

Rewriting the Rules... ...Changing Models of Agricultural Production

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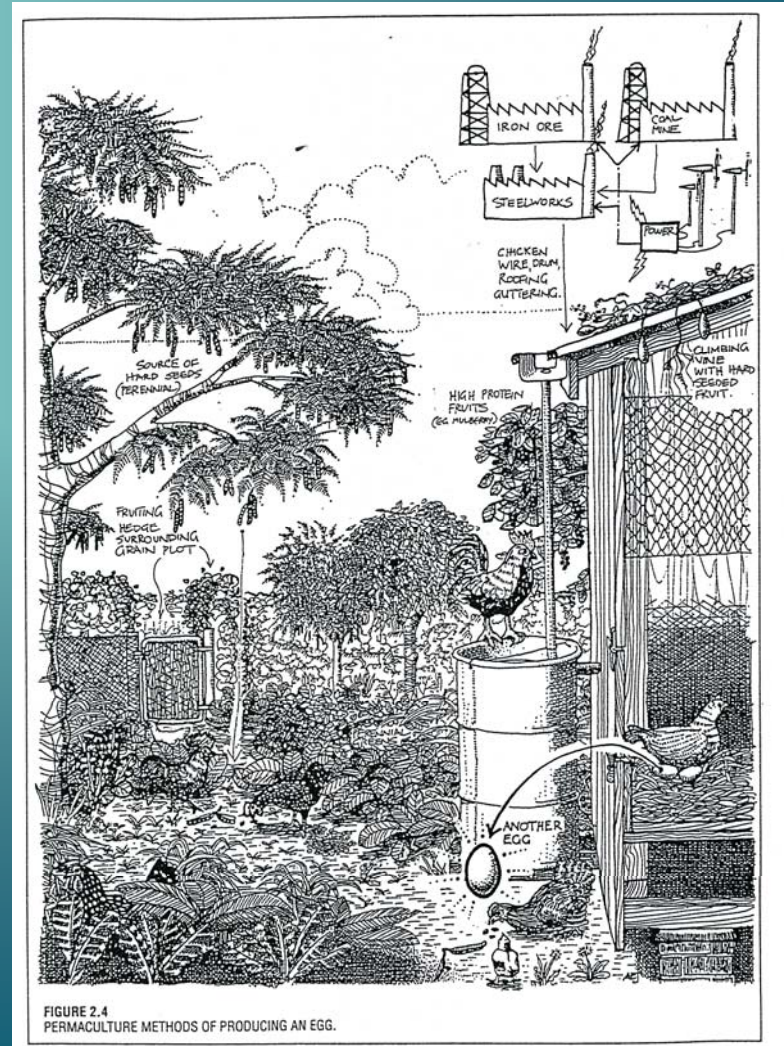
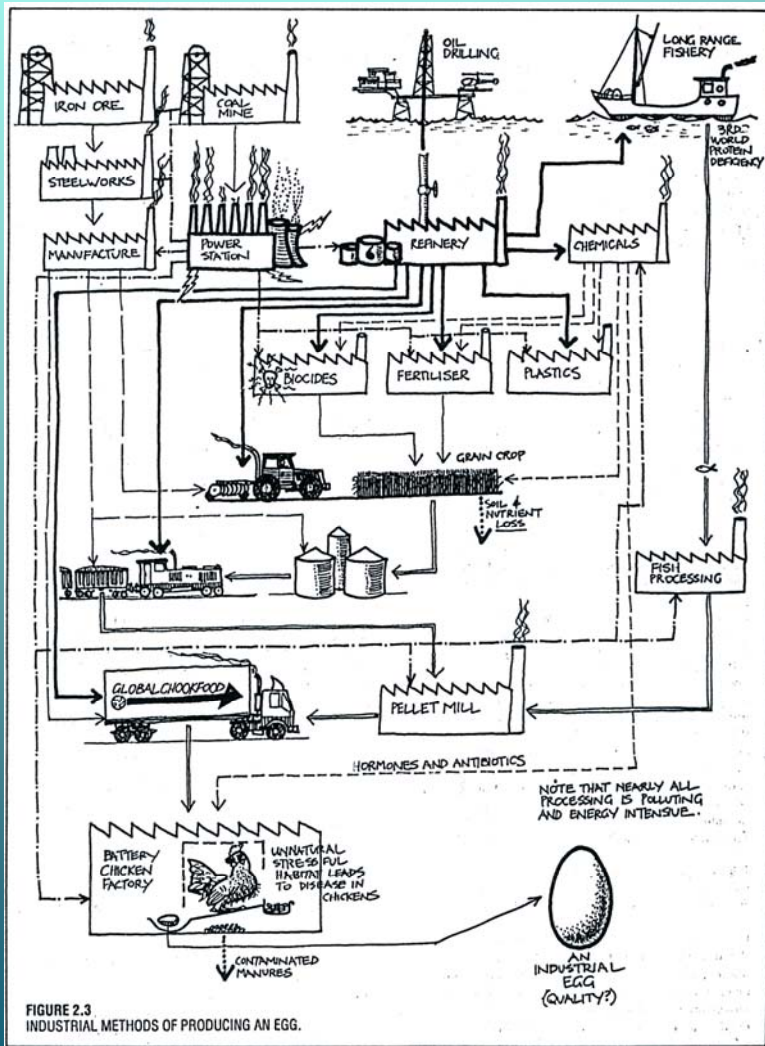
The International Assessment of Agricultural Science and Technology for Development (IAASTD)

“The way the world grows its food will have to change radically to better serve the poor and hungry if the world is to cope with a growing population and climate change while avoiding social breakdown and environmental collapse” (IAASTD, 2008).

Industrial Food and Farming is more than ever unsustainable

- **All relevant biophysical indicators are turning negative, fast, steeply, dangerously**
- **The emerging context is beyond human experience**
- **Costs of mitigation, adaptation, remediation are rising sharply**

Urgent need to rethink and transform production models



**IAASTD advocates reducing vulnerability
of global food system
through
locally based innovations
and
*agro-ecological approaches***

Agroecology versus input substitution approaches

Designs for *in situ* use of functional biodiversity to:

- minimise risk
- sustain complimentary yields
- pest and disease control
- ecological services
- local control and reduced dependence on suppliers of off farm inputs (autonomy)

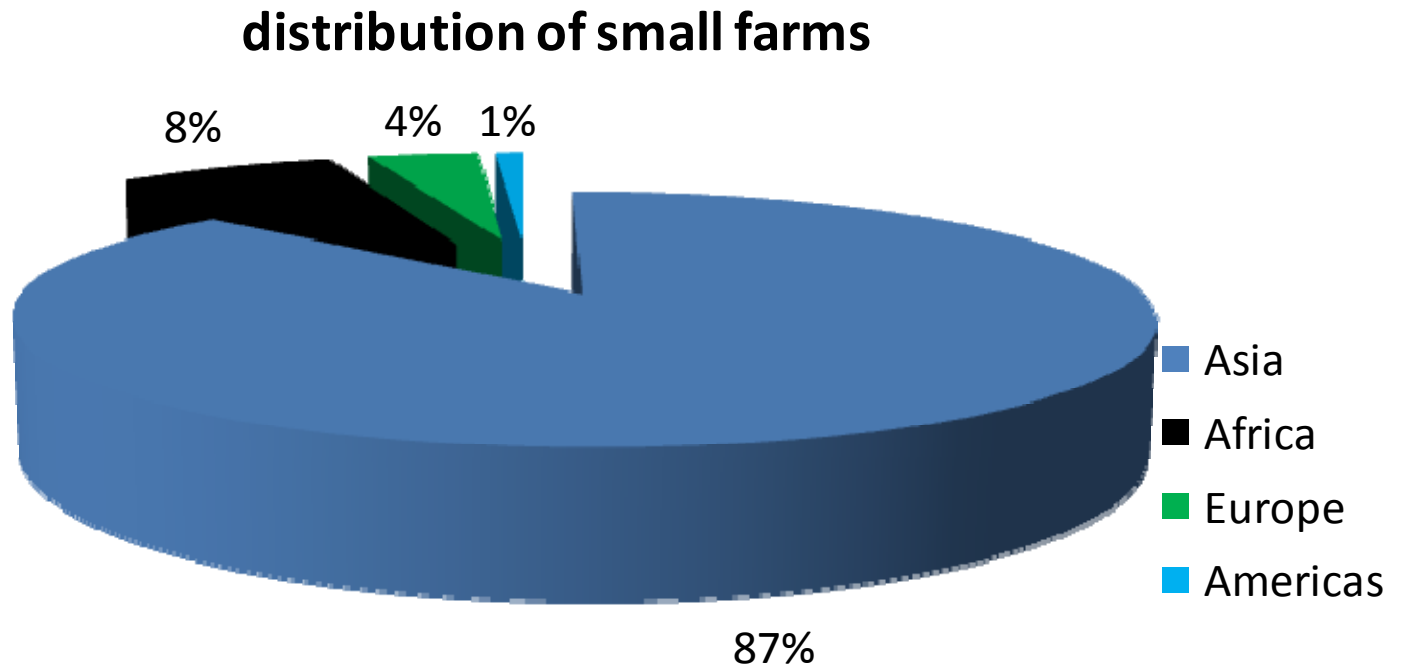


Small farms are usually rich in biodiversity and are models of sustainability

Traditional and small scale farmers rely on genetic, species, and ecological diversity to feed their households, generate income, and deal with risks and uncertainty



Small farms are key to the world's food security: of 525 million farms worldwide 85% are below 2 hectares



Small farms cool the climate

- **Small, biodiverse farms reduce agriculture's contribution to greenhouse gas emissions through additions of soil organic matter that absorb and fix carbon better than soils farmed with conventional fertilizers**
- **Estimated that conversion of 10,000 small to medium size farms to organic production would store carbon in the soil equivalent to taking 1,174, 000 cars off the road.**

Small farms are more productive and resource conserving than large monocultures

- **If total output is considered rather than yield from a single crop then small diverse farms are more productive than large farms – under the same conditions**
- **Inverse relationship between farm size and output due to more efficient use of land, sunlight, water, biodiversity and labor by small farmers**
- **A small farm structure may be essential to feeding the planet in the future**

Can agro-ecological approaches feed the world?

University of Michigan 2007 study concludes that an all-organic global food system can provide enough food for the world – including around 10-11 billion people by 2100.

See: Badgley et al, (2007). *Organic agriculture and the global food supply.*

Renewable Agriculture and Food Systems 22 (2): 86-108

Beyond the farm: the need to transform the entire food system

- Each link in industrial food chain (from seed to plate) has a huge ecological footprint and generates inequities
- Changing models of agricultural production *per se* is not enough
- Challenge is to radically transform the *entire* food system and its support infrastructure (energy, water, waste sinks....)

Designing resilient food systems to deal with peak oil, the water crisis and climate change

Key metaphors and approaches:

- **Agro-ecology**
- **Eco-literacy and eco-design**
- **Bio-mimicry**
- **Permaculture and holistic design/management**
- **Models of circular economy**

Different social relations and power relationships underpin different models of production in food and farming

Food systems and 'every day life' based on:

- more uniformity, centralisation, coercion, and loss of meaning & alienation**

OR

- more diversity, decentralisation, democracy, and freedom**

Small group discussion: what 'rules of the game' need to change?

- **Transforming food and agricultural research. How? With whom? Where?**
- **Policy reforms. Which policies should be phased out? What do we need instead?**
- **Market and trade rules. Reform or revolution?**
- **Making citizens' voices count in 'writing the rules'. How? What will it take?**