Wie grün ist Chinas Landwirtschaft?
Is China's Agriculture green?

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Challenges for Agriculture

- 60 % of the country 1000 metres above sea level
- 15% deserts

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Klimazonen und Niederschlagsverhältnisse

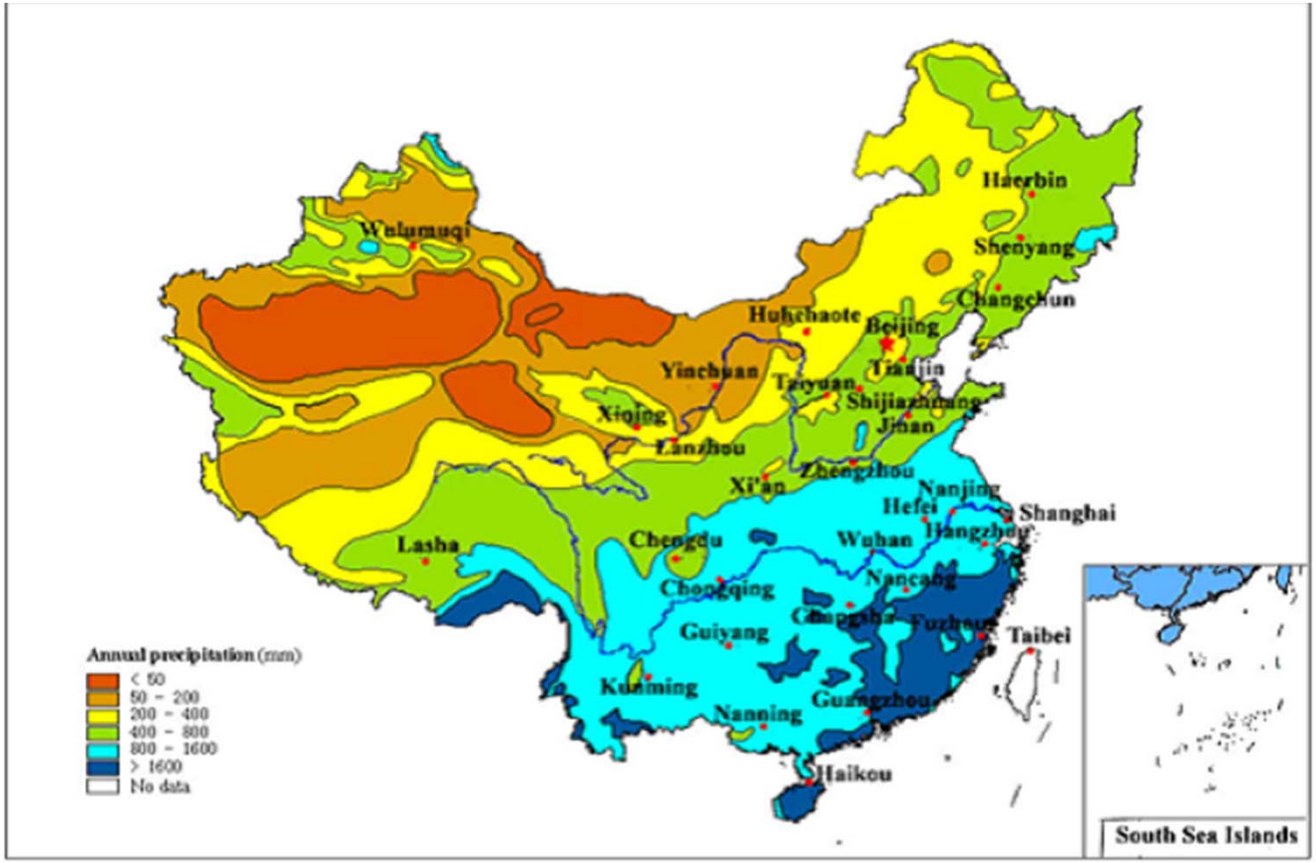

Figure 1. China's long-term mean annual precipitation distribution (source: China Meteorological Administration).

Wichtige Anbaugebiete

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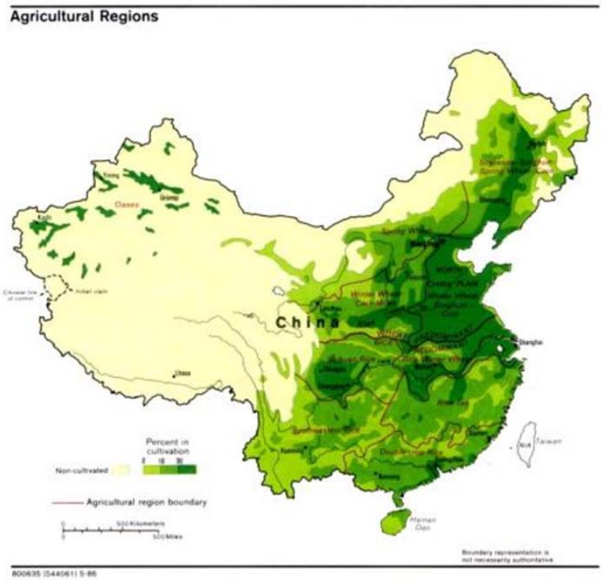
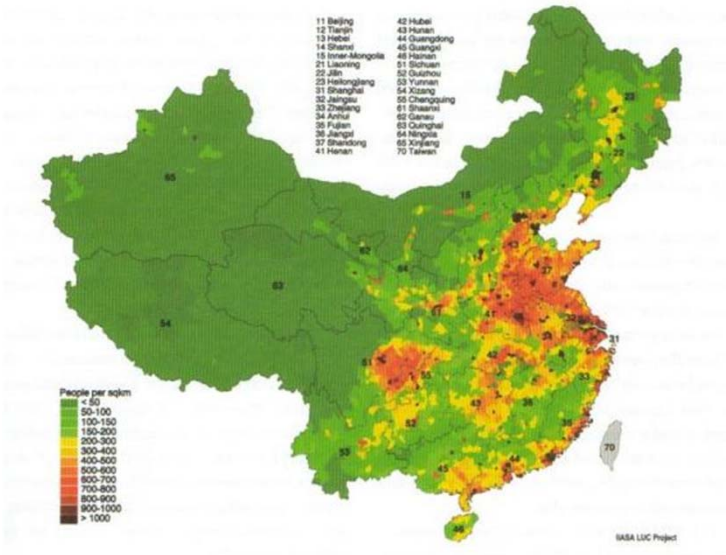
Agrarzonen = ökonomische Zentren
Agricultural regions = economic regions

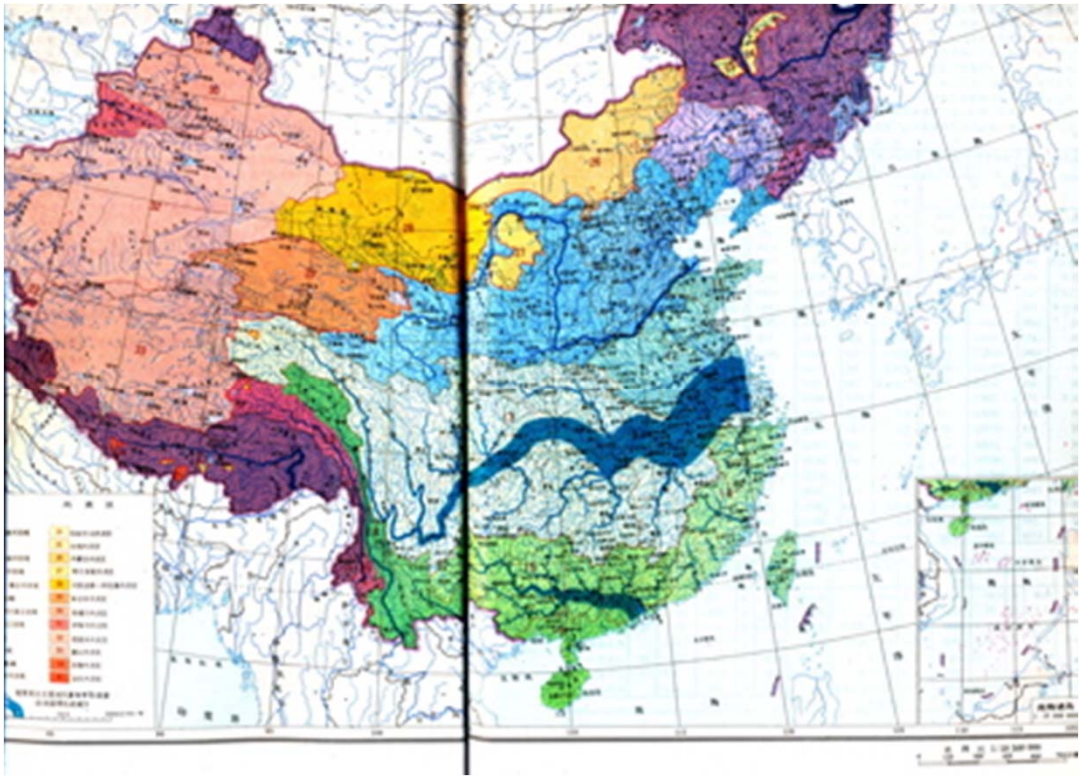


Agrargebiete



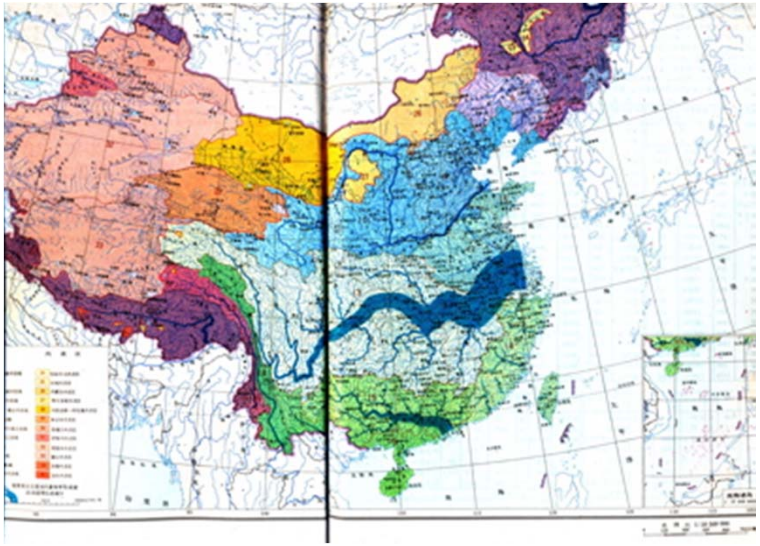
Bevölkerungsdichte
Population density

Distribution of water resources



- Yangzi 1,8 Mio. km^2: **35%** of water resources
- Gelber Fluß (Huanghe) 795.000 km^2: **2%** of water ressources

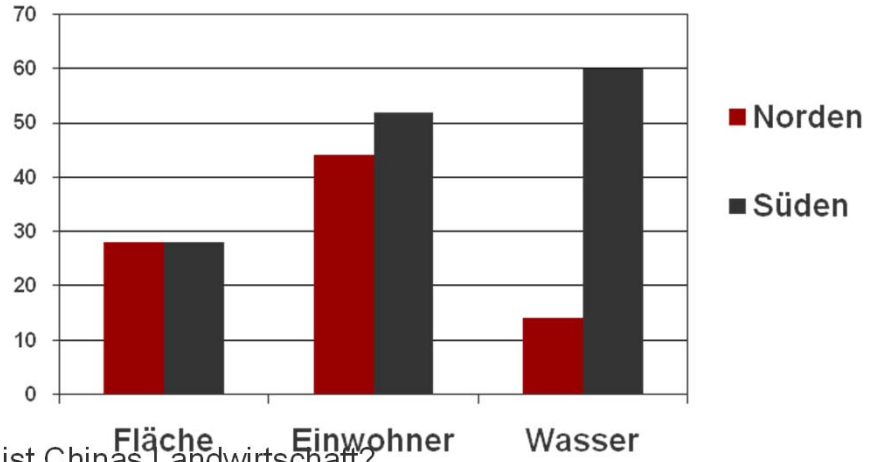
Verteilung von Boden, Bevölkerung und Wasser



Norden: (Huaihe, Gelber Fluß, Haihe, Songliaohe):
28% Fläche,
44 % der Bevölkerung
14% der erneuerbaren Wasserresourcen

Süden: (Yangzi, Südost, und Perlfluß):
28% der Fläche
52% der Bevölkerung
60% der erneuerbaren Wasserressourcen

Inland: (Inland und Südwest)
44% der Fläche,
4 % der Bevölkerung
26% der erneuerbaren Wasserressourcen



Traditionelle Agrartechnik

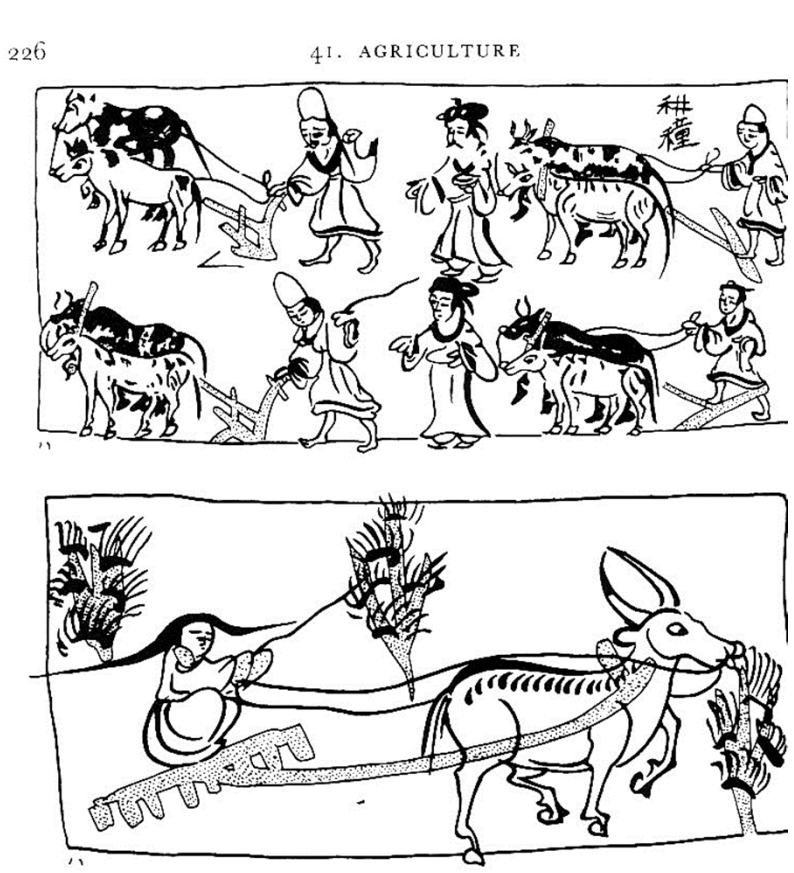
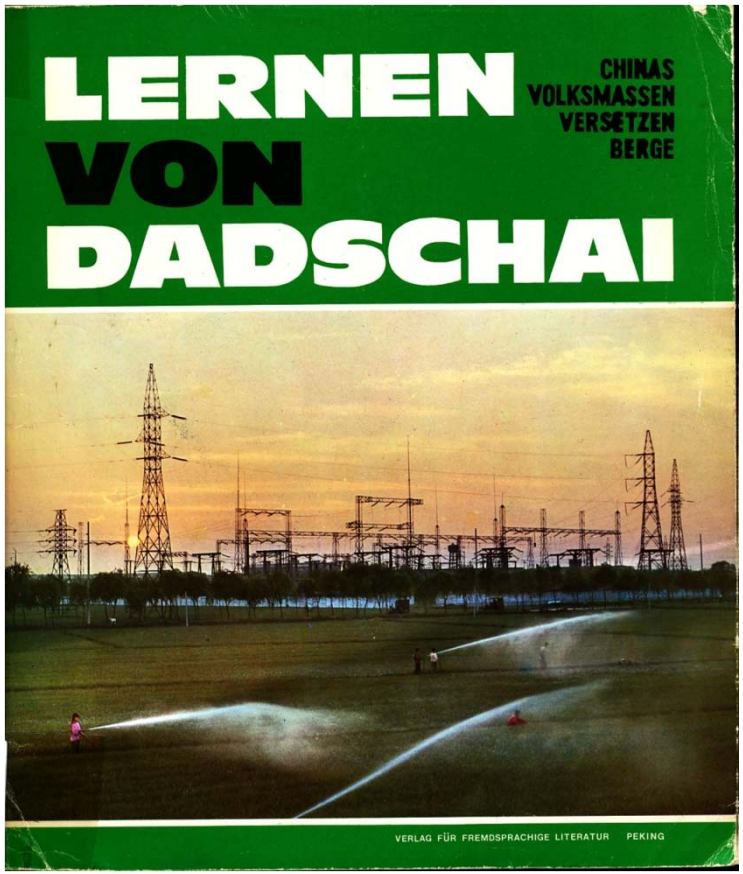


Fig. 82. Wei/Chin murals from Chia-yü-kuan, Kansu, showing ploughing, sowing and harrowing. Note the driver of the harrow weighs it down with one foot (above), or with his whole body (below). Hayash 6–32, 33.

Fig. 579. The square-pallet chain-pump in the *Thien Kung Khai Wu* of +1637 (ch. 1, p. 19a), here called *the chhê*.

1964



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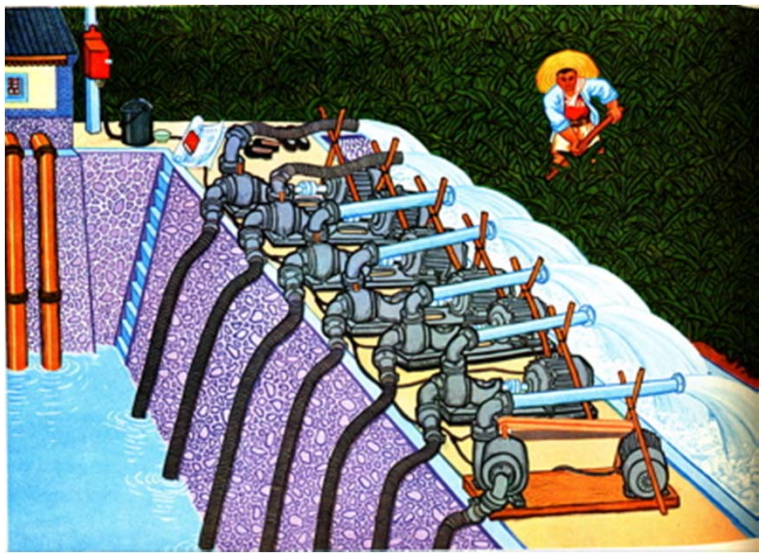
Landwirtschaft und Bewässerung

- Systematische Erschließung der Bewässerungsflächen in der nordchinesischen Tiefebene erst ab Mitte des 20 Jh.
- Ab den 70er Jahren verbreiteter Einsatz von Motor-Pumpen



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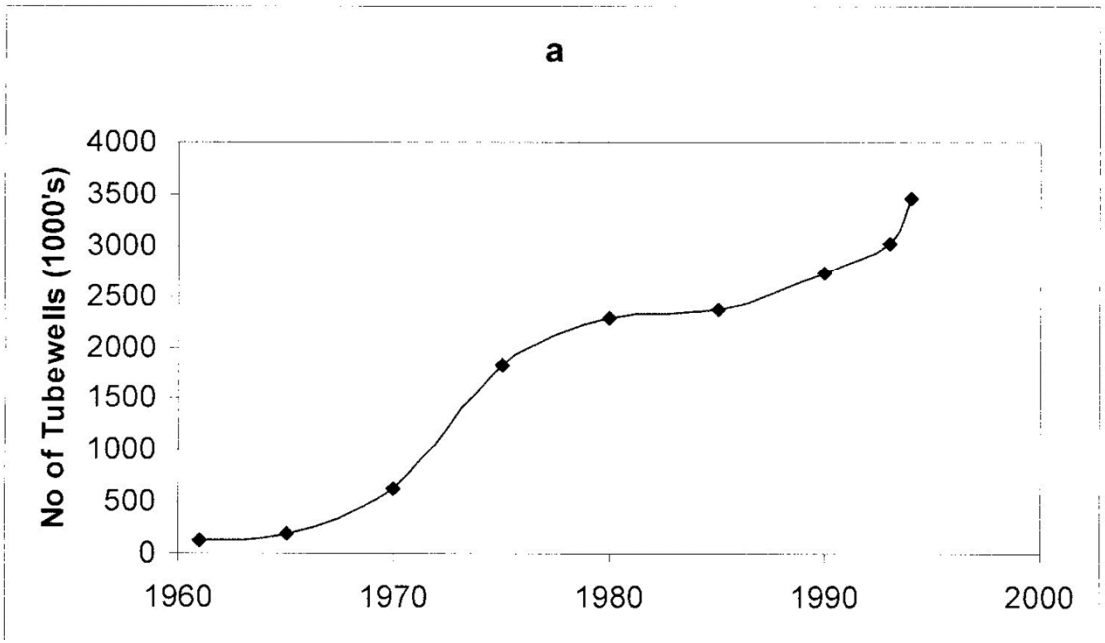
Bewässerungsbrunnen

Figure 6. Tubewell development in China



- 1965: 150.000 Brunnen
- 2003: 4,6 Mio. Brunnen

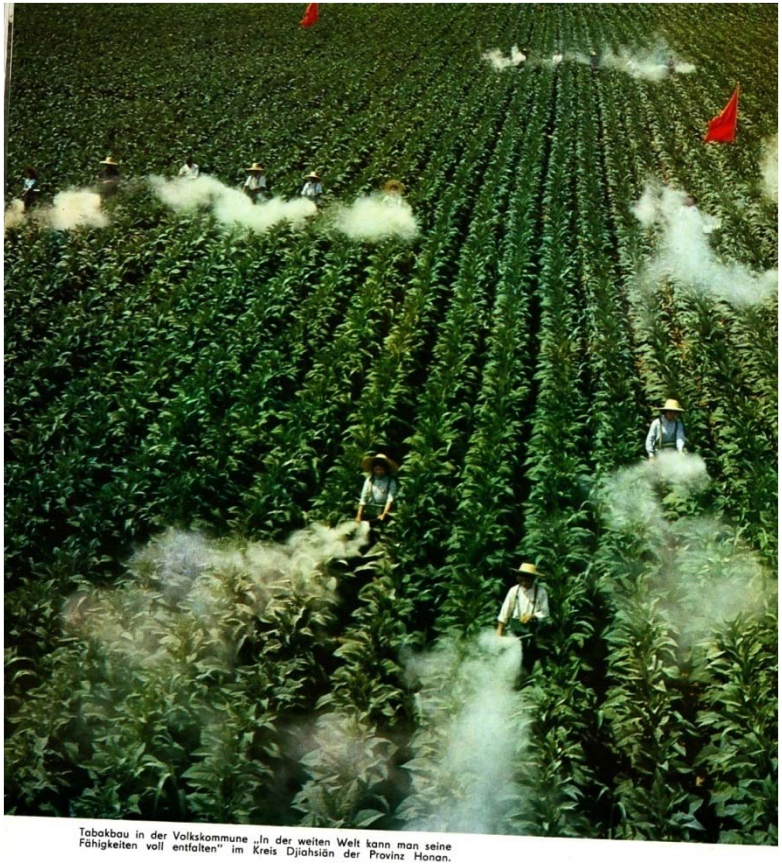
- Davon 70% in den drei Provinzen Hebei, Henan, Shandong (nordchinesische Tiefebene)

Agrarchemikalien

Year	Chemical Fertilizer Production (million tons)	Chemical fertilizer consumption (million tons)
2002	37.91	43.39
2003	38.81	44.11
2004	48.04	46.36
2005	51.77	47.66
2006	53.45	49.27
2007	52.48	51.07

Tab. 1: Chemical Fertilizer Production and Consumption in China
Source: Zhongguo Tongji Nianjian 2008, Greenpeace China 2009

Pesticides



Tabakbau in der Volkskommune „In der weiten Welt kann man seine Fähigkeiten voll entfalten" im Kreis Djiahsiän der Provinz Honan.

- 300,000 tons of pesticides per year

Die ökologischenFolgen: Boden-Wasserverschmutzung

- 70% der Gewässer gelten als mittel bis stark verschmutzt
- Landwirtschaft ist der Hauptverursacher von diffusen Verschmutzungen
- 51 Mio. to Mineraldünger (1/3 der Weltproduktion) und 300.000 to Pestizide werden jährlich auf chinesischen Felder ausgebracht
- Abfälle aus der Tierproduktion:
  500 Mio. Schweine und 200 Mio. Rinder

Auswirkungen

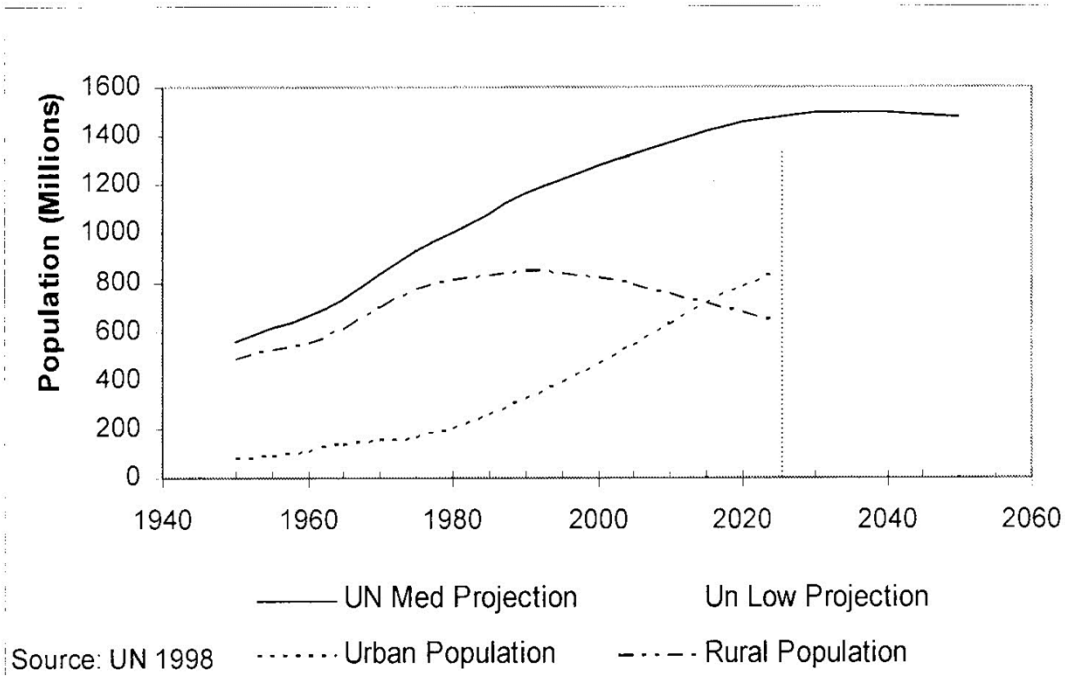
- Gesundheit (Zunahme von Krebserkrankungen, Vergiftungen durch Hantieren mit Pestiziden)
- Wirtschaftliche Folgen (Einfuhrverbote für chinesische Lebensmittel)
- Schadinsekten werden resistent (Beispiel Baumwollkapselwurm)

Herausforderung: Bevölkerungswachstum

Trotz Einkind-Politik wird Chinas Bevölkerung erst ab 2030/2040 ein stabiles Niveau erreichen (ca. 1,5 Mrd. Menschen)

= etwa 200 Mio. Menschen mehr als zu Beginn des Jahrtausends

Figure 5. Total and Urban Population projections



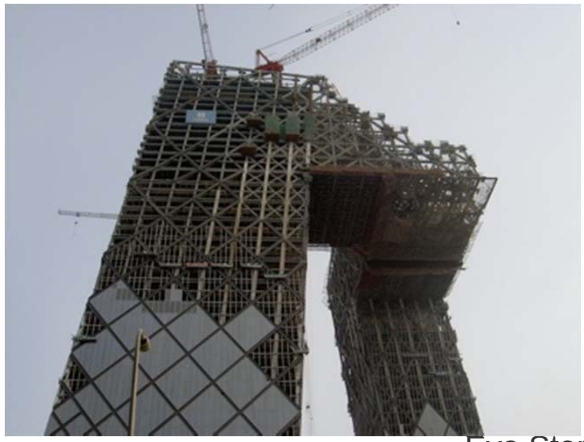
Source: UN 1998

Trend zur Urbanisierung vers

- Anteil der städtischen Bevölkerung stieg (von 10% (50er) auf 50% (2010)
- 2030 werden eine Milliarde Menschen in Chinas Städten leben
- Pro Kopf Wasserverbrauch der städtischen Bevölkerung um 50% höher

Herausforderungen der Urbanisierung

- Prognostizierte Entwicklung bis 2030:
- Anstieg des städtischen Wasserbedarfs um 70 - 100 %
- Verlust von knappem Ackerland 7 bis 20%



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Steigender Lebensstandard

Steigender Lebensstandard = höherer Fleischkonsum = höherer Bedarf an Futtergetreide = höherer Wasserbedarf

- Steigender Lebensstandard geht einher mit veränderten Ernährungsgewohnheiten (höherer Fleischkonsum)
- Zwischen 1985 und 2000 stieg Bedarf für Futtergetreide um 300%
- Ernährungstrend: weniger Reis
- Mehr Bedarf an Weizen und Futtergetreide (das hauptsächlich in Nordchina angebaut wird)

Veränderte Ernährung: Durchschnittliche Kalorienversorgung

Jahr	Kalorien/ Person/ Tag	Getreide %	Tier-produkte %	Öl, Gemüse, Früchte %	Andere %
1965	**1956**	**85**	**6**	7	2
1985	2621	78	9	9	4
2000	**2974**	**60**	**20**	16	4

ICID 2005

Background & Reasons

Background:

- The paper reflects observations related to CESDRRC activities for promotion of organic food

Reasons:

- environmental protection
- Promote Sustainable Consumption
- Create awareness and demand for healthy and environmentally friendly food

CESDRRC published the first consumer guide for organic food (supported by GTZ)

Cooperation with Nürnberg Global Fairs

- 2005 – 2006: cooperation with Nürnberg Global Fairs (Germany)
- promotion of BioFach China

Activities

- Since 2005 publication of electronic newsletter „Organic Trends“ (400 subscribers,12 issues)

- „Organic Food Directory for China“ (250 addresses)

‘ORGANIC TRENDS’

Organic Food Directory for China 2008

中国有机食品名录 2008

The organic food directory provides lists of supermarkets, restaurants, home delivery services and farms that sell/ serve organically grown food in China. This list is probably far from complete and will be updated regularly, so please let us know if you know of additional addresses and/or have found mistakes.

有机食品名录提供销售和种植有机食品的超市，餐馆，农场和上门送货服务的名单，这份名单并不完整但会定期更新，所以如果您知道新的地址或者发现了错误，请通知我们。

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Research for Food & Water Watch (2007/2008)

- Draft report “Institutional framework, certification scheme and economic potential of organic agriculture and food industries”

- F & W concerns about fake Chinese organic products inundate the American food market

Research for Food & Water Watch (2007/2008)

- In the past decade the Chinese organic food sector developed from nascent to an emerging market with double digit growth rates

	Farmland under organic cultivation	
	ha	% of total farmland
2000	14,000	0.01
2008	1,553,000	0.3

Source: Willer 2000, p. 38, 2009, p. 28

Research for Food & Water Watch (2007/2008)

- According to recent statistics (2009) China now takes the 5th position of world leading organic countries

Country	Mio. Hectares of land under organic management
Australia	12.09
Argentina	2.78
Brazil	1.77
USA	1.64
China	1.55

Source: Willer et. al. 2009 World of Organic Agriculture 2009

- Remarks: Previous Statistics (2007, 2006) already counted 2.3 mio ha certified organic farmland and ranked China 2nd following Australia. Different from previous statistics data for China do not include bee pastures, wild collection areas, aquaculture and land certified by foreign certifying bodies.

Drivers for development

External

- China's development closely related to the rapid development of the organic sector in industrialised countries in the recent decade
- International shift from a niche market to mass-production (organic supermarkets, with growing demand for imported cheap organic food)

Internal

- Policy change: MoA (formerly reluctant to support takes the lead)
- institutionalisation and legislation of organic production

Reasons

- Food exported to US, Europe and Japan rejected because of high levels of pesticide and antibiotic residues
- Severe environmental degradation (water, soil, air, biodiversity) caused by the world's highest input of agrochemicals
- Food safety - health of producers and consumers
- Development of international and with growing standards of living as well a domestic market for organic food

Early Phase

- Organic farming concepts mainly supported by authorities attached to the NEPA (later SEPA)
- 1984: Beijing Environmental Research Institute establishes first so called „eco model village“ Liuminying (Daxing county, Beijing)

1990s

- 1990 Dutch SKAL certification body issued the first organic certification in China in cooperation with the Nanjing Institute for Environmental Sciences (NIES) attached to SEPA
- 1994 OFDC established under SEPA, administered China's organic food certification
- 1997 - 2003 cooperation with GTZ "development of organic agriculture in poverty stricken areas"
- 1999 "Approach to Management of Organic Certification" and Technical Norms on Organic Food promulgated by SEPA (revised in 2001, based on IFOAM standards and relevant German, UK, USA, Australian etc. standards)

Certification

- Inspectors for organic certification trained by SEPA
- 2002 OFDC qualifies for IFOAM accreditation
- 1999 Organic Tea Research and Development Center (OTRDC) established by China Academy of Agricultural Sciences (CAAD)

Green Food

In 1992, in a parallel development the MoA established the China Green Food Development Center and its label “Green Food”

Grade A:
controlled use of agrochemicals allowed, no residues in products

Grade AA:
comparable to organic standards

Green Food

- The label Green Food has been very successfully marketed and Green Food A products are very popular in the Chinese market
- Green Food Development center set up net of 42 provincial and city agencies, 38 quality inspection agencies and about 440 inspectors
- By 2006 10 million ha certified, 12,800 products

Organic Food vs. Green Food Grade A

Organic Food	Green Food Grade A
No chemicals or pesticides have been applied for at least two years	Chemicals and pesticides can be used in a limited amount
Farms and processing plants are inspected annually	Farms and processing plants are inspected every three years
Certification of land and practices	Certification of products

Reform in food certification

In 2002 MoA introduced a major reform in food certification and introduced different quality labels (all administered by Green Food Development Center)

1.Non Pollution 无公害
   - Complies with national standard for food safety (24% of China's arable land certified 无公害 by 2007)

2.Green Food

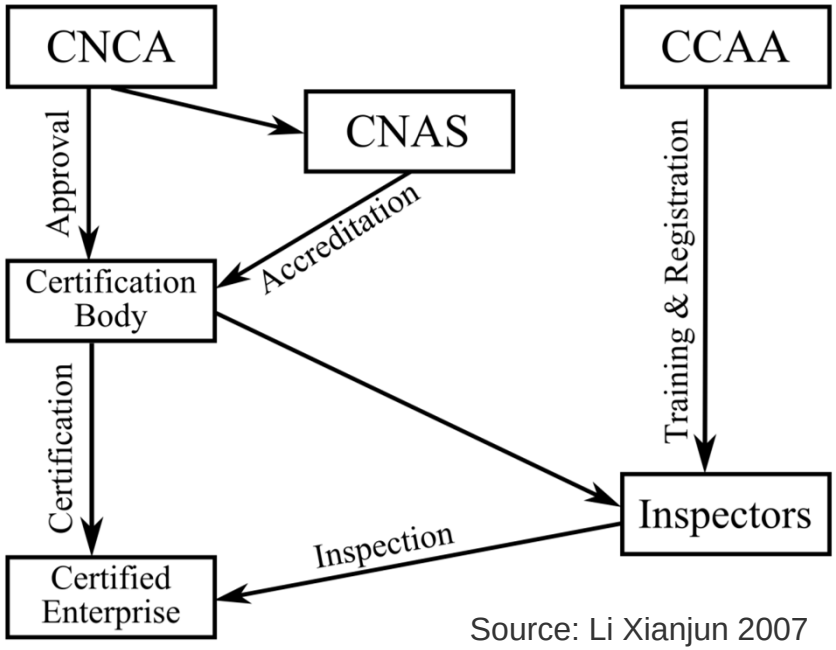
3.Organic Food
   - Green Food Development Center sets up its own Organic certification body China Organic Food Certification Center (COFCC)
   - Organic food label replaces Greenfood AA
   - COFCC quickly emerged to the country's leading certifier (30% of certifications by Chinese companies)

Milestones

- In 2003 the China National Certification Administration (CNCA) took over the responsibility for organic products certification from SEPA

- In 2005 “Regulatory Measures on Organic Product Certification Management”
- “National Standard for Organic Products”
- “Implementation Rules for Organic Product Certification”

Process of Organic Certification



Source: Li Xianjun 2007

CNCA: China Certification and Accreditation Admin.
CNAS: China National Accreditation Service for Standardisation
CCAA: China Certification and Accreditation Association

Two stage process:

1. Approval by CNCA
2. Accreditation by CNAS (accreditation within 4 years, otherwise approval lost)

Approved certification bodies

Soon after the new system was introduced the number of approved certification bodies increased

Date	06/2006	10/2007	1/2008
Approved	N.A.	30	26
Accredited	12	16	20

Domestic Certification

- 83% of domestic certification is done by four companies (2006)

- 30% COFCC
- 18% OFDC
- 24% OTRDC
- 11% WIT

International certification bodies

6 international companies are approved or accredited

1. BCS - joint venture with COFCC
2. Certification with Environmental Standards (CERES)
3. ECOCERT
4. Institute for Marketecology (IMO)
5. Organic Crop Improvement Association (OCIA)
6. Japan Organic Natural Food Association (JONA)

National Standard for Organic Products (GB/T 19630.1.-2005)

- According to the Chinese Standard GB/T 19630.1 - 2005 strict rules apply:
  - For international certifiers, international certifiers only registered abroad operate illegally in China
  - Imported organic food is required to receive a certification by a domestic certification body in addition
- Uniform logo

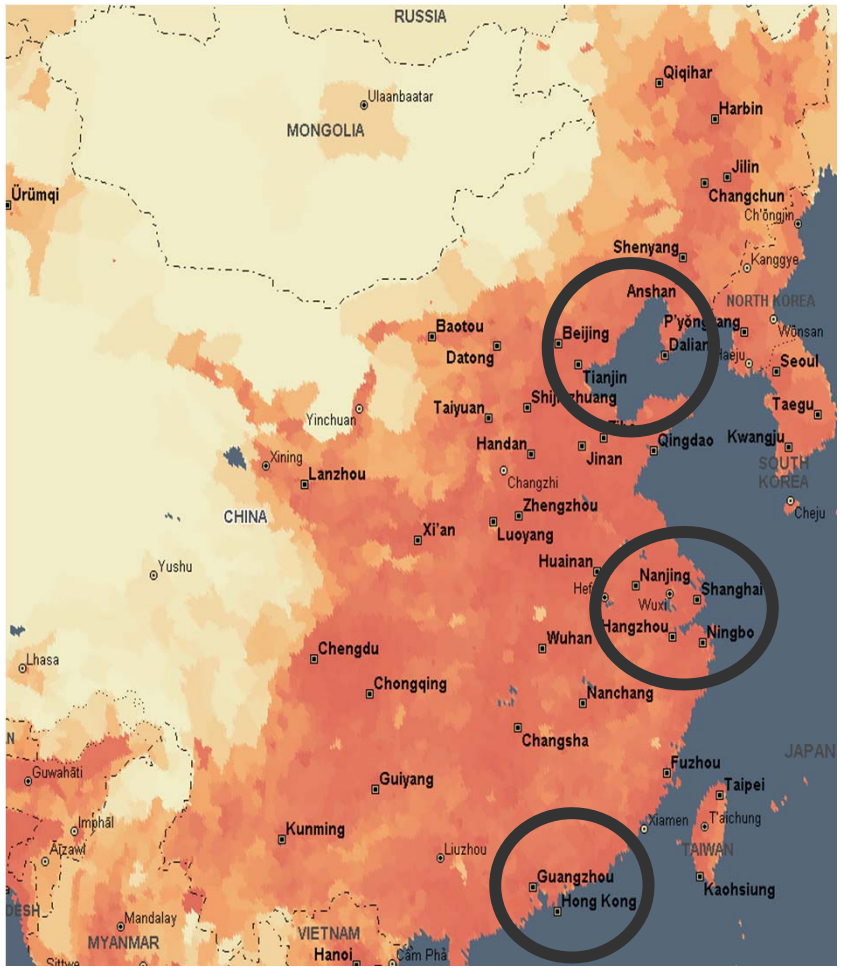
National Standard for Organic Products (GB/T 19630.1.-2005)

- The standards follows IFOAM criteria, but also include requirements of JAS and NOP
- Only products with 95% organic ingredients can be labeled organic
- Minimum conversion period 24 months

Export

- Export primary incentive for development of organic food market
- Between 2003 and 2006 exports increased from 142 million to 350 million US $ (less than percent of the global organic market)
- Mainly dried food, rice, tea
- Unprocessed food

Domestic market



- Until recently only small domestic market for organic food
- about 0.1% market share of domestic food market
- Mainly Beijing, Shanghai, Guangzhou
- Costumers: expatriates, new urban middle class

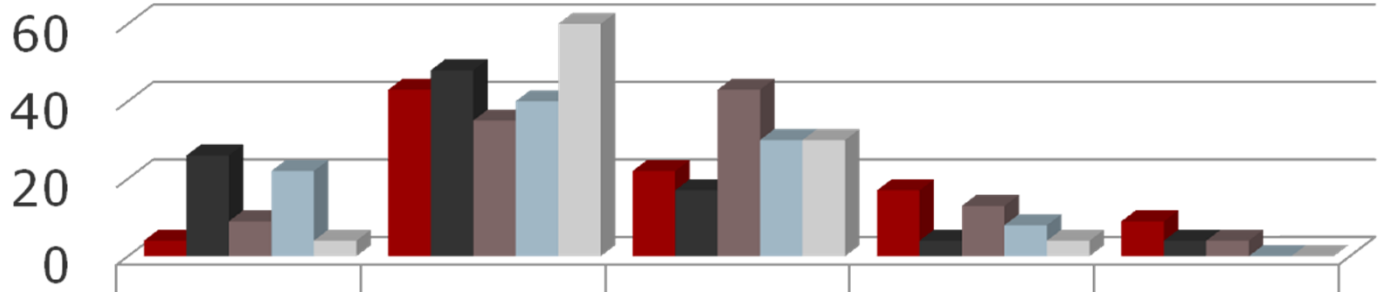
Consumers

- Until recently majority of Chinese consumers not very well informed about food safety and environmental issues.
- Greenfood very popular, whereas the concept of “Organic” is not very well communicated.

Consumer survey

Results from a small survey (Matthias Meyer 2007)

- The majority rated “natural food” (60%) appealing and very appealing
- 17% rated “organic food as unappealing or very unappealing
- Two thirds had no clear idea of organic food

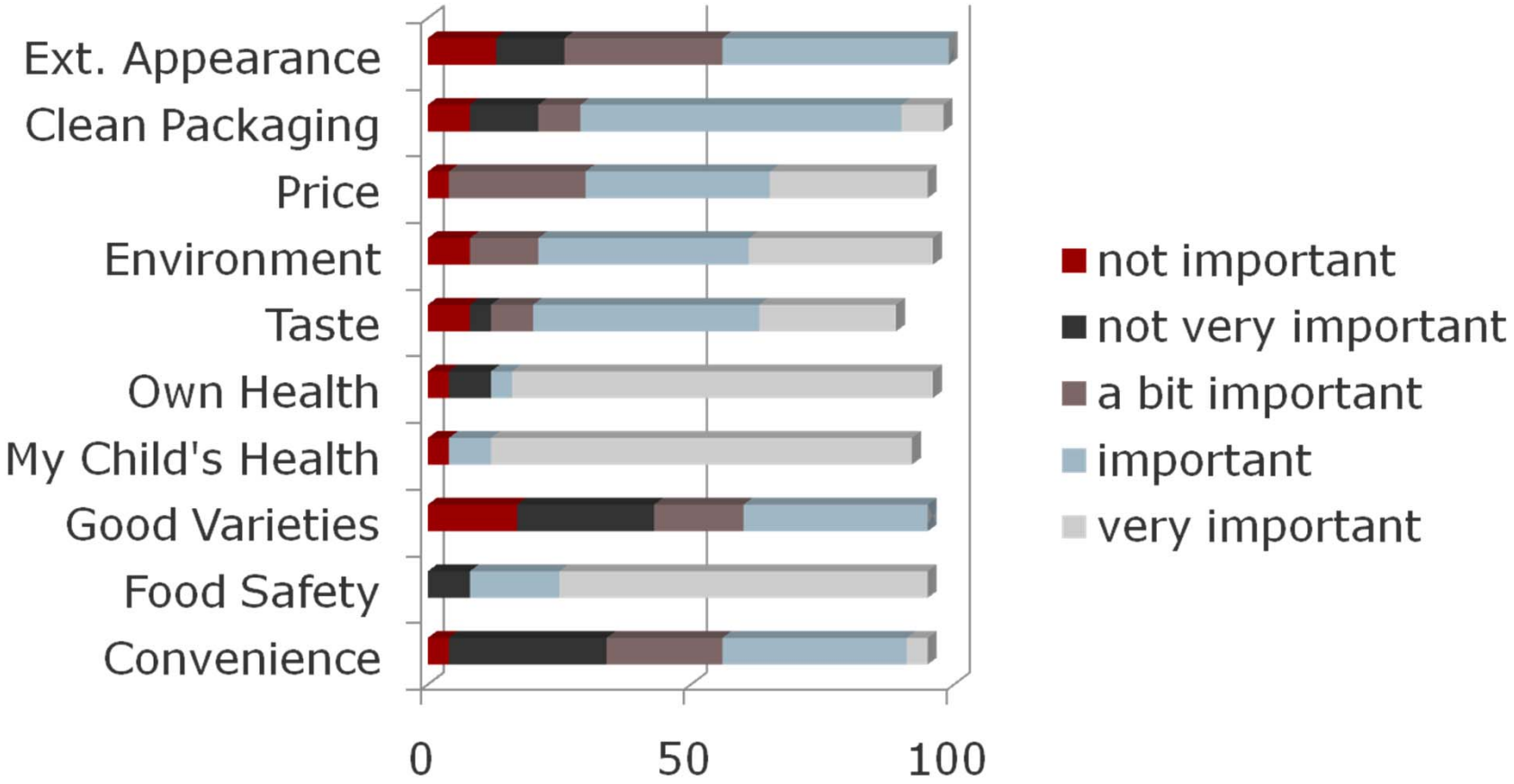


	very appealing	appealing	average	unappealing	very unappealing
organic	4	43	22	17	9
grenn food	26	48	17	4	4
ecological	9	35	43	13	4
non pollution	22	40	30	8	0
natural	4	60	30	4	0

Reasons for purchasing organic food

- 80% health (own or child's)
- 70% food safety
- 61% clean packaging
- 35% environment

Reasons for purchasing organic food



Introduction of Organic Food in China

China

- Organic Food was first introduced by international chain stores such as Carrefour and Wal-Mart

家乐福 Carrefour

WAL★MART 沃尔玛

European Countries

- In its early phase organic food was part of the alternative ecological movement

Recent Developments

- Recently along with LOHAS movement small specialised organic food and health stores (Lohao City, Organic Farm Food Hall)
- Difficulties
  - small range of domestic products
  - high taxes for imported organic food

Impediments

Producers & Distributors:

- High costs for certification
- Few governmental subsidies/incentives for organic producers/ organic farmers are not paid for their environmental services
- Pest control without chemical pesticides a challenge
- Environmental pollution in vicinity of cities makes it difficult to reach organic standards
- Monitoring of contracted farmers difficult, problems with quality control
- Difficulties with Export to EU, US and Japan because Chinese standard not recognized
- Domestic processing industries for organic food not developed
- Supply for domestic market limited/ high costs for imports

Impediments

Consumers:

- Concept of organic food unknown
- “Organic” does not sound appealing to Chinese consumers
- Comparatively high prices
- No trust (fake logos, standard not monitored, frequent food scandals)
- Bad China image makes consumers in Western countries suspicious

Outlook

- Within 5 years increase of Chinese share to 5 percent of the world market expected
- Progressing civil society in China and related topics (Fair trade, environmental protection, Animal protection, sustainable and healthy lifestyle) promote development of domestic market for organic food
- Greater transparency and availability of information related to food safety, counterfeit products, health issues directly related to environmental and food pollution promote awareness for health and food safety issues
- Higher standard of living = higher demand for organic food
- Increased governmental support (MEP/ Olympics)

Thank you!

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