The future we want:
a world without hunger

Agricultural input subsidies and the green economy: fertilizer subsidies in Sub-Saharan Africa.

FAO at RIO +20
and beyond

Kostas Stamoulis and Leslie Lipper
Agricultural Development Economics Division (ESA)
Food and Agriculture Organization of the UN

Key Messages

- **Increasing agricultural productivity is essential to meet the Rio objectives – poverty reduction and environmental improvement.**

- **There is a great need for improving soil fertility and reduce soil degradation in Africa**

- **Improvements in design of fertilizer subsidy programms and some successes in addressing input market failures but there is potential for improvement in implementation**

- **Overcoming barriers to adoption of efficient and sustainable input use in agricultural systems is more than just a price issue – complementary programs (such as safety nets /PES/extension) and careful targeting is key**

The Context

- Agricultural productivity growth is essential for food security and poverty reduction

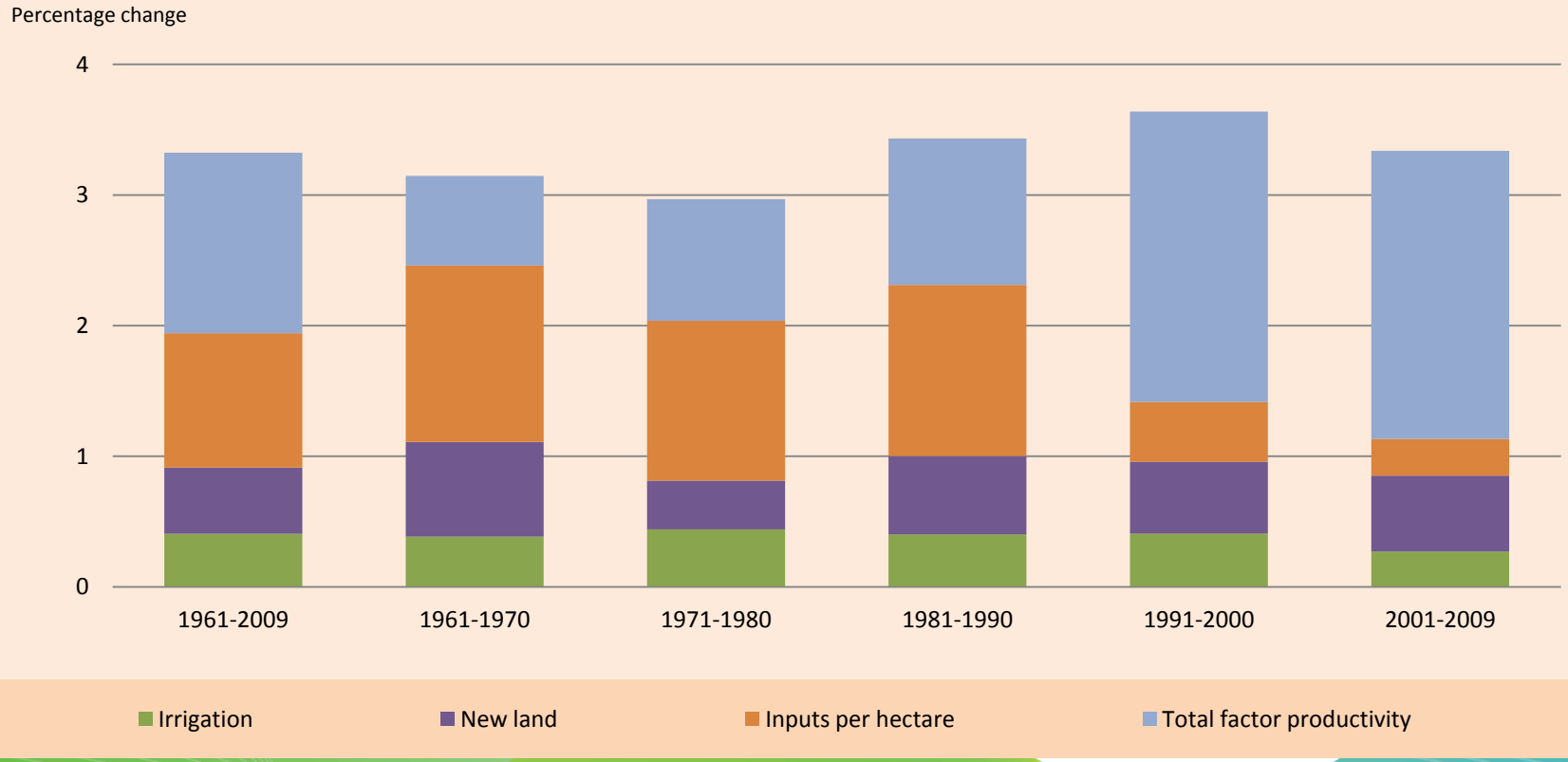
  -FAO projects 60% increase in production needed to meet effective demand in 2050. For the developing countries, 80% of increases will come from yields (71%) and production intensity (8%)

  - Agricultural growth 3 times more effective for poverty reduction

- Failures in agricultural input markets are common in developing countries and are a major constraint to productivity growth
  - Farmers lack information about input use
  - Missing input markets (poorly developed seed, fertilizer supply systems)
- Input subsidies can play a role in overcoming such constraints but not the ideal solution
  - Recent evidence from African subsidy programs indicates significant and positive effect on productivity and gross output in many cases; food security and poverty reduction benefits found in some (Malawi/Zambia).

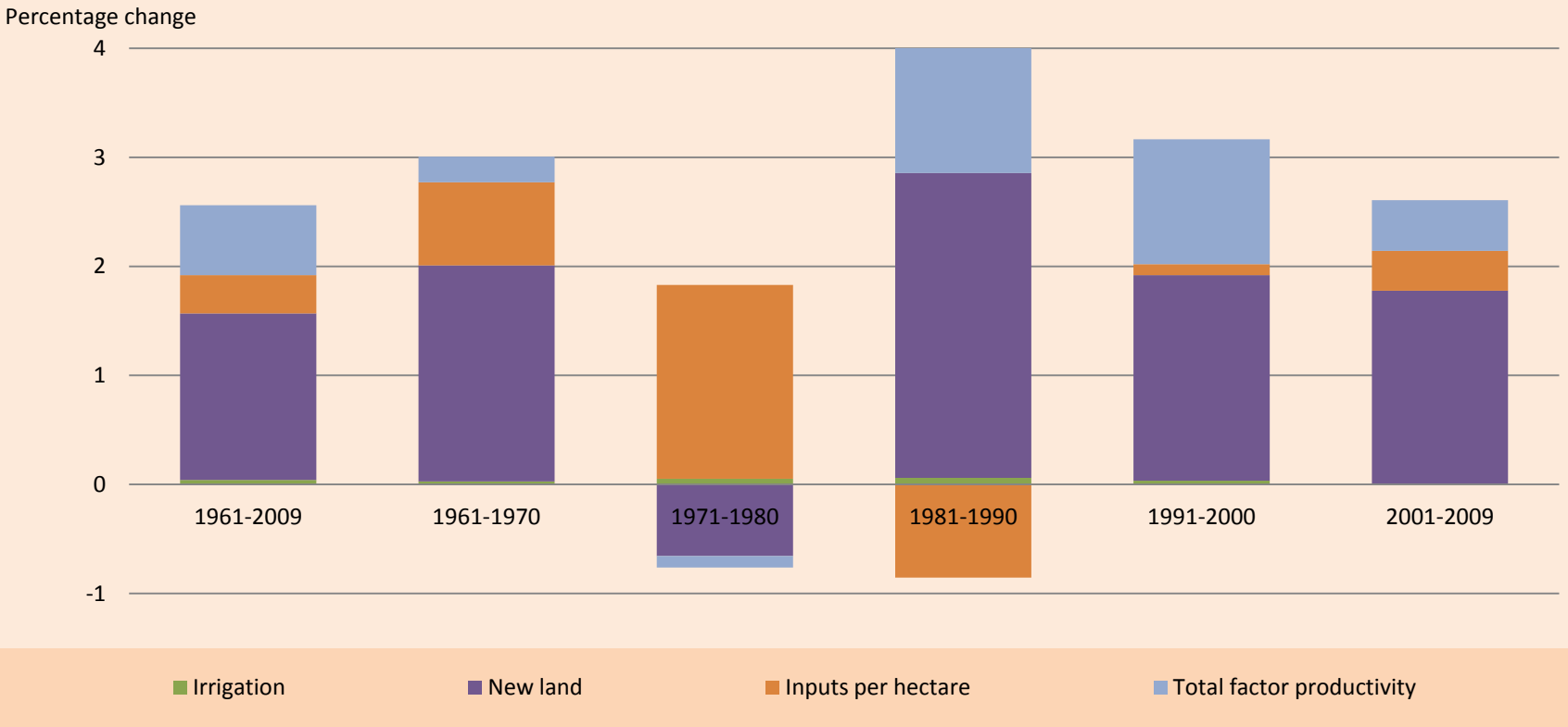
Sources of ag. output growth: developing countries

FIGURE B
Growth in developing country agricultural output , by source of growth and time period



Sources of ag. output growth: SSA

FIGURE C
Growth in agricultural output in countries of Sub-Saharan Africa, by source of growth and time period



Fertilizer Use in Sub-Saharan Africa Compared to Other Regions

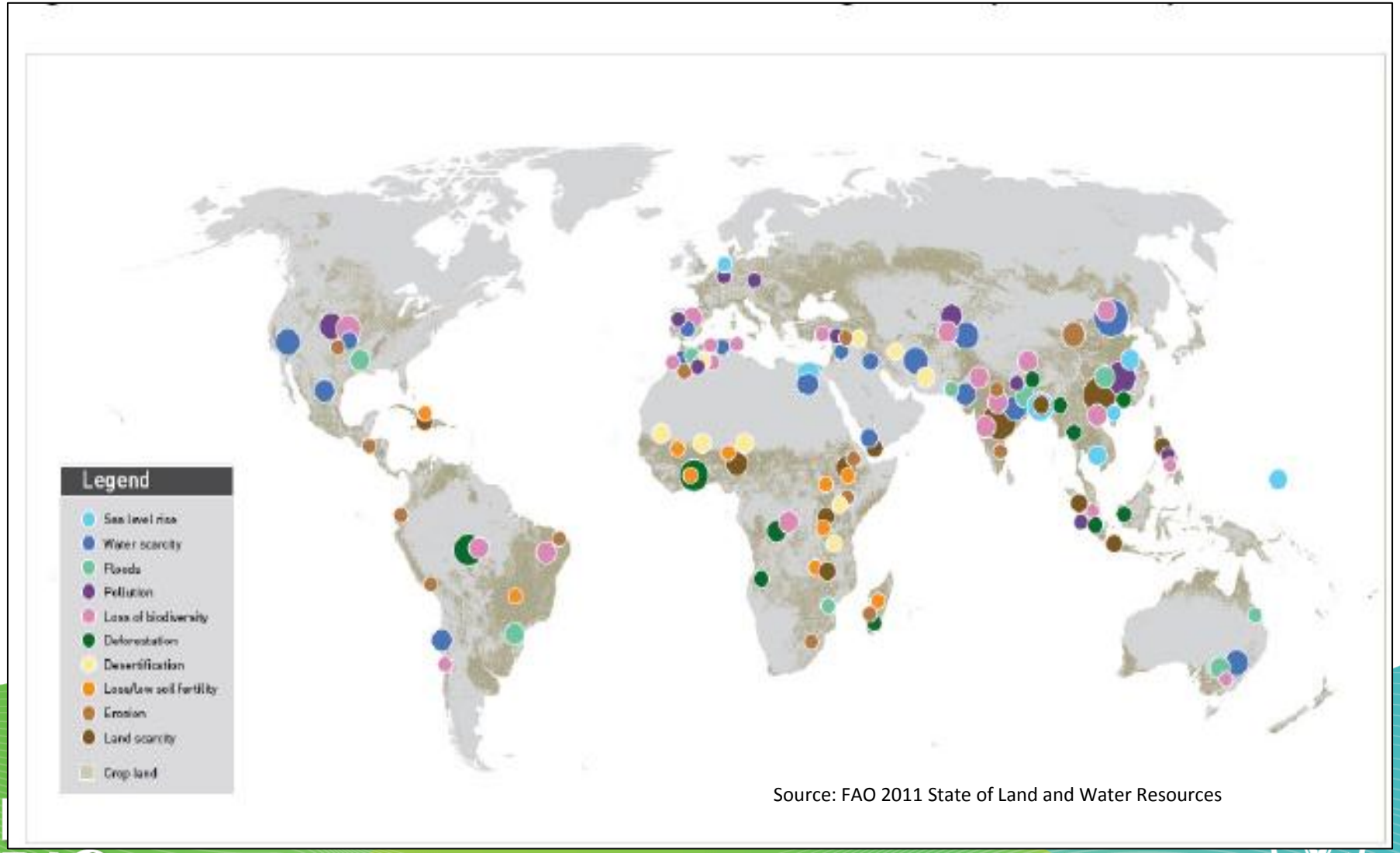
(Kg of fertilizer nutrients* per ha of arable and permanent crop land)

Region	2003-2005	2006-2008	% Change
Sub-Saharan Africa	7.0	7.1	1.9%
South Asia	109.4	129.4	18.2%
East & South East Asia**	107.6	109.6	1.9%
Latin America	99.7	104.8	5.1%

* Nitrogen (N), Phosphates (P205), Potash (K20); ** Excluding China and Japan

Source: FAO Stat (2010)

Environmental risks associated with ag. production systems: large variability across regions



Source: FAO 2011 State of Land and Water Resources

Two major issues with subsidies

Is it the best policy instrument for given problems?

- Use of public funds for private goods: optimal allocation?
- Large fiscal costs
- Not the ideal policy solution – doesn't address root causes

Badly designed programs reduce economic and environment benefits (e.g. "lose-lose")

- Elite capture and leakage reduces productivity and food security effectiveness
- Poor design encouraging overuse results in environmental damage:
  - Excessive fertilizer not absorbed by crops pollutes waterways
  - Fishery subsidies encourage overfishing
  - Subsidized energy supports groundwater depletion

Fertilizer use, agricultural subsidies and the environment

- Land scarce, intensely farmed systems with already high input levels, subsidization of inorganic fertilizer => overuse (untargeted subsidies).
- Low-input/low-output systems, fertilizer subsidies can be justified to increase yields and enhance vegetative growth and soil carbon.
- Over- or poor- use of fertilizer and agrochemicals, pollutes water and soils (dead zones: 245,000 square kilometers worldwide)
- Overuse of fertilizers associated with degraded water quality, eutrophic or hypotrophic lakes, red tides in coastal waters, lowering soil pH.

Evolution of fertilizer subsidy programs in SSA

Table 1: Overview of 14 input subsidy programmes in Sub-Saharan Africa

Type of Subsidy (design)		Date / Country / Programme
Early 2000s **Demonstration Programmes**	Temporary Small quantities, Free Physical distribution	• (localized) Sasakawa Global 2000 (1998-1999, several countries) • (national) Malawi StarterPack 1998 (*untargeted*) and TIP 2003-04, both moved to vouchers
Late 2000s **Multi-Year Subsidies**	a) Targeted ('smart') Multi-year ≥ 50% price subsidy Vouchers	• Kenya NAAIP 2007-on; Malawi AISP 2005-on; Rwanda CIP 2007-09; Tanzania NAIVS 2008-13; Zambia FSP 2002-on (*physical distribution*)
	b) Universal Multi-year ≤ 50% price subsidy Physical Distribution	• Burkina Faso 2008-on; Ghana 2008-on; Mali RI 2008-on; Nigeria FMSP 1999-on (*vouchers piloted*); Senegal GOANA 2008-15

Lessons learned in achieving efficient programs

1) Effective targeting to match objective is key:

- **targeting for productivity growth or poverty reduction not the same**
- **the technical recommendations also need to be targeted/varied by agro-ecological region**

2) Vouchers seen as a promising response in many contexts

- **With IT platform and linked to other safety net/public programs**

3) Increased scrutiny and built in "traceability" to avoid elite capture and leakage

4) Use programs to strengthen private input supply networks

Agricultural subsidies to support the transition to the green economy: guidelines

- **Assign clear, explicit and non-contradictory objectives and align design and targeting (e.g. output growth vs. poverty reduction);**

- **Develop targeted packages for a variety of agro-ecologies and farming systems and combine with complementary services (extension, research)**

- **Promote greater market-friendliness (procurement, distribution);**

- **Mobilize complementary and alternative public expenditures to achieve goals, e.g:**

  Capitalize on the complementarities between cash transfer programs to increase farm income and input use.

  Market liberalization, infrastructure development to establish strong, private sector led input supply market;

  Payments for environmental services to support efficient input use, increase incomes and engage private sector.

- Thank You