

GLOBAL PERSPECTIVES ON SUSTAINABLE **FOOD SECURITY** **AND NUTRITION** FOR FISHERIES AND **AQUACULTURE**

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WORLD AQUACULTURE SOCIETY, ADELAIDE,
9 JUNE 2014, GILLS SESSION

Outline

- 1. High Level Panel of Experts report to the UN Committee on Food Security**
 - *Sustainable Fisheries and Aquaculture for Food Security and Nutrition* (report will be released 13 June 2014)
- 2. Key findings**
- 3. Recommendations for aquaculture**



1. High Level Panel of Experts report

BASED ON THE **FOUR DIMENSIONS** OF FOOD
SECURITY AND NUTRITION

The four dimensions of food security and how they relate to fish

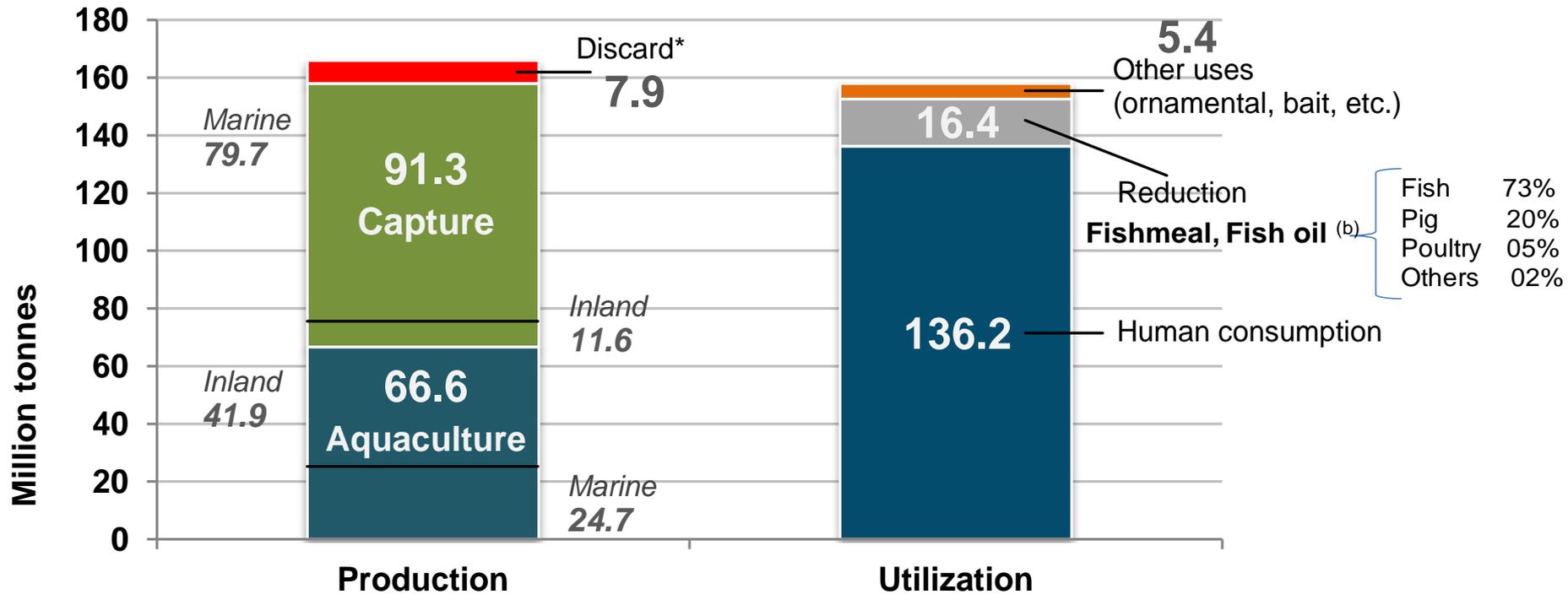
4 dimensions	Relation to fish
<p><i>Physical AVAILABILITY of food.</i></p> <p>The “supply side” of food security- determined by the level of food production, stock levels and net trade.</p>	<p>Production of fish (fisheries and aquaculture)</p>
<p><i>Economic and physical ACCESS to food.</i></p> <p>Food access relates to incomes, expenditure, markets and prices.</p>	<p>Income and revenues derived from fish production, processing, trading, or taxes generation.</p>
<p><i>Food UTILIZATION.</i></p> <p>Result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food.</p>	<p>The way fish product is stored, processed, prepared, eaten by individual/households</p>
<p><i>STABILITY of the other three dimensions over time.</i></p> <p>Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices).</p>	<p>Human-made or natural disasters, shocks, trends, (natural) fluctuation of the stocks</p>

2. Key findings

- GLOBAL USE AND AVAILABILITY
- NUTRITIONAL CASE FOR FISH
- ECOLOGICAL CRISIS AND PRODUCTION CASE FOR FISH
- THE FUTURE OF FISH

Fish availability/utilization: the “Big Picture”

Figure 1 World fish production and utilization in 2012



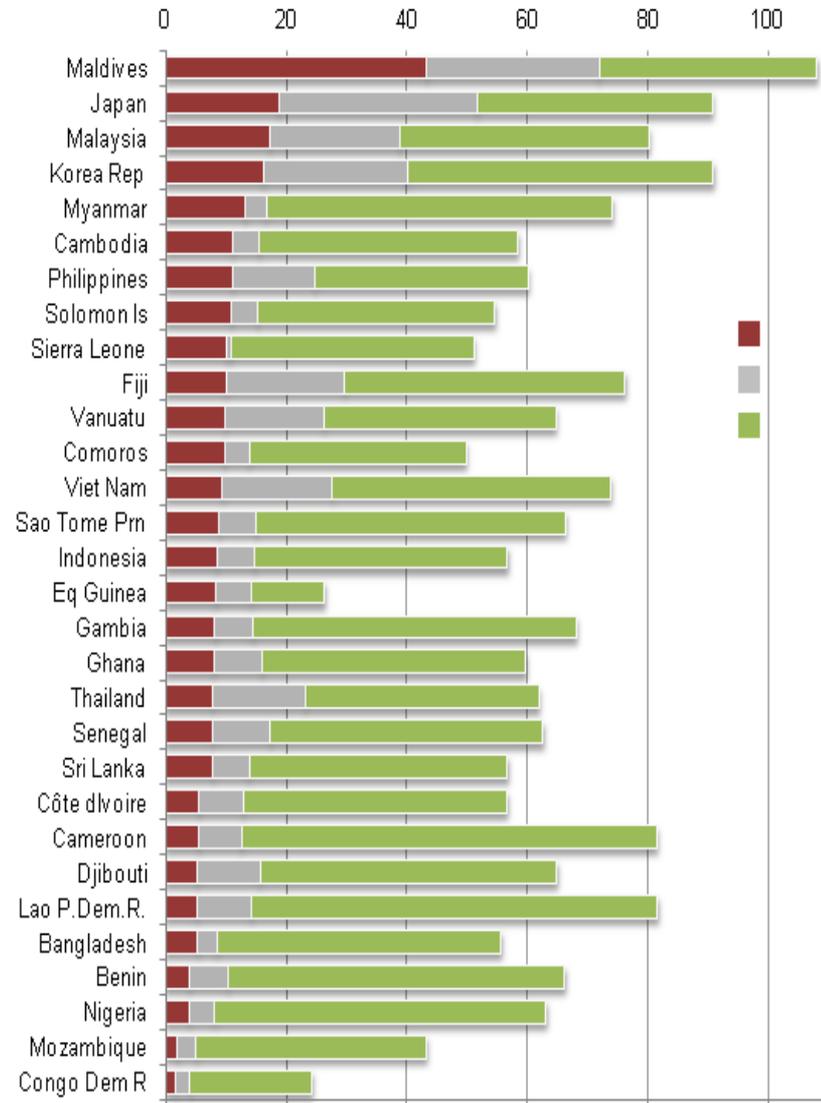
Source: FAO Statistics and Information Branch of the Fisheries and Aquaculture Department. *Discard is a calculation based on the 8% estimate on capture as in Kelleher, 2005.

Fish and Food Security and Nutrition

Fish content

- Animal protein
 - 3.0 billion people : 20 %
 - 4.3 billion people : 15 %
 - Gambia : 62%; Indonesia 54%
 - Tendency to reduce fish contributor to its animal protein element

LIFDCs



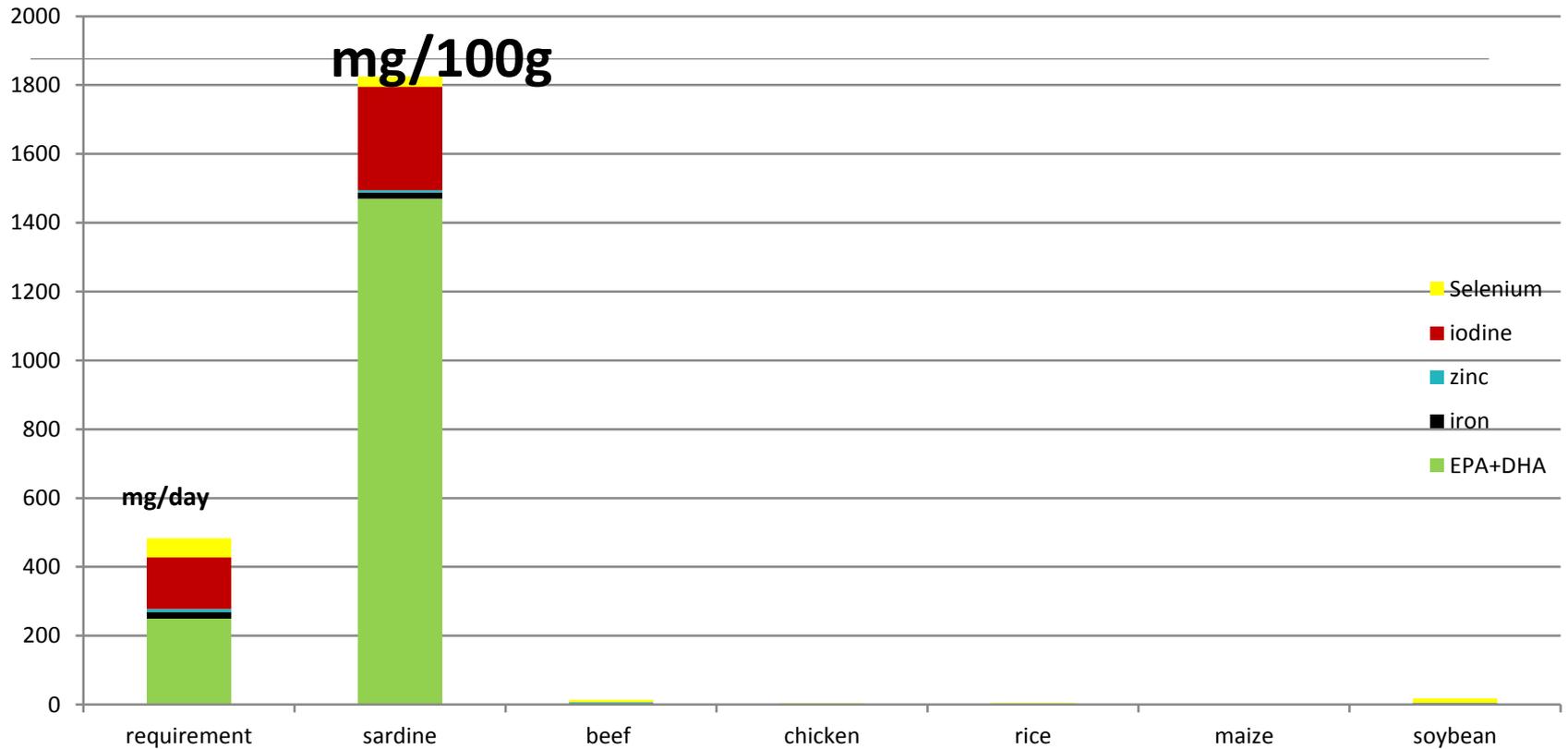
- Fish protein
- Other animal protein
- Vegetable protein

Fish and Food Security and Nutrition

Fish content

- Lipids (unique composition)
 - LC-PUFA
 - beneficial effects for **adult health** and **child development**
- Micro-nutrients
 - vitamins D and B, A, minerals (calcium, phosphorus, iodine, zinc, iron and selenium)
 - contribution to **address multiple micronutrient deficiencies** in developing countries
- Caveats
 - risks of **contaminants** are still persistent
 - **gaps** in our knowledge

FISH - rich in high quality protein, essential fatty acids and micronutrients compared to other commodities



Fish and people

- Critical source of livelihood
 - 120 million people depending on capture fisheries-related activities (fishing, processing, trading),
 - Majority living in developing and emergent countries.
 - Aquaculture: around 38 millions
 - Between 660 and 820 million people (workers and their families) as a source of income and support
- The importance of / for women
 - Fish processing, fish trading, as well as harvesting and farming
 - Unrecorded and undervalued, and mainly invisible in national statistics



Women sorting green mussels, Kerala, India. Photo: The Hindu, 1 May 2014.

Ecological sustainability fisheries and aquaculture

The Environmental unsustainability of aquaculture?

- Conversion of mangrove / paddy rice
- Disease, environmental pollution, salinization of land/ground water
- Social impact
- Impact in terms of food security difficult to establish
- Old story, bad memories ?

Fishmeal

- Used to be a major controversy
- Essentially small pelagic fish species
- Carnivorous and omnivorous farmed fish and crustacean species – exported to Europe/US
- Use of fishmeal in aquaculture becoming much more efficient



Nutreco fish feed activities, Africa.

Source: www.wattagnet.com

International fish trade and food security



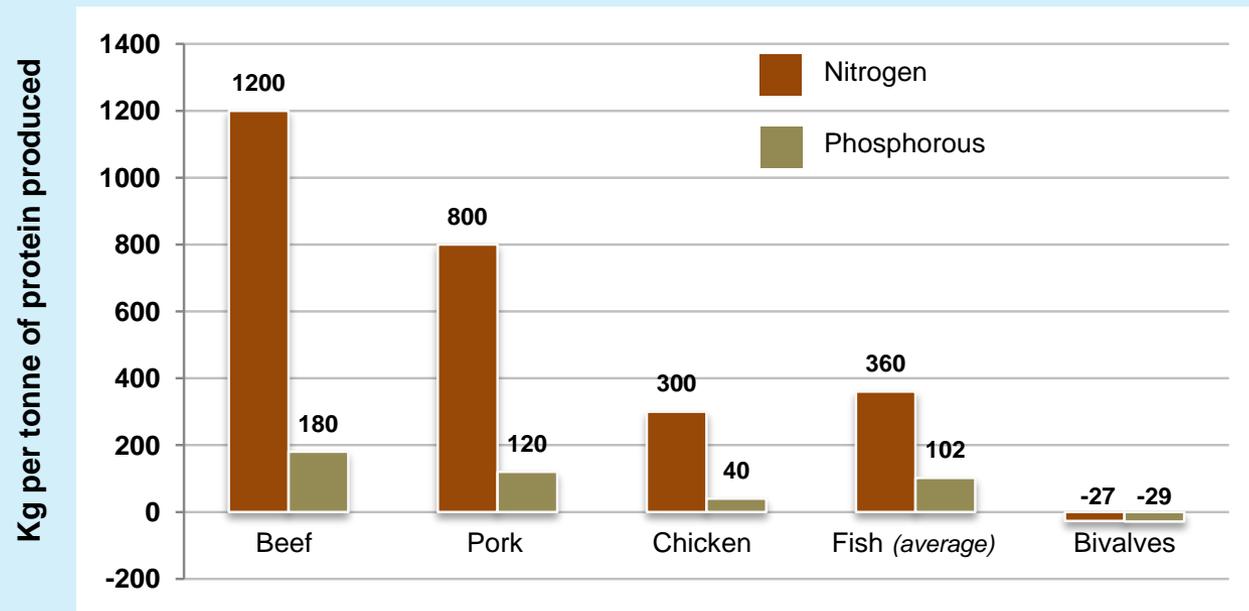
Women traders, domestic fish market, India. Source: Karma Kerala tours.

- Unsettled debate between two ‘narratives’
 - Theory: revenues generated through trade should improve the ability of the countries to import food, vs
 - “exported fish are fish that are not eaten locally”
- Inconsistent results, reflecting the lack of tangible evidence
 - No doubt that fish trade generates revenues.
 - No systematic positive (or negative) impacts in terms of food security
 - Unclear how certification schemes actually benefit the poor
- Emerging discussion about the importance of domestic and regional trades for FSN
 - Would benefit small-scale producers and processors but also consumers
 - Need to redirect part of the resources and policy attention

Aquaculture contribution to FSN

- Aquaculture as a way to fill the gap

Figure 1 Nitrogen and phosphorous emissions for animal production systems



Source: Data for fish are derived from Hall et al. (2011). Data for beef, pork and chicken are derived from Flachowsky (2002) in Poštrk (2003).

- Larger fish (not consumed whole)

The future of fish

- Major drivers of demand/supply
 - Population demographic transition (urbanization, enhanced living standard)
 - Essentially in developing countries
- Price is expected to continue increasing
 - Finance innovation
 - Impact on the poor
- Climate change
 - Fisheries / aquaculture dependent households highly sensitive to CC-related extreme events
 - Sectors less affected than agriculture
 - Short- / medium transition likely to be more problematic

3. Recommendations

WITH AN EMPHASIS ON AQUACULTURE

Recommendations

- Better appreciation and integration of fish in nutrition programmes
 - In national food security and nutrition policies.
 - Capacities of countries to negotiate better fishing agreements to protect FNS of local populations
 - Redirect harmful subsidies towards public good investments that support food security and nutrition
- Need to improve understanding and M&E of fish contribution to global FSN
 - Understand the possible impact of global drivers (climate change) on the FSN of most vulnerable zones
 - Develop assessment tools and governance concepts to capture and support the contribution of fish to FSN

Recommendations

- Opportunity and Challenges of aquaculture
 - Research and develop initiatives aiming at enhancing sustainability and productivity
 - Reduce further the use of fish meal and fish oil as feed in aquaculture and livestock production
 - South-South collaboration
- Trade and markets
 - Ensure that FSN are better taken into account in international, regional and local fish trade.
 - Develop, promote and support domestic and regional fish trade
 - Include FSN criteria into certification standard schemes

Recommendations

- Social Protection and labour rights
 - Ratify the ILO No. 188 Work in Fishing Convention
 - Improve national level regulations for workers in processing factories and markets, migrant and local crew on fishing vessels
- Gender equity
 - Policies and interventions that do not create negative impacts on women and encourage gender equality
 - Enshrine gender equity in all fisheries rights systems, including licensing and access rights

Recommendations

■ Governance

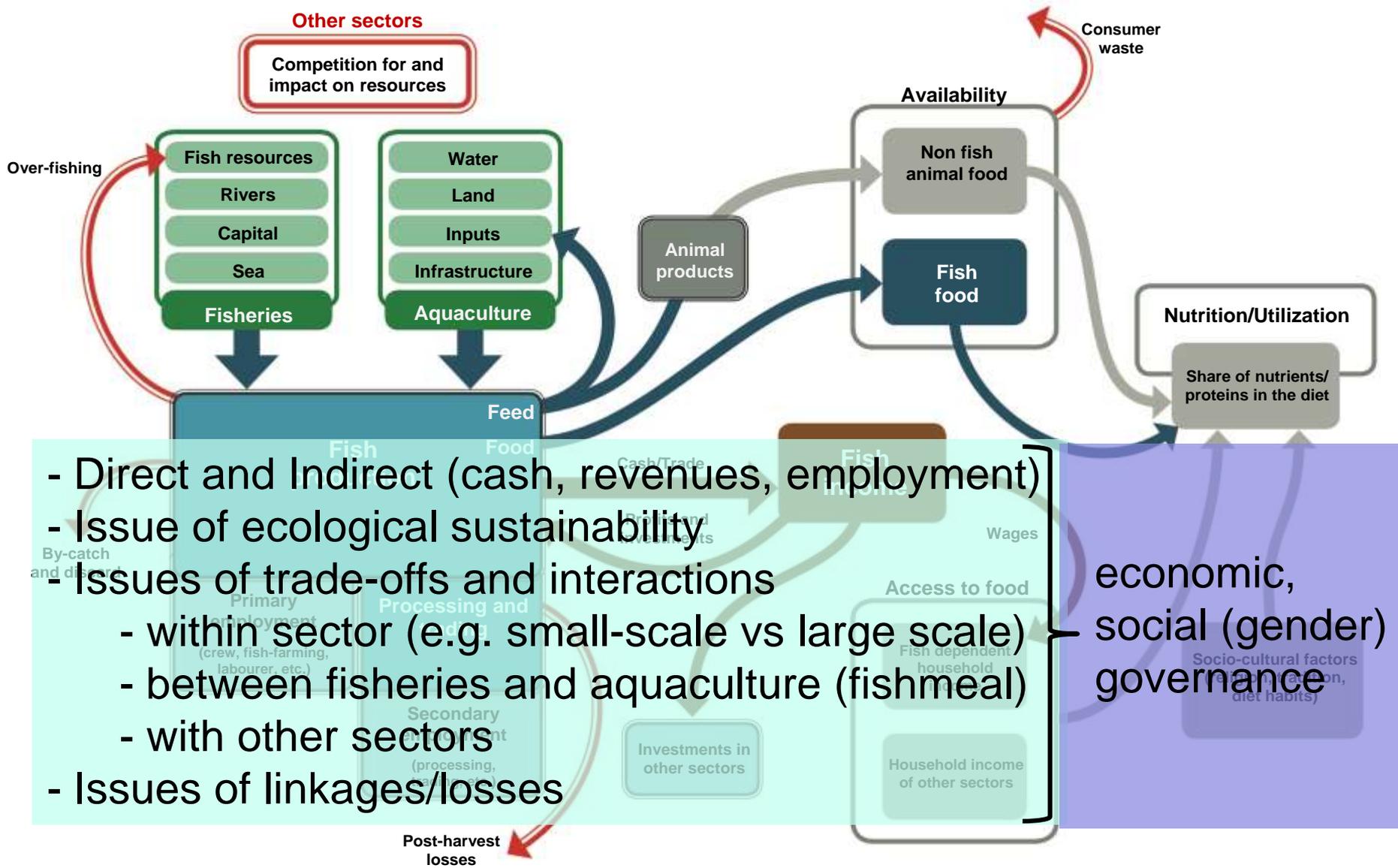
- Formally protect the rights and tenure for food-insecure people, fishing communities and indigenous and tribal peoples
- Ensure participation of fishing communities and fish workers in decisions that impact their right to food
- Reform of international fisheries and ocean governance to improve their transparency and representativeness

*This report is dedicated to the memory of
Chandrika Sharma*

Extras

IN CASE YOU WISH TO USE THESE.

Fish pathways to food security and nutrition



- Direct and Indirect (cash, revenues, employment)
- Issue of ecological sustainability
- Issues of trade-offs and interactions
 - within sector (e.g. small-scale vs large scale)
 - between fisheries and aquaculture (fishmeal)
 - with other sectors
- Issues of linkages/losses

economic, social (gender) governance

Socio-cultural factors (gender, religion, diet habits)

Fish pathways to food security and nutrition

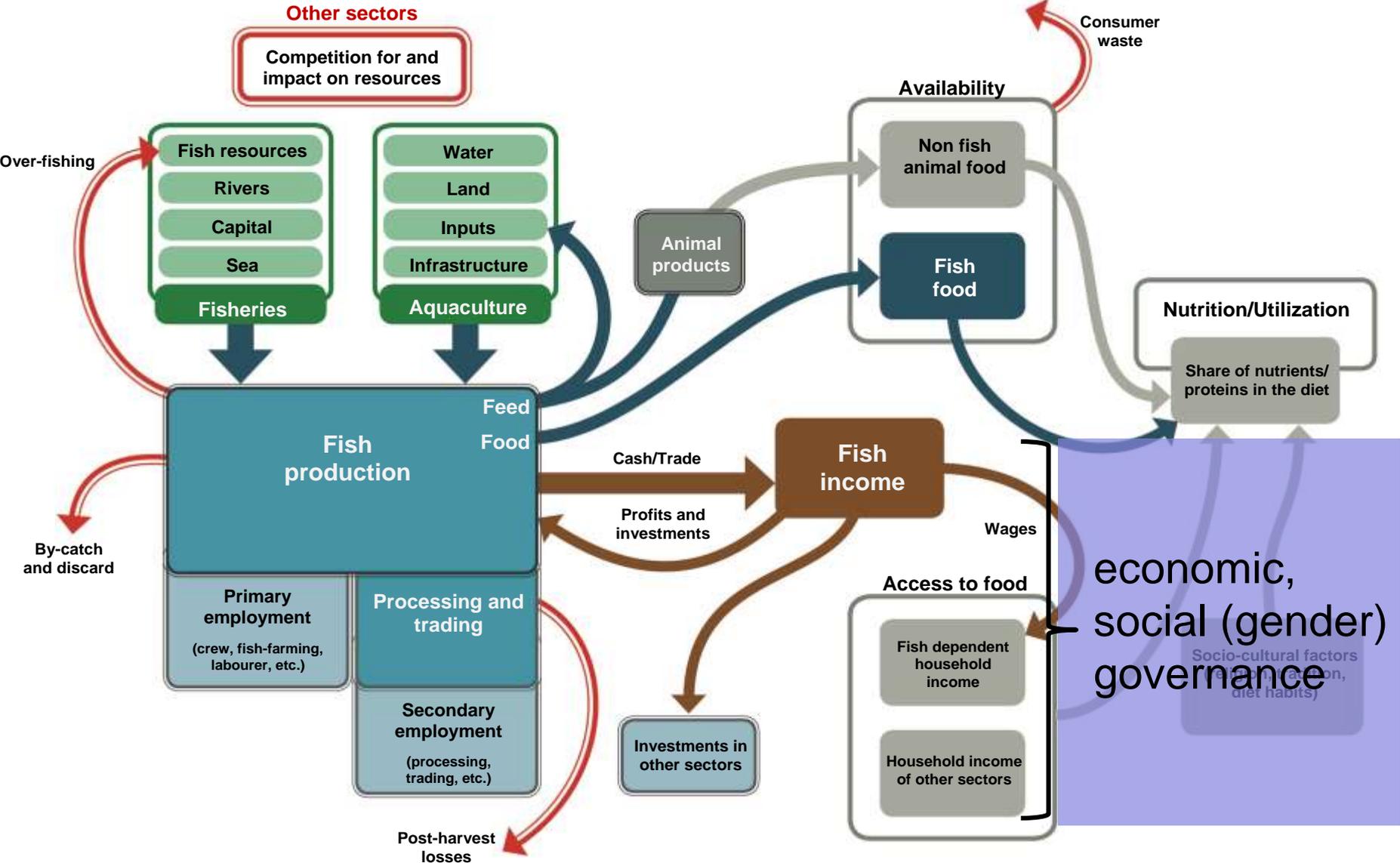
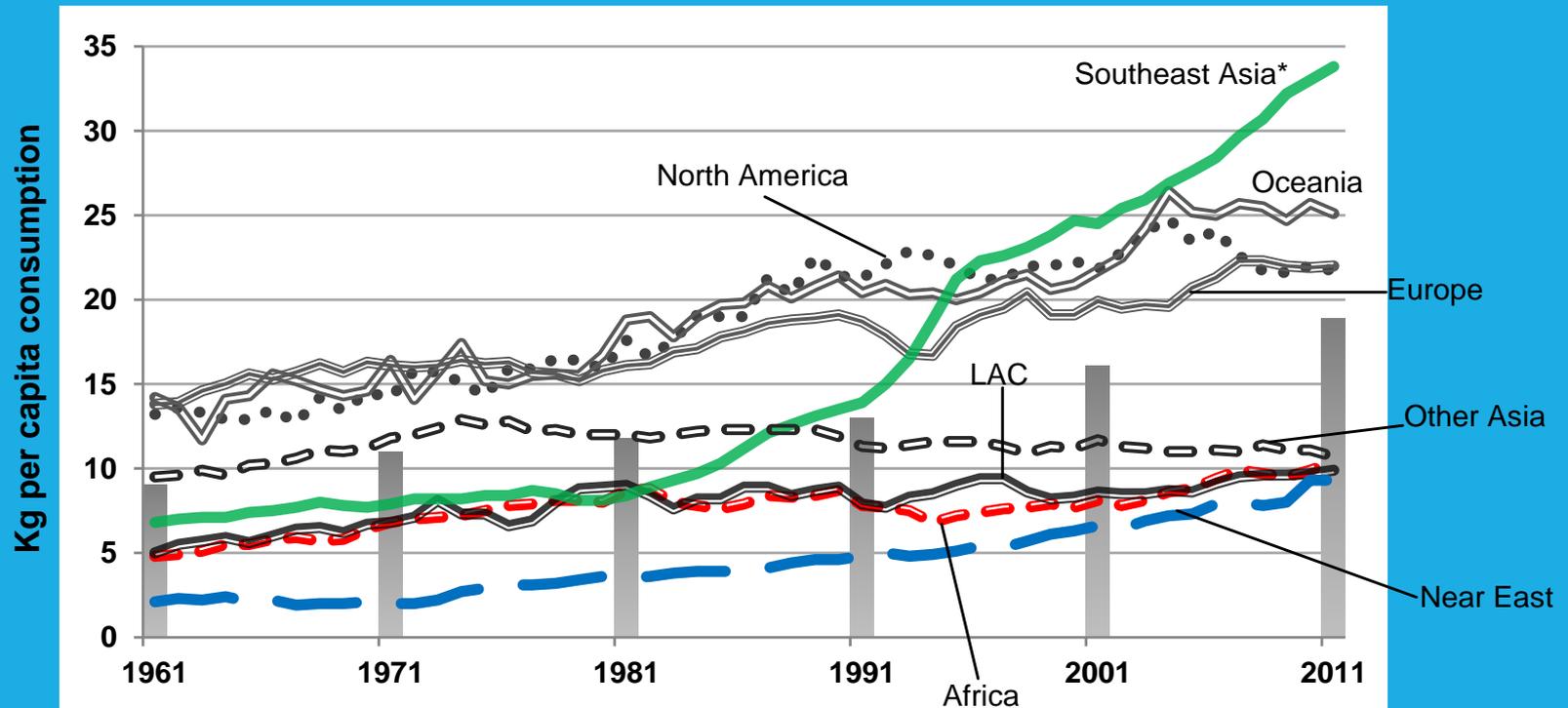


Figure 1 Regional evolutions of fish consumption per capita



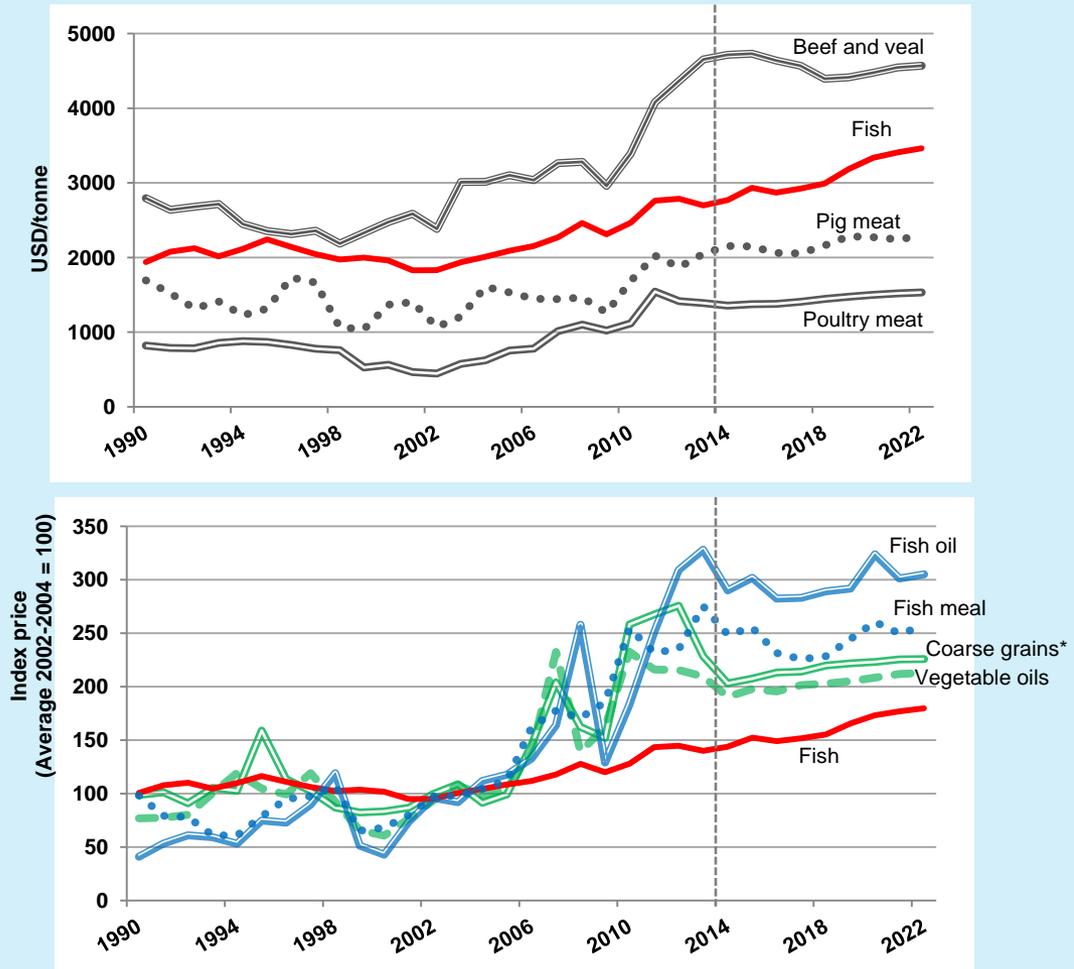
Source: FAO Statistics and Information Branch of the Fisheries and Aquaculture Department. Bars represent the world. *Southeast Asia includes: Brunei Darussalam, Cambodia, China, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, Viet Nam. Other regions classified following the M49 UN classification <http://unstats.un.org/unsd/methods/m49/m49.htm>. LAC = Latin America and the Caribbean.

Small and larger scale operators and the implications for FSN

- Some essential (yet often ignored) facts...
 - 90% of the fisheries (and aquaculture) dependent labour is private small-scale operators
 - 50% of the fish DHC comes from SSF
 - SSF more effective than larger-scale fisheries in term of kg of fish landed per USD invested
- SSF often better equipped than larger-scale
 - Yet research and policy attention directed to larger-scale operations
 - Detrimental impacts of larger-scale operations on SSF
 - In some circumstances, larger scale operations can contribute to FSN
 - commercialization of cheap, easily stored and transported (e.g. canned) nutritious pelagic fish

Trends and projection of fish prices and relevant other commodities

Figure 1 Past and projected prices for crops, livestock products (including fish) and fishmeal and fish oil



Source: OECD-FAO Outlook (2013) <http://www.oecd.org/site/oecd-faoagriculturaloutlook/database-oecd-faoagriculturaloutlook.htm>. *Coarse grains are all cereals excluding wheat and rice. 2013 prices are provisional; 2014-2022 are projected.