The State of the World's Land and Water Resources for Food and Agriculture

FAO Regional Office for Asia and the Pacific

ADB

Resources availability

land and water availability in **high income countries**

land and water availability in **low income countries**

Average per capita

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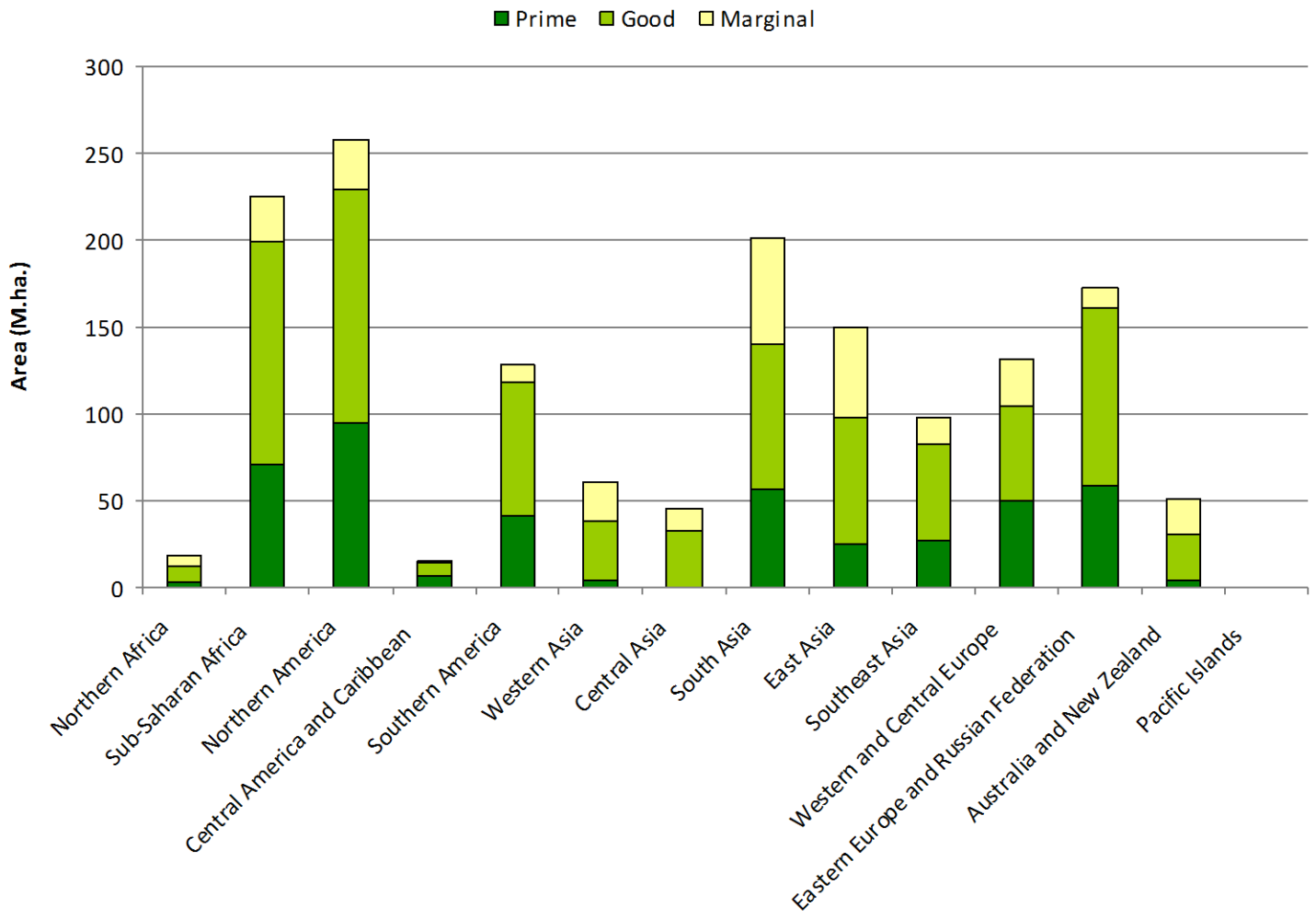
Uneven geographic distribution of land resources



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Distorted Investment Policies

Past Agricultural Investment policies have favoured...

- Prime lands and high potential areas VS low potential and marginal lands
- Land and irrigation development VS land rehabilitation and water conservation
- Irrigated agriculture VS rain fed agriculture
- Irrigation intensification VS water productivity and water management
- Single crop production VS total farm productivity
- Export crops VS food crops and local crops

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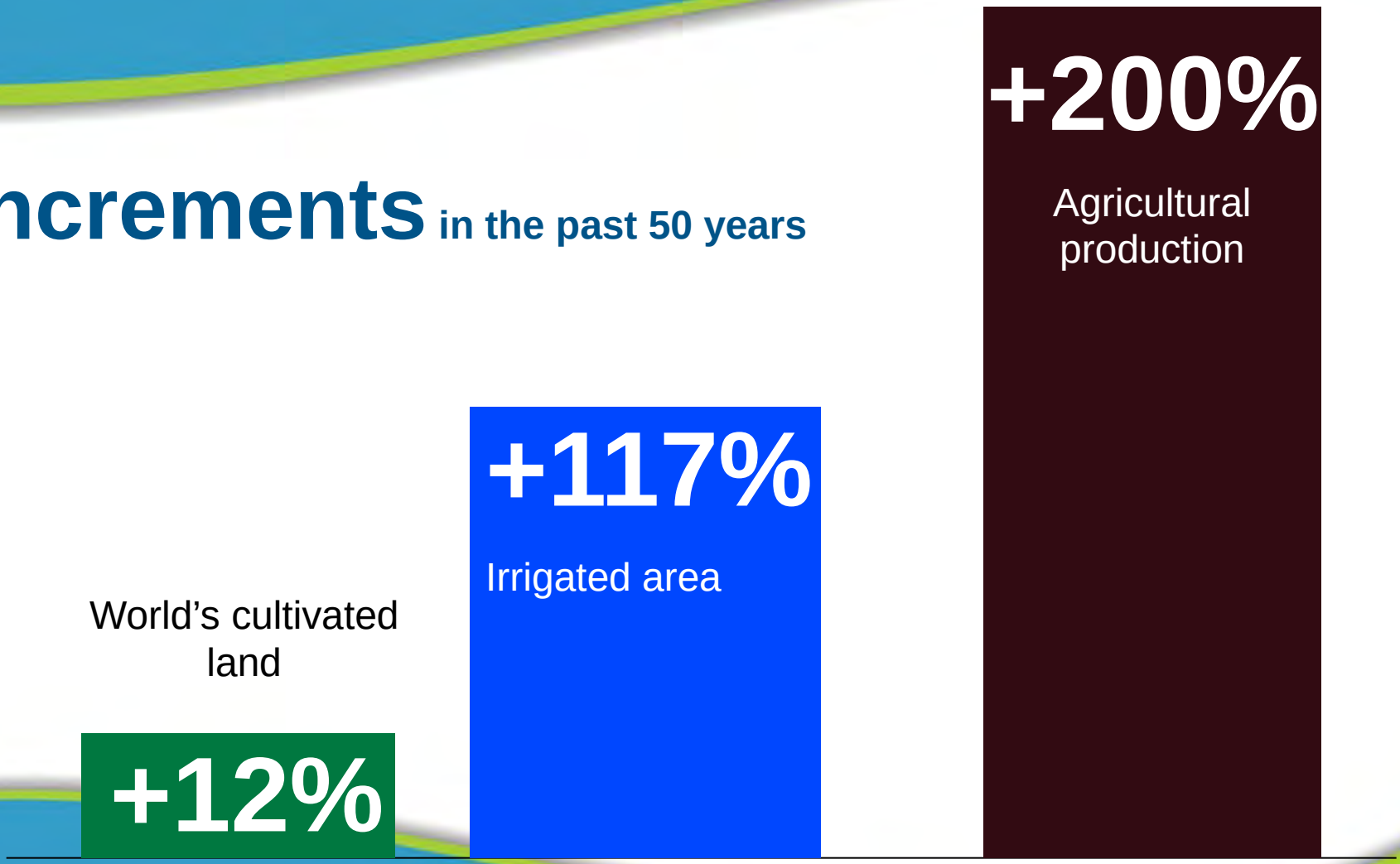
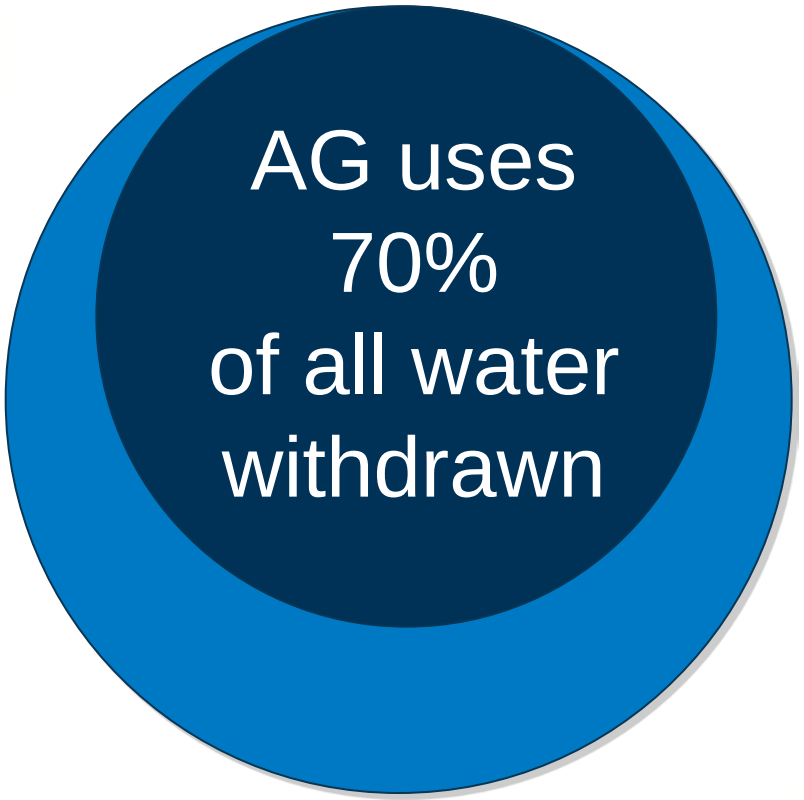
In the past 50 years…

Increments in the past 50 years



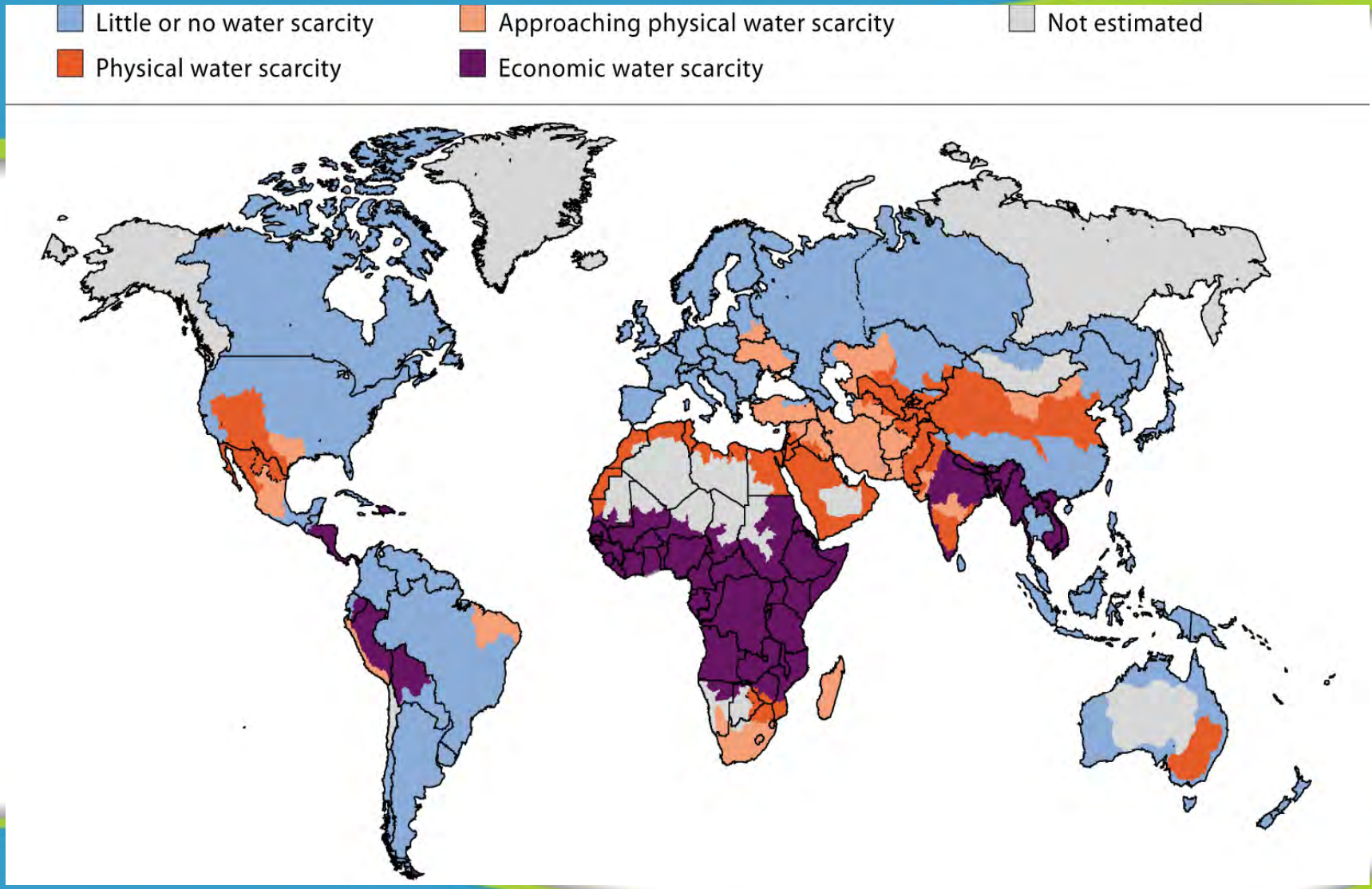
The use of resources by agriculture 2010

world's land surface



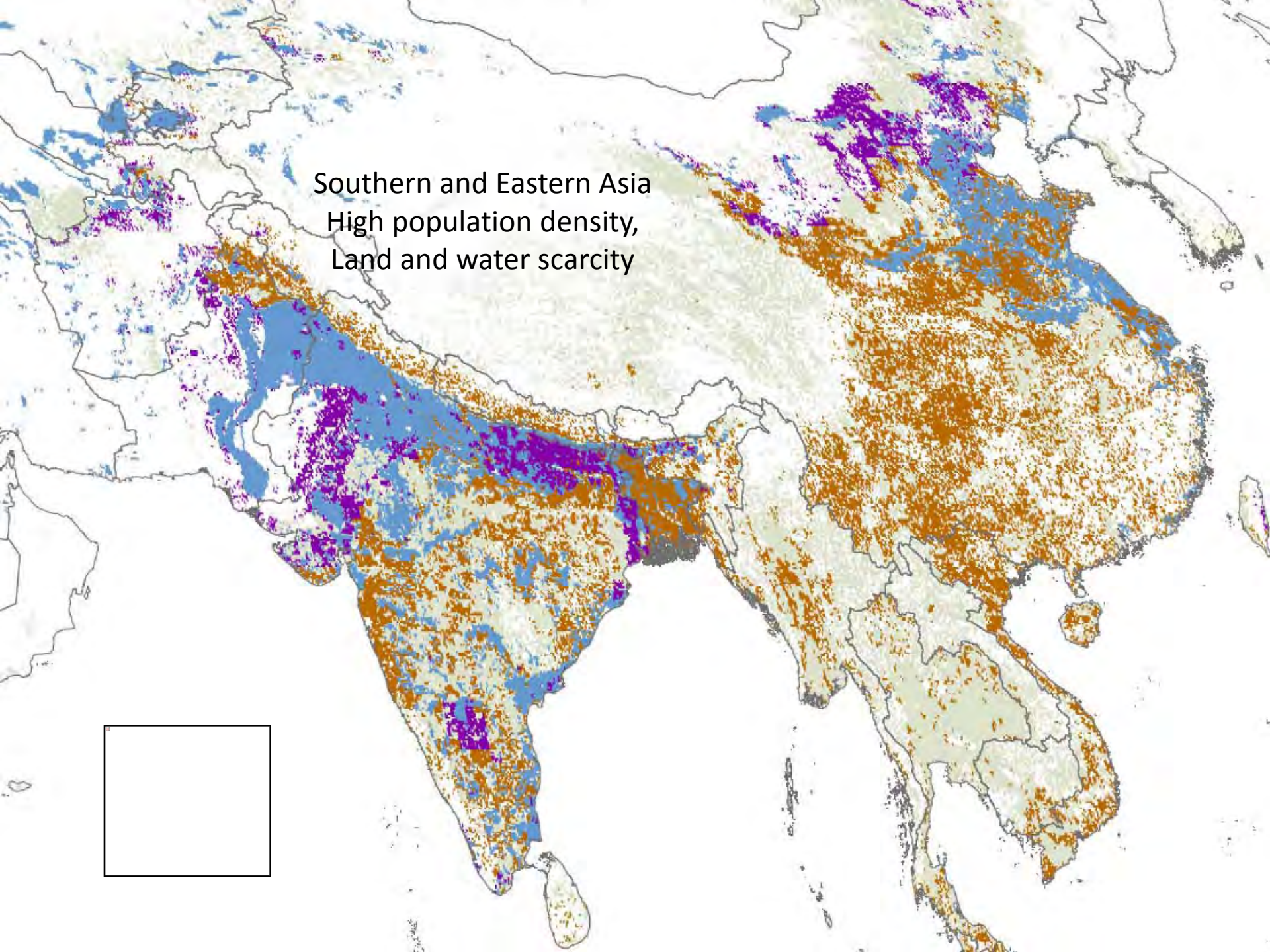
total world's water uses

Water Scarcity



1/3 of the world's population live under water scarcity

Systems at Risk at a Glance


Southern and Eastern Asia
High population density,
Land and water scarcity

Land and Water Systems at Risk

- Major river basins experiencing reduced flows and salinity build-up: Indus, Yellow River
- Groundwater depletion impacting livelihoods in water resource poor countries with high population growth
- Rapidly increasing demographic pressure on resources in semi-arid tropics
- Glacier and snowmelt systems currently loosing accumulated reserves
- Climate change impacts is expected to amplify water scarcity in key basins and deltas, and in small islands

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Land and Water Systems at Risk

GLOBAL PRODUCTION SYSTEMS	AREAS REQUIRING PRIORITY ACTION	RISKS
RAINFED CROPPING –Highlands	Densely populated highlands in poor areas: ***Himalayas***	Erosion, land degradation, reduced productivity, intensity of floods, out-migration, poverty and food security
RAINFED CROPPING – Semi-arid tropics	Small holder farming in ***Southern India*** and agro-pastoral systems in ***Western India***	Desertification, reduced production potential, crop failures, conflicts
IRRIGATED – Rice-based systems	Southeast and Eastern Asia	Land abandonment, loss of buffer role, increasing cost of land conservation, pollution, loss of cultural values of land
IRRIGATED – Other crops	River basins in Krishna river, Indo-Gangetic plains, Northern China, Central Asia	Increased water scarcity, loss of biodiversity and environmental services, desertification, reduced water availability and shift in seasonal flows
	Aquifers in groundwater-dependent irrigation systems in India, China	Loss of buffer role of aquifers, agriculture land, reduced recharge

Land and Water Systems at Risk

GLOBAL PRODUCTION SYSTEMS	AREAS REQUIRING PRIORITY ACTION	RISKS
RANGELANDS	Pastoral and grazing lands	Desertification, out-migration, land abandonment, food insecurity, poverty
FORESTS	Tropical forest-cropland interface in Southeast Asia and Himalayan forests	Cropland encroachment, slash-and-burn, loss of ecosystem services of forest, land degradation
Other locally important sub-systems	Deltas and Coastal areas in Red River delta, Ganges/Brahmaputra, Mekong, etc. and coastal alluvial plains in Eastern China	Loss of agricultural land and groundwater, sea-level rise, frequent cyclones, floods and low flow
	Small islands in Pacific islands	Loss of freshwater aquifers, water costs
	Peri-urban agriculture	Pollution, health related problems, competition for land

Land and Water Systems at Risk

Great success in the past… but still nearly one billion people are hungry

- **Key questions:**
  - **to what extent can farmers improve their food production with low-cost and locally-available technologies and inputs?**
  - **What impacts do these methods have on natural resources and environmental goods and services and the livelihoods of people relying on them?**

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Removing the constraints!

- **Remove distortion** in the incentive framework
- **Improve** land tenure and **access** to resources
- **Strengthen** land and water **institutions**
- **More** knowledge **exchange**, research, etc
- Better **access to markets**

Selected areas for further action

- Technical assistance in **managing systems at risk**
- Improve **water use efficiency** through irrigation **modernization**
- **Groundwater** use planning and recharge
- Adoption of ecosystem approach and **Payment for Environmental Services**
- **Global Soil Partnership** for climate change adaptation and mitigation
- Dynamic conservation of **Globally Important Agricultural Heritage Systems**
- **Transboundary** water resources management
- Enhance national and global **monitoring** of systems at risk

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Recommendations

- Broad adoption of participatory and pluralistic approaches
- Increase **investment** for improvement of essential public good infrastructure for the whole market chain
- Allocate dedicated **funds** to support sustainable land and water management in systems
- Appraise ecosystem services to frame **planning and investment decisions**
- Review mandates and activities of existing organizations to promote closer collaboration
- Promote ‘green economy’ approach
- Work together to optimize economic value and ensure equitable benefit sharing in international river basins

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THANK YOU !!