



Achieving Food Security and Nutrition for *All* by 2025

The Key Role of Smallholder Family Farms

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INTERNATIONAL FOOD POLICY
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Key messages



- Hunger and undernutrition persist imposing large social and economic costs
- Smallholder family farms are critical for achieving global food security and nutrition
- Not all smallholders are the same and they face an emerging set of challenges
- Strategies should be tailored to different types of smallholders and country's stage of transformation

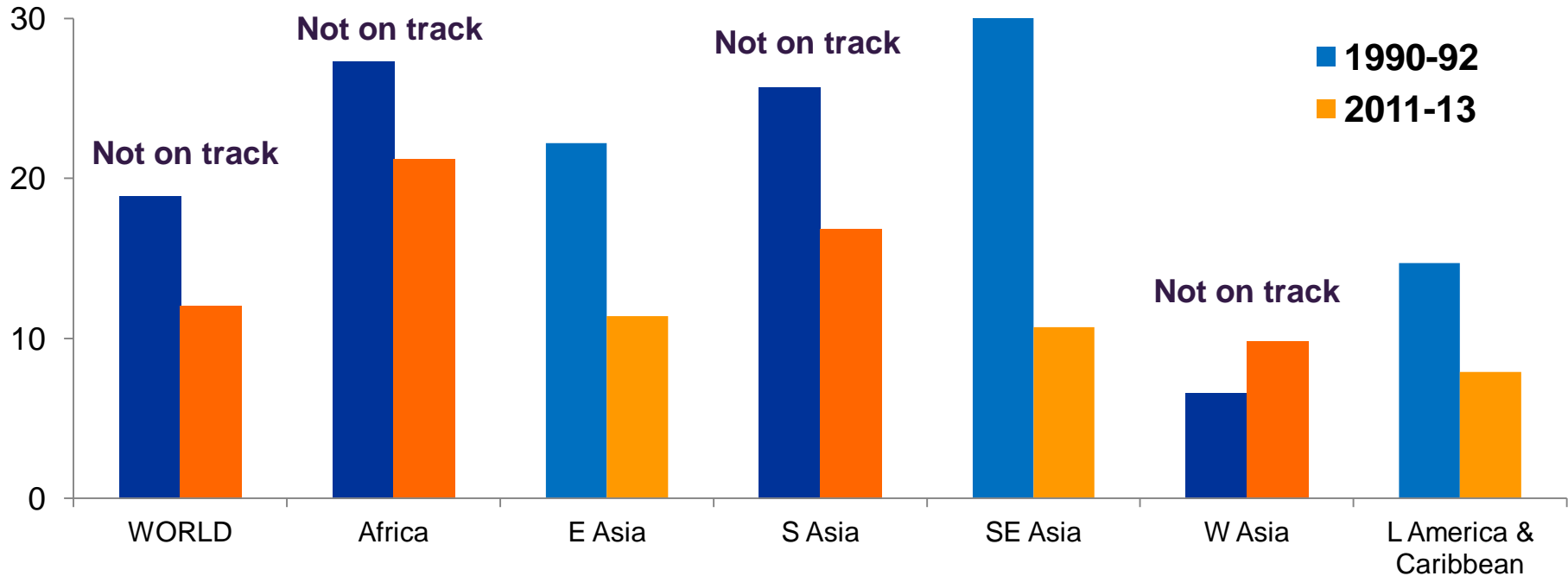


Hunger and undernutrition persist **imposing large social and economic costs**

Progress towards halving global hunger is not on track



Prevalence of undernourishment %



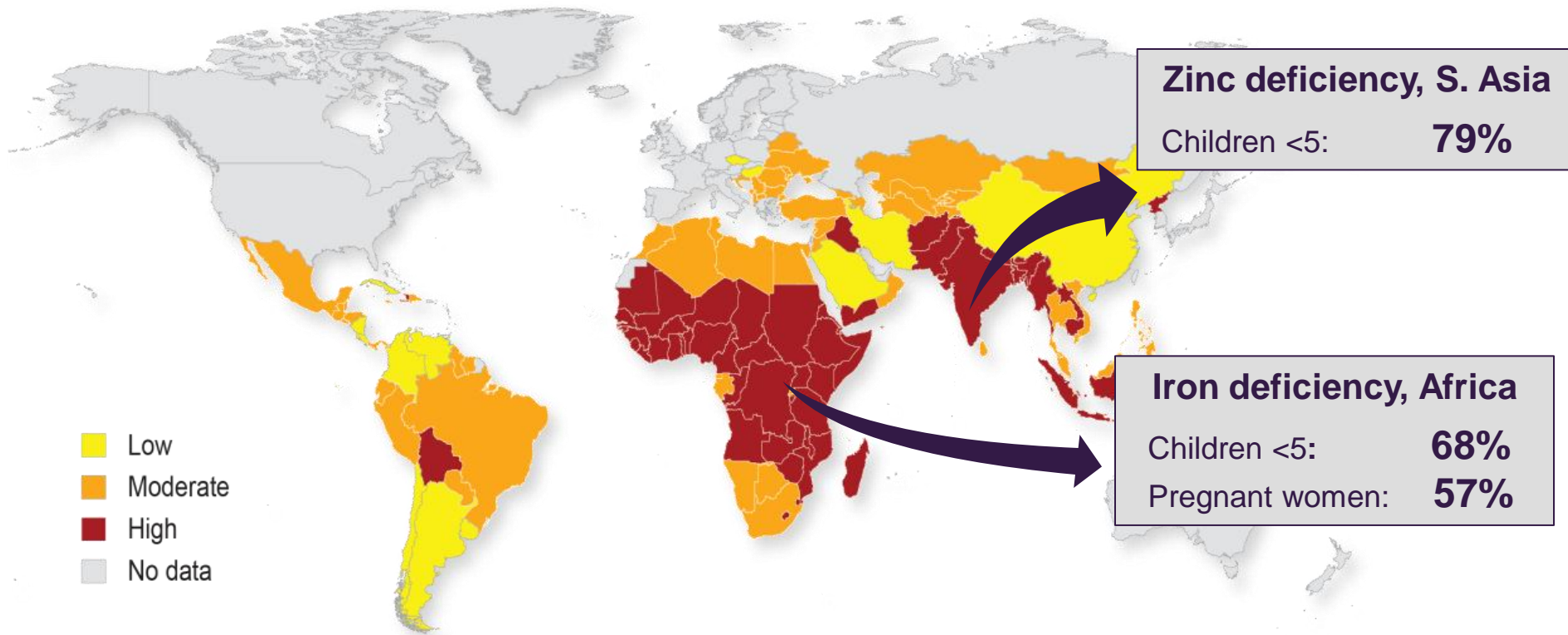
Source: Data from FAO 2013

Smallholders make up a large proportion of the world's undernourished people

Micronutrient deficiencies are pervasive



Prevalence of micronutrient deficiencies



2 billion people incl. smallholders suffer from micronutrient deficiencies globally

Undernutrition is costly, but investments in nutrition have high returns



Undernutrition leads to

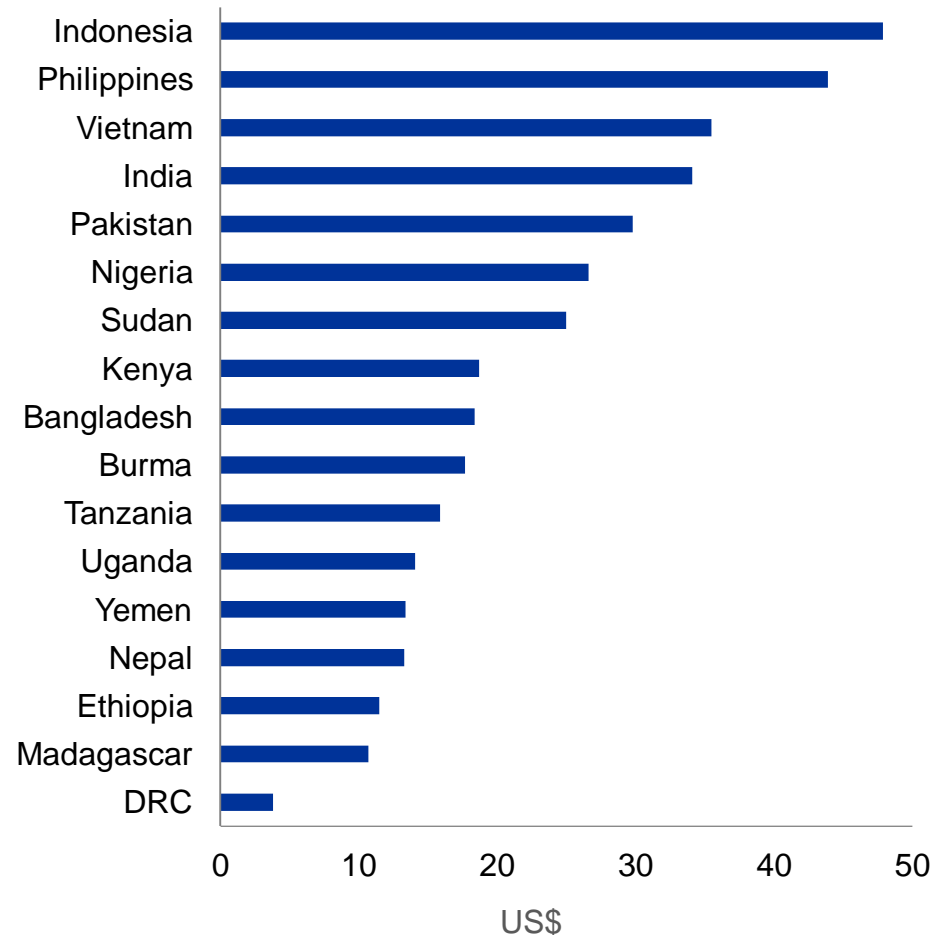
- Impaired physical and cognitive development
- Productivity losses
- Problems of social inclusion

Economic losses (% of GDP)

- Global: ~ **2-3%**
- Egypt: ~ **2%**
- India: ~ **2.5%**
- Uganda: ~ **6%**

Source: Stein and Qaim 2007; AUC, NEPAD, UNECA, WFP 2013; FAO 2013

Economic returns to US\$ 1 invested in reducing stunting



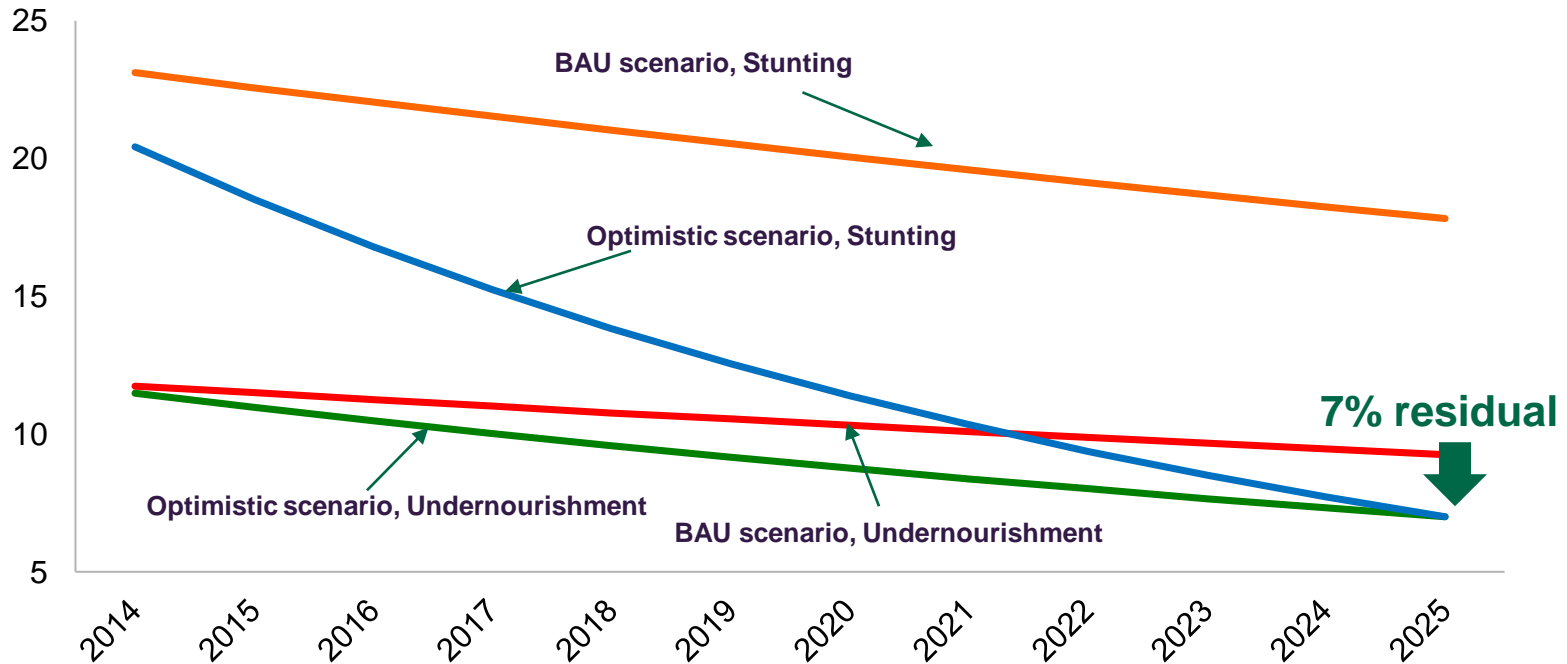


Achieving food security and nutrition for *all* by 2025 must be top priority

We should aim to end global hunger and undernutrition by 2025



Prevalence of global undernourishment and stunting under business as usual (BAU) and optimistic scenarios %



	BAU scenario	Optimistic scenario
	(%)	
Undernourishment	2	4
Stunting	2	9

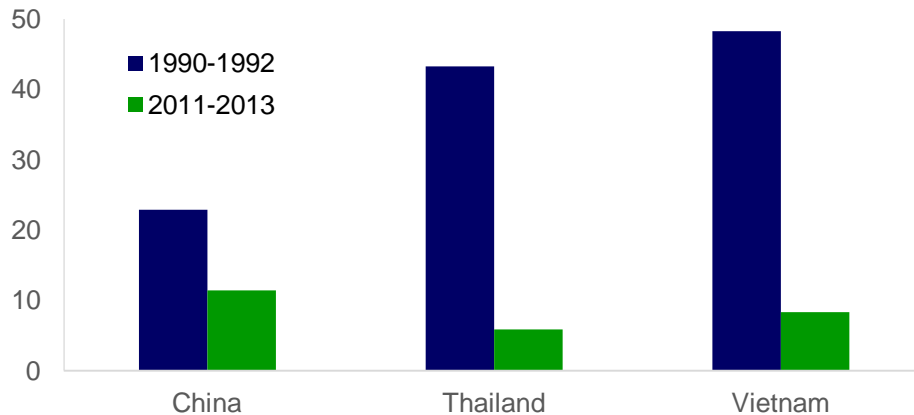
To end undernourishment and stunting by 2025, their prevalence needs to decline by

- 4% annually for undernourishment
- 9% annually for stunting

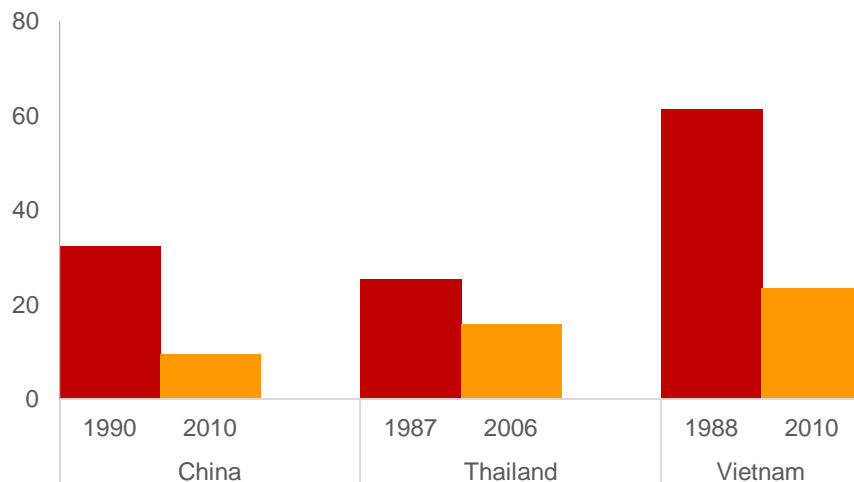
Smallholder-based transformations have led to large reductions in hunger & undernutrition



Prevalence of undernourishment %



Prevalence of stunting in preschool children %



Improved incentives for smallholder agriculture by

- Decollectivization of farmland
- Liberalization of agricultural marketing and trade
- Increased investments in agricultural research and extension
- Complementary investments in nutrition and health

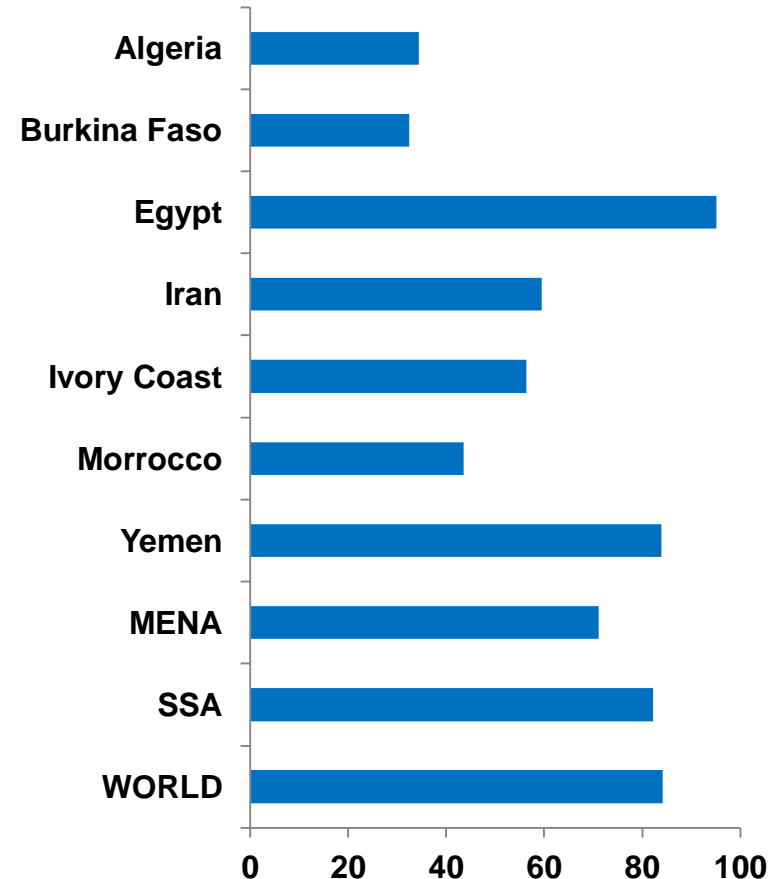
Smallholder family farms are critical in achieving food security and nutrition



- **Most smallholder farms are family-based**
- **Of the world's 570 million farms**
 - **88%** are family farms
 - **84%** are smallholder farms
- **Smallholder farms provide**
 - Livelihoods for **2.5 billion** people
 - More than **80%** of food consumed in Asia and Africa south of Sahara

Source: IFAD 2013; FAO 2014

Share of farm size less than 2 ha (%)



Source: FAO 2014

Note: Most recent data on holdings used; Data for Algeria in 2001, Burkina Faso in 1993, Egypt in 2000, Iran in 2003; Ivory Coast in 2001; Morocco in 1996; Yemen in 2002



Not all smallholders are the same
and they face an emerging set of challenges

Not all smallholders are the same



Differences exist on

▪ **Potential to commercialize**

- Soft constraints
 - E.g. access to info and financial capital
- Hard constraints
 - E.g. high population density and low quality soil

▪ **Stage of economic transformation**

- Level of productivity in and outside of agriculture
- Economic diversification and growth



Emerging challenges facing smallholders



- Food price spikes and volatility
- Rising agricultural-related risks to health
- Climate change and higher frequency / intensity of extreme weather events
- Land and water constraints
- Limited access to finance and capital

Agriculture-related risks to health are rising



Human health increasingly affected by intense food production

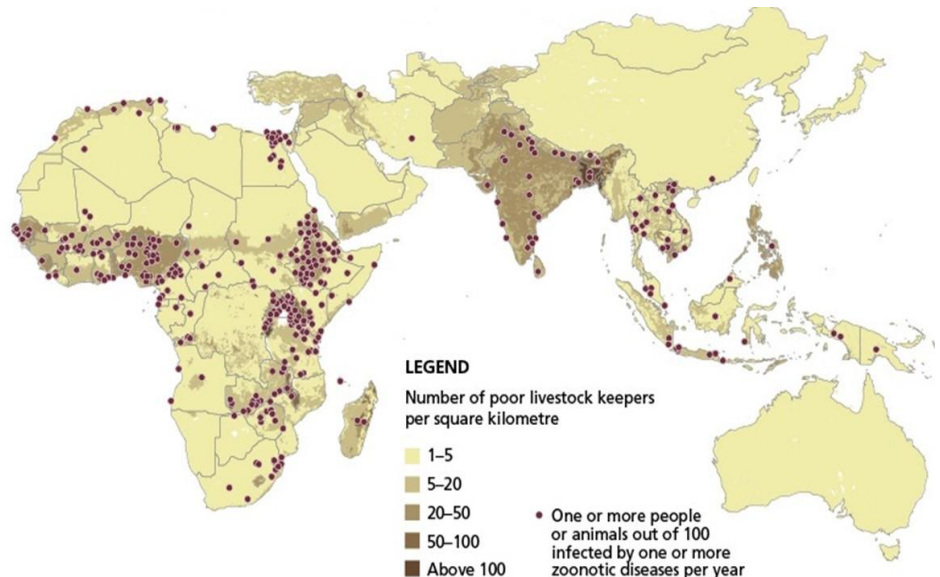
Affects smallholders' ability to undertake more productive and innovative activities



Food safety risks

- Unregulated food production
- Increasing proximity of industrial and agricultural activities
 - *E.g. milk and rice contamination*

Animal-borne diseases

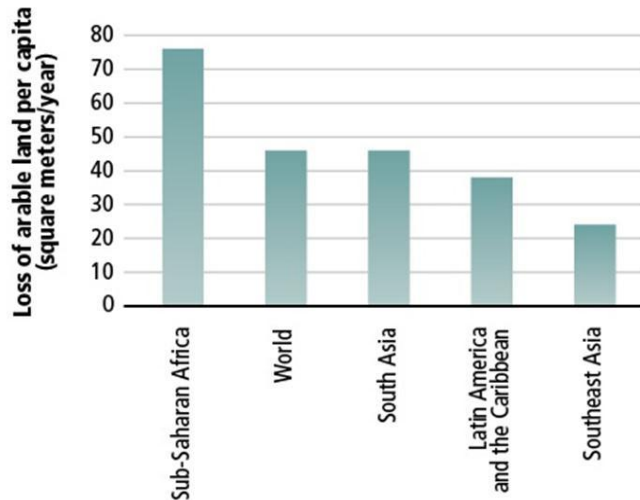


Picture source: ILRI 2013

Land and water constraints are high

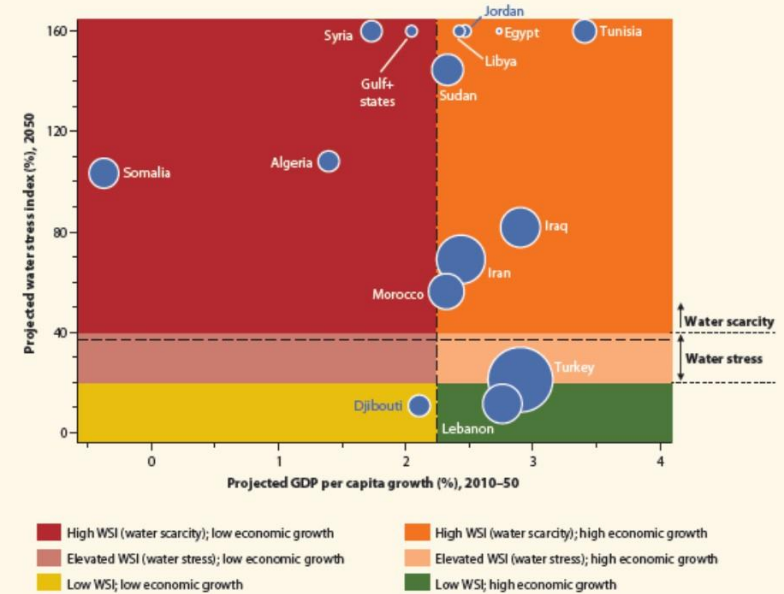


Annual loss of per capita arable land in developing countries, 1961–2009



- **24%** of global land area affected by degradation (1981–2003)
- Annual forest net loss = **5.2** mil. ha (2000-10)
- Arable land per capita
 - **↓ 65%** (1970-00)
 - expected to further **↓ 50%** by 2050

Water stress and economic growth in Arab league countries +Turkey and Iran, 2010-2050

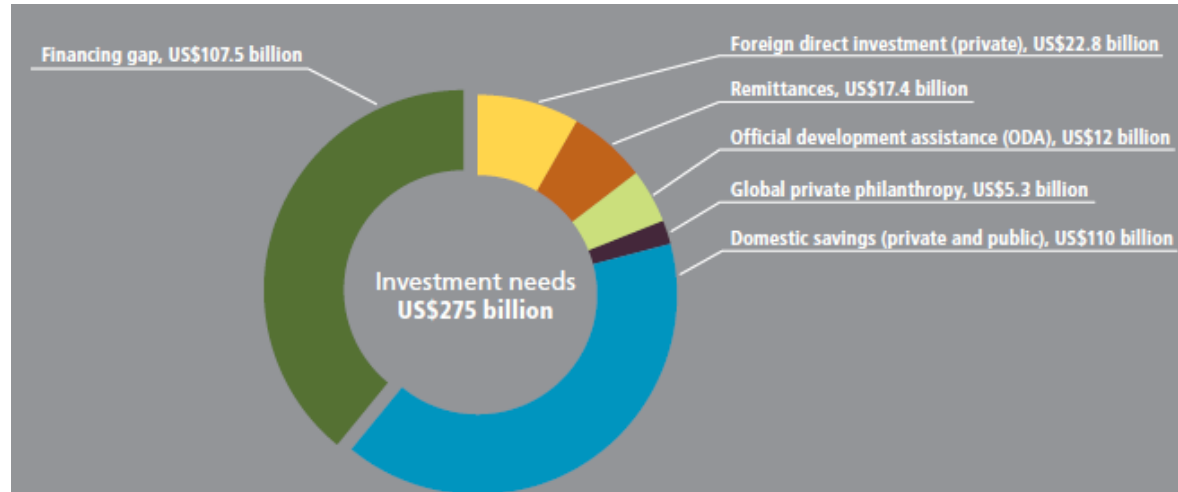


- Agric. uses **89%** of water in MENA
- Water availability per capita
 - Global > **10 times** MENA
 - Projected to decline by **47%** in MENA by 2050 due to population growth alone

Access to finance and capital are limited



Agricultural investment needs, investment flows, and the remaining gap in developing countries (excl. infrastructure), 2008



Source: Motes 2011

- Limited access to financial options for savings and loans
- Incompatibility of microcredit with
 - Risks that affect whole communities
 - Seasonality of smallholder production and income cycles
 - Smallholders' long-term needs for more productive capital investments
- Uncertain impact of resource-seeking FDI on smallholders



Strategies should be tailored to
**different types of smallholders and
country's stage of transformation**

Policies should differ across smallholders



Smallholders should be supported to either

▪ **MOVE UP**

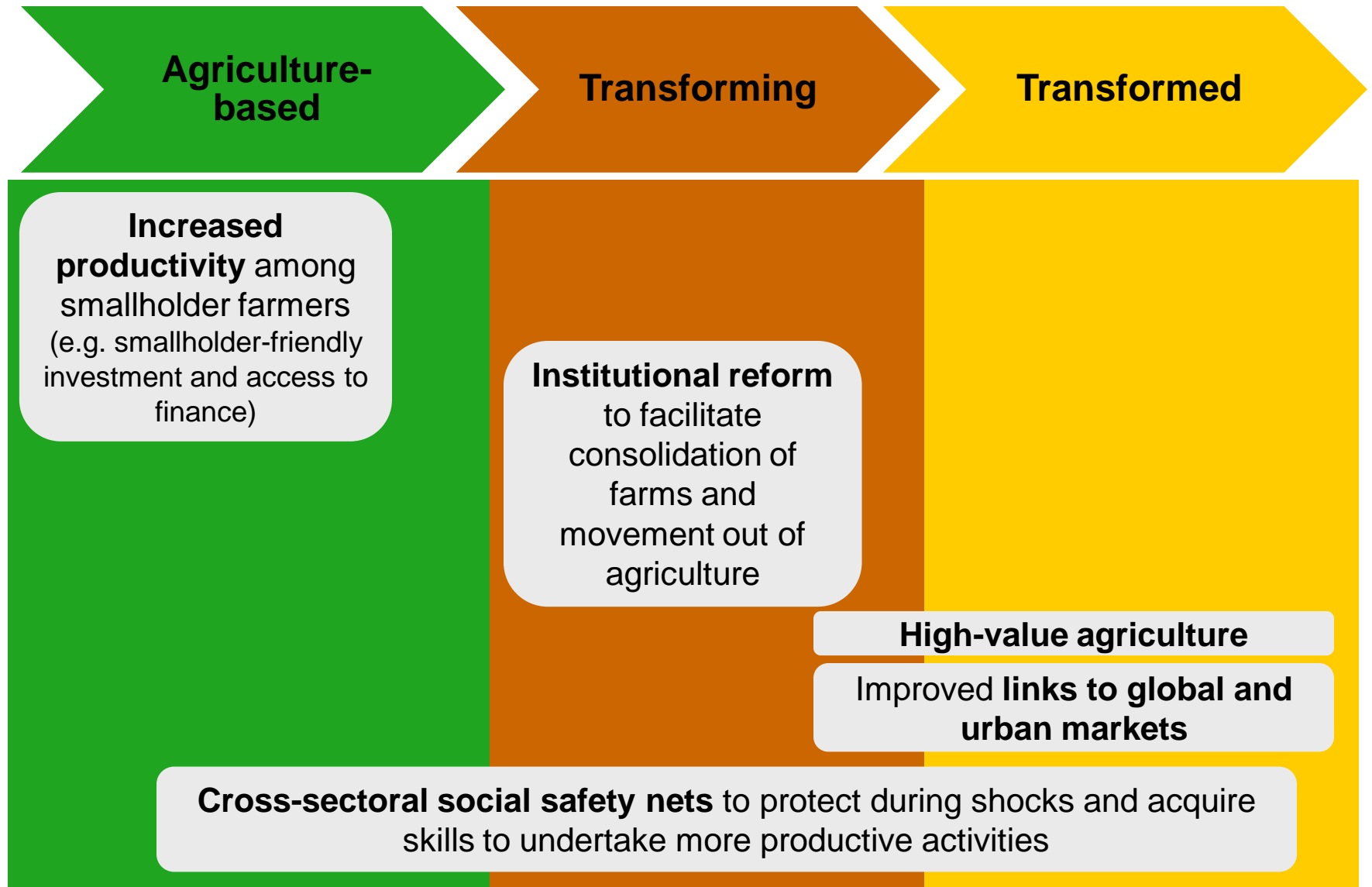
- Smallholders with profit potential move from subsistence farming to profitable farming systems
- Already profitable smallholders scale-up commercial activities

OR

▪ **MOVE OUT**

- Smallholders with no profit potential move out of agriculture for non-farm employment

Policies should also reflect country's stage of transformation



Pathways to promote transformation of smallholder family farms



1. Support institutional reforms targeted towards smallholders
2. Promote sustainable intensification in agricultural production
3. Develop innovative smallholder-friendly financial services
4. Ensure safety of food systems
5. Scale up productive and cross-sectoral social safety nets

1. Support institutional reforms for more efficient food production systems



- Facilitate efficient transfer of land
 - Certification of land rights
 - Well-functioning land rental and sale markets

- Support institutional innovations for vertical and horizontal coordination
 - Promote efficiency-building competition among different farming models rather than one-size-fits-all
 - E.g. individual family farms, cooperatives

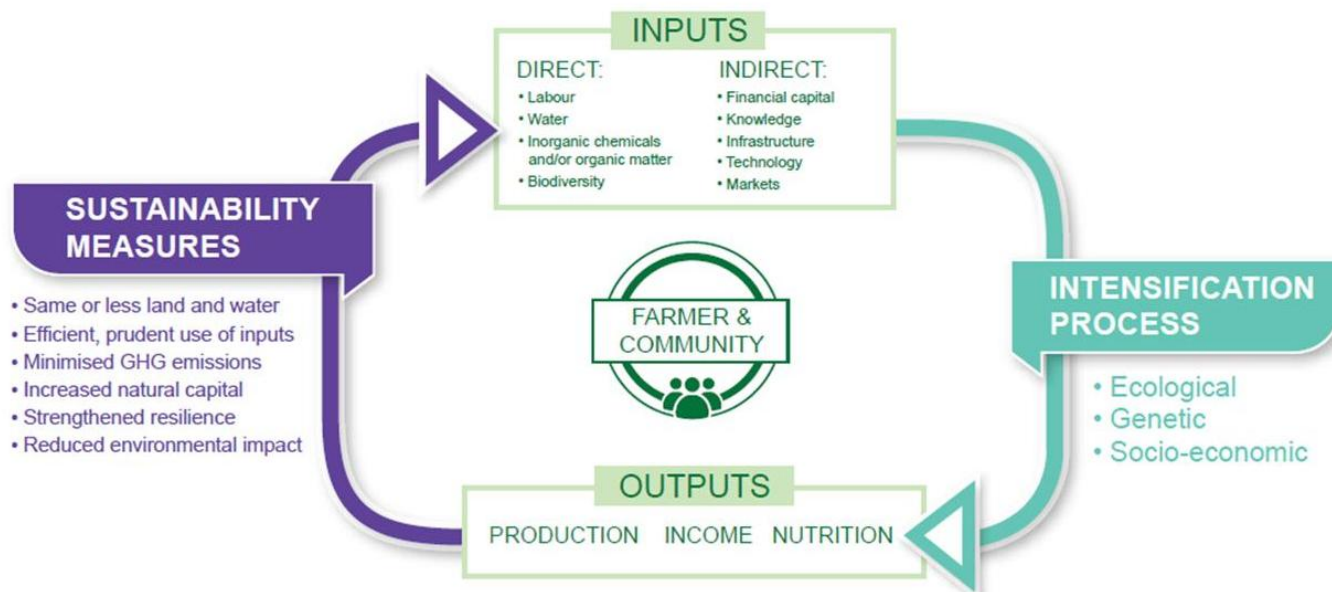
- Increase partnerships with private sector
 - Sound legal and regulatory framework that encourages (and monitors) private sector's engagement

2. Promote sustainable intensification



Sustainable intensification = More outputs (production, income, nutrition) with more efficient use of *all* inputs (on a durable basis) while

- reducing environmental impact
- building resilience
- increasing natural capital and flow of environmental services

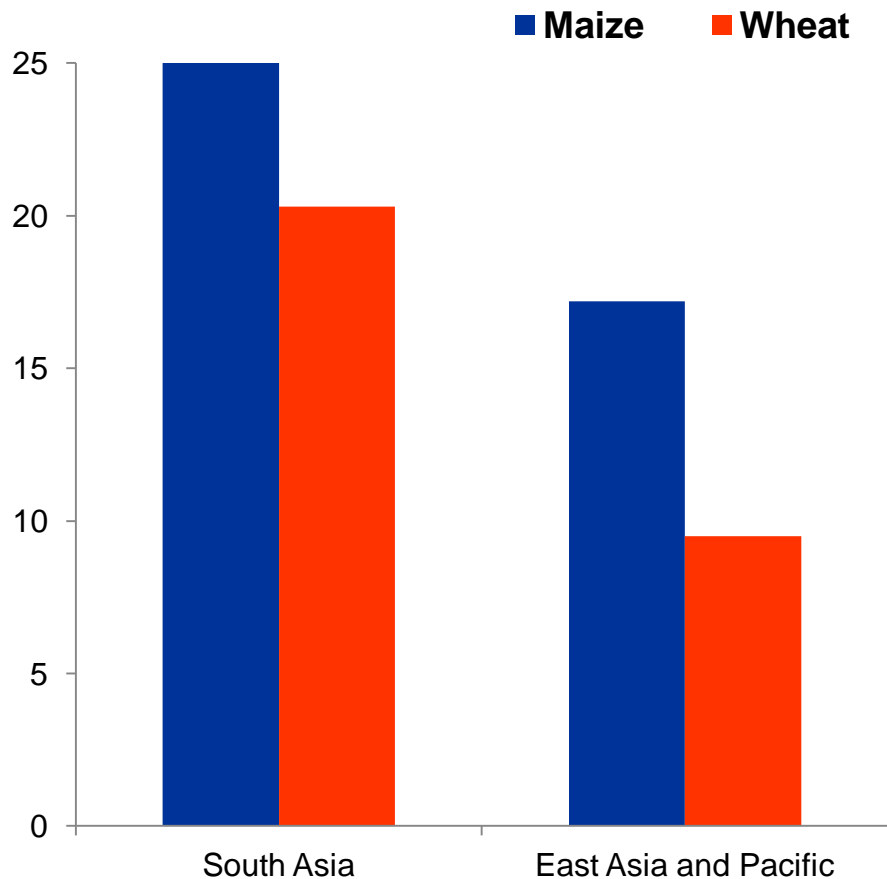


Sustainable intensification

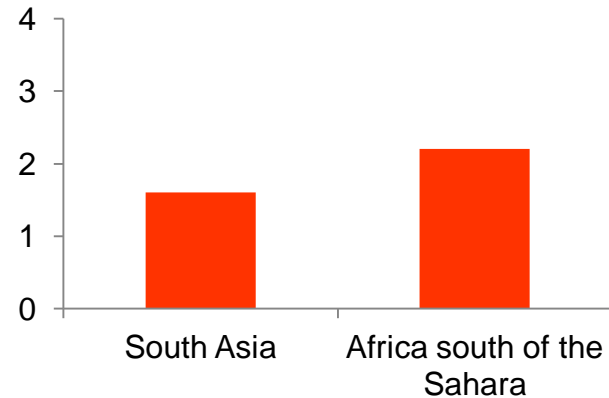
Heat tolerant technologies



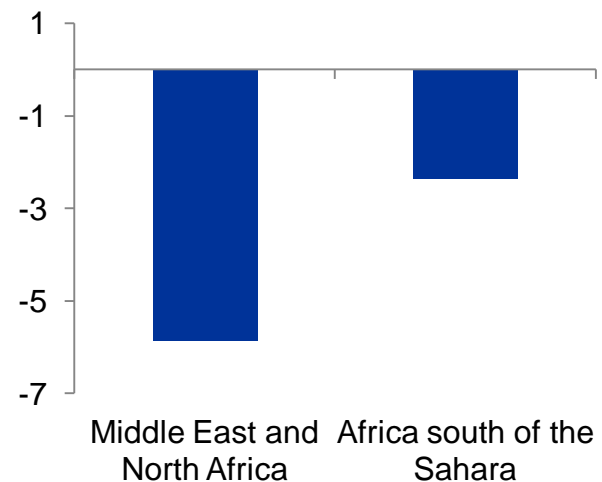
Impact of heat tolerant technologies on yields in 2050, % change



Impact of heat tolerant technologies on kcal availability/person/day in 2050, % change



Impact of heat tolerant technologies on # of malnourished children in 2050, % change



Sustainable intensification offers “triple wins” - productivity, adaptation, mitigation



Synergies between productivity, climate change adaptation, and GHG mitigation, Kenya

CROP MANAGEMENT PRACTICE	PRODUCTIVITY IMPACTS	ADAPTATION BENEFITS	GHG MITIGATION POTENTIAL
Improved crop varieties or types	Increased crop yields & reduced yield variability	Increased resilience against climate change	Increased soil carbon storage
Improved crop rotation/fallowing/rotation with legumes	Increased soil fertility & yields due to nitrogen fixing in soils	Improved soil fertility & water holding capacity increases resilience to climate change	High mitigation potential, esp. crop rotation with legumes
Use of cover crops	Increased yields due to erosion control & reduced nutrient leaching	Improved soil fertility & water holding capacity increases resilience	High mitigation potential through increased soil carbon sequestration
Appropriate use of fertilizer and manure	Higher yields	Improved productivity increases resilience to climate change	High mitigation potential, esp. where fertilizer has been underutilized

Invest in resource-efficient and climate-smart policies and tools



- Provide incentives to ensure food prices reflect full costs and benefits of natural resource use
 - E.g. environmental taxes on use of inorganic fertilizer, irrigation, and pesticides
- Reduce or eliminate inefficient subsidies
 - E.g. fuel subsidies for groundwater pumping
- Promote innovative GHG emission reduction measurement tools to
 - Measure, track, and map e.g. ArcGIS for carbon sequestration maps
- Promote low carbon policy and market incentives
 - Integrate smallholders into carbon trading markets e.g. Brazil's Low Carbon Agriculture Program

3. Develop innovative smallholder-friendly financial services



- New information and communication technologies
 - E.g. cell phone-based payment services, biometric technology to monitor repayment

- Financial and non-financial service bundles
 - E.g. livestock health monitoring + credit

- Community banking
 - E.g. village savings & loan associations

- Risk-management mechanisms
 - E.g. weather-based index insurance

4. Ensure safety of food systems



- **Develop better understanding** of agriculture-related disease transmissions
- **Upgrade legal, regulatory, and institutional framework** that covers entire supply chain
- **Improve food safety monitoring** by enhancing capacity and resources of monitoring agencies
- **Increase capacity of stakeholders** in food supply chain to **meet safety regulations**

5. Scale up productive social safety nets



- Better-targeted and more productive social protection policies
 - Short-term cushion for coping with livelihood shocks
 - Long-term productivity-enhancing or exit opportunities for smallholders
- Cross-sectoral social protection to reach poor more effectively e.g.

Ethiopia's Productive Safety Net Program

- Access to both safety nets and ag. support more beneficial than stand-alone programs (Gilligan, Hoddinott, and Taffesse 2009)

Bangladesh's Vulnerable Group Development Program

- Food security and nutrition interventions with income-generating activities that target women (Ahmed et al. 2009)

IFPRI Conference on Building Resilience for Food & Nutrition Security



IFPRI 2020 INTERNATIONAL CONFERENCE



15-17 MAY 2014
ADDIS ABABA, ETHIOPIA

The conference will

- Identify key emerging shocks to food and nutrition security
- Draw lessons from past experiences in building resilience
- Identify key approaches and tools to build resilience
- Set priorities for action
- Identify knowledge and action gaps