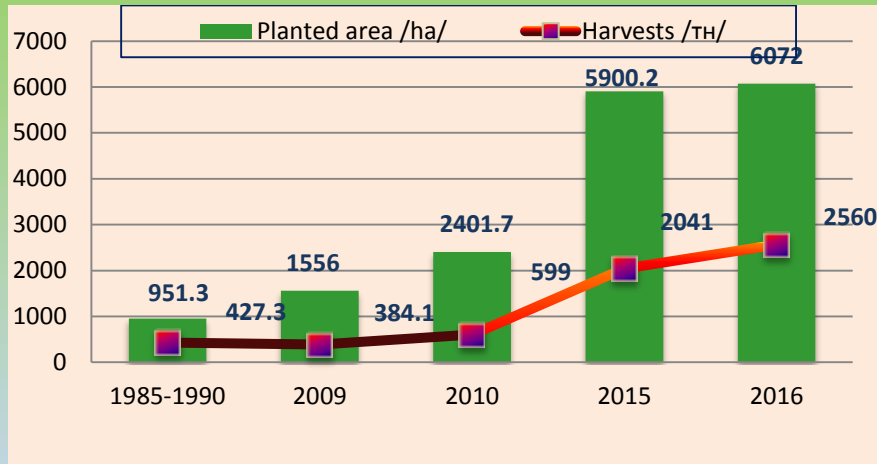
# Medical properties of the Sea buckthorn



- The Tibetan medicine has 106 recipes that includes sea buckthorn.
- In Europe, early medical publications on sea buckthorn states that it is helpful for cold and seasickness. Especially it has good effect for children who have high probability of vitamin deficiency, pregnant women, old people, and patients with chronic illness. Also improves immune system.
- Tests show that sea buckthorn oil helps to treat external injuries such as wound, burnt, stomach ulcer, frosting, and other skin diseases;

# Fruit production

## Current situation: /2016/



❖ **Farmers -2000 Processing factories - 40**

❑ **Seaberry** **5511.6 ha**  
 ❑ **Other fruit** **560.6 ha**

- Domestic production 2560 тн
- Import /Apple -70%/ 21290 тн
- Supply /Физиологийн норм/ 1.5 %
- Чацарганы тариалалт, үйлдвэрлэл нэмэгдсэн. Экспортод гарч эхэлсэн.

2016

Seaberry 5512 ha – 91 %

Other fruit - 9 %

Up to 2020:

2020

Seaberry - 12000 ha 75%

Other fruit - 3000 ha 25%

➤ Over 2000 small, medium and large farmers cultivated 5500 ha under sea buckthorn /2016/

➤ Domestic plantation is expected to reach 12.0 thousand hectares of area and 18000 tons of harvesting by 2020.

- Кластерээр хөгжүүлж, тариалалт, хураалт, хадгалалт, боловсруулалт, борлуулалтын нэгдсэн өртгийн сүлжээ үүсгэн өрсөлдөх чадварыг дээшлүүлж, үнэ цэнэ бий болгоно.

## POLICIES AND NATIONAL PROGRAMS TO DEVELOP ORGANIC GREEN INDUSTRY

- National Program on **“Food security”** dated on 2011.
- Law of Mongolia Organic food dated on 2016.
- National Program on **“Vegetable”** and **“Fruit and berry”** dated on 2017.
- “Rule for the control and assurance of organically produced foods”.
- Rules on organic crop production.



# Advantages for developing organic agriculture in Mongolia

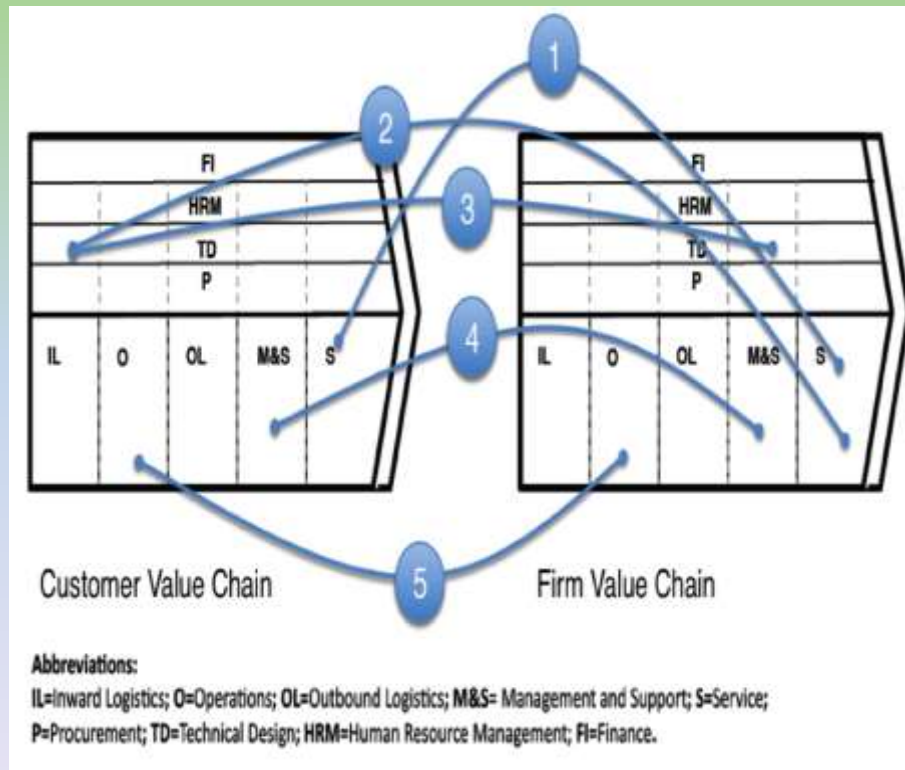


- Unpolluted (clean) **environmental condition** (air, soil and water).
- Enough land resources to increase the crop production.
- Last 20 years most of the farmers **minimum use any chemical fertilizer and pesticides** for crop production.
- Most of farmers **used organic manure or bio fertilizers** for improve the soil fertility and increase the yield.
- The infection rate of diseases were very low due to extreme harsh continental climate, with long cold winters (-40C0) and dry growing season.

# Market development

- Domestic market for organic crop production is very limited due to low number of population, low capability of the consumers and weak development of the infrastructure.
- The export market for organic products still not developed, but potentially we can export to the Siberia (Russia) and East Asian countries.
- The whole sale traders and supermarkets are driving the development of domestic market and the farmer organization and exporters are driving the export markets.

# R&D Demand for Sea buckthorn Value Chain



Sea buckthorn varieties

New products

New technology in harvesting

New technology in processing, e. g drying (powder)

New patents

New appropriate standards, e. g packaging

Marketing channels

# Sea buckthorn cluster initiative (SCI) - 2015

- Ministry of Food, Agriculture and Light industry (MoFALI) had launched Sea buckthorn cluster initiative, in 2015.
- **Goal:** To establish partnership among farmers, processing companies, research and financial institutions to increase production, quality and export.
- Implementing union: Mongolian National Association of Fruit and Berry (MNAFB):
- **Activities:**
  - Trainings, researches, meetings, and discussions
  - Professor team work
  - Partnership between MoFALI and MNAFB
  - Partnership among Cluster participants
  - Financing, processing
- SCI Board and its action plan and performance



# SEABUCKTHORN VALUE CHAIN

**1. INPUT**

- Seeds
- Fertilizers
- Agrochemicals
- Farm equipment
- Irrigation equipment




**2. PLANTATION**  
- Khangai and Central region



**4. PROCESSING**

- Frozen
- Preserved
- Juices & Pulps
- Oil




**3. TRANSPORT**

- From Farms to Factory
- Cold Storage
- Fruits for processed food




**5. DISTRIBUTION & MARKETING**

- Supermarkets
- Food services
- Importers & Wholesales





**6. CONSUMPTION**




## Building Seabuckthorn Value Chain in Mongolia: Challenges in VCF

TSEVELMAA Khyargas, Ph.D Department of Economics, NUM

### Introduction

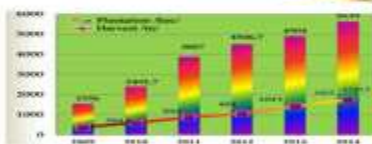
- Ministry of Food and Agriculture initiated the SCI in 2014.
- Short-term goal of SCI is aimed to build up Institutions for Collaboration

### Challenges:

- Agro-Industrial VCF structure and institutional framework
- Agro-Industrial VCF instruments
- A Weak Capacity with Working

### Development Crosswalk:

- Dialogue on Sustainable Agro-Industrial loan and Guarantee Fund
- Investment in value addition and leading companies



## FURTHER CHALLENGES TO INTENSIFY SCI

- Support value chain by different policies whether pro-poverty or export promotion depend on the competitiveness
- There are many challenges including inbound logistics, processing, outbound logistics and retailing as well as after retailing service.
- Attract financial institutions into VCF with VCF instruments
- To encourage domestic demand for fruits and berries, increase government procurement
- Gap between processing companies and research institutions, and gap between processing companies and financial institutions should be improved based on creating the consensus platform.
- Moreover, processing companies should develop R&D in order to increase their sales and attract the sophisticated customers.





# Mongolian nature



Mongolia is one of the rich natural countries in the world. Because there are 7 natural zones: such as High Mountain Zone, Taiga Forest Zone, Mountain Forest Steppe Zone, Steppe Zone, Desert-Steppe Zone, Gobi Desert Zone, Wetlands. For example: Mongolian from north to south it can be divided into four natural zones: mountain-forest steppe, mountain steppe and, in the extreme south, semi-desert and desert

# Nature of Mongolia





# Capital city of Mongolia



# THANK YOU FOR YOUR ATTENTION

