



Food Security and Nutrition in Poverty Areas of China

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*Sustainable Food Security and Nutrition
Under Agriculture Transformation and Urbanization*
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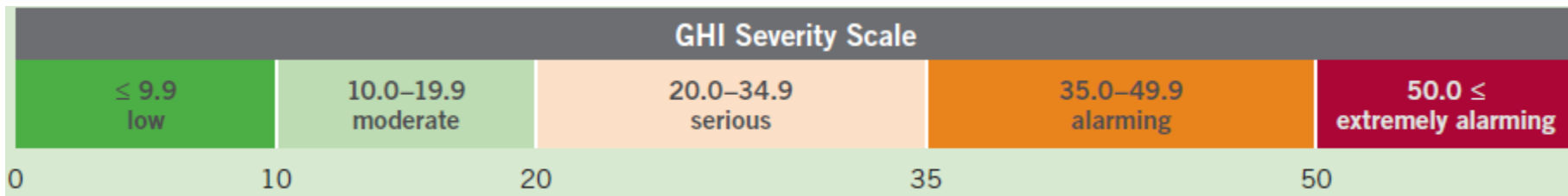
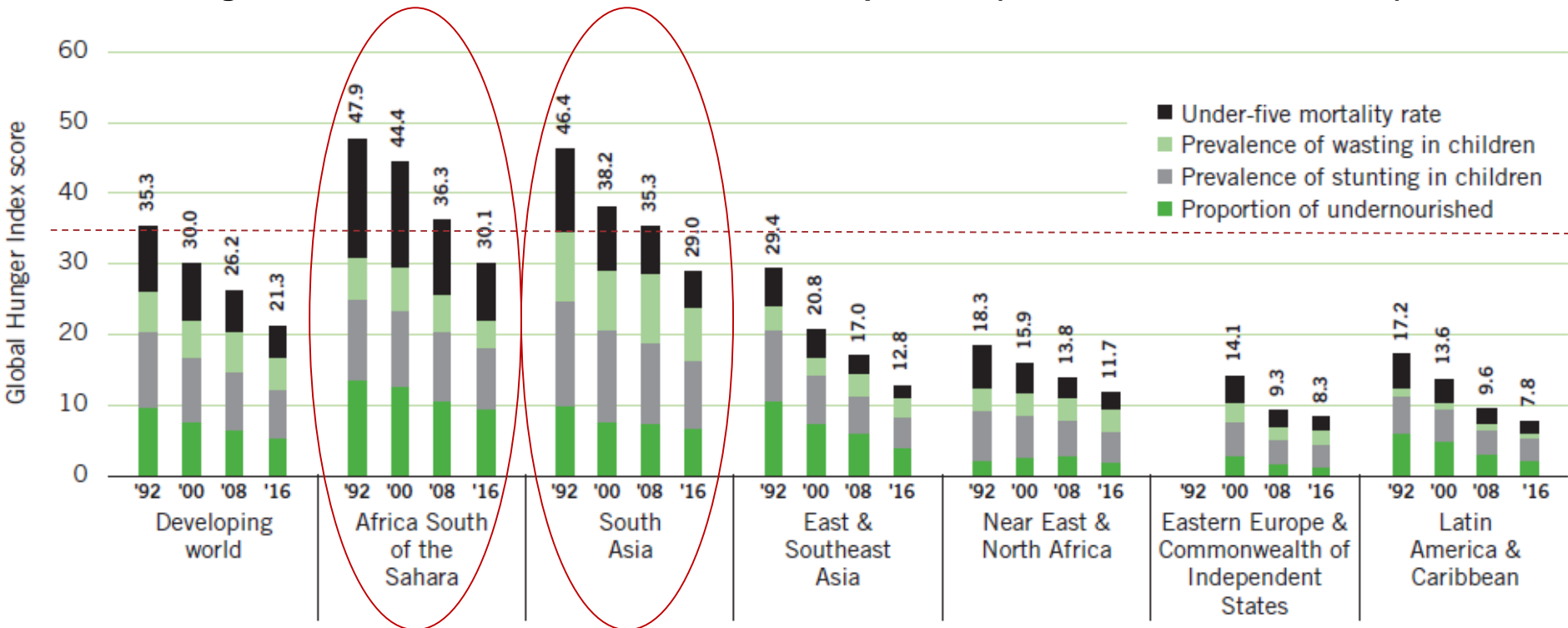
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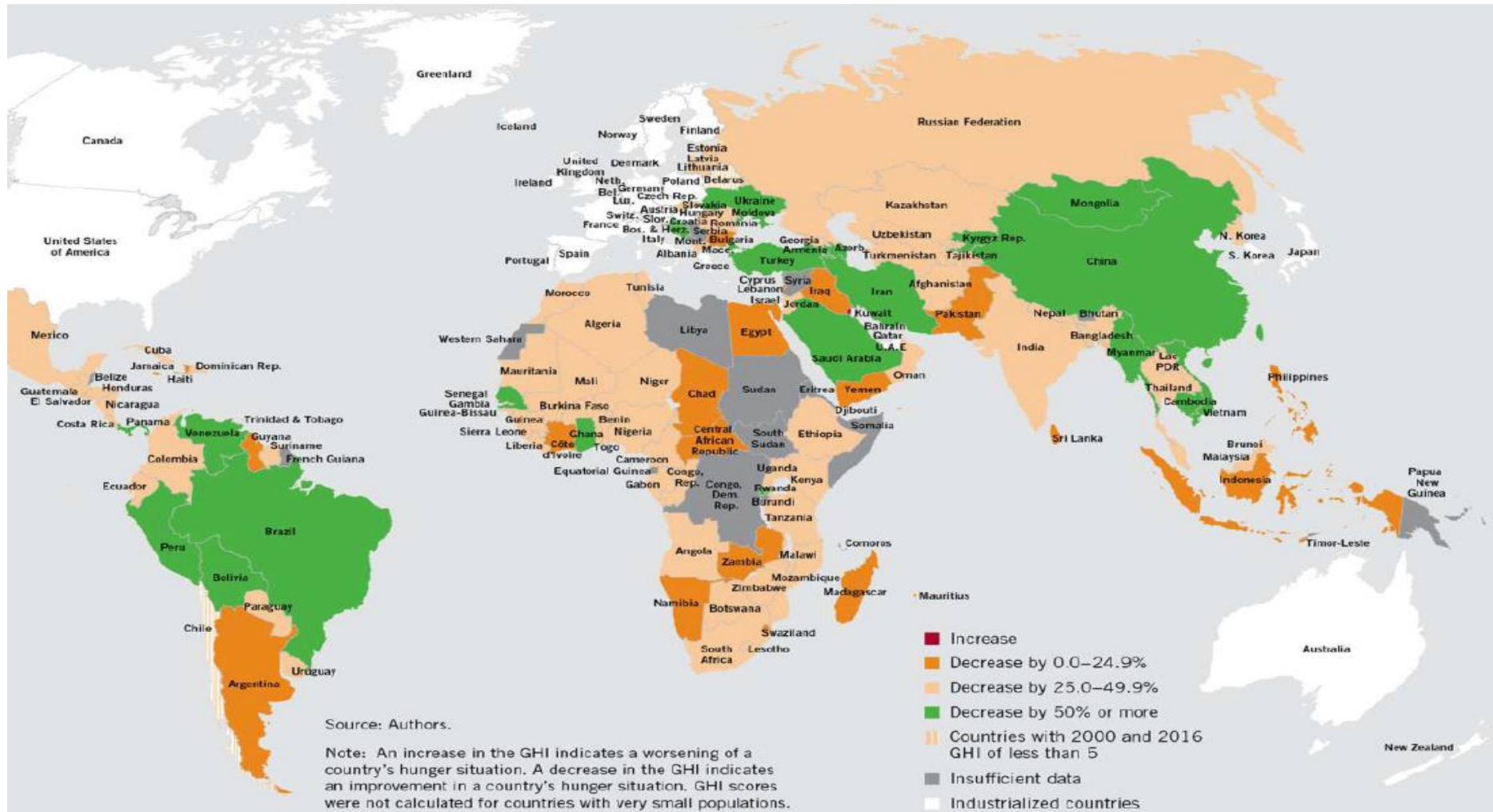
Hunger and malnutrition remain big challenges globally, especially in SSA and Asia

Global Hunger Index Scores, With Contribution of Components (1992, 2000, 2008, and 2016)

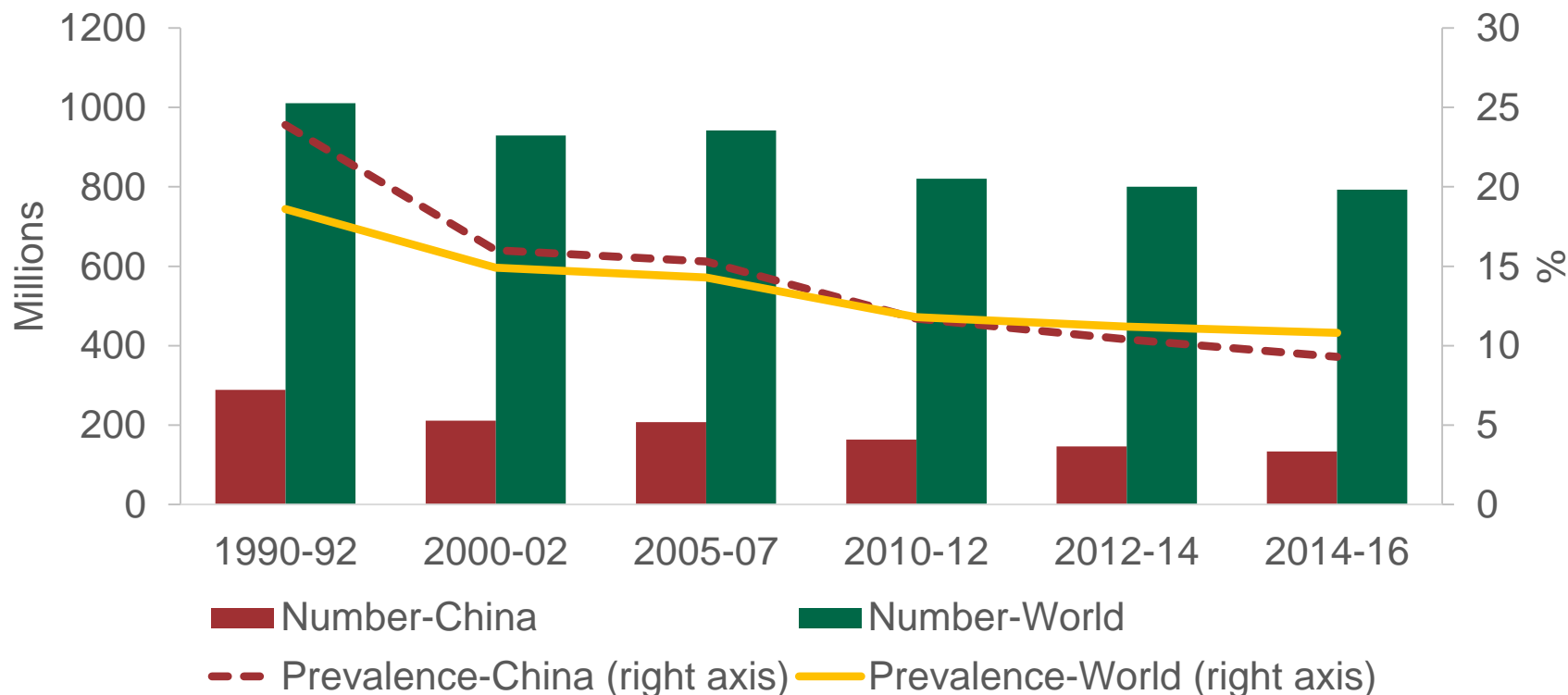


China sharply reduced its hunger population

Country Progress in Reducing GHI Scores (percentage change in GHI between 2016 and 2010)



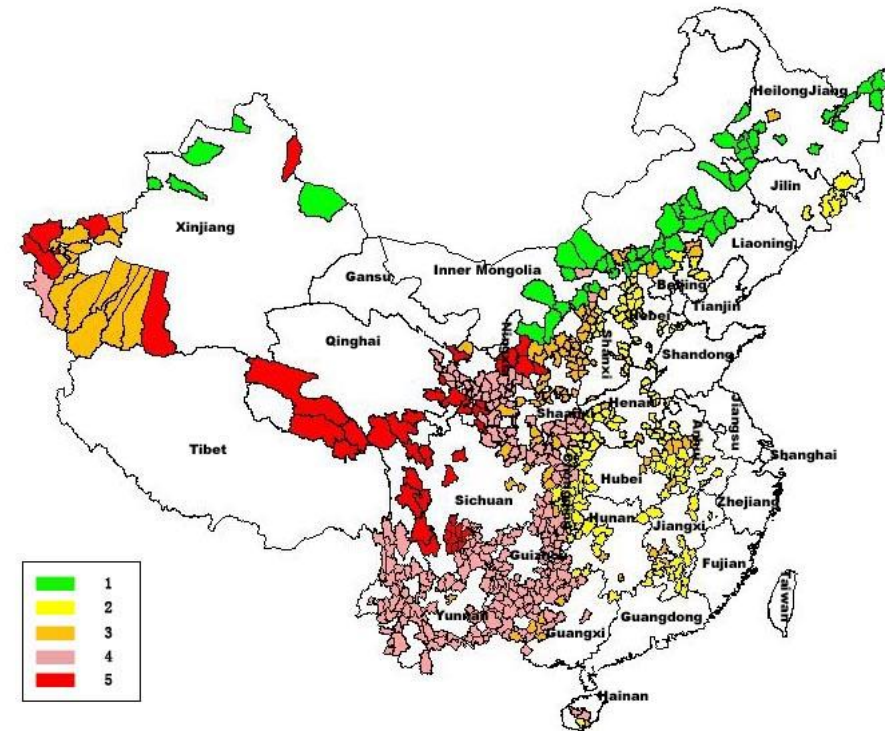
Undernourishment in China and the world, 1990-2016



China is still home to the second largest population of hungry people in the world

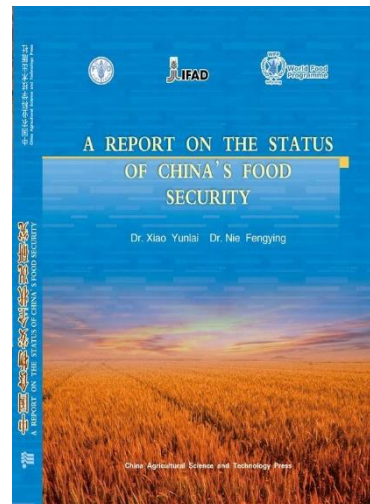
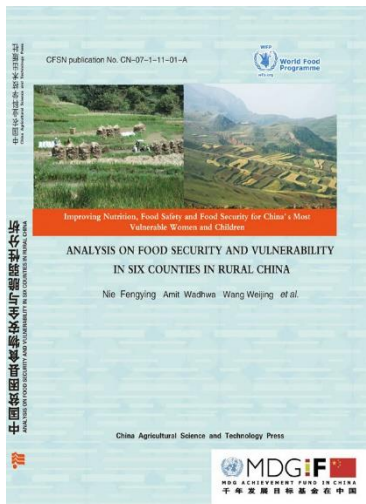
Food security status at county level (2009)

Group	1	2	3	4	5	Poor Counties
Number of poor counties	52	157	112	227	44	592
Total population ('000)	13000	82048	49932	84412	6090	235482
Proportion %	5.5	34.8	21.2	35.8	2.6	100.0
Distribution	Inner Mongolia 25	Shanxi 35	Hebei 33	Yunnan 71	Guizhou 50	
	Heilongjiang 13	Shaanxi 32	Henan 31	Gansu 38	Sichuan 28	
	Hebei 6	Hubei 25	Jiangxi 21	Guangxi 22	Shaanxi 18	
	Xinjiang 5	Hunan 20	Anhui 19	Qinghai 15	Chongqing 11	
	Jilin 3	Xinjiang 16	Sichuan 8	Ningxia 8	Xinjiang 6	
		Guangxi 6	Jilin 5	Inner Mongolia 2	Hainan 2	
		Gansu 5	Inner Mongolia 4			
		Hainan 3	Chongqing 3			
		Yunnan 2	Heilongjiang 1			



Western poverty counties are home to food insecure population in China

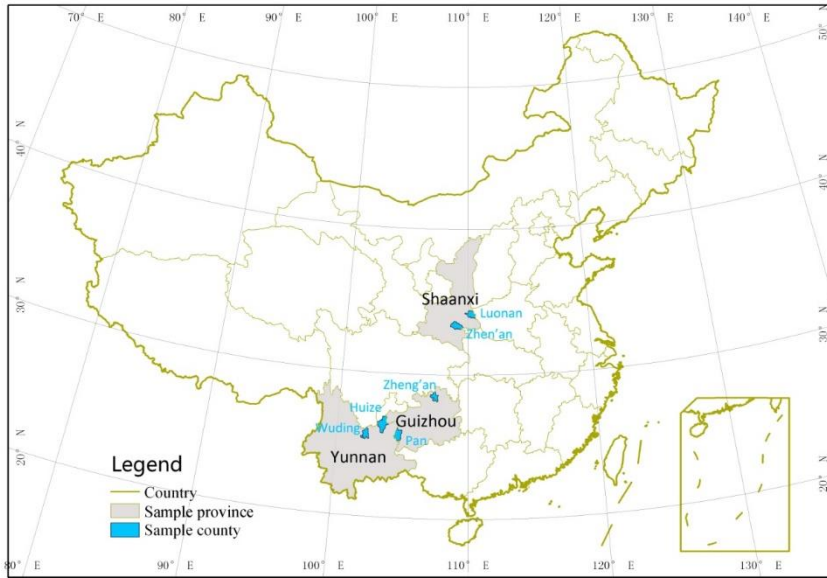
- National, provincial, and county level food security
 - *A Report on the Status of China's Food Security (Funded by FAO, IFAD, and WFP, 2010)*
 - *China's Food Security and Nutrition under Rapid Transformation: Enhanced Strategic Partnership with WFP (Cooperated with IFPRI, funded by WFP, 2014-2015)*
- Household food security
 - *Analysis of Food Security and Vulnerability in Six Counties in Rural China (Funded by WFP, 2010-2012)*
 - *Household Food Security and Nutrition in Poverty Areas of Rural China (Funded by NSFC, 2012-2015)*



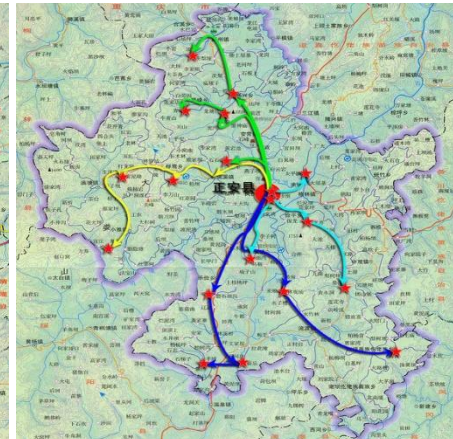
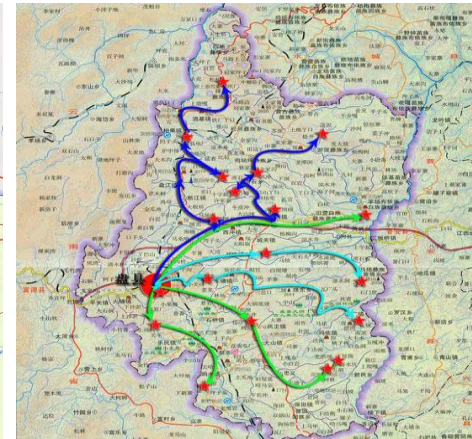
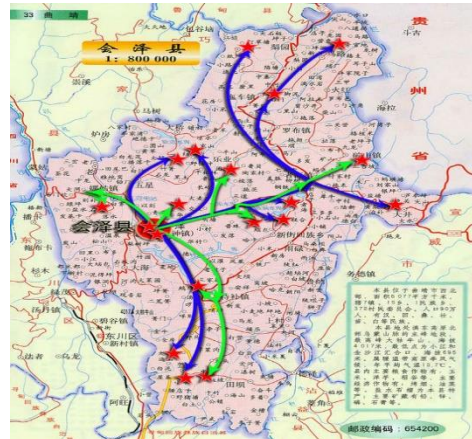
Food Security, Nutrition and Vulnerability

The third monograph is in press

Research Areas



**6 poverty counties, 114 villages,
1368 households**



**4 waves survey with a time span of 9 years
(2010, 2012, 2015, 2018-planned)**

- ▶ Household questionnaire
- ▶ Village questionnaire
- ▶ Focused group discussion
- ▶ Data quality guarantee (training, five-round checking system, data cleaning)



▶ **Food consumption score**

- A proxy indicator to evaluate food security, households are clarified into 3 groups
- Poor food security: 0-21; Borderline food security: 21.5-35; Acceptable food security: > 35

▶ **Nutrient intake**

- Calorie, protein, and fat intakes transformed from food consumed by Food Composition Table

▶ **Wealth index**

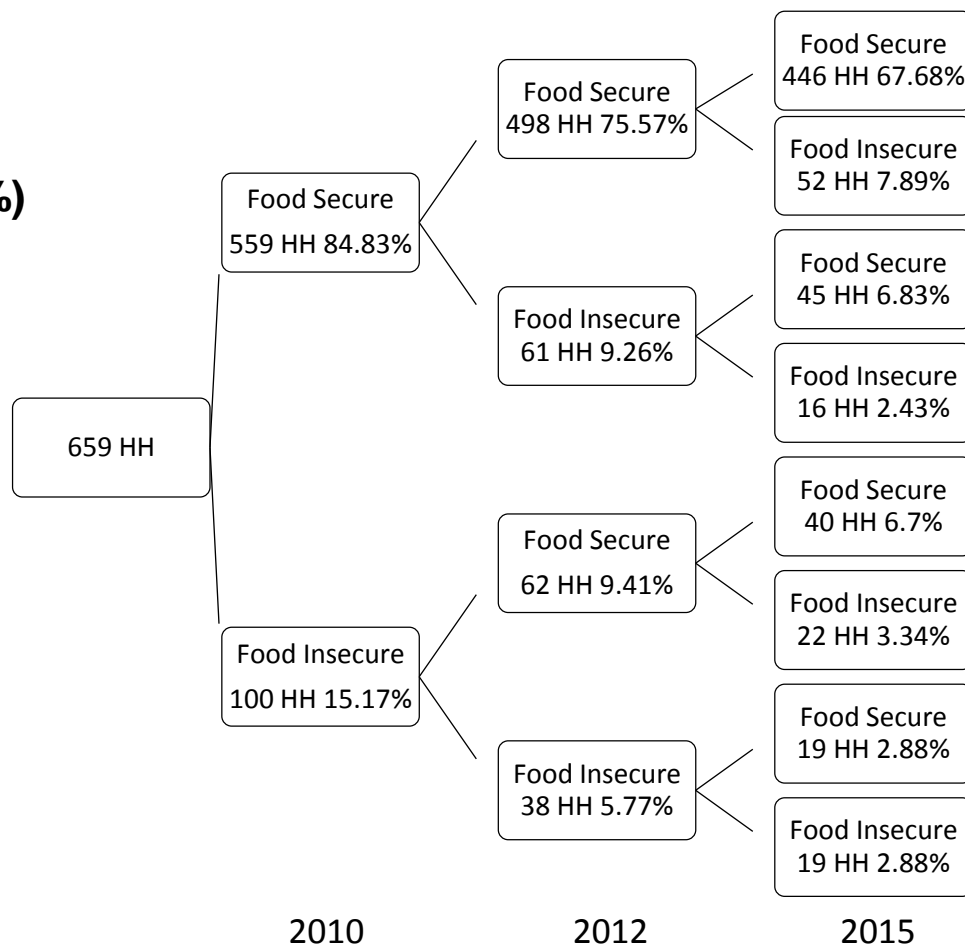
- A proxy indicator to evaluate relatively rich and poor, five wealth quintiles are formed
- Poorest, Poor, Middle, Wealthy, and Wealthiest

▶ **Livelihood clusters**

- Eight relatively homogenous livelihood groups were clustered using the percentage of the top three activities.
- Crops production, Livestock & crops, Remittances, Unskilled labourer, Salary, Trader, Pension, Brewing and others

Percentage of food secure households (%)

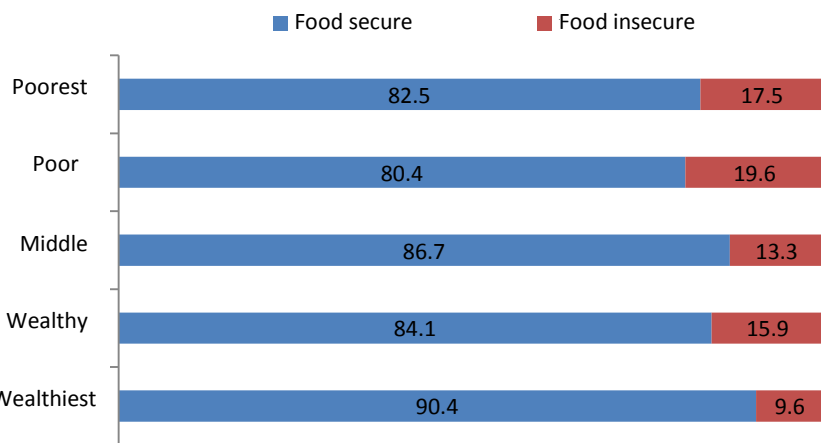
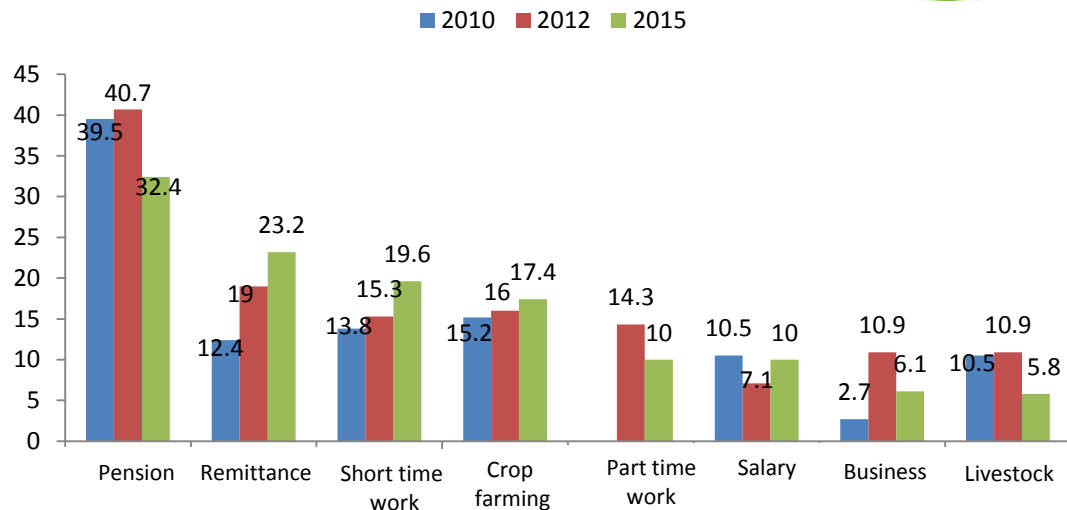
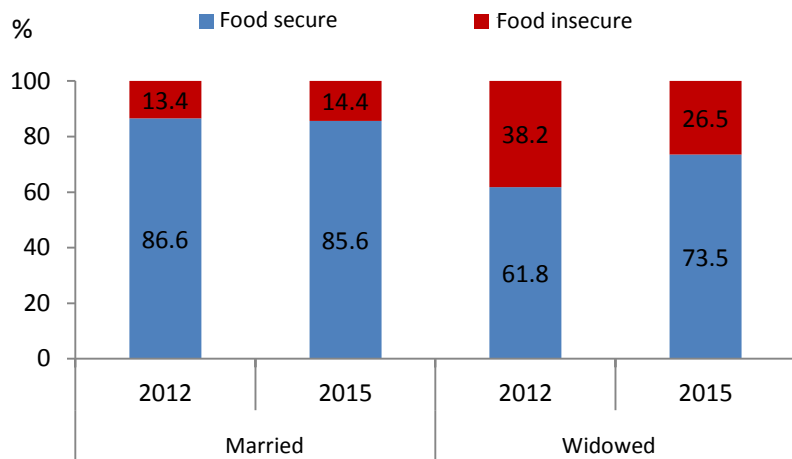
County	2010	2012	2015
Zhenan	84.6	88.2	76.5
Luonan	64.6	66.9	57.5
Wuding	94.1	91.1	96.0
Huize	96.9	89.7	96.9
Pan	91.0	90.0	91.0
Zhengan	83.7	87.8	92.9
Total	84.8	85.0	83.5



Overall food insecure rate is steady around 15%;

67.7% are chronic food secure, 2.9% are chronic food insecure, 20.8% are transitory food secure, and 8.7% are transitory food insecure.

Who are food insecure?



Women's Empowerment in Agriculture Index (WEAI) and Food Security

Prominent at 10, 20, and 40 quantile level: For the most food insecure households, lower women empowerment are more food insecure.

**Widowed, poorer households are more food insecure;
Households living on pension and remittance are more food insecure;
Households with lower women empowerment are more food insecure.**

Results from ordinal logit model

Variables	Coef.
HH size	0.023***
Disease	-0.041*
Training	0.054**
Married	0.163***
Income	0.052***
Kitchen garden	0.034*

Households with larger members, married household head, trained household head, higher income, and kitchen garden are more likely to exit from food insecurity; Disease lead to trapping into food insecurity.

Food consumption and recommended consumption

Food	Recommendation	Intake (g/equ adult/day)		Lower than recommendation	
		2012	2015	2012	2015
Grains	250-400	598.9	589.8	6.1%	7.2%
Vegetables	300-500	234.0	382.4	74.9%	49.1%
Fruits	200-350	70.0	154.4	91.6%	73.2%
Fish and shrimps	40-75	7.3	7.9	94.3%	93.4%
Poultry and meats	40-75	91.6	88.2	35.2%	37.5%
Eggs	40-50	23.7	26.7	81.1%	79.3%
Dairy	300	17.0	17.4	99.2%	99.4%
Beans	25-35	17.5	34.4	77.2%	60.7%
Oil	25-30	69.0	70.3	12.6%	13.7%

Consumption of dairy, fish and shrimps, eggs, fruits, and beans are far below recommended level.

Results from Working-Leser model

	2012		2015	
	Coef.	t-value	Coef.	t-value
$\ln p_F$	0.094***	12.28	0.071***	8.69
$\ln M$	-0.144***	-34.52	-0.144***	-29.9
HH size	-0.022***	-9.42	-0.030***	-11.71
Education	-0.002**	-2.07	-0.006***	-3.69
Distance to market	0.000	-0.48	-0.001	-1.05
Natural shocks	-0.019**	-2.03	-0.010	-1.16
Agriculture	0.013*	1.78	0.012*	1.36
Shaanxi	0.038***	3.83	-0.038***	-3.44
Yunnan	0.048***	5.95	0.052***	5.31
α_F	1.483***	35.5	1.625***	33.54
F-value	170.02		140.66	
R ²	0.530		0.483	
Sample size	1368		1368	
Food expenditure elasticity	0.804		0.820	

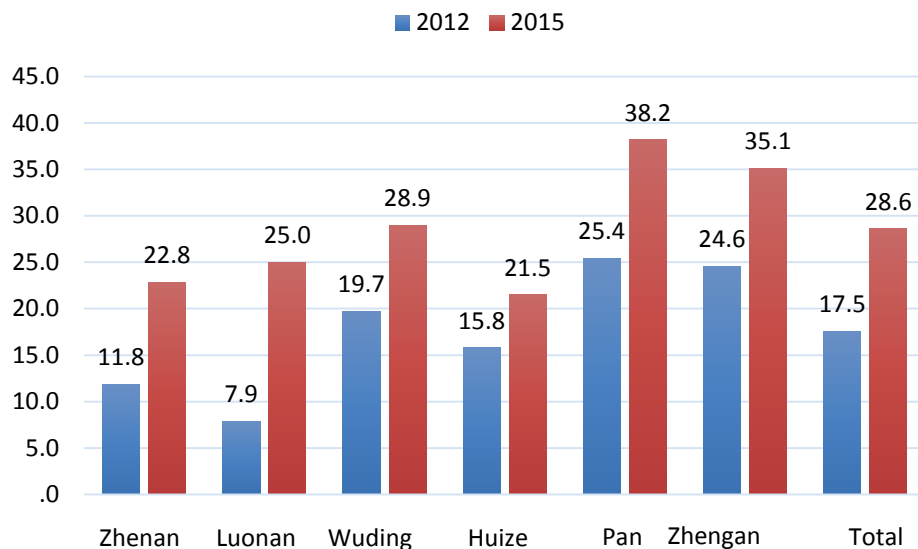
High food expenditure elasticity, especially for meats, beans, fruits, aquatic products, and eggs.

High self price elasticity for meats.

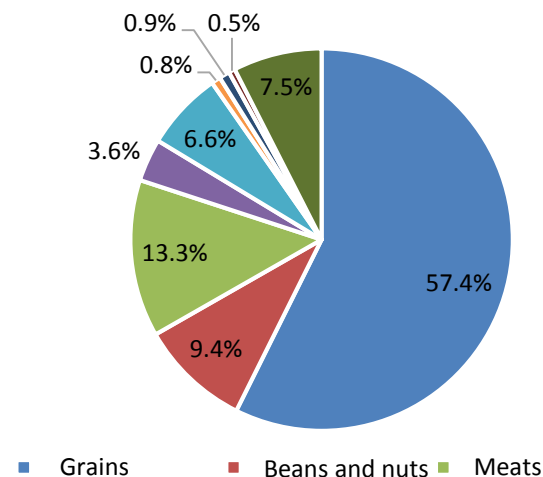
Price and expenditure elasticity evaluated from QUAIDS model

	Price elasticity										Expenditure elas.
	Grains	Beans	Tubers	Vegetables	Fruits	Aquatic	Meats	Eggs	Dairy	Oil	
Grains	-0.518	0.006	0.037	-0.122	-0.017	-0.002	0.023	-0.015	0.042	-0.089	0.550
Beans	-0.130	-0.014	-0.118	0.023	-0.101	-0.121	-0.690	-0.056	-0.028	-0.001	1.391
Tubers	0.179	-0.085	-0.514	-0.215	0.011	0.011	-0.135	0.039	0.054	-0.208	0.718
Vegetables	-0.357	0.016	-0.076	-0.429	0.018	0.067	-0.131	0.018	0.013	-0.118	0.961
Fruits	-0.256	-0.064	-0.008	0.006	-0.403	0.024	-0.240	-0.072	-0.025	-0.186	1.343
Aquatic	-0.466	-0.456	-0.007	0.709	0.084	-0.666	-1.054	0.131	-0.159	-0.090	1.358
Meats	-0.194	-0.132	-0.054	-0.146	-0.080	-0.048	-0.692	-0.006	-0.150	0.099	1.501
Eggs	-0.287	-0.060	0.038	0.045	-0.123	0.051	0.013	-0.429	0.077	-0.490	1.201
Dairy	0.363	-0.041	0.087	0.049	-0.056	-0.062	-1.237	0.109	-0.297	-0.053	0.713
Oil	-0.281	0.014	-0.078	-0.119	-0.071	0.004	0.289	-0.129	-0.004	-0.488	0.795

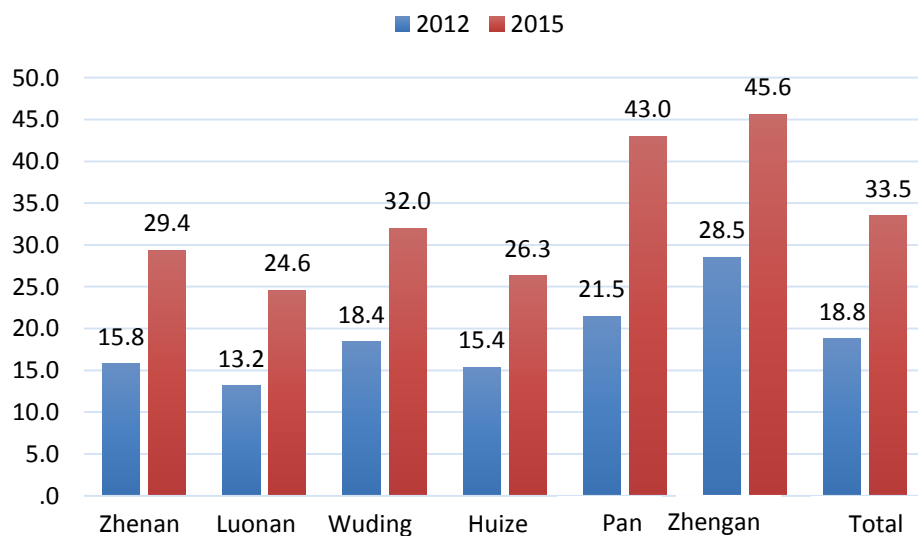
Percentage of energy insecure households



Source of protein



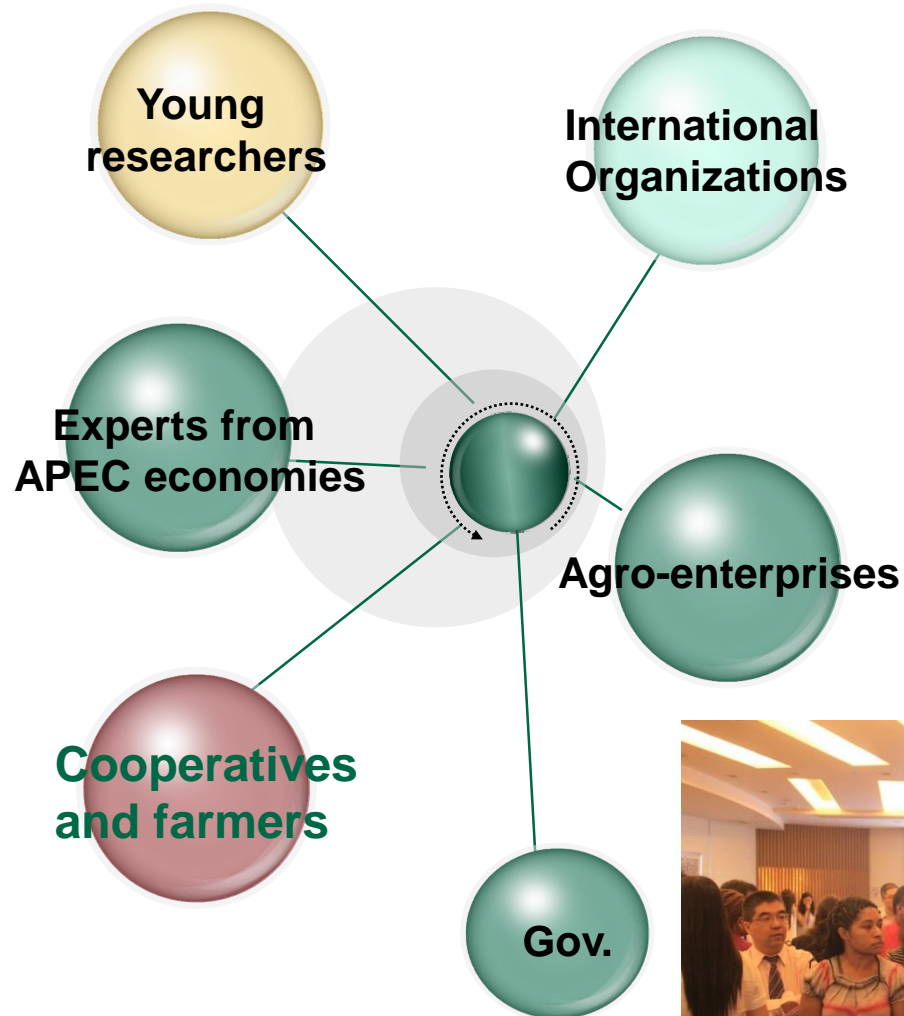
Percentage of protein insecure households



**28.6% energy insecure;
33.5% protein insecure;
57.4% of the protein intake
from grains, only 13.3%
from meats.**

- Incorporating nutrition targets into poverty reduction goals
- Increase nutrition surveys, improve studies of dynamic food security and nutrition
- Enhance nutrition education
- Improve access to affordable education
- Create more off-farm labour opportunities
- Decrease medical cost
- Encourage small scale animals rearing and homestead vegetable production
- Enhance resistance of natural disasters

- Growing malnutrition and poverty in urban areas
- Triple burden of undernutrition, hidden hunger, and obesity
- Growing natural resource constraints
- Food loss and waste along the food value chain
- Rising agricultural-related risks to health
- Climate change and higher frequency / intensity of extreme weather events
- Increasing food price spikes and volatility

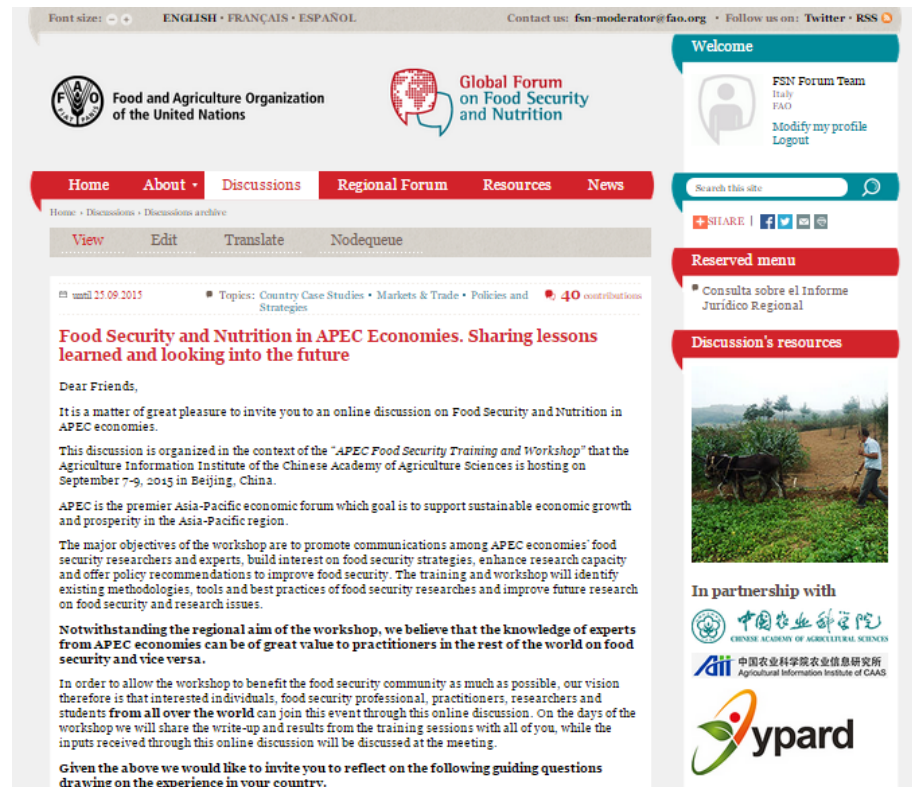


Food Security and Nutrition in APEC Economies. Sharing lessons learned and looking into the future

59 comments received
From 23 countries

China, Australia, Nicaragua, Dominican Republic, Armenia, Iran, USA, Bangladesh, Chile, Papua New Guinea, Philippines, Cote D'Ivoire, Japan, New Zealand, Zimbabwe, Togo, Germany, Guatemala, Congo, Italy, Benin, Kazakhstan, Uzbekistan

1-25 September
www.fao.org/fsnforum



The screenshot shows the FAO Global Forum on Food Security and Nutrition website. The main content area features a discussion titled "Food Security and Nutrition in APEC Economies. Sharing lessons learned and looking into the future" dated 25.09.2015, with 40 contributions. The text of the discussion includes an invitation to an online discussion on food security and nutrition in APEC economies, organized in the context of the "APEC Food Security Training and Workshop" in Beijing, China, from September 7-9, 2015. It outlines the objectives of the workshop, which are to promote communications among APEC economies' food security researchers and experts, build interest in food security strategies, enhance research capacity, and offer policy recommendations to improve food security. The text also states that the workshop will identify existing methodologies, tools, and best practices of food security researches and improve future research on food security and research issues. The discussion concludes with a statement that the knowledge of experts from APEC economies can be of great value to practitioners in the rest of the world on food security and vice versa. The website also features a navigation menu with options like Home, About, Discussions, Regional Forum, Resources, and News. On the right side, there is a "Welcome" section for the FSN Forum Team, a search bar, and a "Reserved menu" section with a link to "Consulta sobre el Informe Jurídico Regional". At the bottom right, there are logos for the Chinese Academy of Agricultural Sciences (CAAS) and the Agricultural Information Institute of CAAS (Aii), along with the YPARD logo.

- Supports countries, institutions, and initiatives for eliminating hunger and undernutrition by 2025
- Provides evidence and tools for countries to develop and implement context-specific road maps for action
- Focuses on country-led approach with multi-sectoral, multi-stakeholder collaboration
- Facilitates south-south learning

THANK YOU