

Chinese Path to Modernization: Research and Exploration

ZHANG Meng and GUO Man





How China feed 1.4 billion people?

9% of world farmland, 20% of world population

First and foremost task for people: food and eat





鱼米之乡 fish and rice

- CD 1
52'20---55'55"

- 中国的谚语：靠山吃山靠水吃水
Chinese proverb: depend on mountains to eat mountains and depend on water to eat water

Quora

Home Answer Spaces Notifications Search Quora

Food in China The Economy of China Sustainability +5

How is China able to provide enough food to feed its population of over 1 billion people? Do they import food or are they self-sustainable?

Answer Follow 123 Request 1 f 知乎 @徐勤培

Using 7% of arable land to feed 22% of the world's population

用7%的土地，养活了世界22%的人口

Huzhou, Zhejiang 浙江湖州南浔
东经120°09'02.9", 北纬30°46'14.5"

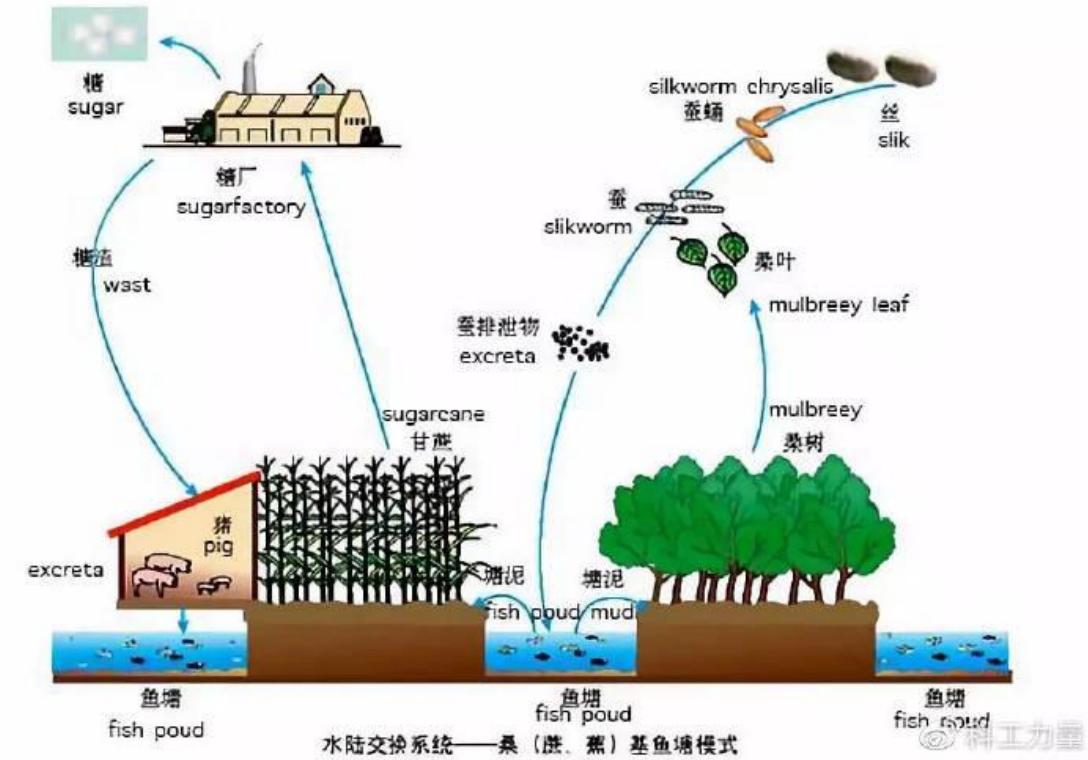
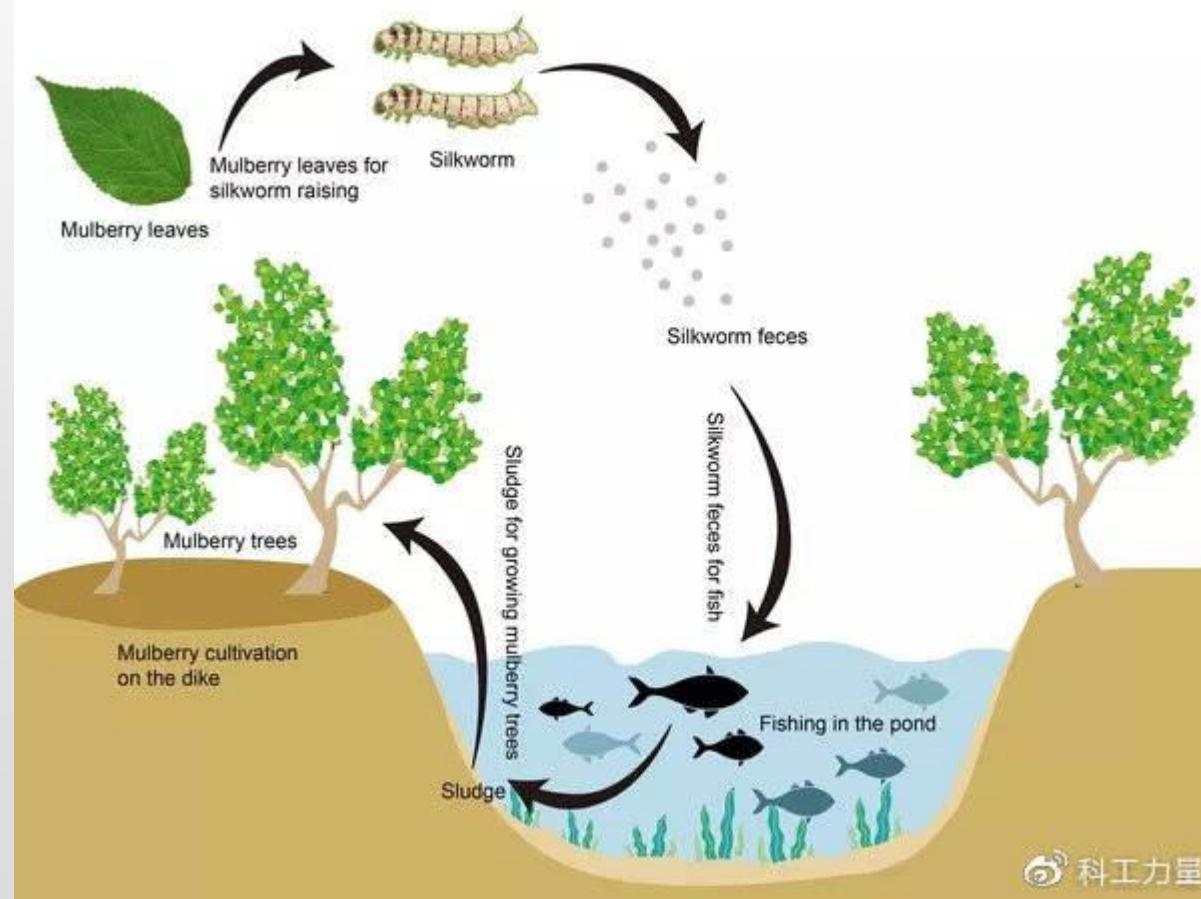
Flood Plains along the Yangtze River, Taihu Lake and Qiantang River. The abundant freshwater resources have brought a lot of nutrients to the upper reaches of the river, making the region a land of fish and rice for 100 million people.

It is also one of the most densely populated areas in China. It is similar to the floodplains of Bangladesh, West Bengal, India and Saigon, Vietnam.



What unusual things have the Chinese done compared to other densely populated floodplains? Compared with rice, aquatic products can sell at higher prices and become rich faster.

Come closer and you'll see millions of fish ponds here. Besides the fish pond, you can also see many trees planted around it.



Without knowing the concept of "sustainable development", Chinese farmers have used this ecosystem of fish, mulberry and silkworm for thousands of years. Today, the system has evolved into multiple recycling of the same piece of land.

to raise more fish in a pond, you need an oxygen pump. It can inject air into the water so that the fish have enough oxygen to breathe. In the picture below, the white dot in the middle of each pond is an oxygen pump.



科工力量

In order to install an oxygen pump in each fish pond, electricity must be supplied everywhere. How to supply power to the oxygen pump? Of course, solar panels.



With the help of local governments and experts, farmers and fishermen began to learn the most advanced solar energy technology and sustainable development technology.

Why are Chinese local governments so keen on promoting high technology? Because the promotion of officials is linked to their achievements. Photovoltaic fish ponds are fully in line with the concept of sustainable development, so they are conducive to the promotion of local officials.

From this point, you can understand why China can produce 84% of the world's silk, 66% of freshwater fish, and solar power accounts for 25.8% of the world's total. In rural areas of Zhejiang and Jiangsu, people eat fish almost every day. Some say it's the secret of their brains.

Ecological cycle: lotus root and fish farming.



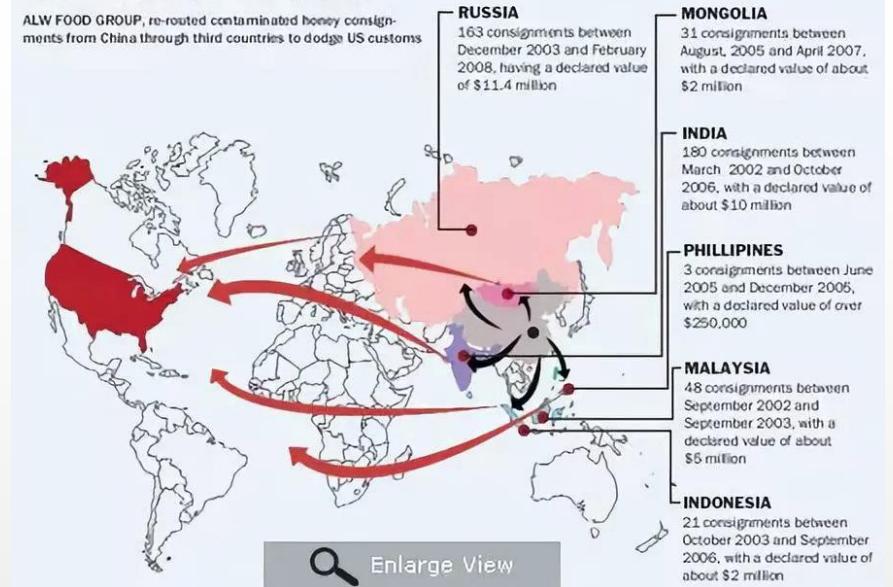
The ecological cycle is mustard, bee, fish and shrimp

Farmers dug nutrient-rich silt from riverbeds in winter and piled it on the shore, where they planted different crops, such as rapeseed or taro, without fertilizer. After thousands of years of cultivation, the farmland here is like this:



China to US, via quick-change ports

ALW FOOD GROUP, re-routed contaminated honey consignments from China through third countries to dodge US customs



Enlarge View

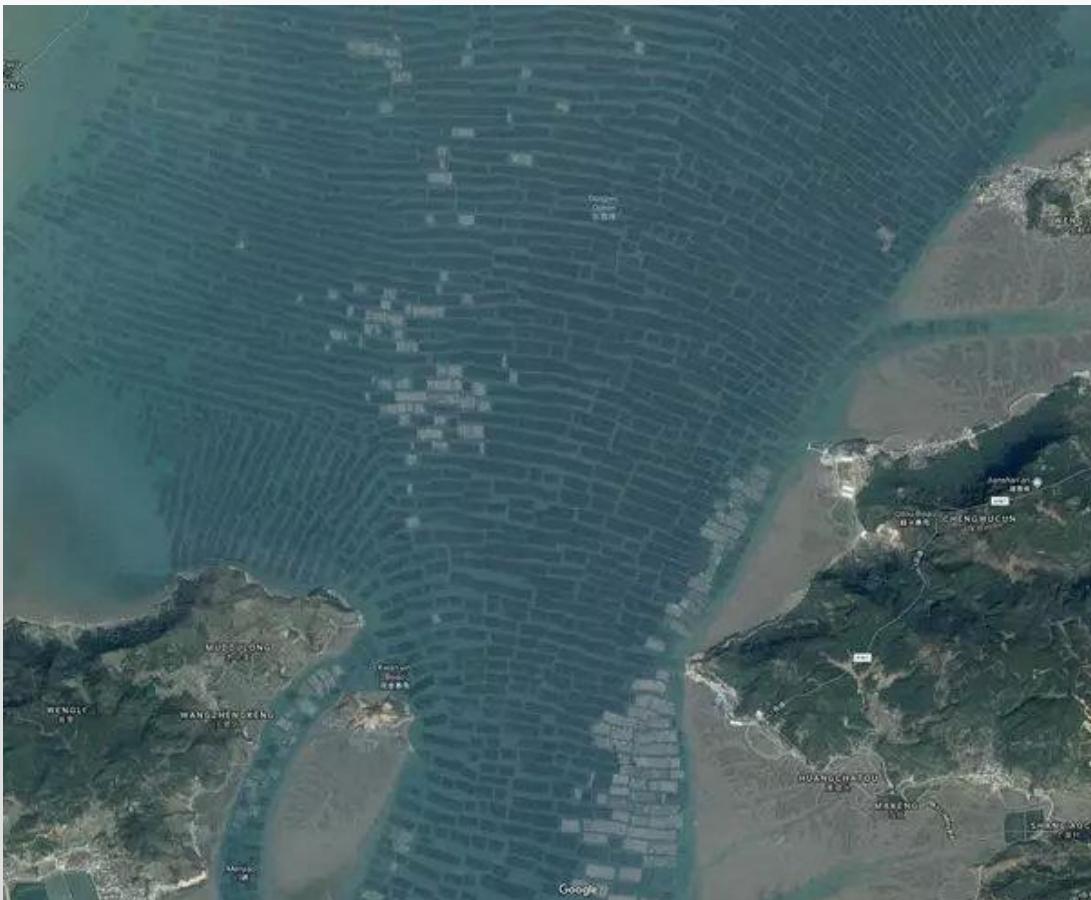
Production of natural honey – 2017

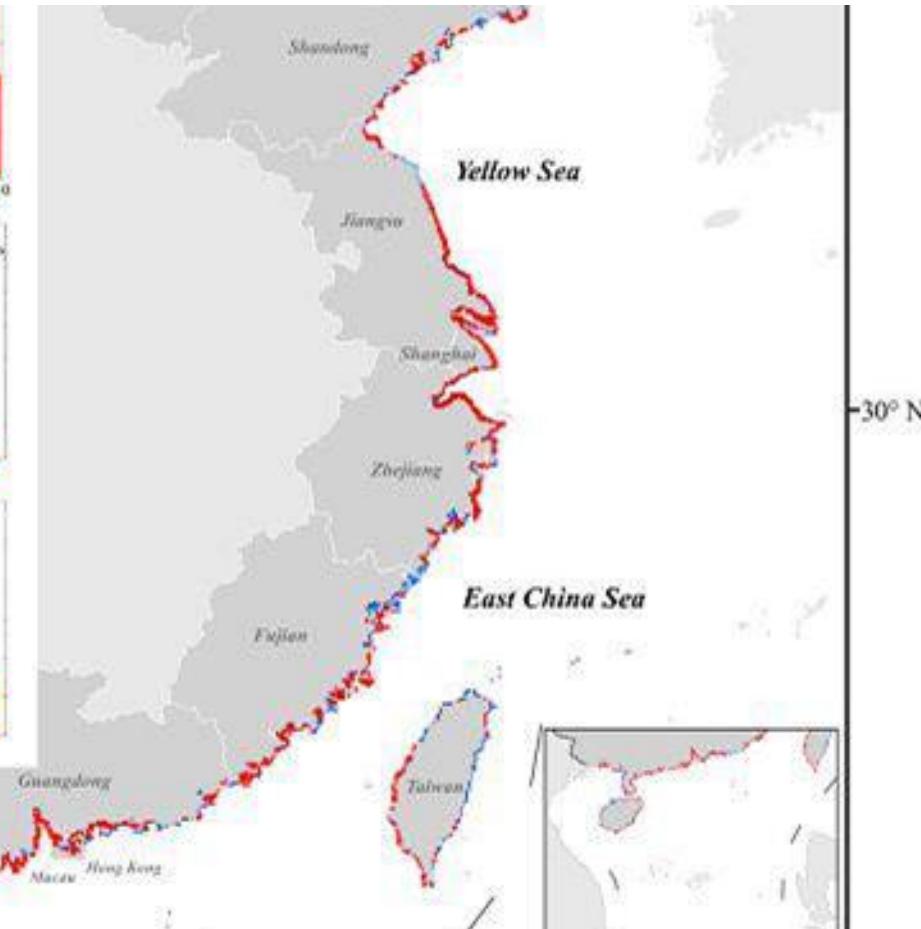
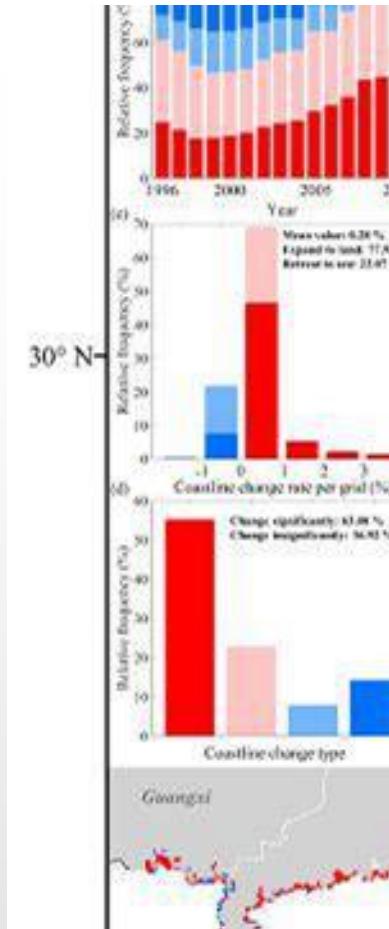
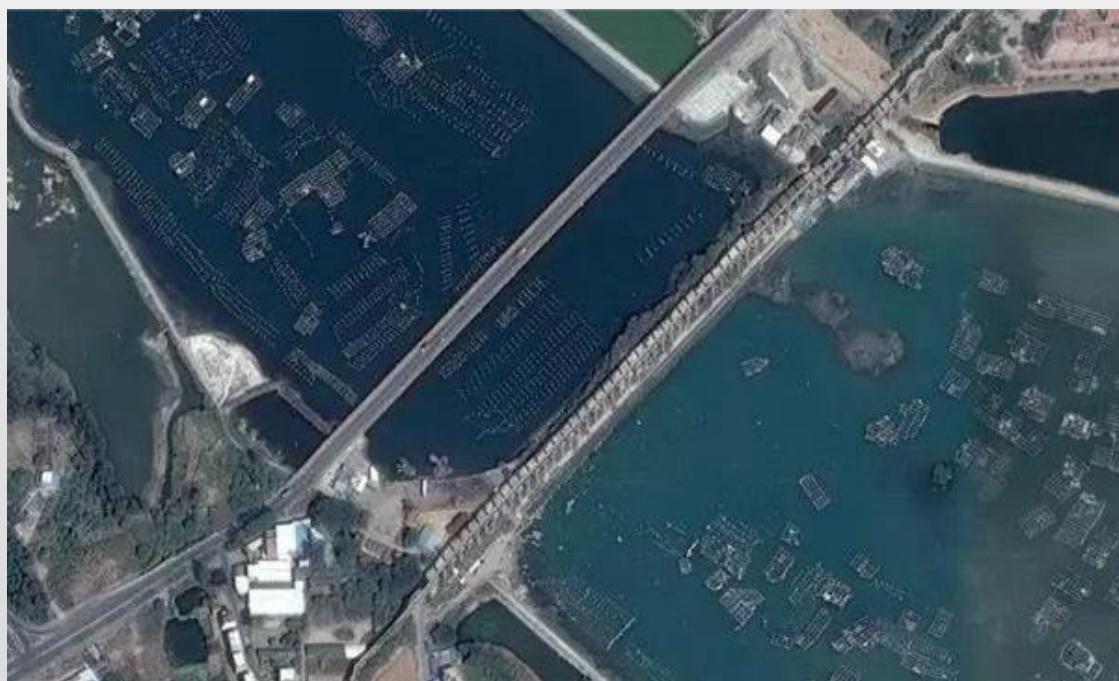
Country	tonnes
China	543,000
Turkey	114,471
Iran	69,699
United States	66,968
Ukraine	66,231
Russia	65,678
India	64,981
World	1,860,712

Source: FAOSTAT^[36]

One third of the honey consumed in the United States comes directly or indirectly from China.

Ningde Port, Fujian Province
(119 degrees 57'45.2"longitude east, 26 degrees 43'02.8"
latitude north)





From Zhejiang to Guangdong, you can see similar cages almost everywhere along this 1,000-mile coastline.

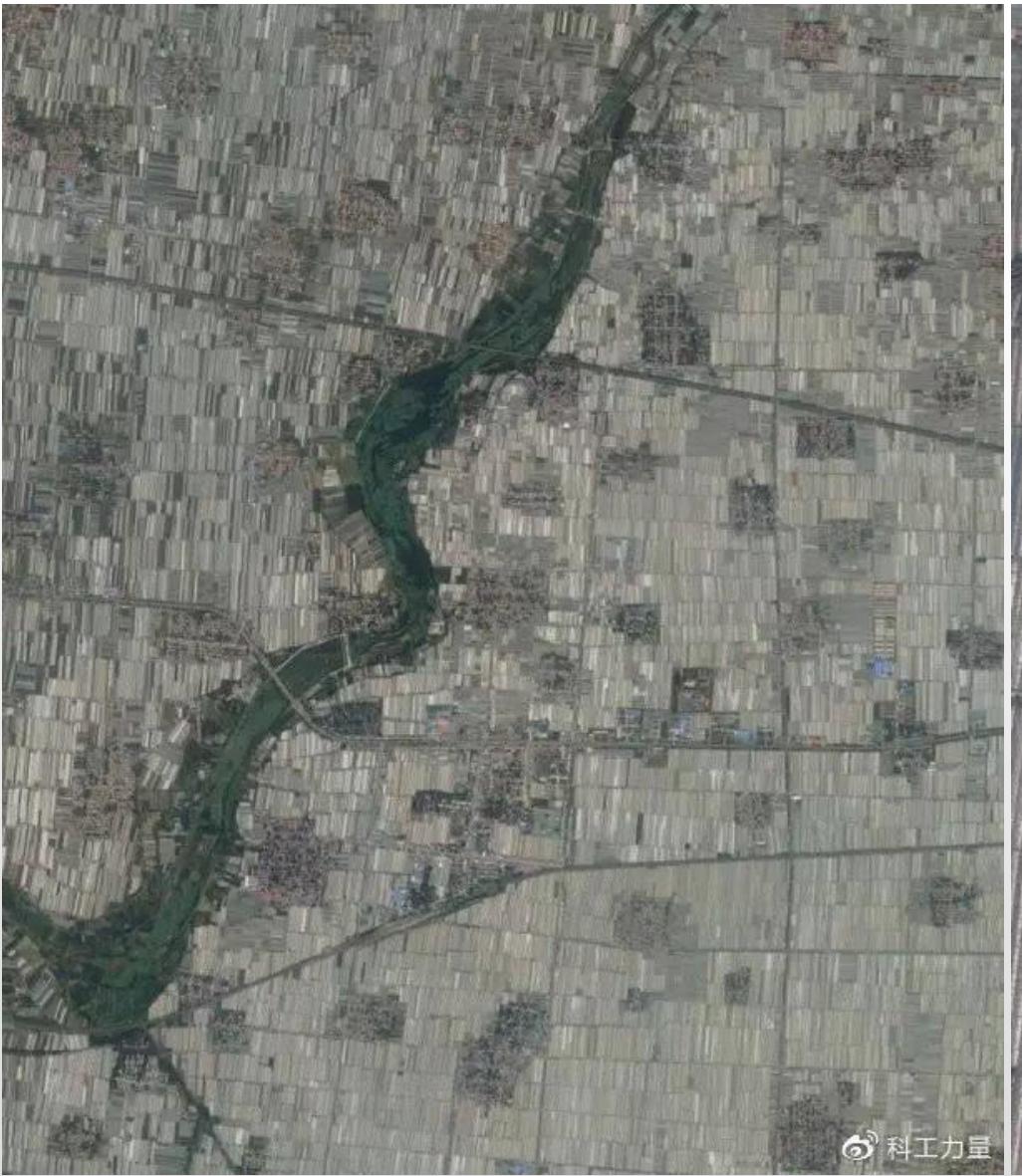
China is the largest seafood consumer, accounting for 45% of the global total with 65 million tons, followed by the European Union (13 million tons), Japan (7.4 million tons), the United States (7.1 million tons) and India (4.8 million tons).

China and India have about the same population, but China consumes 12 times as much seafood as India --- although India's geographical conditions are better, located in the tropics rich in fishery resources, surrounded by warm oceans on both sides.

Of the 65 million tons of seafood consumed annually in China, only 15 million tons are fished, and the remaining 50 million tons are from aquaculture farms.

In Japan, 90% of seafood comes from fishing. Thanks to seafood farming, ordinary Chinese people can buy inexpensive seafood, and they can afford seafood for three meals a day.





科工力量

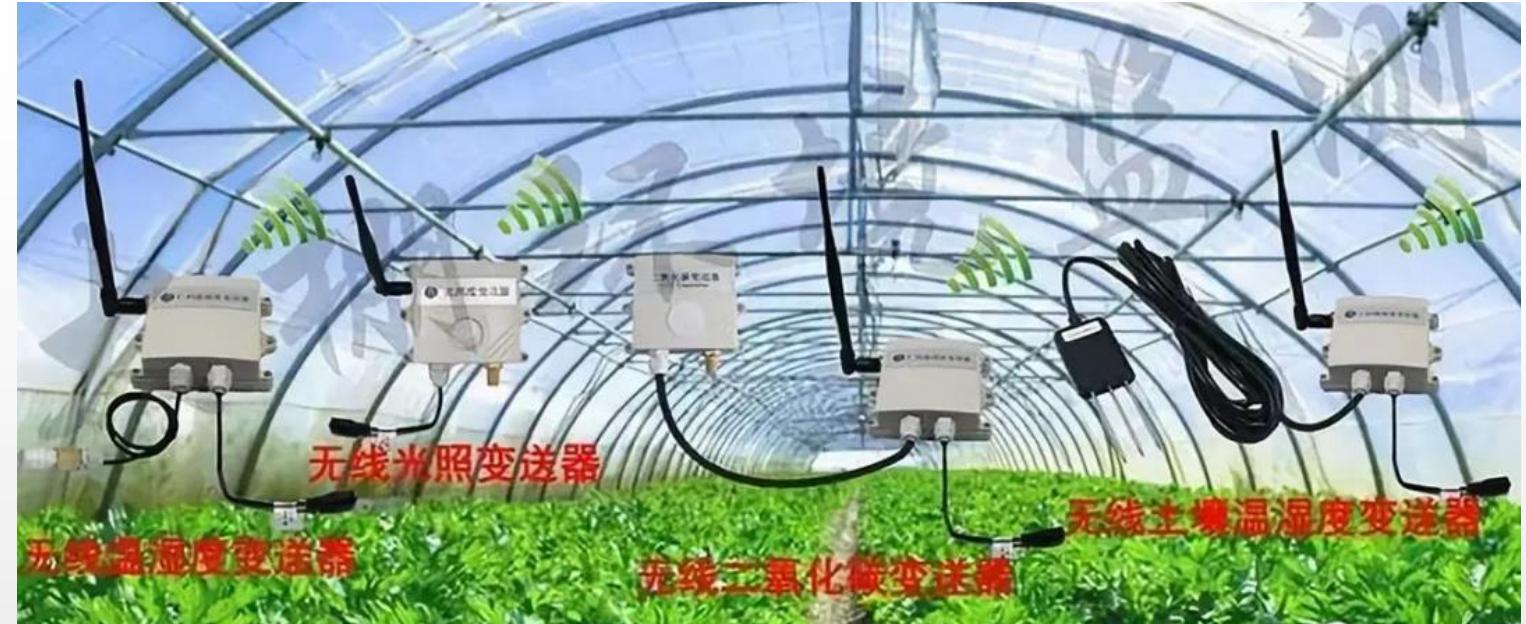


©视觉中国



中国青年报
CHINA YOUTH DAILY
科工力量

农民在大棚内安装物联网监控系统。通过再教育培训，农民们学会了用手机监控温室内部环境参数，比如二氧化碳浓度、光线强度、土壤温度等等。



Farmers install Internet of Things monitoring system in greenhouses. Through re-education and training, farmers learned to use mobile phones to monitor greenhouse internal environmental parameters, such as carbon dioxide concentration, light intensity, soil temperature and so on.

According to the data of FAO, the output and consumption of vegetables and fruits in China are about 700 million tons, which is 40% of the world total.

Most of India's citizens are vegetarians, and its arable land is larger than China's, but the national output of vegetables and fruits is 180 million tons, which is 38 times that of China. The secret is to grow in greenhouses.

With greenhouse vegetables, Chinese people enjoy more varieties of vegetables than people anywhere in the world, and the prices are cheaper.

Besides tropical specialties, every vegetable production in China is almost the first in the world, and the gap between China and the second is not small. Many East Asian-specific vegetables, such as leek, are not even on the list.



Major watermelon producers, 2016

(millions of tonnes)^[42]

China	79.2
Turkey	3.9
Iran	3.8
Brazil	2.0
World	111.0

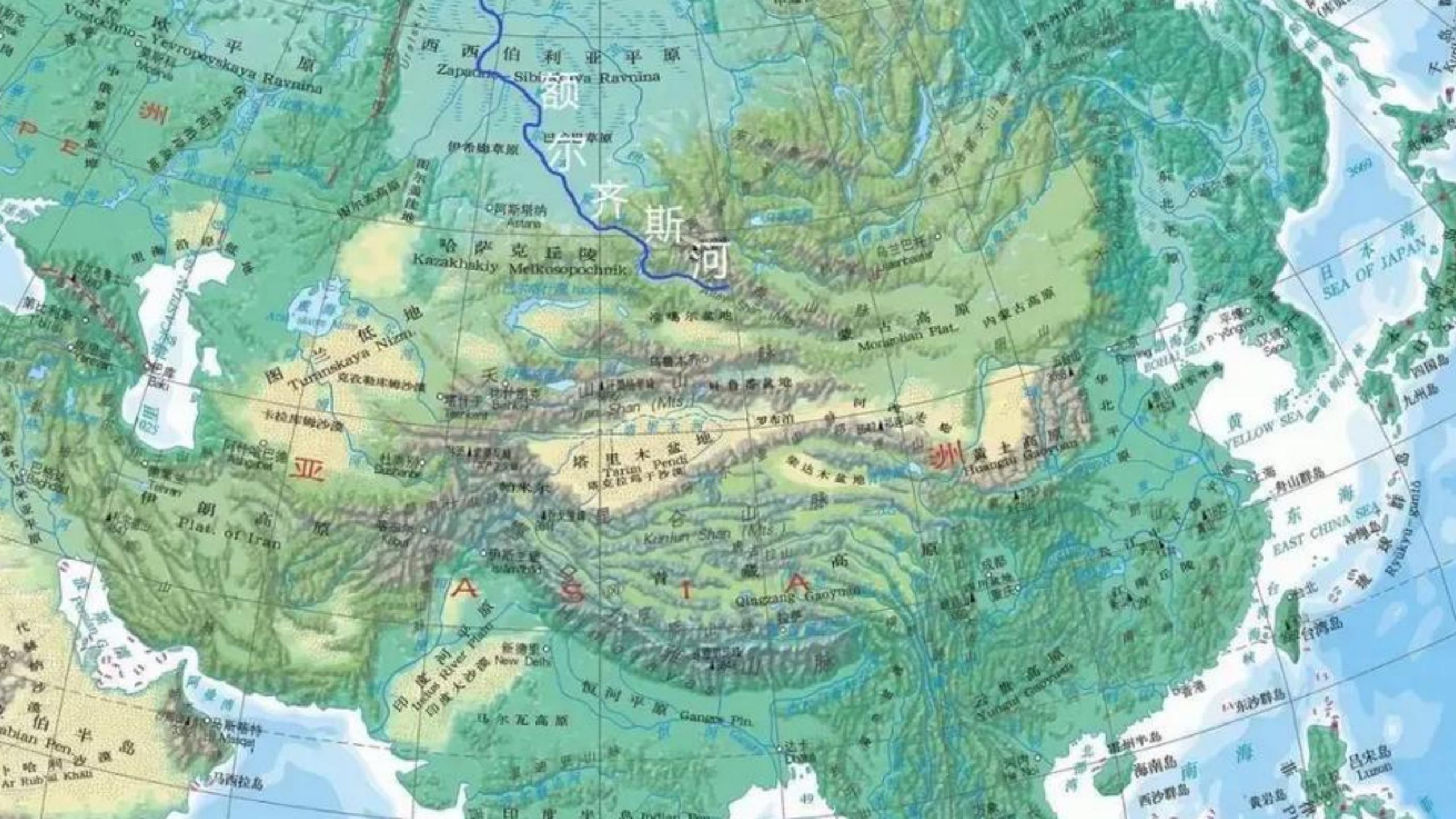
Lhasa 拉萨

西藏的大棚。把谷歌地球移到西藏任何城镇，
都能看到大棚。==》

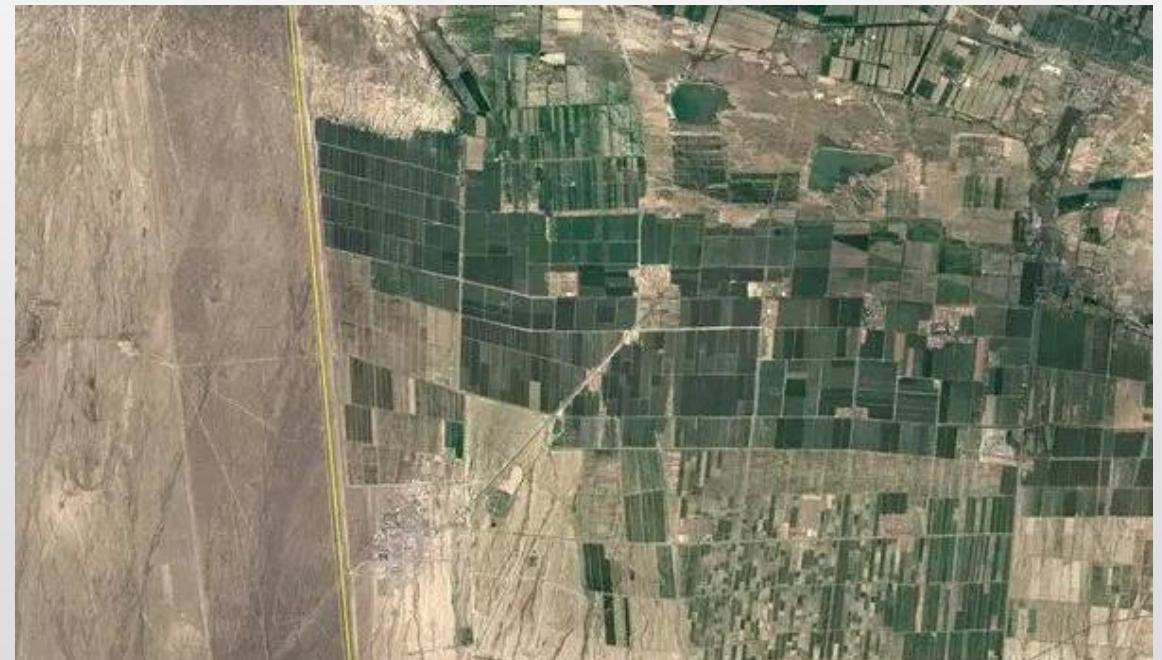
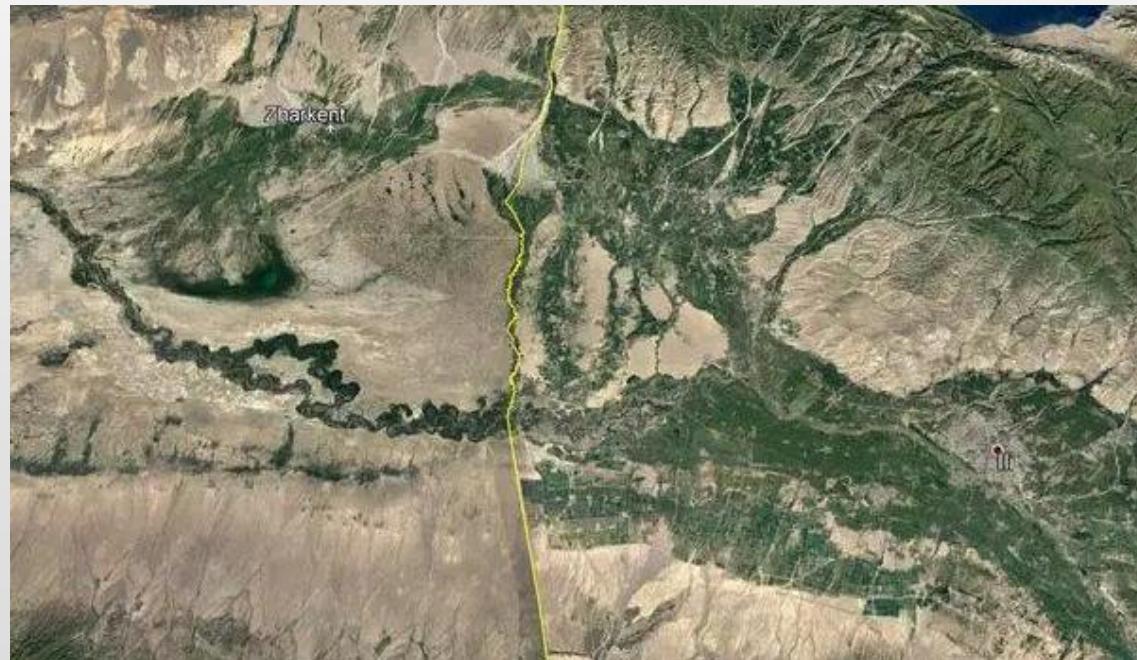
过去十年西藏蔬菜价格下降90%，不用再从邻省运了。
多数西藏人终于吃得起西瓜了。谁不喜欢吃瓜呢？

历史上多数藏人只吃牦牛肉、奶、乳制品和面食。在那样的恶劣气候条件下什么都种不出来。只有喇嘛才吃得起蔬菜。现在中国政府让大家都吃得上蔬菜水果了。





Kekedara, Yili, Xinjiang (80 35'21.5"longitude east, 43 43'51.2" latitude north) Kokdara is a county-level city in northern Xinjiang, and to the west is the Almaty region of Kazakhstan. The yellow line below shows the Sino-Kazakh border line.



All wasteland has been cultivated by a special government organization, Xinjiang Production and Construction Corps. Now the Xinjiang Production and Construction Corps has become a state-owned enterprise with jurisdiction over 2.6 million employees and farmers. There are both Han and Uygur people in it. Because of such a large scale, the marginal operating costs have decreased, and directly docked with the vast mainland market.

Agricultural students sent to Israel every year to study the most advanced agricultural technology in desert climate.





Vedio:
CD4:
37' 35'

salmon fish in disert

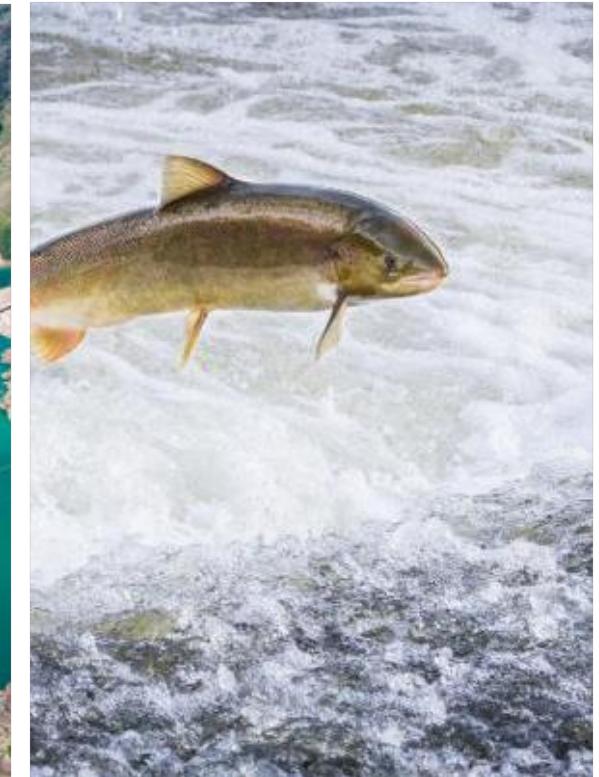
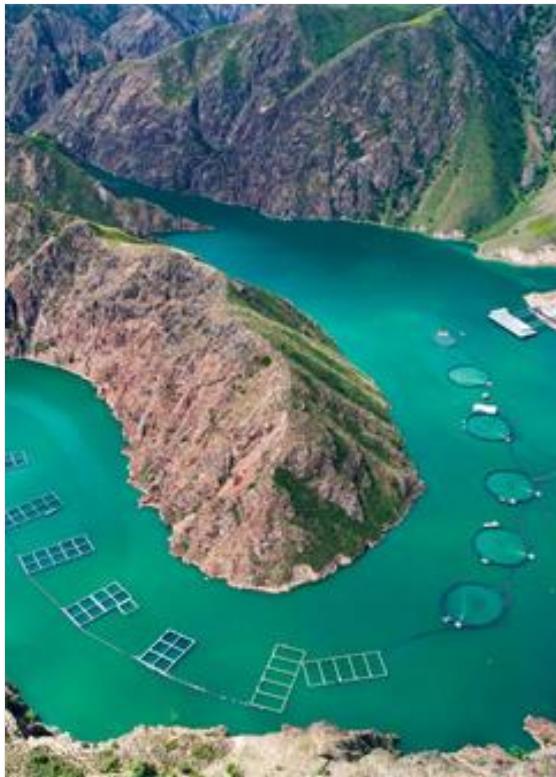


- In the past decade, tens of thousands of tons of salmon have been sold from Xinjiang Uygur Autonomous Region to various parts of the country and overseas.
- “The eco-environmental net cage-cultured system has resolved the issue of traditional net cage pollution, influenced the adjustment of relevant national policies, and established a sustainable path for industrial development,” Li Chunyu stated.

Salmon fish in desert

In the past decade, tens of thousands of tons of salmon have been sold from Xinjiang Uygur Autonomous Region to various parts of the country and overseas.

"The eco-environmental net cage-cultured system has resolved the issue of traditional net cage pollution, influenced the adjustment of relevant national policies, and established a sustainable path for industrial development," Li Chunyu stated.





袁隆平 杂交水稻之父
Yuan Long-ping
Hybrid Rice

可耕地 (千平方公里) : 中国1086、印度1579、欧盟1091、美国1631

大米 (百万吨) : 中国208.1、印度169.5、欧盟3.1、美国9.2

小麦 (百万吨) : 中国134.3、印度98.5、欧盟150.2、美国47.3

玉米 (百万吨) : 中国257.3、印度26.0、欧盟60.9、美国366.2

	China	India	the EU	the USA
Arable land (km2)	1086	1579	1091	1631
Rice(Mil Tones)	208.1	169.5	3.1	9.2
Wheat(MT)	134.3	98.5	150.2	47.3
Corn(MT)	257.3	26.0	60.9	366.2
total	599.7	294.0	214.2	422.7

China has not yet achieved self-sufficiency in soy beans, wheat, and corn, and about 10% of its food still relies on imports from other parts of the world. But in fact, most of these imported grains are not directly for human consumption.



Example 1: Brewing beer and Baijiu

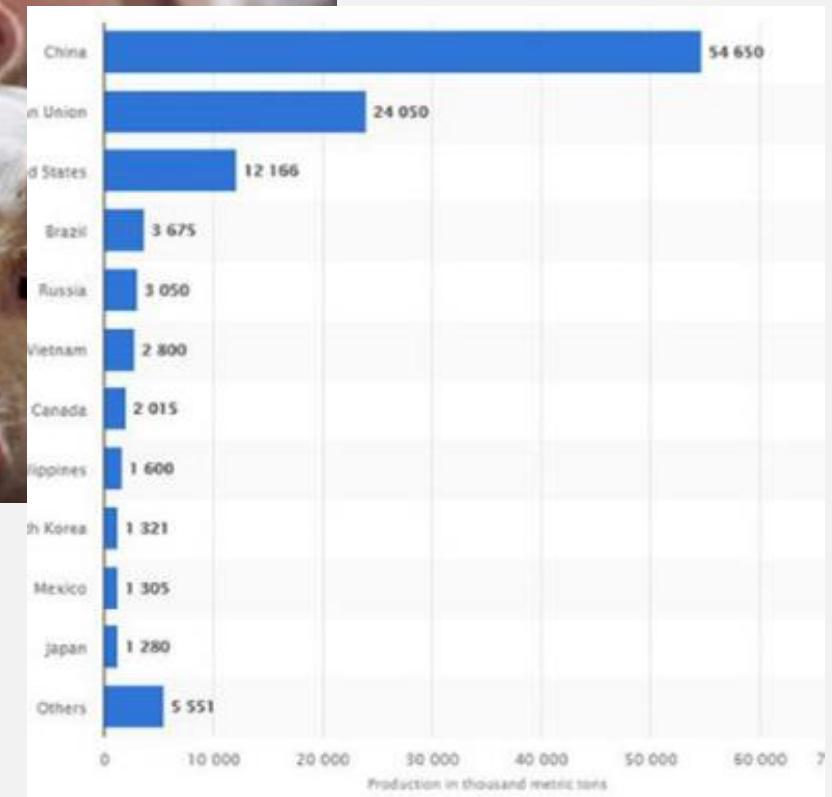
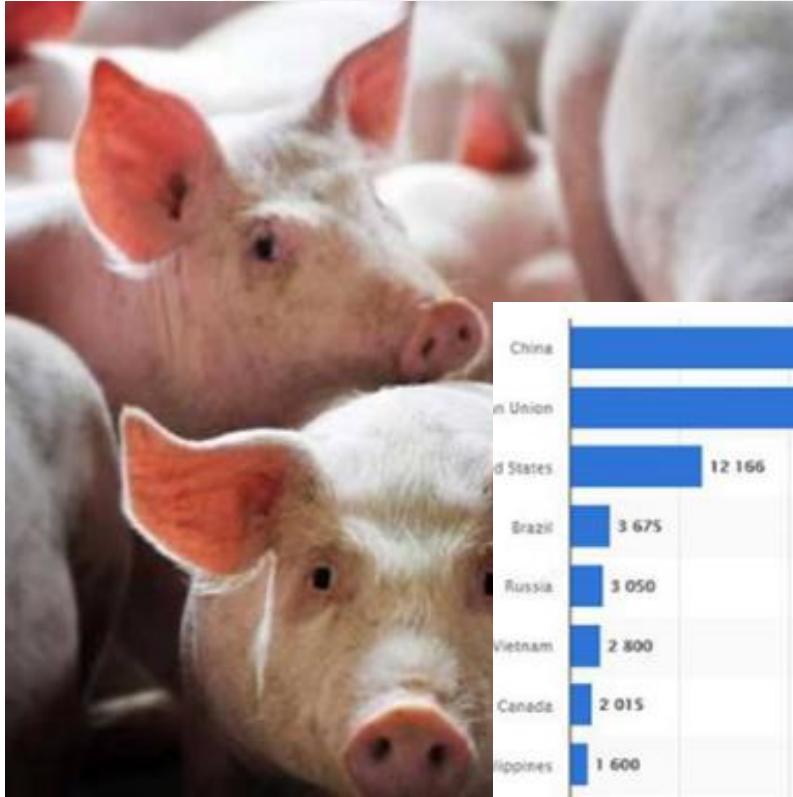
Since 2006, China has become the world's largest beer producing country, with an annual output of 46.54 million kiloliters, more than twice that of the United States. This number is still growing at a rate of 4.9% per year. In addition to importing wheat, most of China's hops are also imported from Germany and the United States.

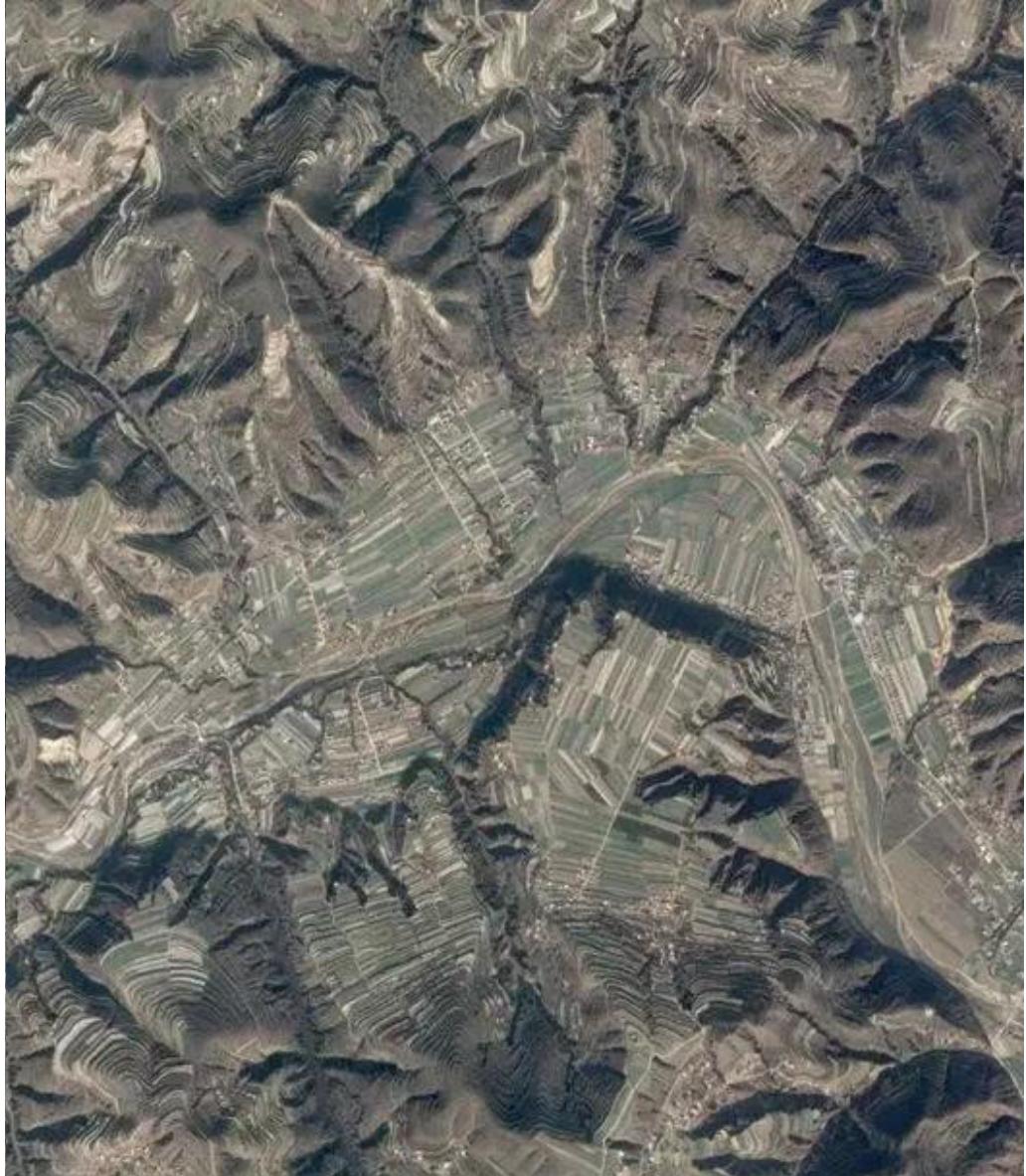
China is also the world's largest producer of spirits. Most Chinese people are not accustomed to drinking whisky and vodka, but prefer Baijiu with more aromatic taste. The annual output of Baijiu in China is about 13.6 million kiloliters, which is much more than the strong liquor that Westerners drink. This doesn't even include privately brewed rice wine.

Example 2: the scale of animal

Breeding in China is the first in the world, but a considerable number of species sources are in the hands of foreigners.

China's animal husbandry relies heavily on imported 100 million tons of soybeans (soybean meal is an important source of feed protein), making complete self-sufficiency unrealistic.





Hills have been
transformed into
terraces





Between 2000 and 2017, the global greening area increased by 5%, of which 25% came from China. In fact, China's vegetation area accounts for only 6.6% of the world's total.

[nature](#) > [nature sustainability](#) > [articles](#) > [article](#)

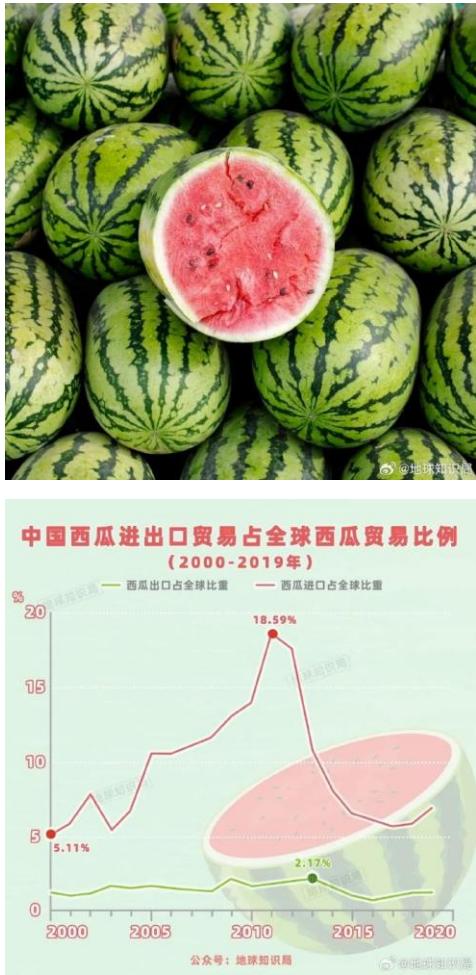
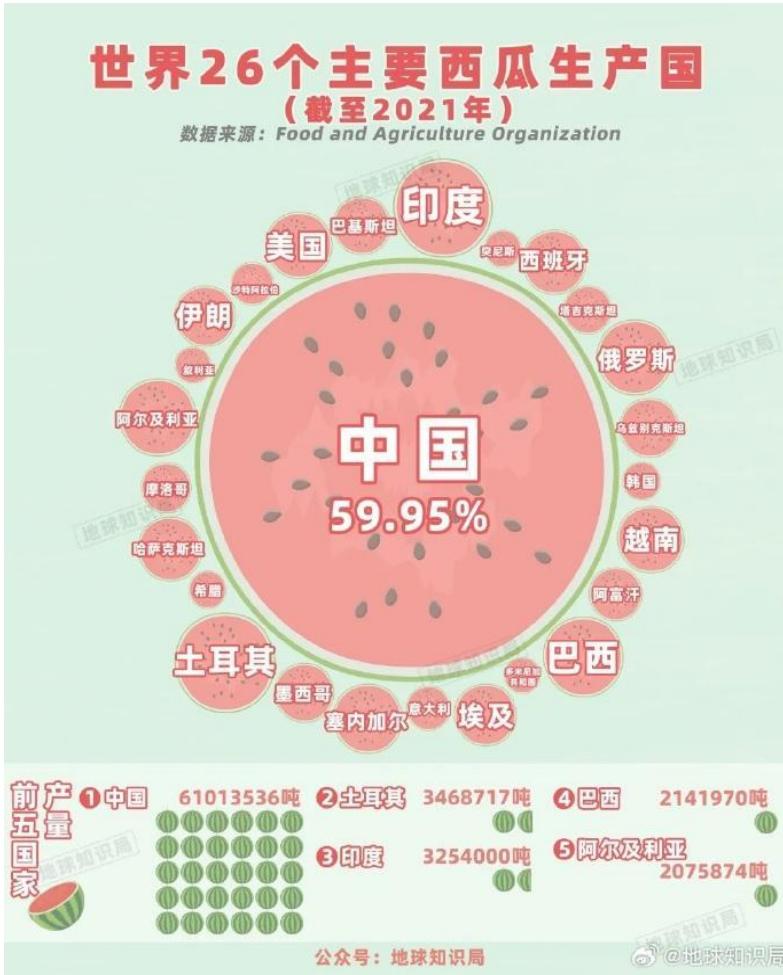
nature sustainability

Article | Published: 11 February 2019

China and India lead in greening of the world through land-use management

Chi Chen , Taejin Park, Xuhui Wang, Shilong Piao, Baodong Xu, Rajiv K. Chaturvedi, Richard Fuchs, Victor Brovkin, Philippe Ciais, Rasmus Fensholt, Hans Tømmervik, Govindasamy Bala, Zaichun Zhu, Ramakrishna R. Nemani & Ranga B. Myneni

Nature Sustainability **2**, 122–129 (2019) | Download Citation 



China can feed the Chinese, and it is not a staple food such as rice noodles. Compared with most developed countries, China has more kinds of delicious food and lower prices. The same is true for the poor in society. This is how I feel after I have been to Europe, the United States, Japan and many other places.

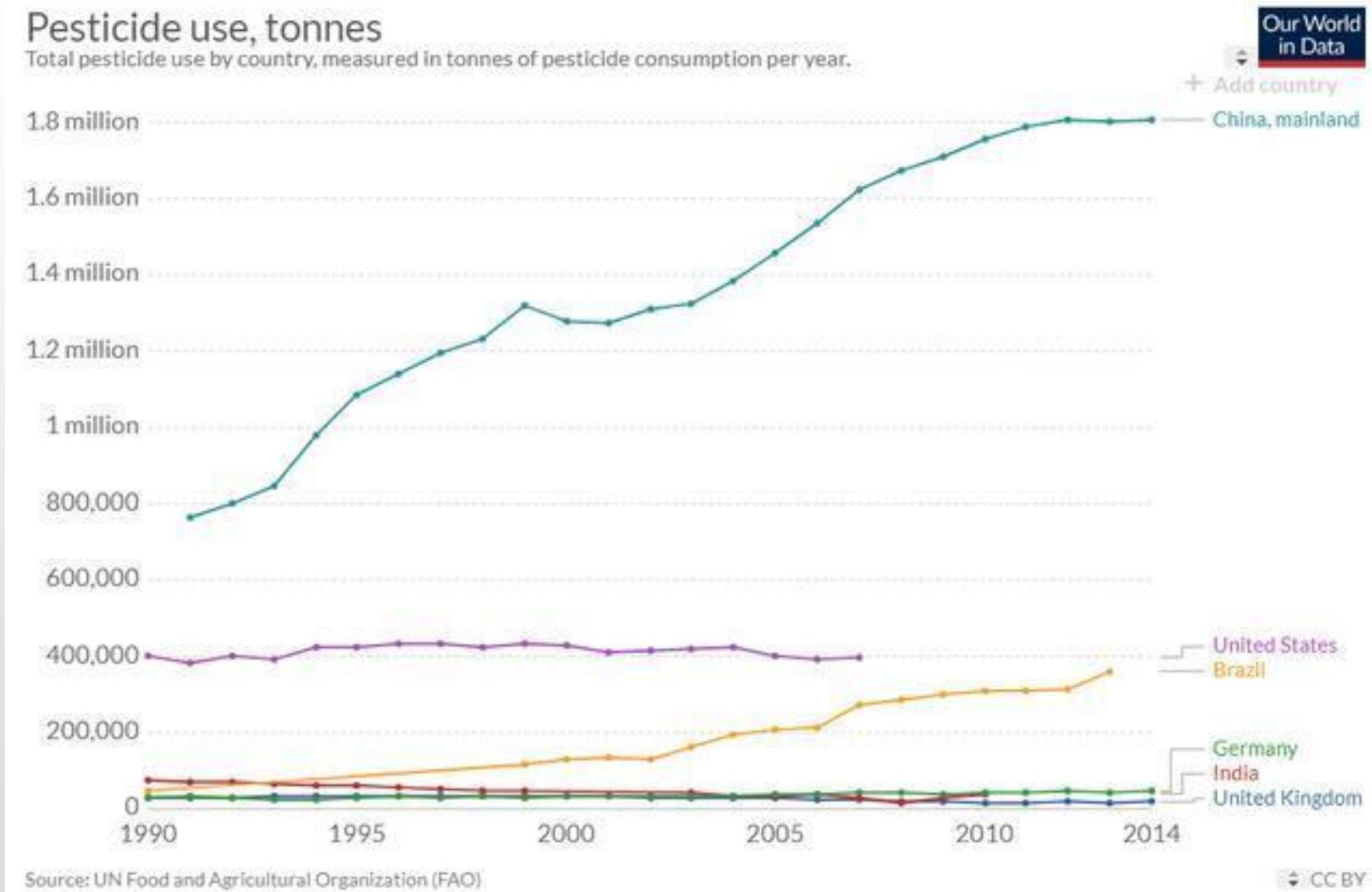


In Shandong (山东), such a table is about \$50. The same dish costs about \$150 in Beijing, Shanghai and Taipei, and about \$300 in California, Japan and Hong Kong. It hasn't counted all kinds of drinks and alcoholic drinks. In fact, most people in Japan and California don't enjoy the luxury experience of 20 dishes at one time, but it's perfectly normal in China.

Online celebrity blogger Miss Li Ziqi.



However, 首先, 全球
近一半农药用在中国。





Agricultural modernization and rural socialist modernization with Chinese characteristics and a Chinese path to modernization, a comprehensive modernization covering agriculture, rural areas and farmers.

3-dimention: Industry, community and people



1. Agriculture: ensuring food security and the supply of important agricultural products as the bottom line indicators, set indicators to promote the organic connection between small farmers and modern agricultural development, improve agricultural production efficiency, strengthen material equipment level, lead agricultural scientific and technological innovation and rural reform innovation, and promote green agricultural development.
2. Rural community: corresponding indicators should be selected from two dimensions: the coverage of infrastructure quantity and the improvement of infrastructure quality, to further promote the facilitation of rural infrastructure; Focusing on education, healthcare, and hygiene, establish indicators for the level of rural public service supply and the condition of rural living environment to promote equalization of rural public services and healthy rural living environment.
3. Enriching farmers", scientific and reasonable indicators should be set from the aspects of focusing on increasing rural residents' income, promoting comprehensive development of farmers, and building a new type of urban-rural relationship between industry and agriculture.

about food, what do you agree?

- A i understand food is about deep wisdom of Humans.
- B food should not be defined by food companies.
- C be flexable: live mountains eat from mountains, live rivers eat from rivers.
- D modern agriculture has two sides.

提交

First and foremost task for people: food and eat

Some countries are crazily fishing and greedily obtaining unlimited food from nature, leading to today's ecological disasters.

Many developing countries are facing crises of population expansion and food shortages.

By studying China's agricultural development, please discuss how a country can develop sustainable agriculture and healthy rural communities to achieve food security?

作答

End of Part III