

Agriculture Finance for Sustaining Food Security in China

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Outline

- **Background**
- **Agri. Finance in China**
- **Major Policy Instruments in China**

First Part

- **Background**
- Agri. Finance in China
- Major Policy Instruments in China

Financial Sector in Developing Countries

RF: Financial services used by farm and nonfarm firms and households located in rural areas

Rural Finance

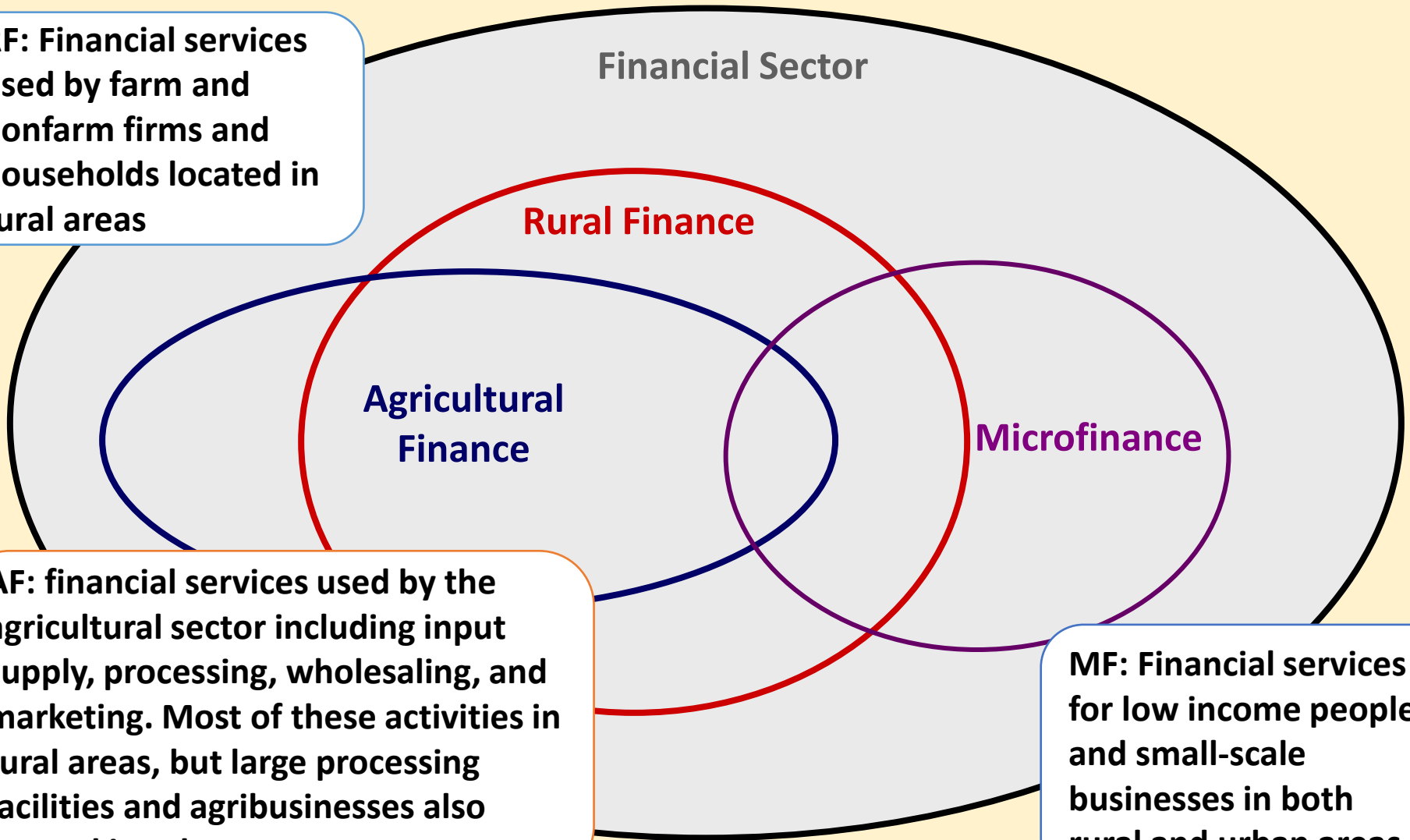
Agricultural Finance

Microfinance

AF: financial services used by the agricultural sector including input supply, processing, wholesaling, and marketing. Most of these activities in rural areas, but large processing facilities and agribusinesses also located in urban areas

MF: Financial services for low income people and small-scale businesses in both rural and urban areas

Financial Sector



Developing-World-Wide Problem

- Providing sustainable financial services for rural areas and agriculture in developing countries has proven to be difficult
- Decision makers, ministers of food and agriculture, and farmers are dissatisfied with the results

A lender's willingness to lend

- Depends on having sufficient information to evaluate the borrower's:
 - reliability
 - capacity to repay
 - intention to use the borrowed money wisely
- Therefore, **guarantees or collaterals** are strictly needed by the RFIs

Overestimated Credit Demand

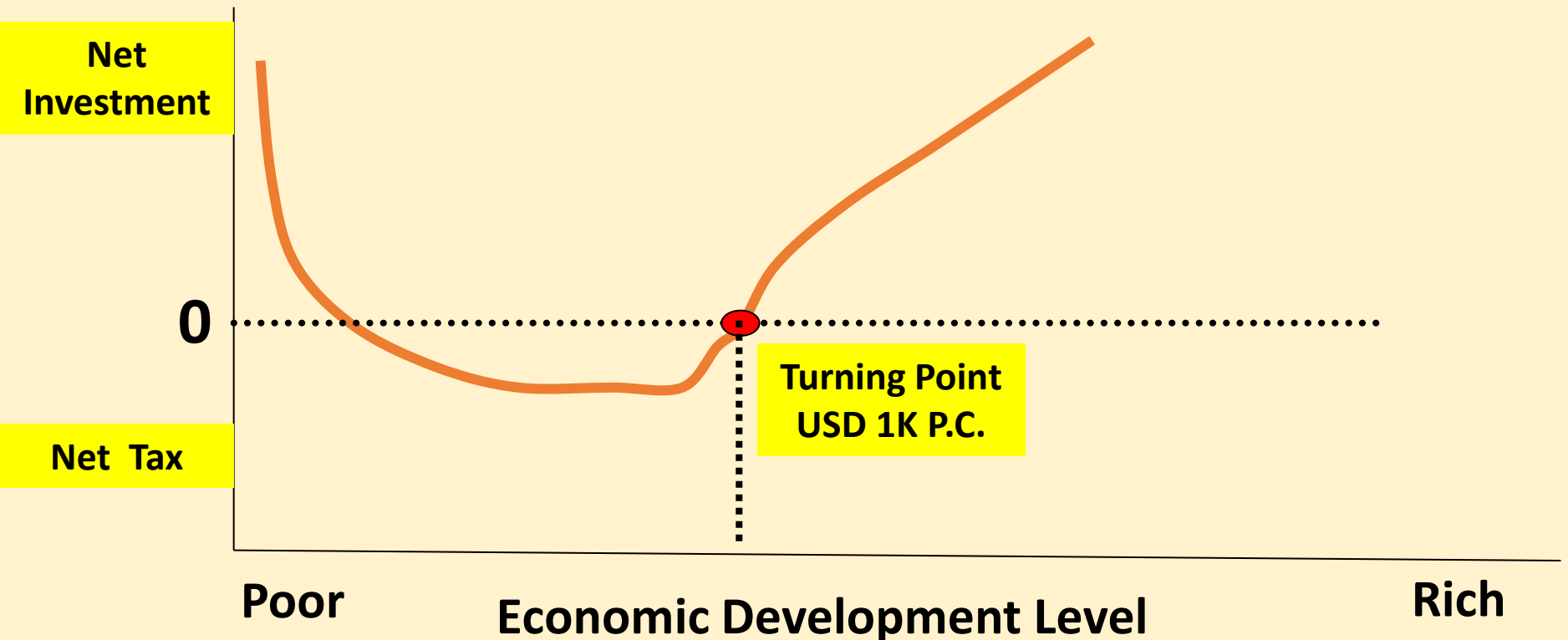
- The estimates need to be reduced for three reasons
 - Many people simply do not want micro-credits
 - some who might want loans are not considered creditworthy
 - People who want and qualify for loans do not necessarily borrow continuously

Policy Measures

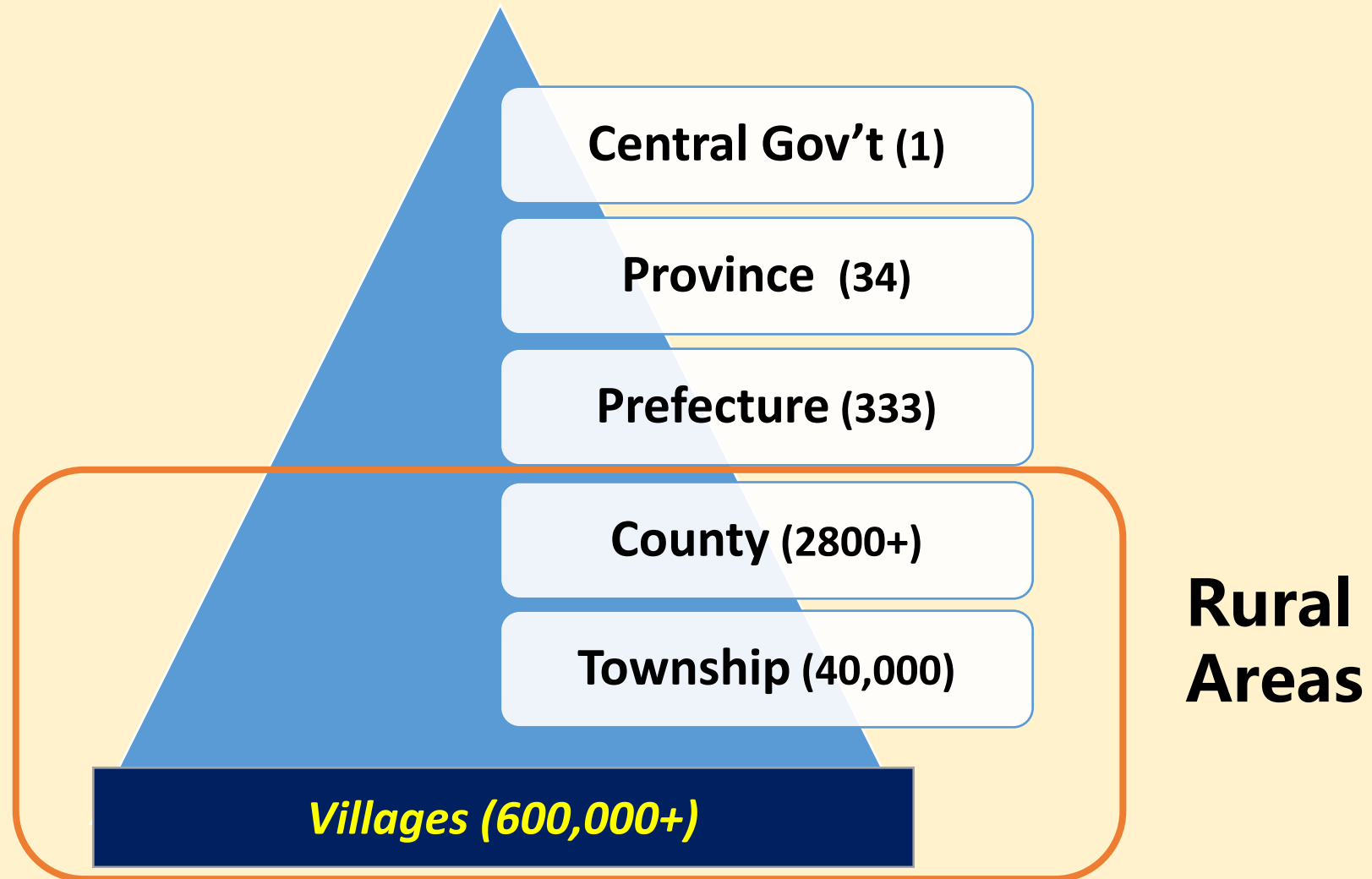
- Governments in some countries enacted **monetary and fiscal measures** to stimulate the credit going to the agricultural sectors, such as China
- Agriculture Finance
 - Using monetary and fiscal policy instruments to promote capital flowing into agriculture in the form of credit and equity
 - Achieving "loan is not difficult and not expensive"

International Experiences...

- At certain point, the nations that successfully achieve economic development will put a lot of fiscal and financial resources to agricultural and rural economy



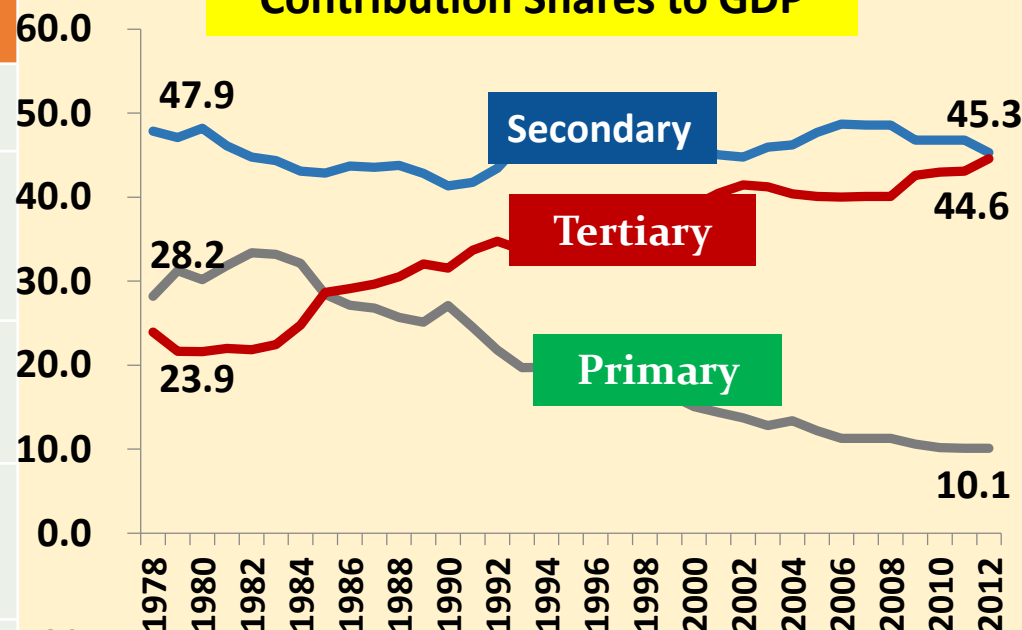
Administrative System in China



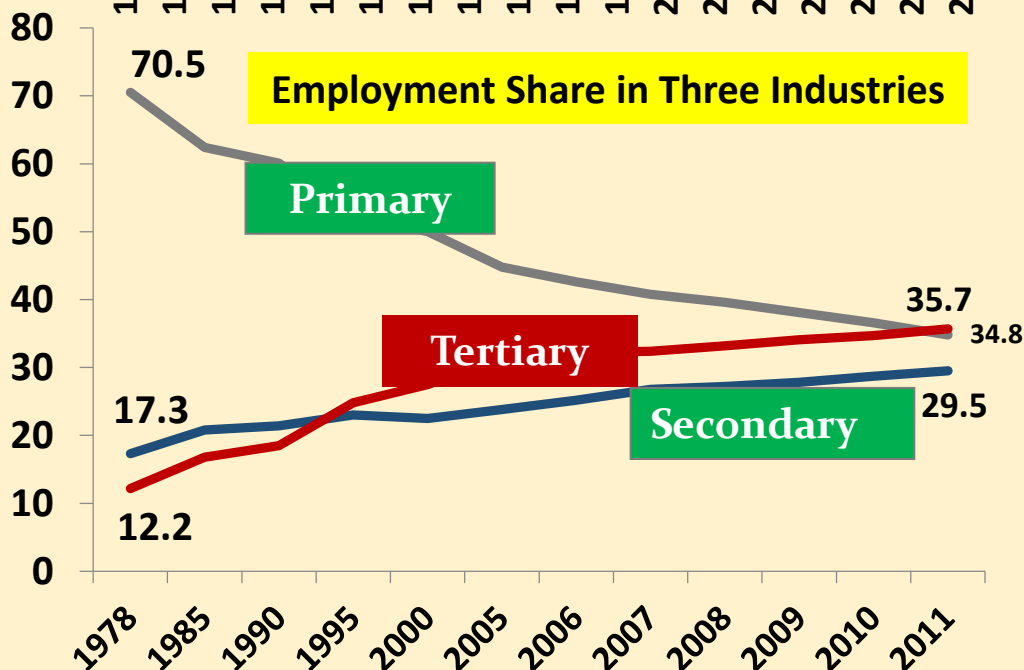
Fact sheet (2014)

Population	1.368 billion
GDP	USD 10.36 Trillion (growth rate 7.4%)
GDP per capita	USD 7,574
Water p .c.	25% of World Average
Arable land Per capital	40% of World Average
Urbanization rate	54.8%
Farm HH.	240 Million
Land Per FF	1.2 Acre
WTO accession	2001

Contribution Shares to GDP



Employment Share in Three Industries



China's Major Achievements in Agriculture: 1978-2012

Ag. Production Growth

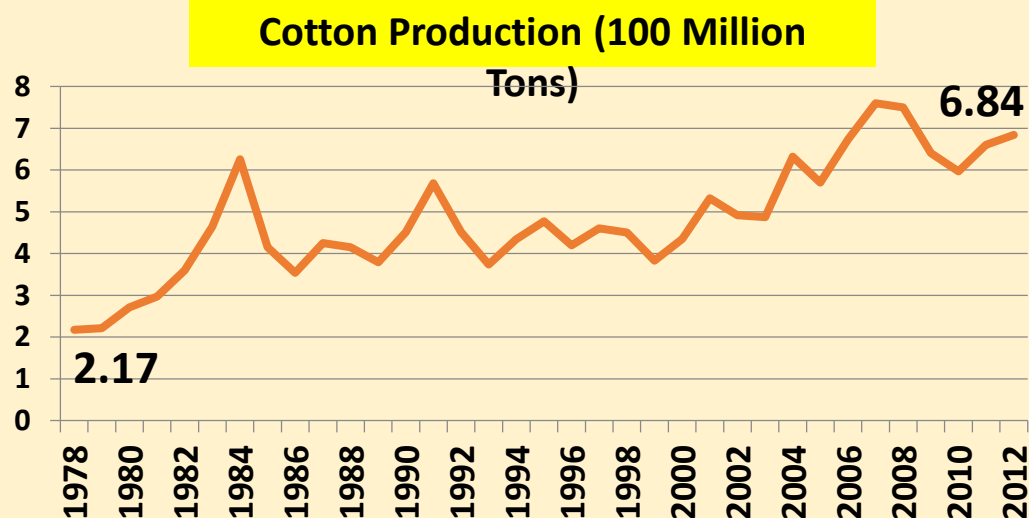
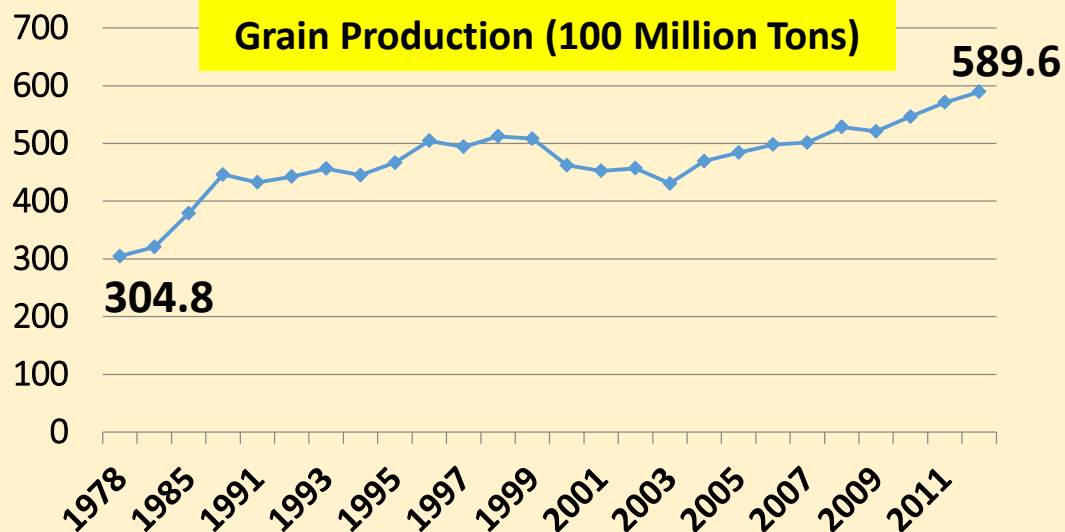
Grain **90%**

Cotton **2-fold**

Oilseeds **5-fold**

Fruits **30-fold**

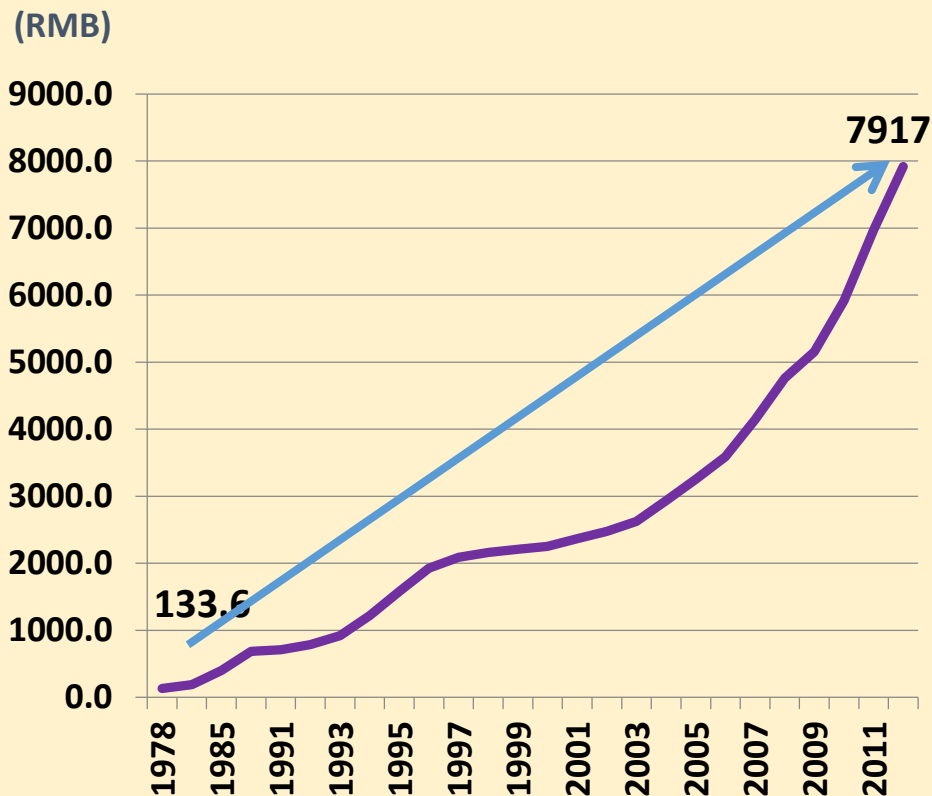
Meat **8-fold**



China's Major Achievements in Agriculture: 1978-2012

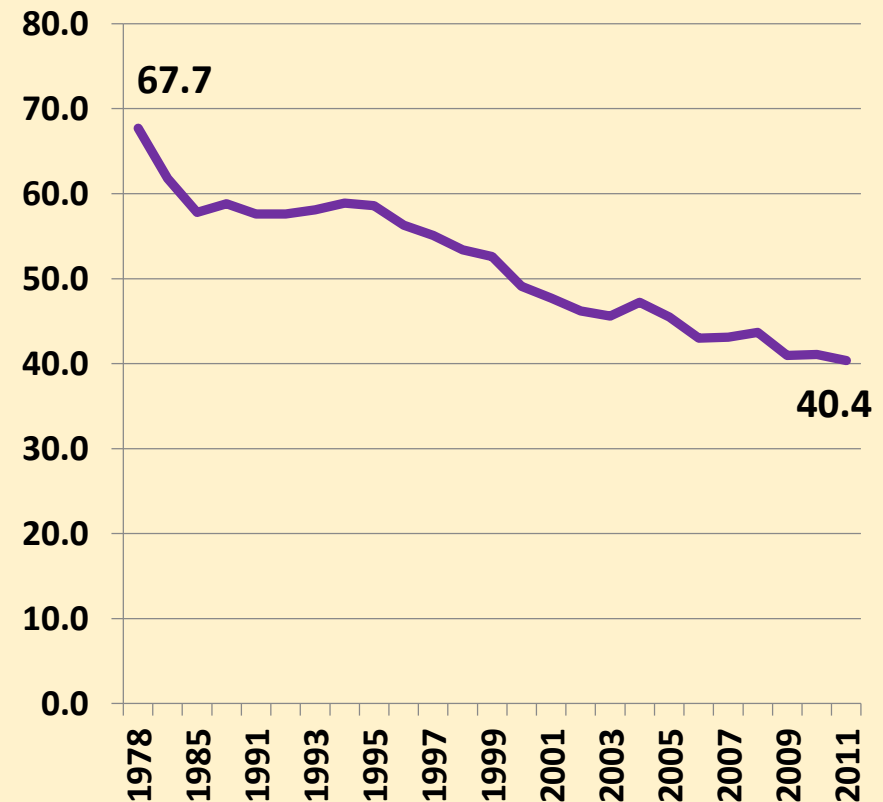
Growth of Farmers' Income

7% annually in real term



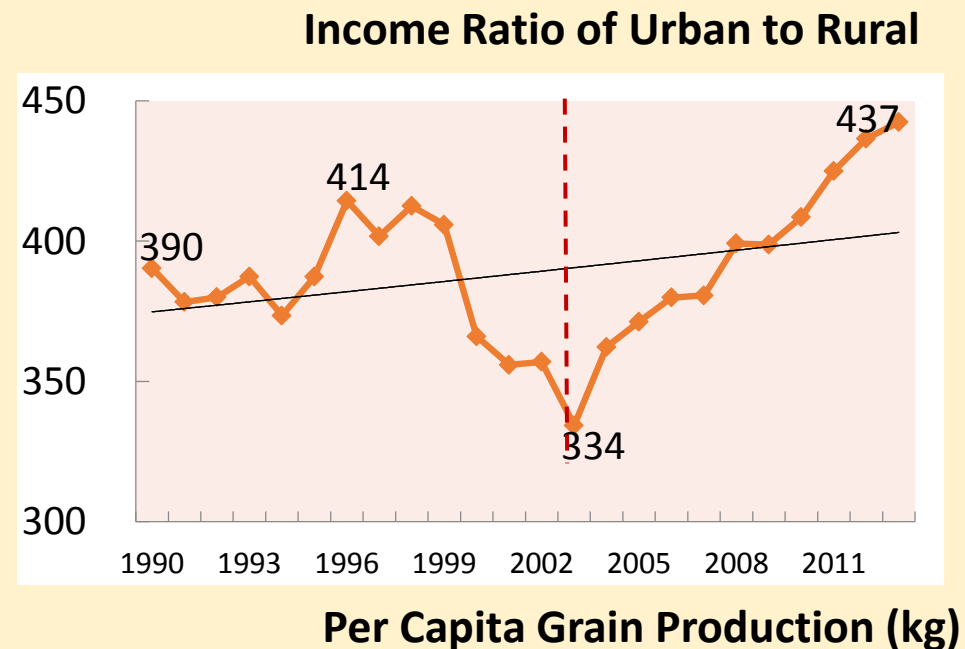
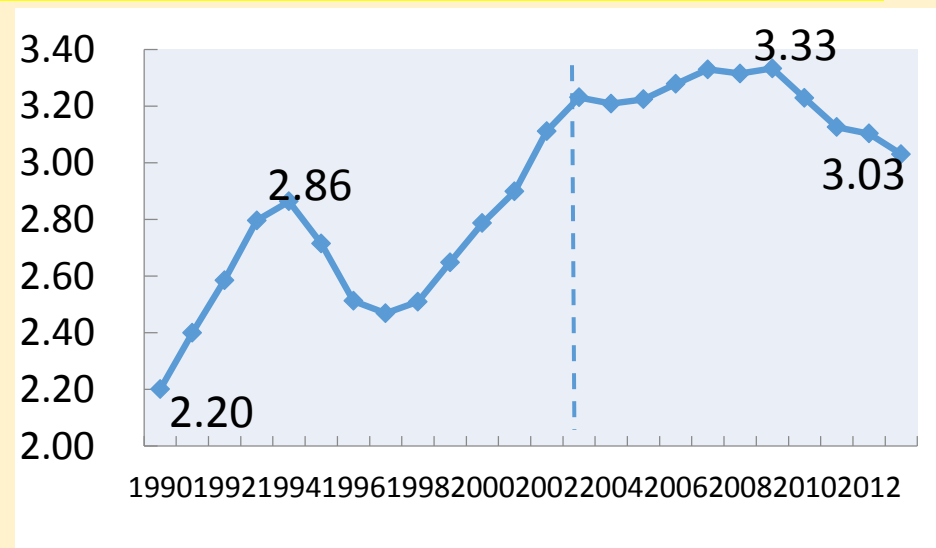
Decrease of Engel's Coefficient of Rural Households

10.5 % annually



Alarming trends since 2003

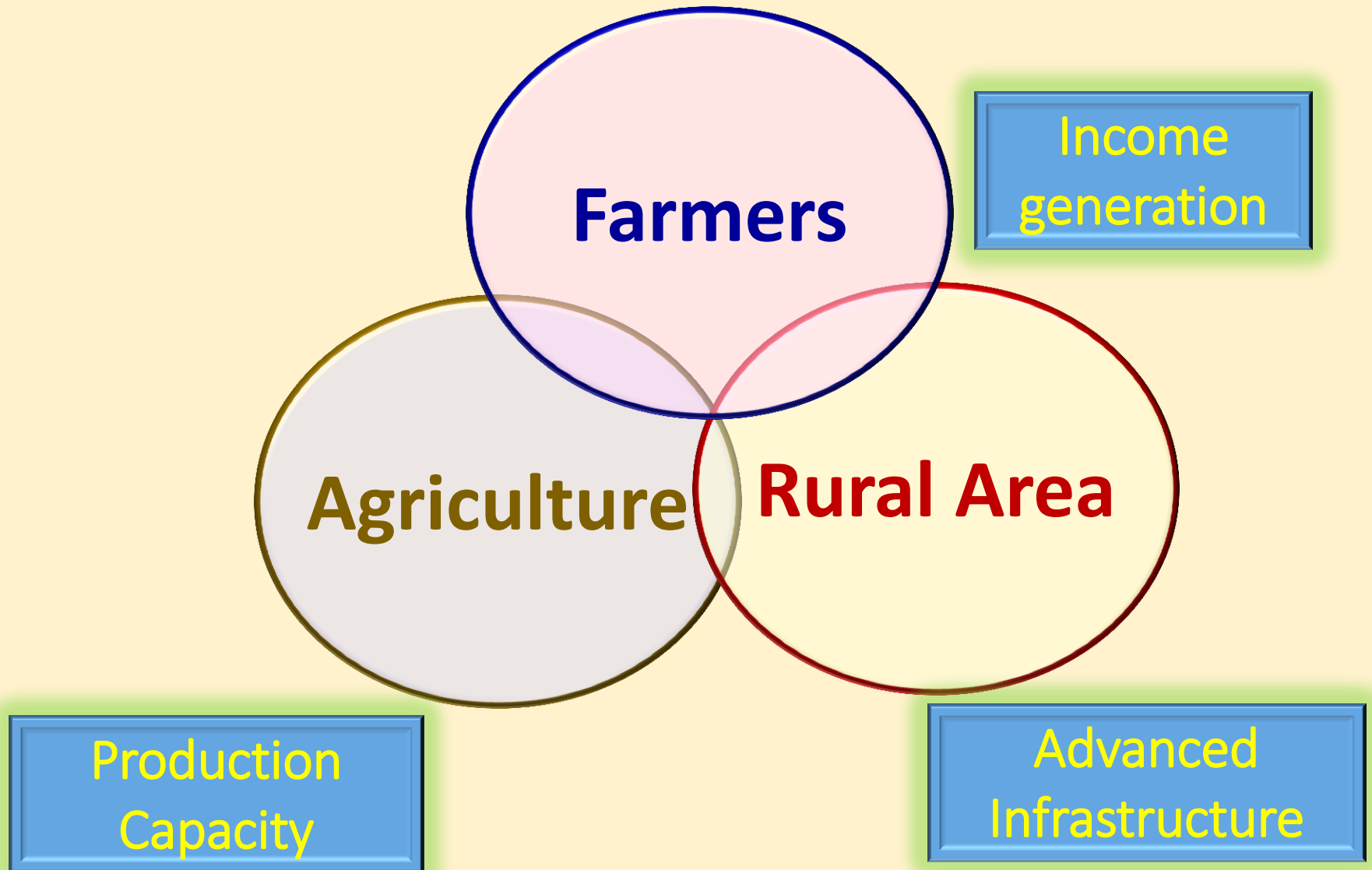
- National food security indicators and urban-rural income disparities first worsened
- Falling Agricultural GDP growth rate
- Slowdown in yield and productivity growth
- Rapid conversion of agricultural land to urban use



Policy Response

- Chinese Central Government each and every year chooses one area to be addressed by the first policy document – dubbed “ the No. 1 Document” - *Top of China's Agenda*
- In the past 11 consecutive years, the topics are all about agricultural and rural development with different focuses
- Carrying budget implications for the Central Government, and huge investment and subsidies go to agricultural and rural sector in China

Three Pillars of Agricultural & Rural Policies



The Key Phrases of the Policy Papers

2004	Increasing the <u>farmers' income</u>
2005	Improving the <u>agricultural production capacity</u>
2006	Pushing forward the "new countryside" scheme that focuses on <u>infrastructure and living environment</u>
2007	Developing the <u>modern agriculture</u>
2008	Consolidating the <u>foundation of agriculture</u>
2009	Improving the <u>rural development & farmer's income</u>
2010	Balancing the <u>urban and rural development</u>
2011	Enhancing the <u>rural irrigation system</u>
2012	Encouraging the <u>agricultural technology innovation</u>
2013	Innovating the <u>agricultural production pattern</u>
2014	Pushing forward the <u>agricultural modernization</u>

Second Part

- Background
- **Agri. Finance in China**
- Major Policy Instruments in China

Structure of Rural Financial Institutions in China, 2014

Government (State Council)

People's Bank of China

Central Bank

China Banking Regulatory Commission

Banking Watchdog

**Formal
Rural Finance**

Agricultural Bank of China (ABC, *listed*)

Ag. Development Bank of China (ADBC)

Postal Saving Bank of China (PSBC)

Rural Credit Cooperatives (RCCs) (1596)

Rural Commercial Bank (665)

Rural Cooperative Bank (89)

RCCs system

Township and Village Bank (1153)

Rural Credit Company (14)

Rural Credit Mutual Help Association (49)

New Type RFI

**Informal
Rural Finance**

Familial lending (widespread)

*-Crowd out formal finance
-Zero or very low interest rate*

Money lender, Supply Credit

Rotating Saving and Credit Association

**Quasi-formal
Rural Finance**

Microcredit Company (MCC)

Development Agency/NGO projects

*-Credit only, not taking deposit
-No license for financial business
-Private capital company*

RCCs' Micro-lending (1)

Loan Size	RMB 30,000 (USD 4,400) ~ 300,000 (USD 44,000)
Loan Use	<ul style="list-style-type: none">•Income generating activities (on-farm and off-farm)•Consumption
Loan term	1 year - 3 years
Interest rate	Marketized interest rate policy Central Bank's Benchmark Rate 1-yr. deposit: 1.75%; 1-yr loan: 4.6%

RCCs' Micro-lending (2)

Working Team

- consisting of RCCs director, loans officers, village head and farmers' representatives

Paper Archive

- basic information: business/farming, income, assets, potential loan demand

Assessment and Rating

- verify information, evaluate repayment capability, rate the potential borrowers into 3 categories with different credit

Loan Certificate

- loan certificate holder could go to RCCs to apply for the loan up to the credit line



Contents:

**Date, loan Use, Term,
IR, Principal, Balance,
Remark, Signature**

Rural financial markets in China

- Similar to other LDCs, the informal financial market in rural China has been supplementary to the services provided by formal services
- The poorer households and the households with women heads or with heads at older age are more likely to apply for informal loans
- Compared with loans from informal sources and MFIs, loans from RCCs are more likely to be used for productive uses

Agricultural Finance in Selected Countries

Country	Agriculture in GDP	Employment in agriculture / Total employment	Rural population	Agricultural credit / Total bank credit
Cambodia	33%	58%	78%	7%
Ghana	34%	56%	49%	6%
India	16%	52%	70%	6%
Indonesia	17%	38%	56%	5%
Kenya	22%	75%	78%	5%
Mali	45%	80%	64%	15%
Senegal	15%	78%	58%	3%
Tanzania	42%	80%	74%	10%
Thailand	10%	42%	66%	2%
Tunisia	11%	18%	33%	4%
Zambia	20%	85%	64%	19%

Sources: Central Banks, CIA factsheets; most data are for 2009. Agriculture includes forestry and fisheries.

The agriculture-related loans in China (2014)

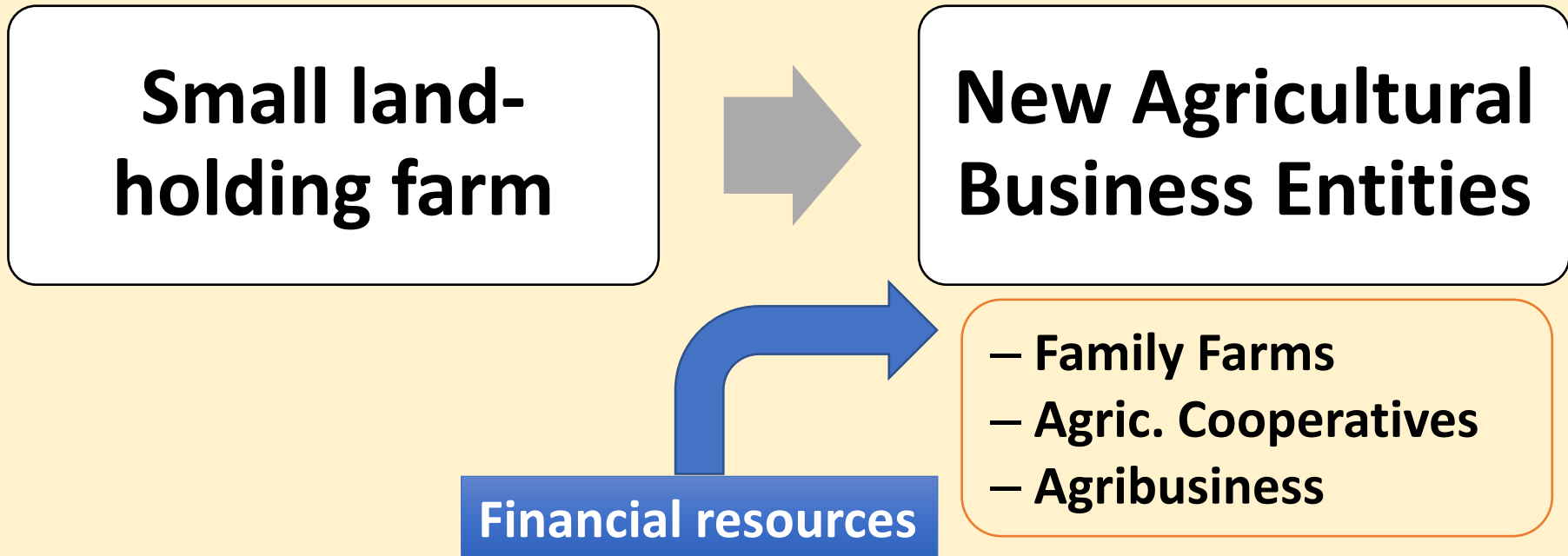
Item	Amount	Ratio
Loans to agriculture	3.3 Trillion	14%
Loans to rural area	19.4 Trillion	82%
Loans to farmer households	5.4 Trillion	23%
Total (Remove duplicate calculation)	23.6 Trillion	28% (to all the loans from banking industry)

Agriculture-related Loans Disbursed by RFIs (2014)

	Amount (billion)		Loans to Farmers (Billion)		NPLs
All Banks	23,600	100%	5,359	100%	
RCCs	3,451	14.6%	1,911	(35.7%)	7%
Rural Comm. B	3,224	13.7%	1,268	(23.7%)	2.1%
Rural Coop. B	394	1.7%	209	(3.9%)	2.7%
Subtotal	7,069	30%	3,388	(63.2%)	
ADB	2,830	12.0%			
Total	9,899	42%			

Second-round Agri. Reform in China

Reform Goal	Food Security
	Urbanization
	Modern Agriculture



Changing Credit Demand in China

- Small farmer households hardly have credit demand to pay their seasonal harvest inputs, or invest in agricultural technology and expansion
- Modern agriculture requires large amounts of purchased inputs and investments in on-farm and off-farm activities (storage, refrigeration, processing, and transportation)

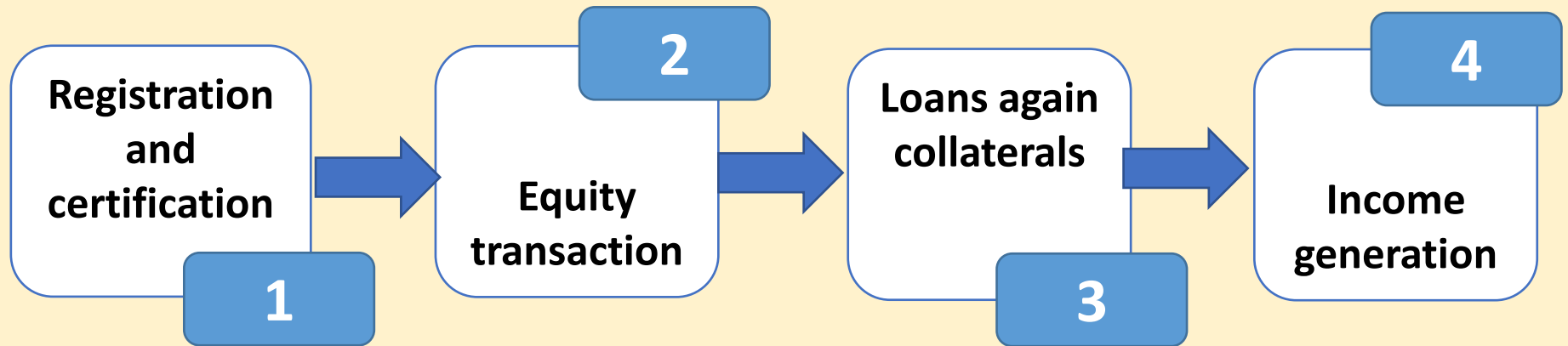


For the purpose of food security, the gov't started to pay attention to the new agricultural business entities



Monetary and fiscal policy tools have been employed to finance the agricultural sectors in China

Land use rights to be the collaterals



- The property rights are still difficult to be regarded as collaterals alone
- The practices
 - Credit + Rural property rights
 - Guarantee + Rural property rights
 - Collateral + Rural property rights
 - Others + Rural property rights

Third Part

- Background
- Agri. Finance in China
- **Major Policy Instruments in China**

Existing Fiscal Policy Instruments (1)

Instruments	Contents	Purposes
Directed subsidies for new RFIs	2% of loan balance when meet the criterion	Reduce the operating costs
Bonus for incremental agricultural loan balance of countywide financial institutions	2% of the loan balance in excess of 15% more than those of previous year in 18 provinces	Motivate FIs at county level to disburse loans
Tax reduction and exemption	Interest income of microcredit Premium income of some agricultural insurance products	Motivate FIs at county level to disburse loans and insurance products

Existing Fiscal Policy Instruments (2)

Instruments	Contents	Purposes
Interest-subsidized loans for poverty alleviation	Farmer household loan (5%); Project loan (3%)	Poverty alleviation and income generation
Mutual fund in state-defined poverty-stricken villages	Poverty alleviation fund as the seed money, and the villagers voluntarily join, and the fund is managed by the members	Meet the credit demand, foster the creditworthiness
Subsidized premium of agricultural insurance	The governments at all level covers 75% - 80% of total premiums for 3 types and 15 varieties	Motivate the agricultural producers to purchase insurance

Existing Monetary Policy Instruments

Instruments	Purposes
Lower required reserve ratio (RRR) for RFI	To have more capital to disburse
Targeted reduction of RRR for RFI when their loans meet certain criterion	To optimize the credit structure
Low-interest-rate agriculture-oriented refinance for RFI	To encourage the agricultural loan disbursement
Counter-cycle and structure-optimizing measures when adjust the money supply (M2)	To encourage the agricultural loan disbursement

Piloting Fiscal Policy Instruments

- **Financial guarantee fund**
- **Credit risk compensation fund**
- **Interest- subsidized loan**
- **Financial leasing for agricultural machineries**
- **Agricultural investment funds**
- **Agribusiness going public**
- **Agricultural insurances**
- **Promote rural financial infrastructure**

1. Establish financing guarantee funds or guarantee institutions at county level



Goal

- Market-orientated means and government intervention
- Guarantee for the mortgage of rural property rights and the loan of agricultural new business entities
- Expand the loan volumes for the agriculture, villages and farmers



Principle

- Public interest
- Non-profit or low return
- financial sustainability

financing guarantee platform at county level



Innovation

- Apply mortgage and hypothecated loans through agricultural product orders, insurance policies, warehouse receipts and large agricultural production facilities
- Establish regional re-guarantee agencies or Joint/mutual guarantee by regional guarantee platforms



Public Finance

- Cover the cost of subsidies and guaranteed by central and local finance

2. Establish financing risk compensation funds at county level

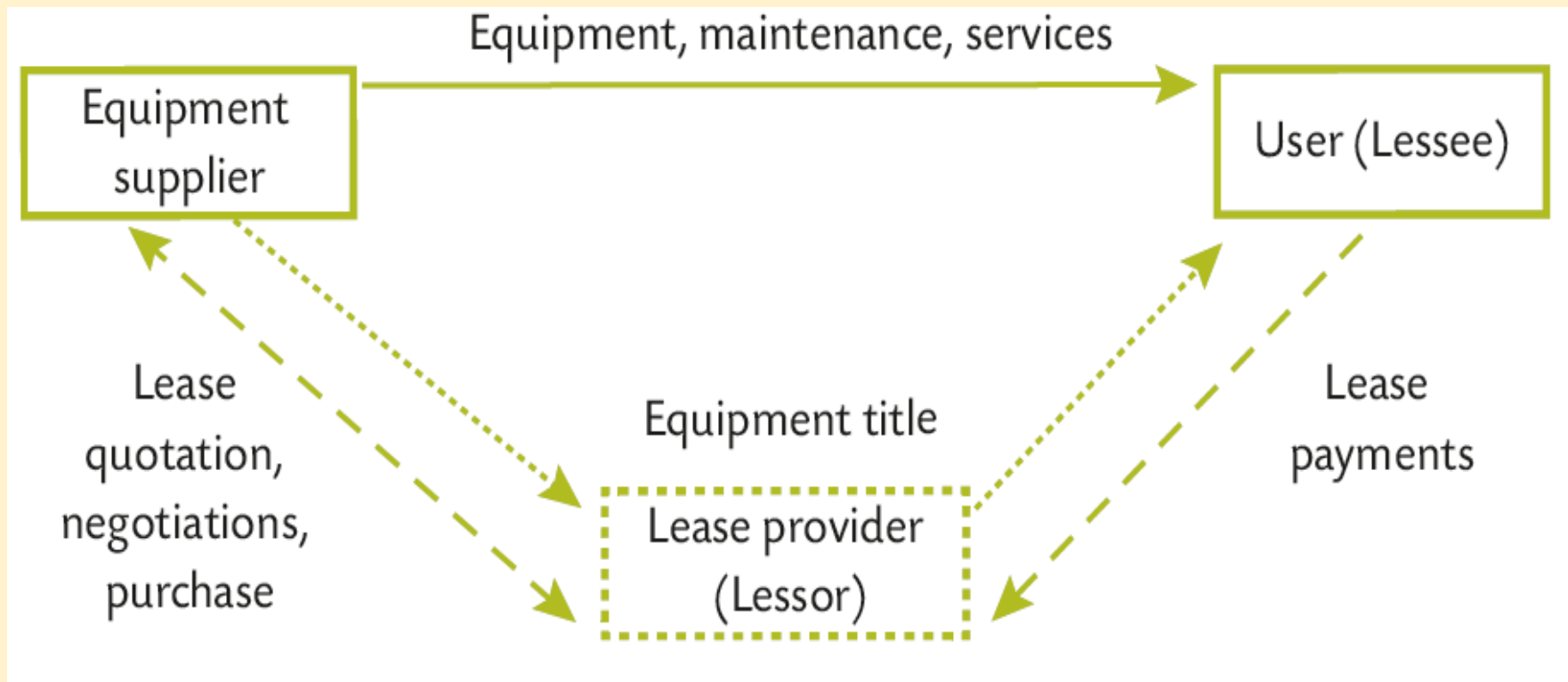
- Government alone or government, banks and enterprises combined invest to set up the financing risk compensation funds**
 - Generally require the financial leverage to let RFIs disburse more**
- Risk compensation funds for the mortgage of rural property rights**
 - Depose mortgage to repay the loans of the financial institutions through listed trading
 - Establish risk compensation funds for the acquisition and disposal of the net loss, and define the share ratio between the guarantee platforms or other designated agencies and financial institutions
 - Risk compensation funds for the loan of agricultural new business entities**
 - Apply to compensate the NPLs of the agricultural new business entities
 - Activated in the condition of the failure of all other measures(including lawsuit)

3. Provide discount loans for the new agricultural business entities

- Provide qualified agricultural business entities with discount loans, lowering the cost of mobilizing the capital
- Try to cover all agricultural business entities, industries and producing areas
- Focus on farming and animal-raising industries

4. Establish financial leasing company for agricultural facilities

- Commercial banks or social capital fund to establish financial leasing companies
- Subsidies for the leasing fee from gov't



5. Establish agricultural investment funds at county level

Commissioned party of the investment funds should take advantages of the professional financial management, adopt the marketing operation, and invest the funds into the agricultural production and industrial projects supported by government.

Advantages

- Investment fund for agricultural industry
- Investment fund for agricultural private equity (PE)
- Investment fund for agricultural technological entrepreneurship

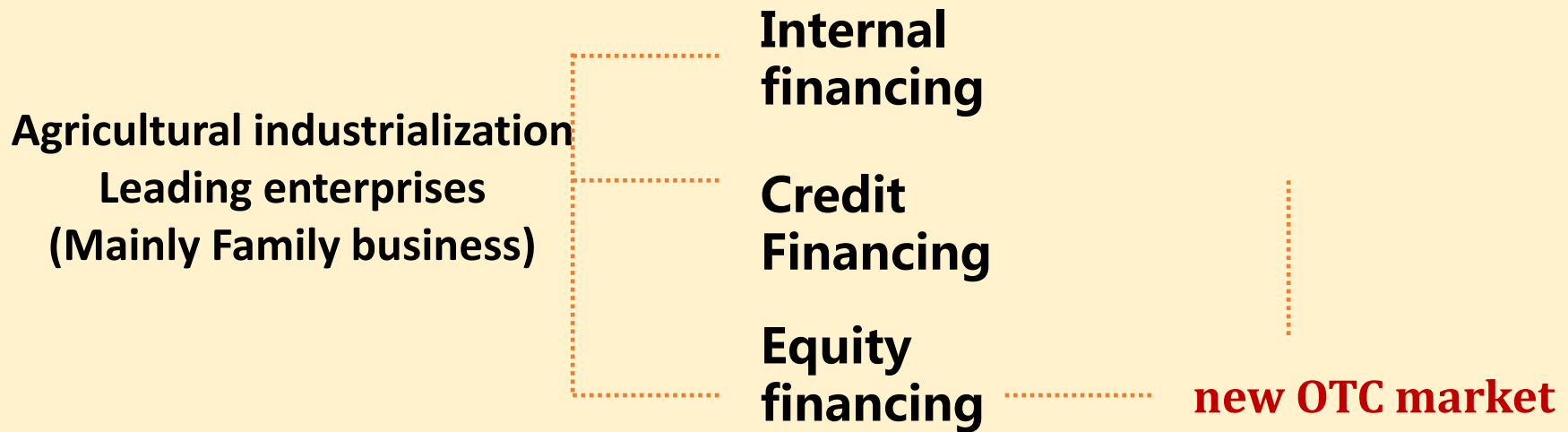
Attract all kinds of social capital investments into agricultural integration projects; promote the combination of direct financing and indirect financing; build up diversified rural investments and financing systems

Goals

Reference to the "China's Agricultural Industry Development Fund "of the Ministry of Finance

- + **Credit Financing and Equity financing**
- + **Focus on modern agriculture practices**
- + **Exclude agricultural infrastructure**

6. Encourage agricultural leading companies to go public in the new OTC market



New OTC market with relatively low barriers to entry provides agricultural leading enterprises with more possibility to attain direct financing

7. Stimulate agricultural insurance

- Agricultural insurance has the function of credit addition, promoting the financial institutions to increase supply for new agricultural business entities
- Conduct cooperation between insurance companies and banks, and share the loan risk at a negotiated proportion
- Encourage rural mutual-coordinating insurance , rural commercial insurance and insurance of primary agricultural products by public finance bonus

8. Promote rural financial infrastructure

Rural financial infrastructure(1)

Including **financial facilities and mechanism design**: payment system, legal environment, corporate governance, accounting principles, credit environment

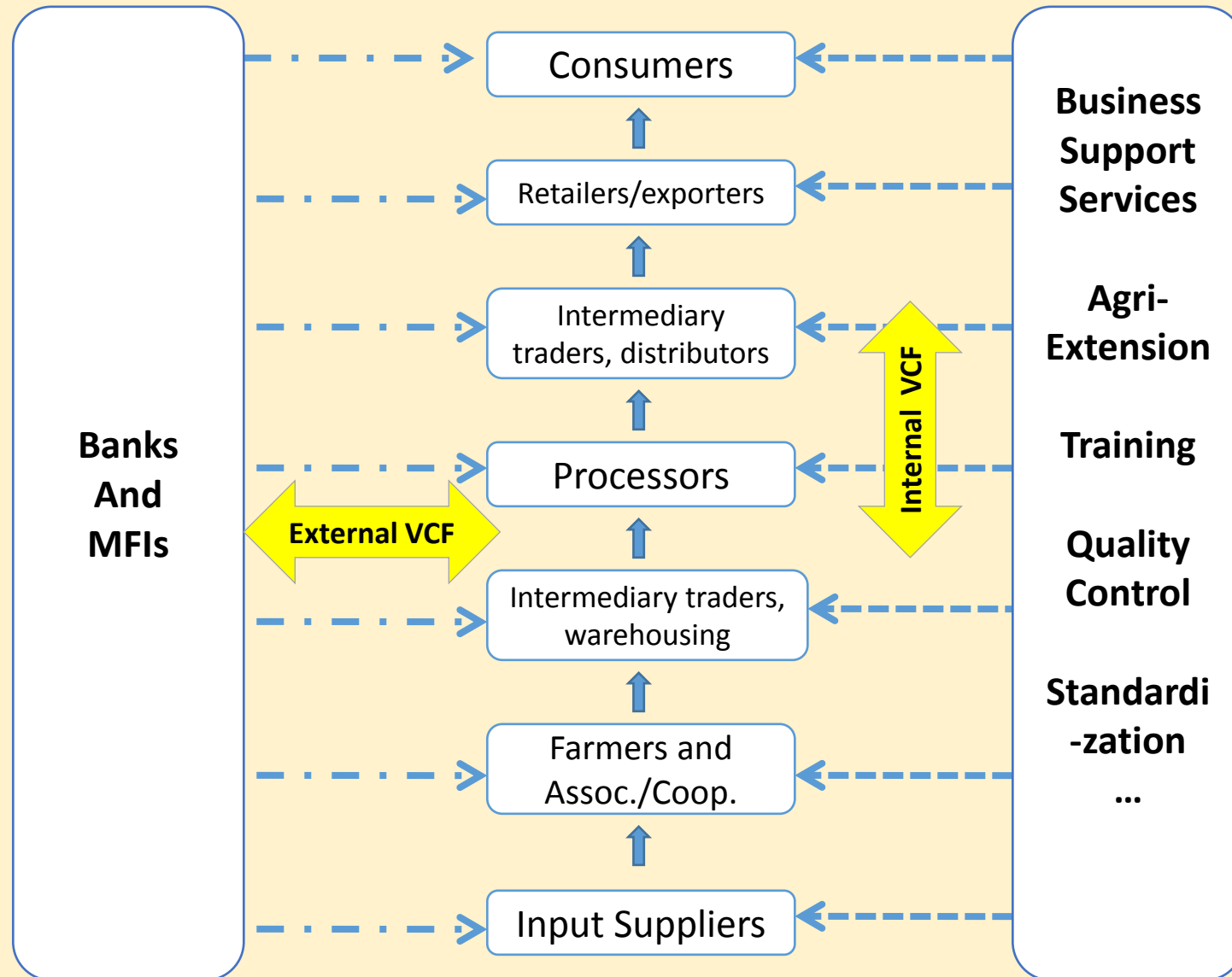
Rural financial infrastructure(2)

Allow rural financial institutions to access to domestic interbank payment system; offer bank card; set up mobile POS terminals to provide payment and money transfer service in the villages

Rural credit system

Identify the creditworthy farmers and villages;
Establish credit information record and credit ranking systems

Next step: Value Chain Finance (VCF)



Thank you



Food Security and Nutrition in Poor Areas of China

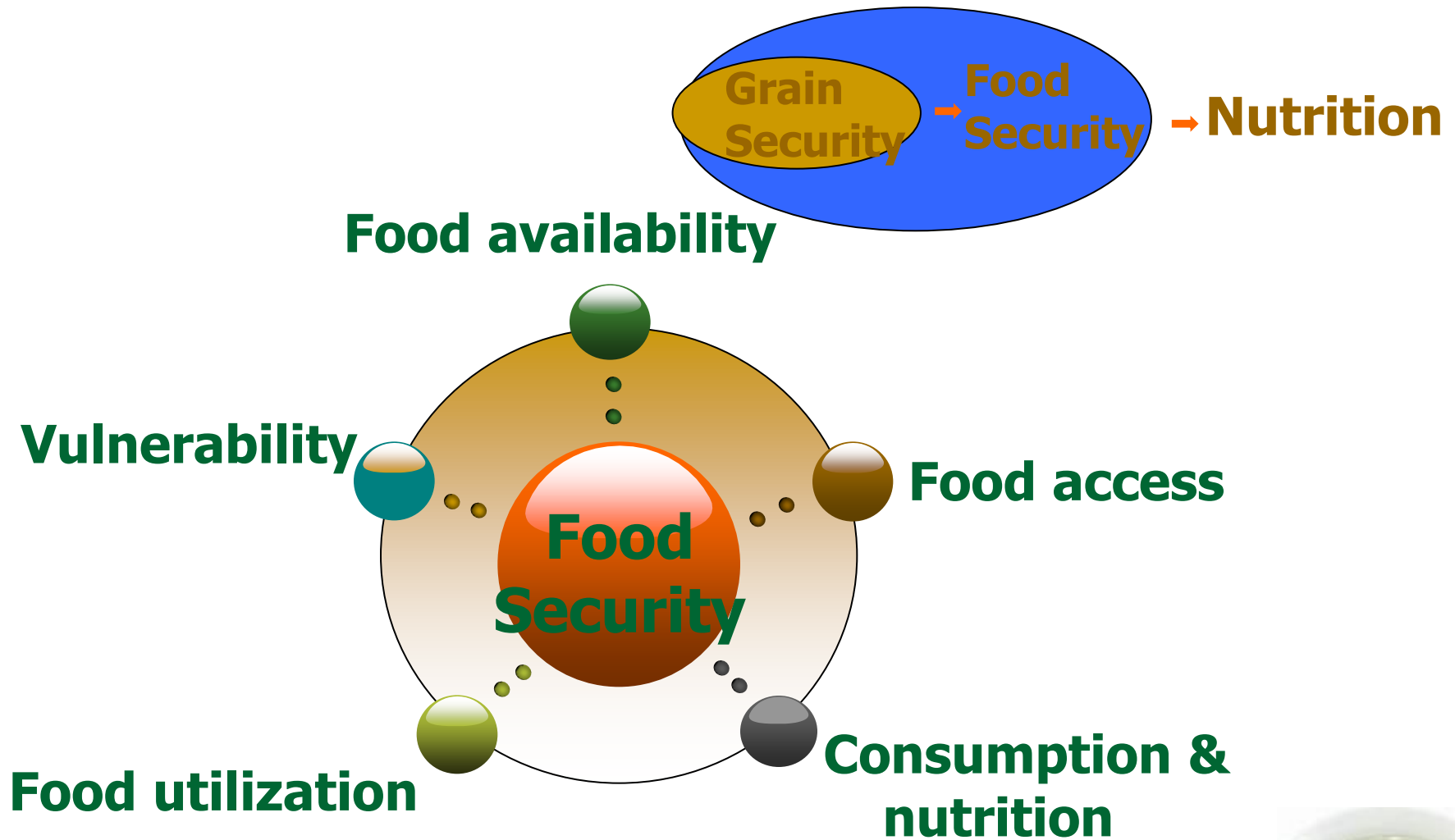
APEC Food Security Training and Workshop

Prof. Fengying Nie

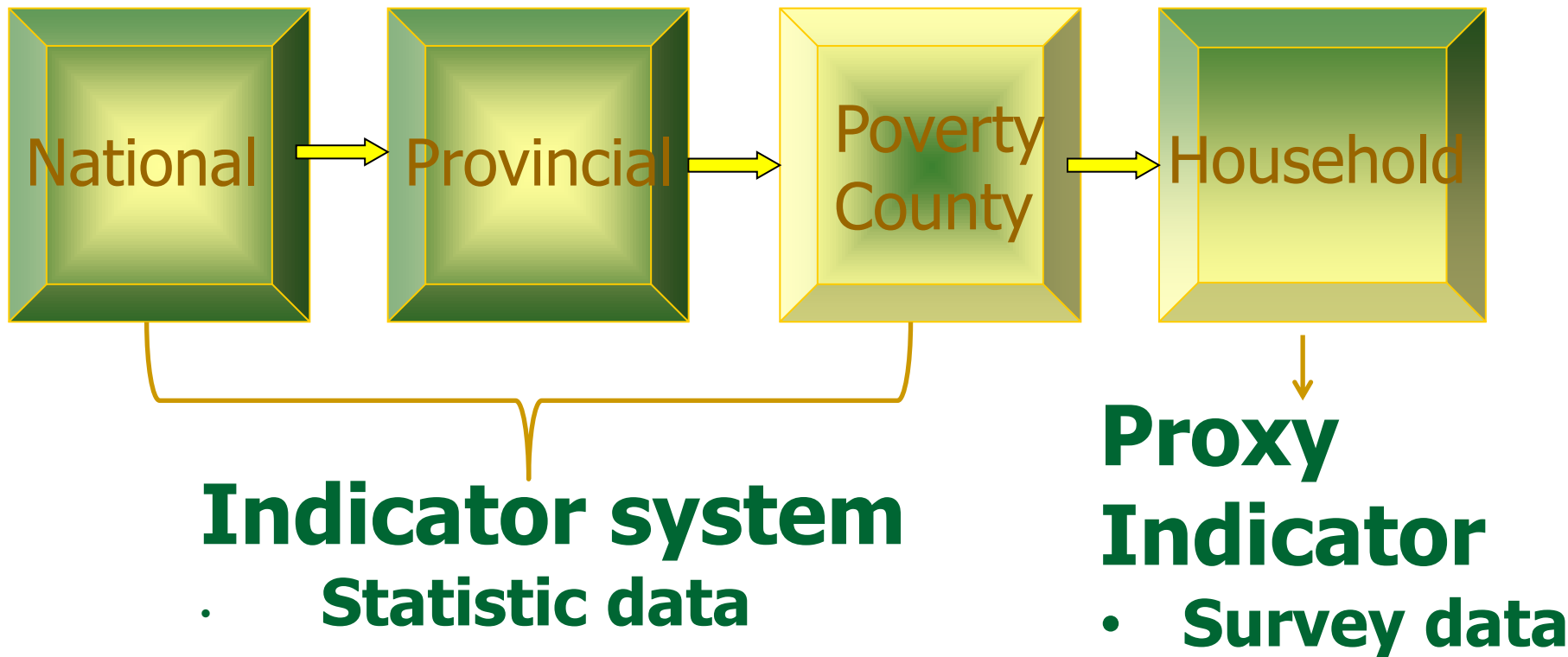
Agricultural Information Institute (AII)

Chinese Academy of Agricultural Sciences (CAAS)

Broad concept of food security



Various levels of Food Security



Food Security Indicator System

1. Availability

- Total production
- Output per capita
- Imports & exports

2. Access

- Rural incomes
- Transportation & markets

3. Consumption & Nutrition

- Nutritional intake
- Food intake diversity
- Malnutrition among children under five

4. Utilization

- Health
- Water & Sanitation
- Education

5. Vulnerability

- Natural shocks
- Economic shocks



Households' Food Security

Question

How many? Who? Why? How?

**Framework
Methodology**

**Sampling / Field Survey/ Data process
Analyze / Reporting**

Outcome

**Food Security
Nutrition**



Households' Food Security

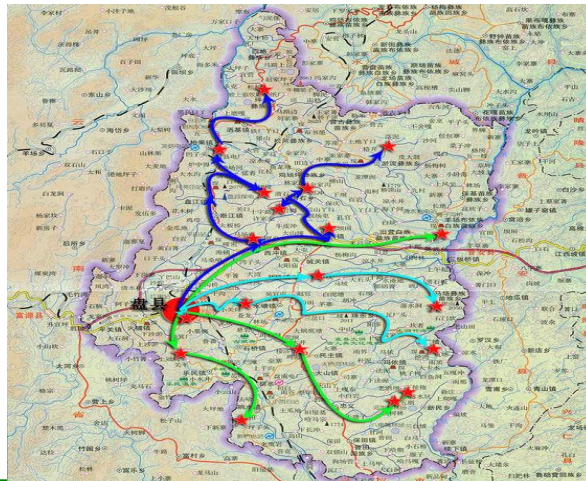
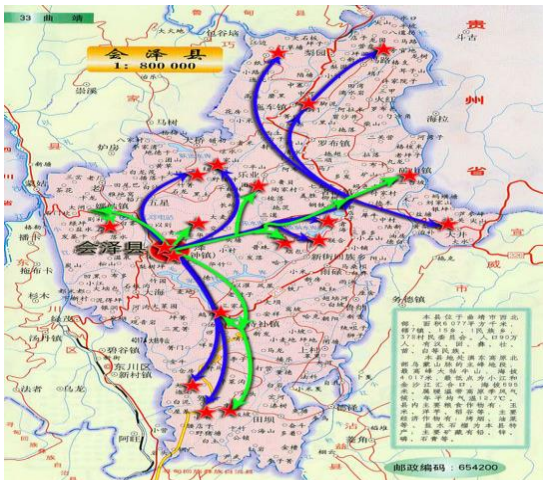
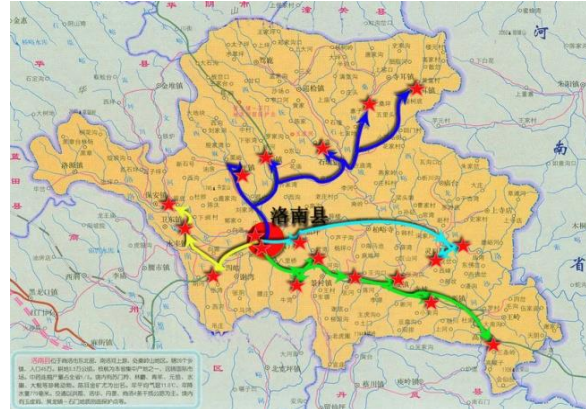
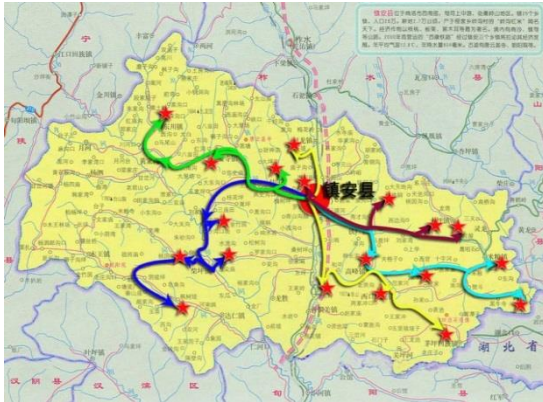
Methodology- Sampling

- Three-stage sampling approach
 - 1st stage: Judgement Sampling from cluster analysis
 - 6 counties in 592 poor counties in rural China
 - 2nd stage: Probability Proportional to Size (PPS)
 - 19 villages selected in each county
 - larger population villages have a greater chance of selection
 - 3rd stage: Simple Random Sampling
 - 12 households selected randomly in each village
 - 238HHs each county, totally 114 villages, 1368 households



Households' Food Security

Methodology- Field Survey



Households' Food Security

Methodology- Field Survey

Focus Group Discussion

Household Questionnaire



Households' Food Security

Methodology- Field Survey

Household Questionnaire

- Demographics
- Housing and Facilities
- Productive and Household Assets, Remittances and Credit
- Agriculture
- Livelihoods
- Expenditure
- Food Sources and Consumption
- Shocks and Coping Strategy



Household Questionnaire

[illegible]

Households' Food Security Methodology- Field Survey Enumerator Manual

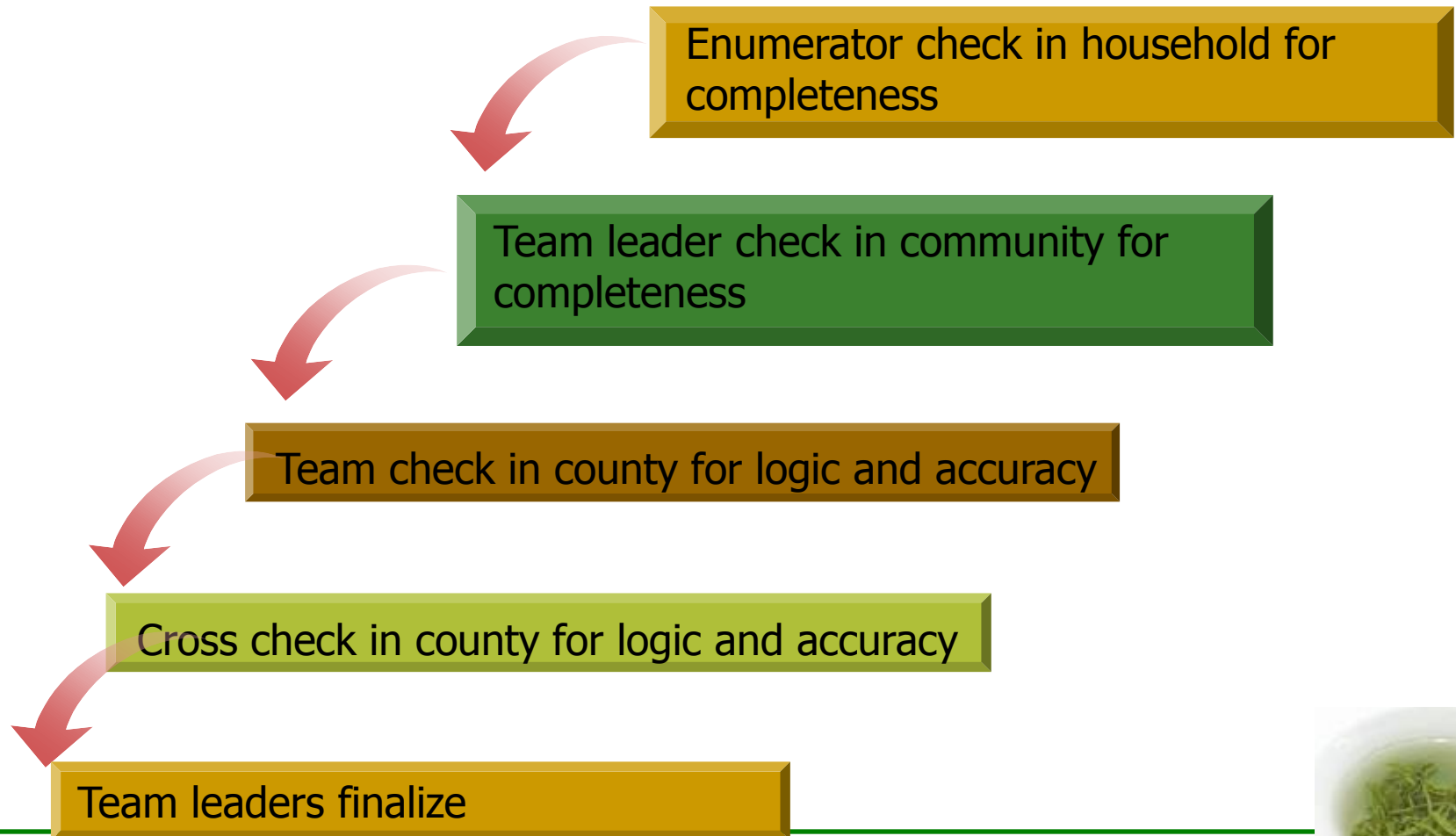
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Households' Food Security

Methodology- Field Survey

■ Five-Round Checking System



Households' Food Security

Methodology-Data Process and Analyze

■ Data Process

- Epidata for data entry
- STATA for data cleaning
- Designed data cleaning rules

■ Analyze

• Food consumption score

Accumulate food score of food items multiple the consumption frequency

Poor food security: 0-21

Borderline food security: 21.5-35

Acceptable food security : >35

• Nutrients intake

Energy

Protein

Fat



Households' Food Security

How many?

- 14.9% Food insecure
- 24.2% Energy insufficient
- 41.9% Protein insufficient
- 11.5% Fat insufficient

Why?

- Poverty
- Lack of human capital
- Limited Investment on rural infrastructure
- Vulnerability to weather shocks and market risks
- Limited investment in medical service and illness



Households' Food Security

Who?

Widowers

Without improved sanitation

With no or little livestock

Elderly households

Rely on unproductive ag.

Lacking human capital

With greater health care needs

How?

Provide skills to potential migrants

Increase investment in ag. development

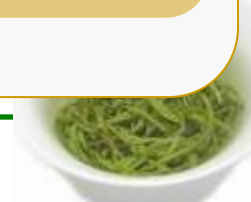
Encourage rearing animals

Create more off-farm labour opportunities

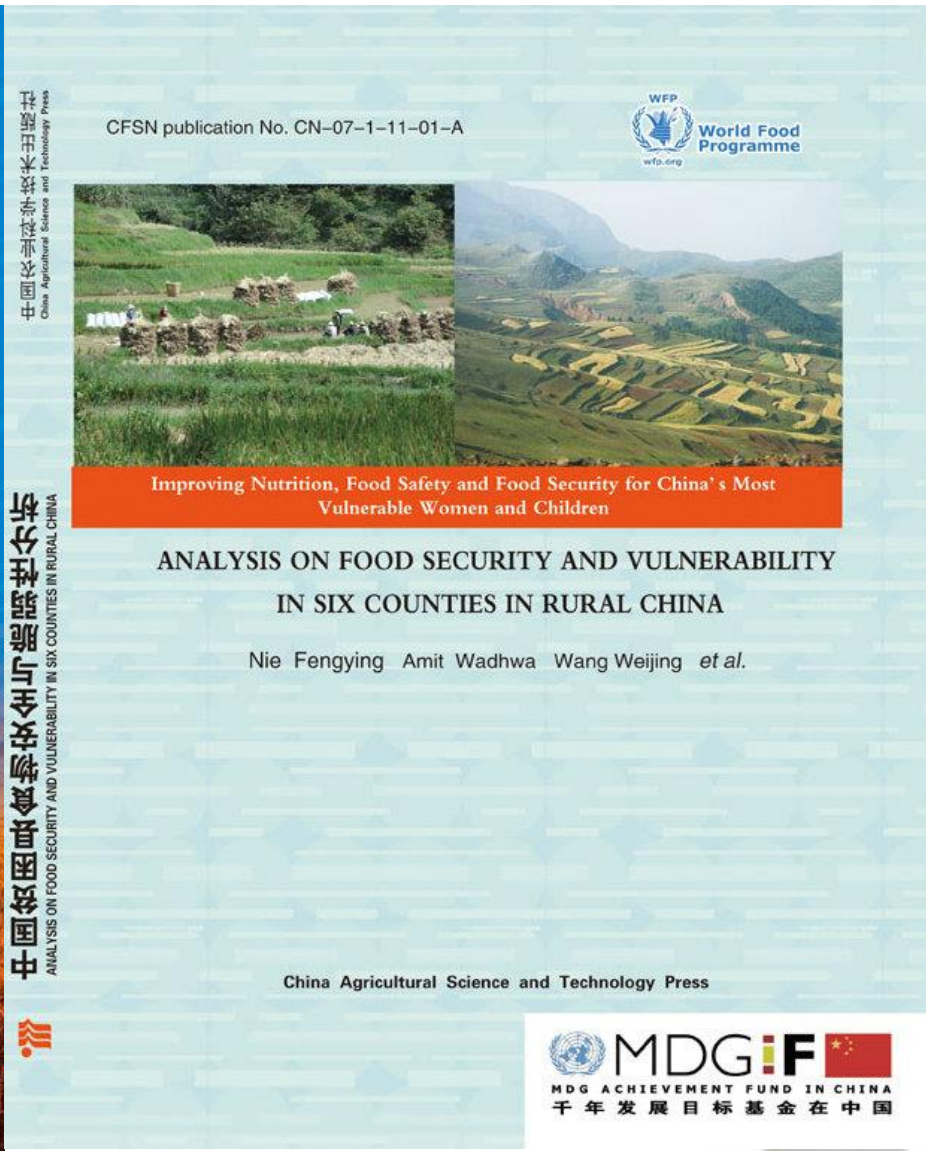
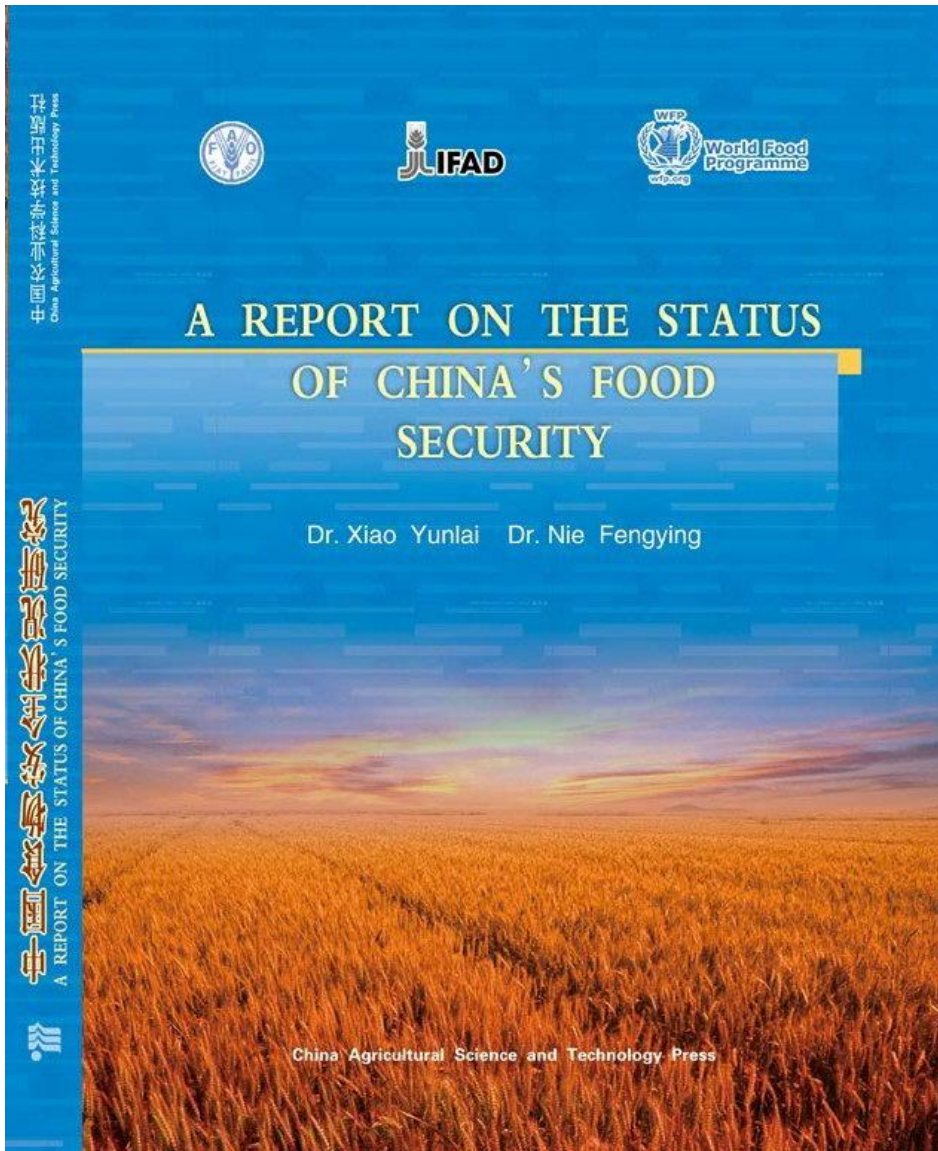
Enhance resistance of natural disasters

Improve access to affordable education

Decrease medical cost



Reporting and Publication



Resource for sharing

NSFC
FSN of rural
poor

Identification
of rural poor

IPRCC Long-
term Poverty
monitoring

Experts
invitation

Food Security and Nutrition Database
7provinces 12counties 3792hhs, three waves,
3-5 years resurvey
Cover 14 intensive poor areas till 2020



Thank you





“The futures of agriculture, food and rural development: what is next for young professionals?”

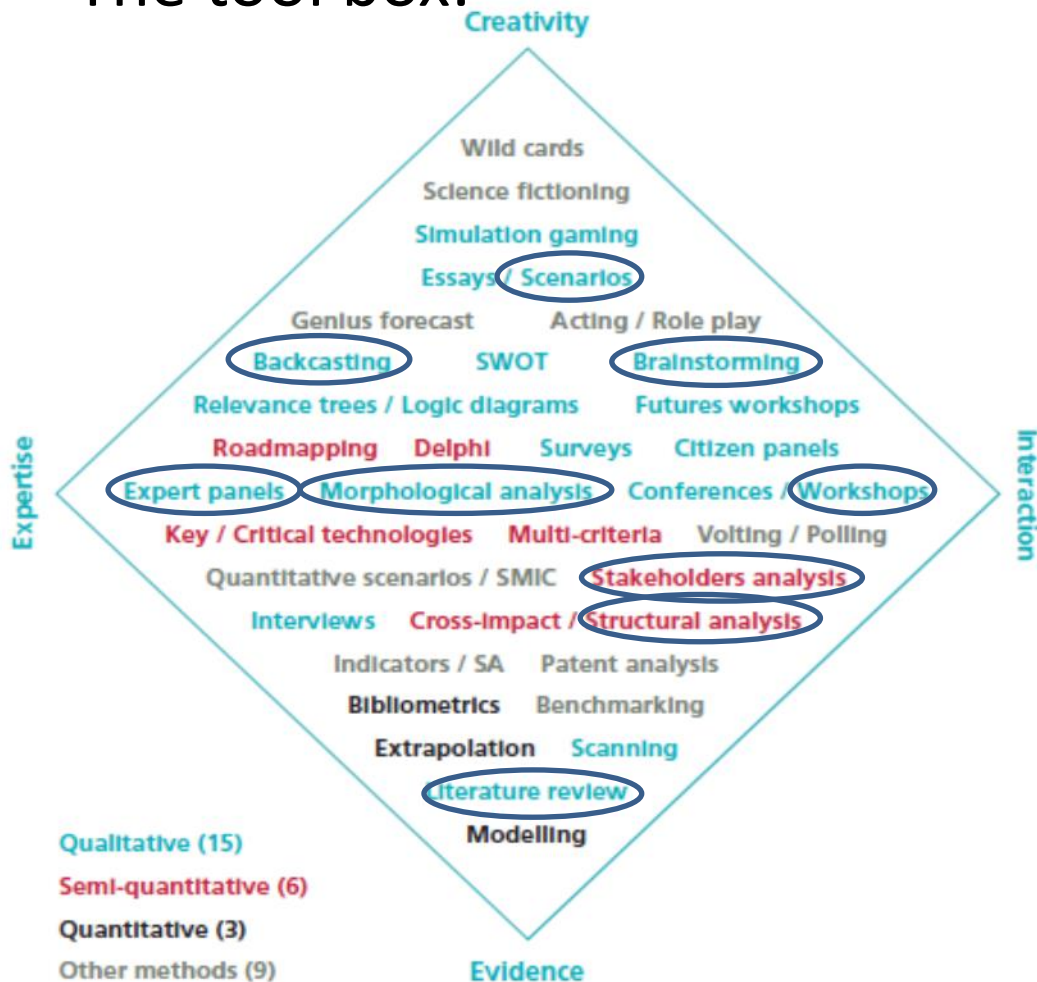
APEC Food Security Training and Workshop
September 7th-9th 2015, Beijing China

*by Dr. Ir. Robin Bourgeois, Senior Foresight Advisor,
GFAR Secretariat*

- *Preamble* - Forward thinking: beyond the toolbox
- *Setting the stage* - Scenarios for food, agriculture and rural developement
- *Group work* – Our futures

Beyond the toolbox

- The tool box:



- The philosophy:

Using the future, to change the present, to change the future

Future: The time yet to come.

Futures Studies: Any kind of study, or field of studies, focusing on a methodical exploration of what the future might be like.

Beyond the toolbox

Attitude	Before change	During change	Strategies
Passive	<i>None</i>	<i>Accept</i>	<i>Submit</i>
Reactive	<i>None</i>	<i>Adapt</i>	<i>Wait and see</i>
Pre-active	<i>Predict</i>	<i>Adjust</i>	<i>Get ready</i>
Pro-active	<i>Explore</i>	<i>Intervene</i>	<i>Influence</i>

"Every today was a tomorrow" "The future has been created to be changed"

Defining concepts

Forecast/Forecasting: A statement about something that is likely to happen in the future, often based on current knowledge and trends.

Extrapolation: Application of a method or conclusion to a new situation by assuming that existing trends will continue or similar methods will be applicable.

Predictability: The degree of confidence in a forecasting system based on either laws derived from observations and experience or from scientific reasoning and structural modeling.

Simulation: Assessment of system behaviour by building and using models that are designed to behave in a manner analogous to a real system.

Trend/Megatrend: General tendency, direction or movement over time. A megatrend is a major trend, at global or large scale.

Foresight: A systematic, participatory and multi-disciplinary approach to explore mid- to long-term futures and drivers of change.

Exploration: An anticipatory inquiry that investigates a wide range of possible future developments, considered from a variety of perspectives.

Plausibility: Judged to be reasonable/conceivable because of its underlying assumptions, internal consistency and logical connection to reality (e.g. the world today, similar past developments).

Scenario: a description of how the future may unfold, based on an explicit, coherent and internally consistent set of assumptions about key relationships and driving forces.

Breaks, Ruptures, Disruptions, Discontinuities: Abrupt, major changes in the nature or direction of a trend.

II. Setting the stage:
Seven Rural transformations:
what futures for rural areas?



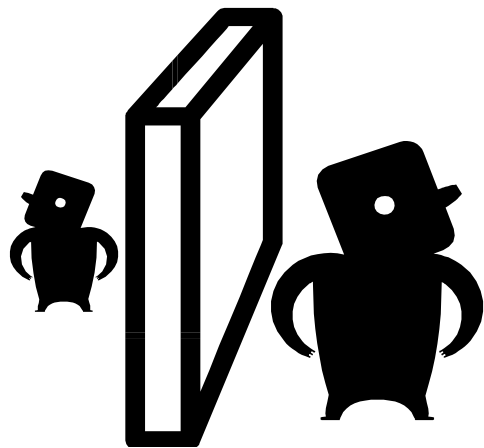
Drivers, trends and disruptions

- Globalization
- Connectivity
- Consumption patterns
- Resources
- Population dynamics
- Urbanization
- Technology development
- Prosperity

Globalization and localization

Cross border flows of money, goods, ideas and people, but also pandemics. Better protection against local hazards but also more sensitive.

More local and regional conflicts and interests competing for resources.



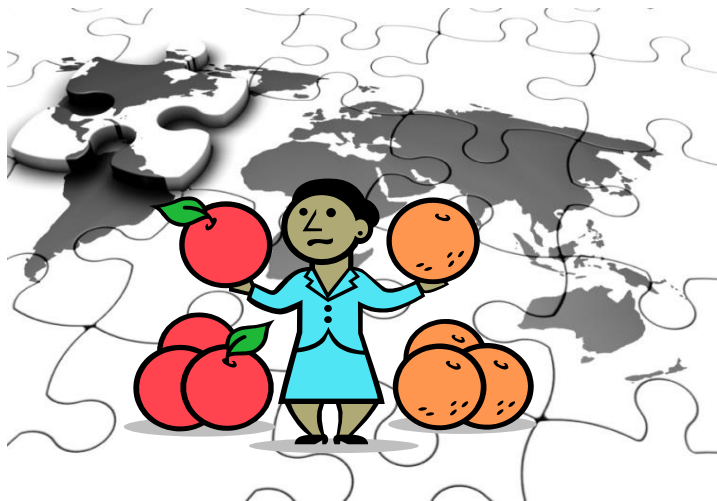
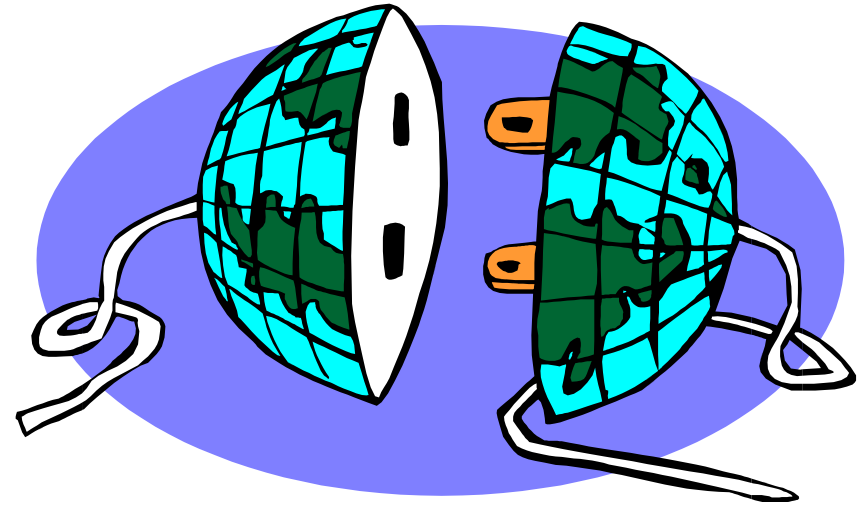
When remoteness combines with low investment, rural areas fall into the margins of globalization.

A new nexus based on local complementarities between former rural areas and former urban areas can emerge.

Connectivity

Connection is cheaper and easier all-time, everywhere, for all.

Connectivity divide in quality and intensity according to the wealth of the connected users



Rural areas benefit or suffer from the digital connectivity through either an increasingly connected system or a growing digital divide

Consumption patterns

We live beyond the means of the planet and will further do.

Threat on consumption trigger changes towards more sustainable consumption patterns.



Mass consumption of standardized cheap product empties the countryside

A diversified demand may sustain the development of rural areas.

Resources

Declining biodiversity, quality of water and soils, cost and access to energy, and stronger more frequent climatic hazards.

More environment conscious behaviors support initiatives for a more sustainable use of resources.



Poor rural populations depending on natural resources most affected.

Urban poor increasingly affected.

Massive reverse migration to rural areas.

Population Dynamics

More people on earth. Older people will live in developed countries. Countries with cohort of young population are less able to support them leading to cross country migrations.



Density and population pressure in rural areas are widely diverse influencing employment opportunities in farming and non-farm sectors.

Urbanization

Cities offer employment, entertainment, services and social life. Mega cities expand, medium cities grow, unclear boundaries between urban and rural.

Re-ruralisation, people prefer the countryside.



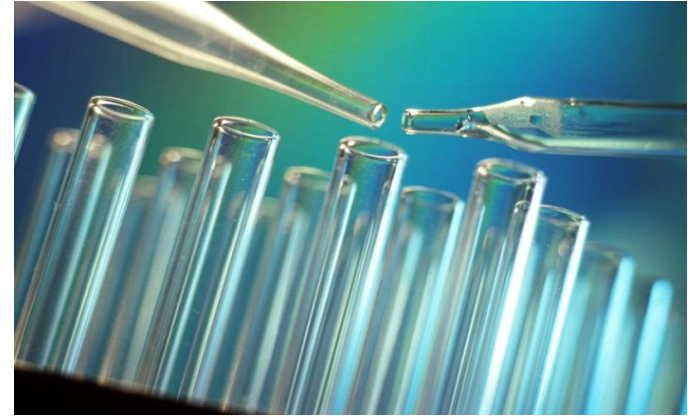
Conversion of agricultural land
Further migrations to cities

Re-vitalisation of rural areas by
new inhabitants.

Technology development

Producing more with less. Climate change drive technological change. Technologies focus on productivity, a few crops and products.

Resilience responds to climate change and proposes alternative technologies.



Local adaptation of technologies determine the viability of farms
Disparate situations depending on resources, infrastructure, investment capacity, access to knowledge.

Prosperity

Poverty declines, inequalities rise.

Disparities between urban and rural areas. Few winners, many losers.



Urban poverty prevails over rural poverty leading to further policies for cities and discriminating rural areas.

Rural transformations

- Rural stations
- Rural ghettos
- Rural niches
- Rural poles
- Farming cities
- (peri)- Urban farming
- Rural Continuums

Rural stations



Rural stations are gigantic agro-industries employ a limited number of workers living in the agro-industrial complex. Most work is robotized, unless local poverty makes human labour cheaper. These complexes are highly specialized, spatially isolated but hyper-connected to markets through roads, railways, air and maritime freight, and ICT. The key drivers of this transformation are consumers' preferences driven by a low-income urban middle class that puts food price above food quality and safety; the prevalence of globalization of food trade leading to the concentration and vertical integration of food chains; the robotisation of production; and, the availability of land. Given present conditions, this scenario could for example take place in parts of South America, Canada and USA, in Eastern Europe and the Caucasus, Russia, Australia and mainland China, particularly in rural areas made more viable for these drivers in consequence of global warming

Rural ghettos



Rural ghettos are abandoned rural areas where a marginalized population survive through self-subsistence. Its members would seek employment either in the gigantic agro-industries (rural stations) around which they will settle in rural slums, or through migration of family members to urban areas or abroad. Key drivers are the fulfilment of prophecies predicting the abandonment of rural areas and diverting public and private investment to cities; natural, social, economic, and health disasters; the remoteness of deeply rural areas; and, the misery of urban life for the jobless. Rural ghettos will be found in deeply rural areas of Africa, remote islands, mountainous areas such as the Peruvian Andes and in the vicinity of rural stations, as well as where land concentration will deprive people for the possibility to properly settle.

Rural niches



In **Rural niches** people would find livelihood opportunities exploiting a comparative advantage offered by the localisation of the niche in and outside agriculture. Rural niches attract private and public investment targeting specific market segments producing high quality, high added-value products. Key drivers are consumers' preferences for specialized high value products, particularly those of high-income classes; speciality products grown in specific areas and protected through certification and quality control for local specialties (such as wine, cheese, olive oil, salt); ethic values of consumers (Fair Trade coffee or cocoa); increased connectivity or proximity between specialized producers and specific consumers (community-supported agriculture in the USA and like-minded forms of local and solidarity-based partnerships between producers and consumers in Europe, Canada and Japan; but also supply of local urban market in Malawi); and, investment policies. Rural niches will develop in the best rural areas where local resources make the production of high quality specialized products possible.

Rural poles



Rural poles would see large-scale core industries transforming a limited number of key products (tree crops, grains, meat, but also non-food products) and limiting production risks by contracting production to a plasma or clusters of smaller farms or households supplying the core industry. Key drivers will be partial globalization with limited free flow of products due to geopolitics; standardization of consumers' preferences; risk sharing strategies of agro-food chains; and, selective public investment in rural infrastructure where immediate returns can be yielded. Rural poles will be found in the hinterlands between cities and deeper rural areas, where land is available and population density not too high. Examples may include the oil palm plantation in Indonesia, but also the agricultural technopoles in the South of France or the concept of agricultural growth corridors.

Farming cities



In **Farming cities**, high-tech agriculture would develop in highly controlled environments. City agri-buildings provide a diversity of products. Farmers are graduated technicians, employed by municipalities or city-farm companies. Key drivers are the mutually re-enforcing preference of populations for urban life and public investment in urban areas, technological breakthroughs by private companies from developed countries and high tech connectivity. Farming cities could develop in densely populated areas of more developed countries in Western Europe, Scandinavia, and as part of all mega-cities everywhere (Tokyo, Hong Kong, Mexico, Jakarta, etc.). The first 'plantscraper' is being built in Linköping, Sweden.

(peri) Urban faming



Urban and peri-urban farming will see farmers growing a diversity of crops close to urban consumption centres. This includes using available interstitial urban spaces (wasteland, walls, roofs, balconies, terraces, etc.). Farmers are connected to urban markets through local segmented chains serving specific types of consumers. Key drivers are urbanization and preferences for urban lifestyles; the demand for diversified food products by higher income classes and middle class consumers; the failure of globalization in providing outsourced products; local culinary preferences; and, lack of public investment in deeply rural areas. Urban and peri-urban farming would develop within and around the mega-cities particularly in highly populated emerging and developing countries. High tech urban farming in developed countries is already a reality as witnessed by the first world's rooftop commercial farm created in 2011 in Montreal, Canada.

Rural continuums



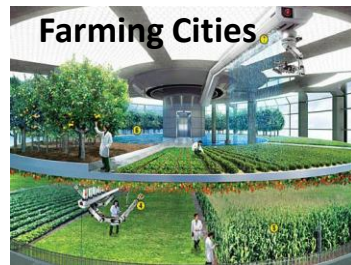
Rural continuums will challenge our current perception of what is rural and what is urban. There, food production and transformation, but also many non-farm activities, would take place in smaller diversified enterprises that are highly connected to local markets and operate in an environment providing connectivity and employment opportunities.

“Farmers” will have several jobs and will be directly connected to markets and consumers through appropriate ICTs. Quality of life will not be significantly lower than in urban areas. Key drivers are a consumer preference shift towards locally sourced products; new technological breakthroughs for more resilient yet profitable farming system; public and private investment in rural areas in and outside agriculture; the failure of globalisation to satisfy a diversified demand; direct connectivity of producers and consumers; and, individual aspirations and worldviews. The “ruralpolitan” movement in the USA is an example of a value-driven re-ruralisation process. In Southern Europe, several governments (Portugal, Italy) provide incentives to encourage urbanites to settle and work in the countryside. In France, the largest increase of population takes place in the rural “life basins”.

Crossing the future links between consumption and production and development policies



*Fewer large agro-industrial
systems of activity linked to
global markets of
standardised products*



*Abandonment
of rural areas*

*Revitalisation of
rural areas*



*Smaller numerous multi-
functional systems of activity
linked to local markets of
diversified products*

Peri- and Urban farming



III. Group work

Objectives: Engage young professionals in forward thinking about their future in agricultural research and innovation systems (ARIS)

Methods: Working groups, scenario-based brainstorming, visualisation

Outputs : Panorama of future roles for young professional in ARIS; identification of spaces of freedom

Outcomes: More pro-active young professionals

Work sequence

1. Organize participants in six working groups around tables, with a facilitator and a note-keeper; each group selects a different scenario (10 minutes)
2. Engage each group in reflecting on the following questions:
 - a) The pre-active role - If this scenario happened what would be the role of professionals in ARIS?
 - b) The pro-active role - What could you do to make this scenario happening (if desirable) or not happening (if not desirable)?(30 minutes)

Work sequence

3. Wrap up the results on a large poster (maximum size: two flipcharts, drawings and art are welcome) and put them on a wall (10 minutes)
4. Walking knowledge (10mns)
5. Plenary discussion and wrap-up (25 mns)

Source of images:

Rural poles: Courtesy of East of ENgland Broadband Network (E2BN); retrieved from http://gallery.nen.gov.uk/asset56707_501-.html

Rural continuums: Courtesy of Antoine Berger (<http://www.antoine-berger.com>); retrieved from <http://www.chambery-metropole.fr/3612-schema-agricole.htm>

Rural Niches: Curtin, Philip View of Fields and the High Atlas near AŇt Benhaddou. Africa Focus; retrieved from

<http://search.library.wisc.edu/catalog/DSB5MNMBXUVEU8C>

Peri- and Urban farming: <http://ourworld.unu.edu/en/farming-in-the-concrete-jungle> Retrieved from <http://i.unu.edu/media/ourworld.unu.edu-en/article/2378/farming-in-the-concrete-jungle-2.jpg> (Creative Commons)

Rural Ghettos: Courtesy of Mercopress; retrieved from <http://en.mercopress.com/2010/11/08/rural-poverty-remains-strong-in-latin-america-in-spite-of-agriculture-boom>

Farming cities: Courtesy of Chris Jacobs; retrieved from https://www.dropbox.com/s/9m97jrmmb6yvj9b/Farm_interior.jpg?dl=0

Rural stations: Courtesy of Farms Not Factories; retrieved from <http://farmsnotfactories.org/wp-content/uploads/2015/02/agrosuper-pig-farm.jpg>