



The Economics of Ecosystems and Biodiversity TEEB for Agriculture & Food Global Symposium, February 2019

Human and Social Capital: Missing Links in Eco-Agro-Food-Systems”

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The Economics
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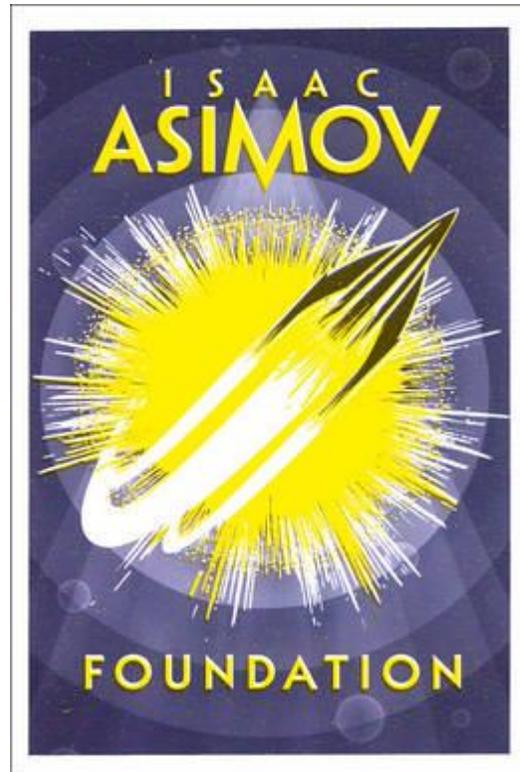
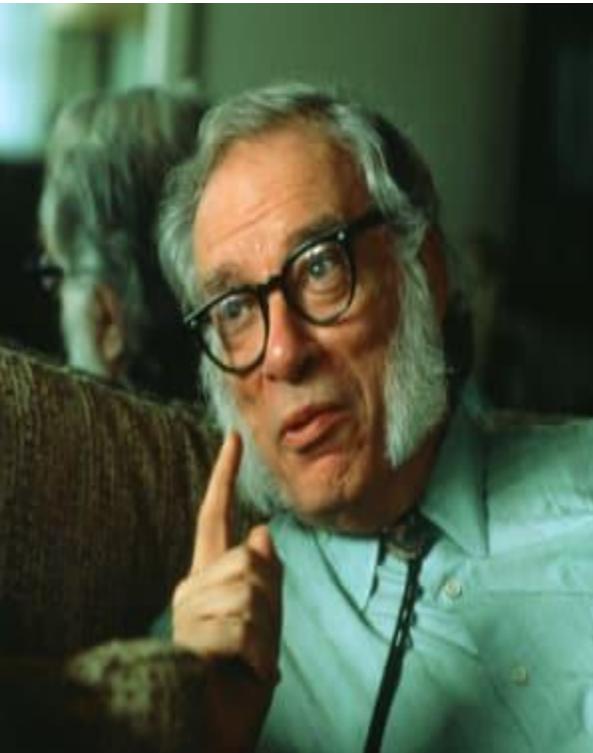
based on a decision of the German Bundestag

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HUMAN AND SOCIAL CAPITAL: Missing Links in Eco-Agri-Food-Systems



Seldon: “And what of the numerical possibility of total destruction of Trantor within five centuries?”

Gaal: “I couldn’t tell.”

Seldon: “Surely you can perform a field differentiation?!”

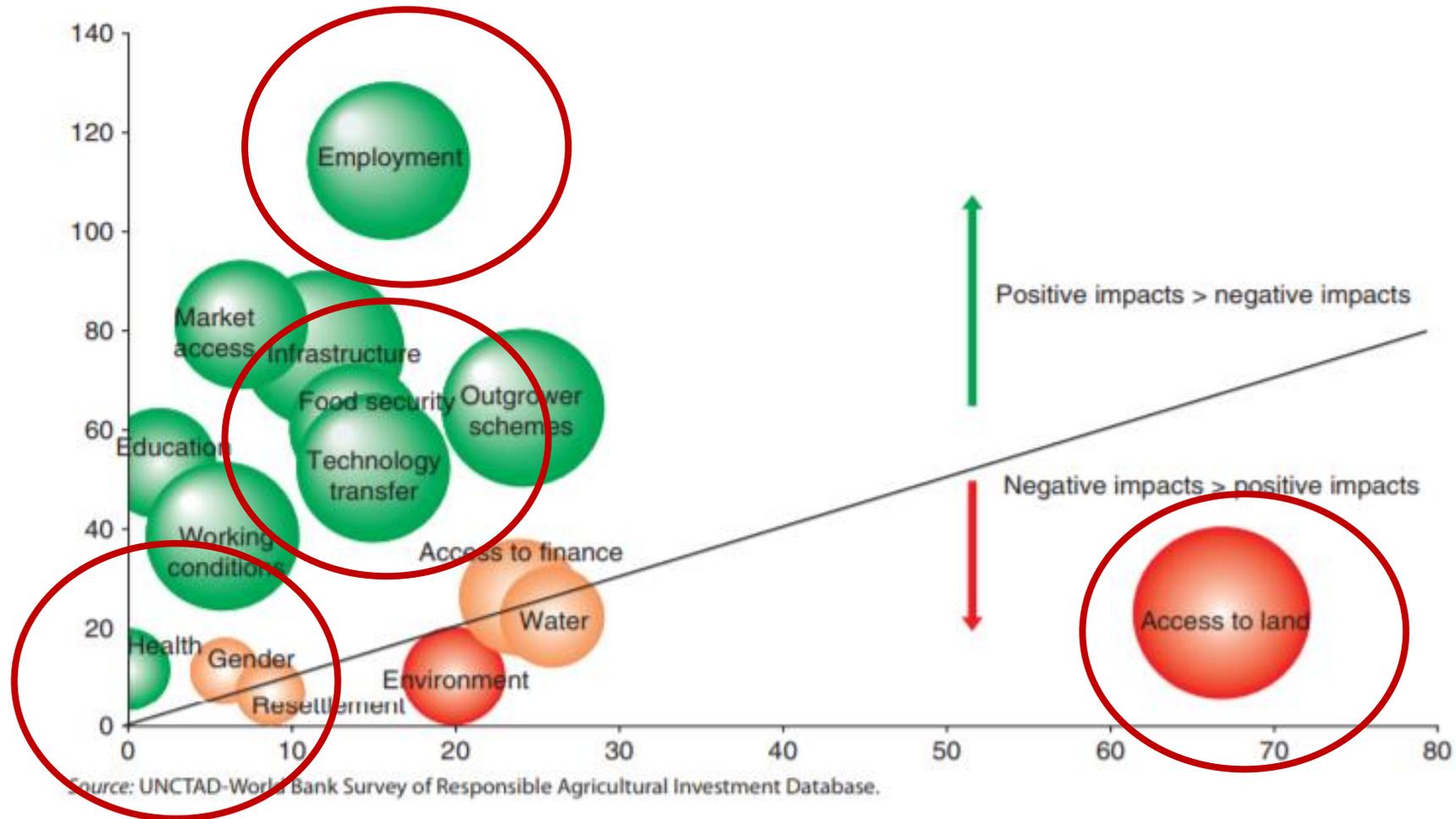
He was not offered the calculator pad...he calculated furiously and he felt sweat stick to his forehead....

Gaal: “About 85 per cent?”

Seldon: “Not bad: the actual figure is 92.5%”



Human and social impacts at the project level



The Economics of Ecosystems & Biodiversity



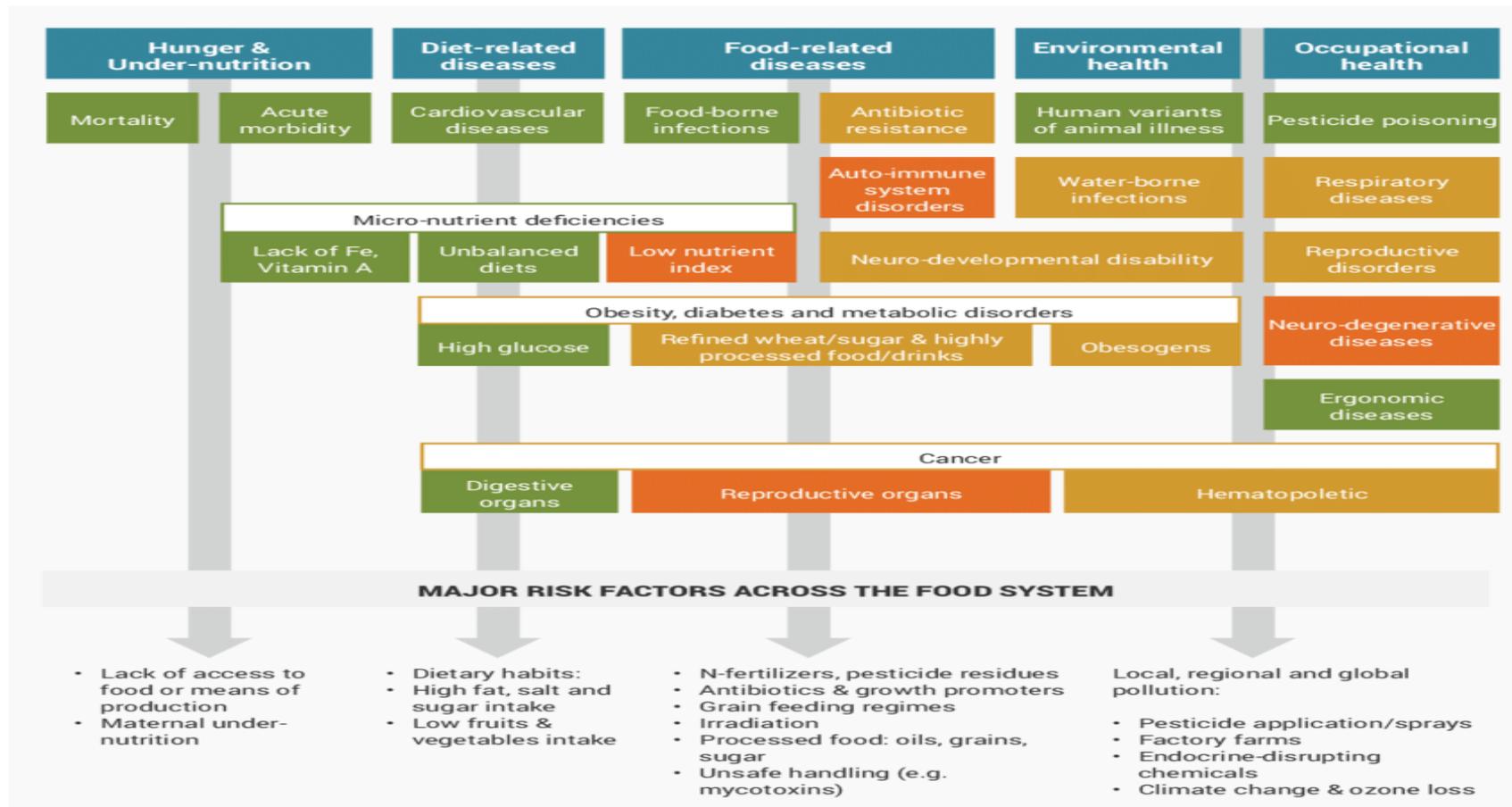
Example of a checklist to assess coverage of a given eco-agri-food systems

			Value chain			
			Agricultural production	Manufacturing & processing	Distribution & marketing	Household consumption
Stocks / Outcomes (change in capital stock)						
	Natural capital	Water (incl. quality, quantity)				
		Soil (incl. quality, quantity)				
		Air				
		Vegetation cover and habitat quality				
		Biodiversity				
		Other				
	Produced capital	Buildings				
		Machinery				
		Infrastructure				
		Research and development				
		Finance				
		Other				
	Human capital	Education/skills				
		Health				
		Working conditions (decent work)				
		Other				
	Social capital	Land access/tenure (private, public and communal)				
		Food security (access, distribution)				
		Opportunities for empowerment (gender and minority)				
		Social cooperation (incl. networks/unions)				
		Institutions				
		Laws and regulation (e.g. child labor)				
	Other					



Health Impacts of the Agri-Food Sector

“Agriculture is the number 1 driver of the global burden of disease.”





Health: Some examples

- Value of statistical life or life year (VSL or VSLY)
 - The value people place on small changes in mortality risks → risk/reward trade-offs that people make with regard to their health
 - Willingness to pay or accept
 - Revealed or stated preferences
- Quality Adjusted Life Years (QALY)
 - Evaluates the degree of change in health arising from a specific condition
- Cost of illness
 - Burden of conditions on healthcare institutions and households
- Averting behavior



Health: Some examples

- Treatment cost -- health cost related to pesticides application by cocoa farmers in Ghana

$$Ttc = \sum Ac * prob\ affected$$

Where:

Ttc = Total treatment cost per person per dosage

AC = Average cost of treatment per person per dosage

Prob affected = Probability that a random person in the area will be infected with a specific illness.

Health related issue	Probability a person will be infected	Treatment (Drug class)	Average cost of one dosage (USD)	Treatment cost per person (USD)
Watery eyes	0.83	Antibiotics	10	8.3
Headaches	0.74	Pain killers (aspirin)	2	1.48
Dizziness	0.55	Antiemetics	11	6.05
Chest pains	0.42	Corticosteroids for asthma and allergies	18	7.56
Cough	0.317	Opiods	10	3.17
Skin irritation	0.3	Corticosteroids	18	5.4
Itchy eyes	0.25	Antihistamines	32	8
Nausea	0.22	Antihistamines	8	1.76
Burning eyes	0.217	Antihistamines	32	6.944
Excessive sweating	0.171	Antiperspirants	10	1.71
Weakness	0.154			0
Fever	0.054	Ibuprofen	13	0.702
Total treatment cost per person per dosage (USD)				51.076



Women's empowerment

- “The second key pathway to sustainable food systems: female education.”
- How does the proposed policy intervention impact the various **dimensions** of gender inequality in agri-food systems?





Women's Empowerment: Sample Impact Framework

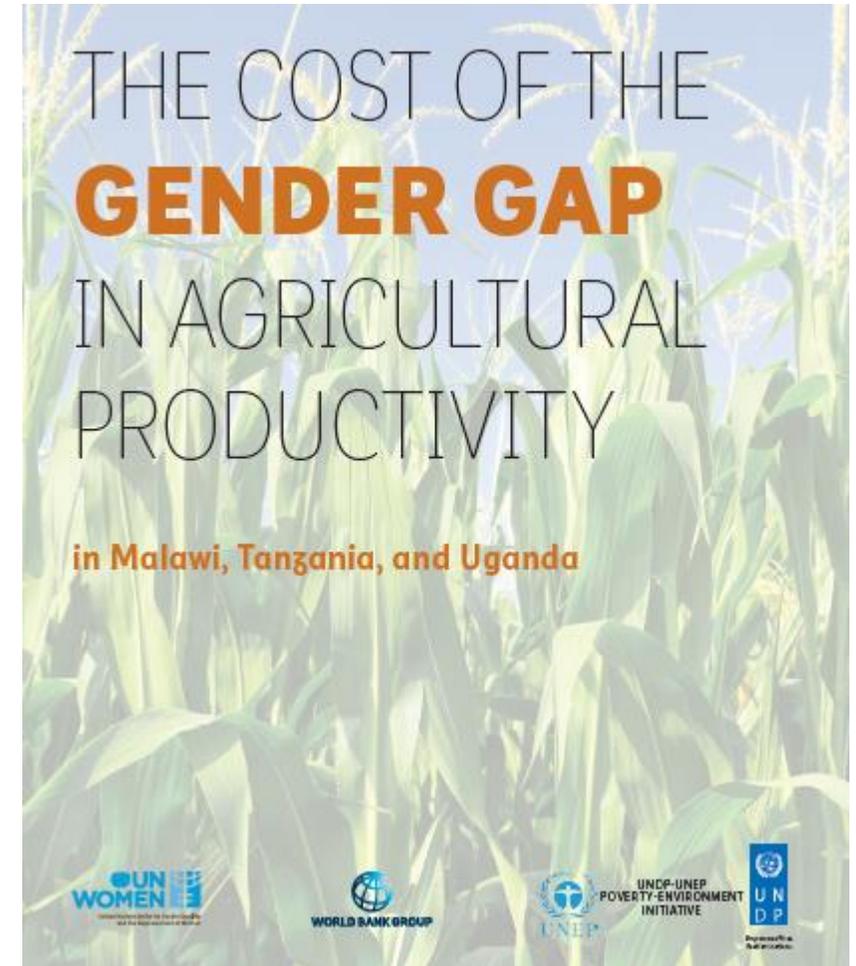
Employment change in stock	Production	Manufacturing and processing	Distribution, Marketing and Retail	Household Consumption
Statutory access to land	+ / - / --
Customary access to land
Access to credit / inputs
Access to extension services
Employment numbers
Input to decision-making bodies/processes
Type of employment
Wages/ Conditions
...				

Similar frameworks for marginalized groups, youth?



Women's empowerment

ANNUAL COST OF THE GENDER GAP IN
AGRICULTURAL PRODUCTIVITY





Employment

Employment change in stock	Production	Manufacturing and processing	Distribution, Marketing and Retail	Household Consumption
Contracted / Casual
Permanent / Temporary
Men / women
Adult / Youth / Children (5-17)
Employees / outgrowers / tenant farmers / etc.
Expat / National / Regional / Local

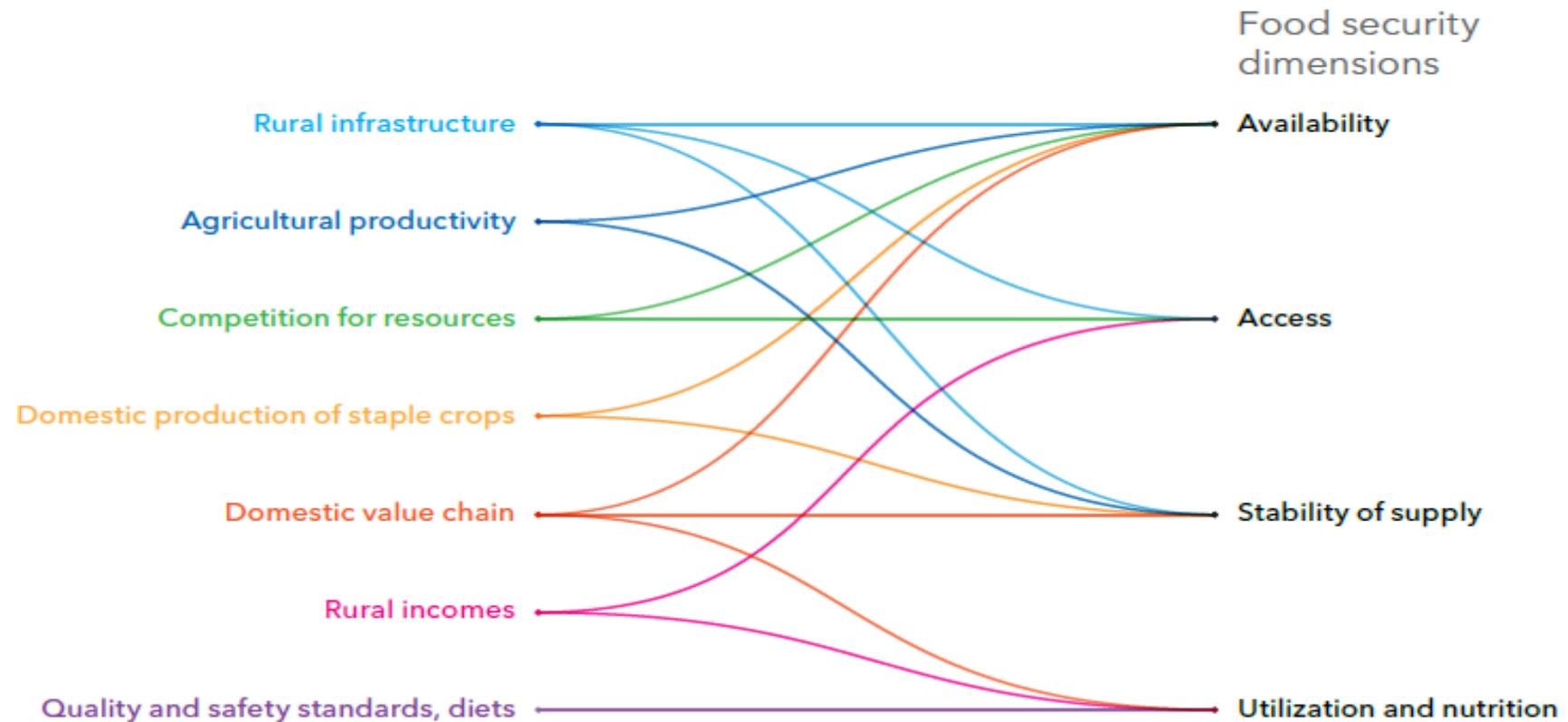
Other issues: Training, Health and Safety standards, Pay and Conditions, Labour Rights., etc.

How does the composition of the labour change over time? e.g. mechanization or value-chain development?



Food Security

- How does the proposed policy intervention impact the various dimensions Food Security?





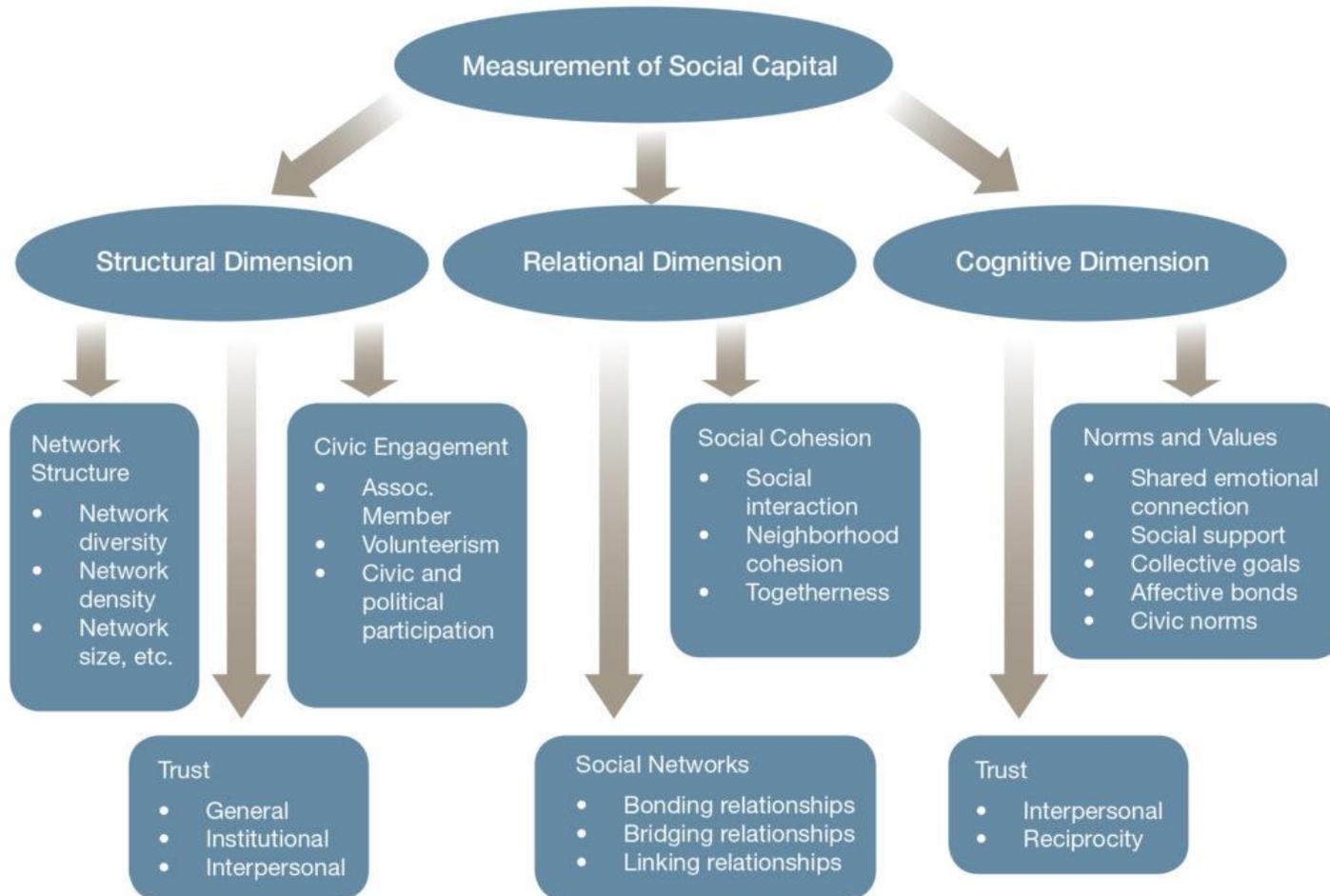
Social Capital

- “Social capital...is a contextual phenomenon [and] cannot be directly observed or quantified.”
- Use of Proxies:
 - Levels of trust – in individuals and institutions
 - Social / civic participation
- In the context of agri-food value chains
 - Membership and strength of farmers’ organizations, co-operatives, savings groups
 - Knowledge / technology transfer schemes
 - Levels of trust across the value chain





Social Capital



Big Questions Remain:

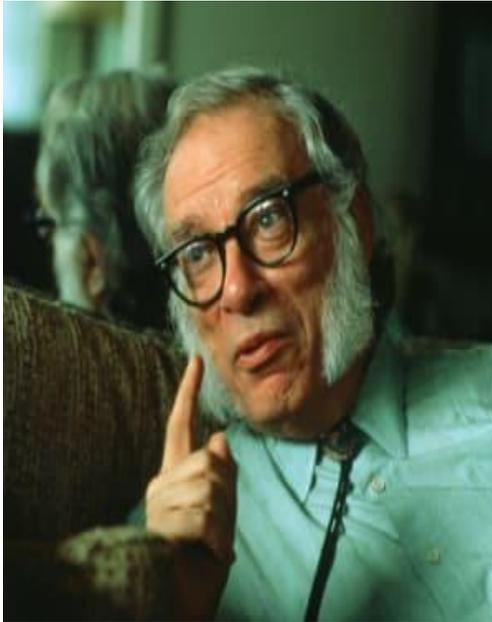
- Loss in trust in society experienced by people forcibly removed from their land to make way for agricultural production ?
- The loss of social cohesion and cultural value if pastoralist societies are restricted by plantations or protected areas?



Social Capital

Indicators and measures exist, though most rely on primary survey data.

- World Bank Social Capital Assessment Tool.
- Putnam's Social Capital Index Instrument Putnam (2000)
- Adapted Social Capital Assessment Tool (A-SCAT)
- World Bank Integrated Questionnaire for the Measurement of Social Capital (SC-IQ)
Grootaert, Narayan, Jones, and Woolcock (2004)
- Social Capital Measurement Tool (SCMT)
Kitchen, Williams and Simone (2012)
- **The OECD measurement of social capital project and question databank**
 - Sample questions and measurement scales
 - Database of existing surveys
 - <http://www.oecd.org/sdd/social-capital-project-and-question-databank.htm>



Seldon: “I say it again that Trantor will lie in ruins within the next five centuries!”

Judge: “On what basis?”

Seldon: “On the basis of the mathematics of psychohistory.”

Judge: “Can you prove that this mathematics is valid?”

Seldon: “Only to another mathematician.”

Can you only explain your model to another economist/ hydrologist/ soil scientist...etc.?



Thank you!
Asante sana!