



Ecosystem Services and Agriculture

Entomology 2010

December, 2010



World Resources Institute



What is this?



\$6 billion



Water filtration plant



What is this?



www.condohotelcenter.com

Water reg



www.ac-limoges.fr



What is this?



www.magazine.noaa.gov

Storm protection system

Biodiversity & ecosystem services (BES)

Biodiversity



Erosion control
Water purification
Maintenance of soil quality
Pest mitigation
Pollination
Natural hazard mitigation
Etc.

Cultural/Ethical



Ecosystem services

Provisioning

Goods or products



Regulating

Benefits obtained from



Cultural

Nonmaterial benefits



Millennium Ecosystem Assessment Findings

	Degraded	Mixed	Enhanced
Provisioning	<ul style="list-style-type: none"> • Capture fisheries • Wild foods • Biomass fuel • Freshwater • Genetic resources • Biochemicals, natural medicines, and pharmaceuticals 	<ul style="list-style-type: none"> • Timber and other wood fiber • Other fibers (e.g., cotton, hemp, silk) 	<ul style="list-style-type: none"> • Crops • Livestock • Aquaculture
Regulating	<ul style="list-style-type: none"> • Air quality (e.g., chemicals) • Local climate (e.g., temperature) • Erosion control • Water purification and waste treatment • Pest regulation • Pollination • Natural hazard 	<ul style="list-style-type: none"> • Water timing and flows • Soil quality • Disease 	<ul style="list-style-type: none"> • Global climate (GHG sequestration)
Cultural	<ul style="list-style-type: none"> • Ethical values (spiritual, religious) • Aesthetic values • Education 	<ul style="list-style-type: none"> • Recreation and ecotourism 	

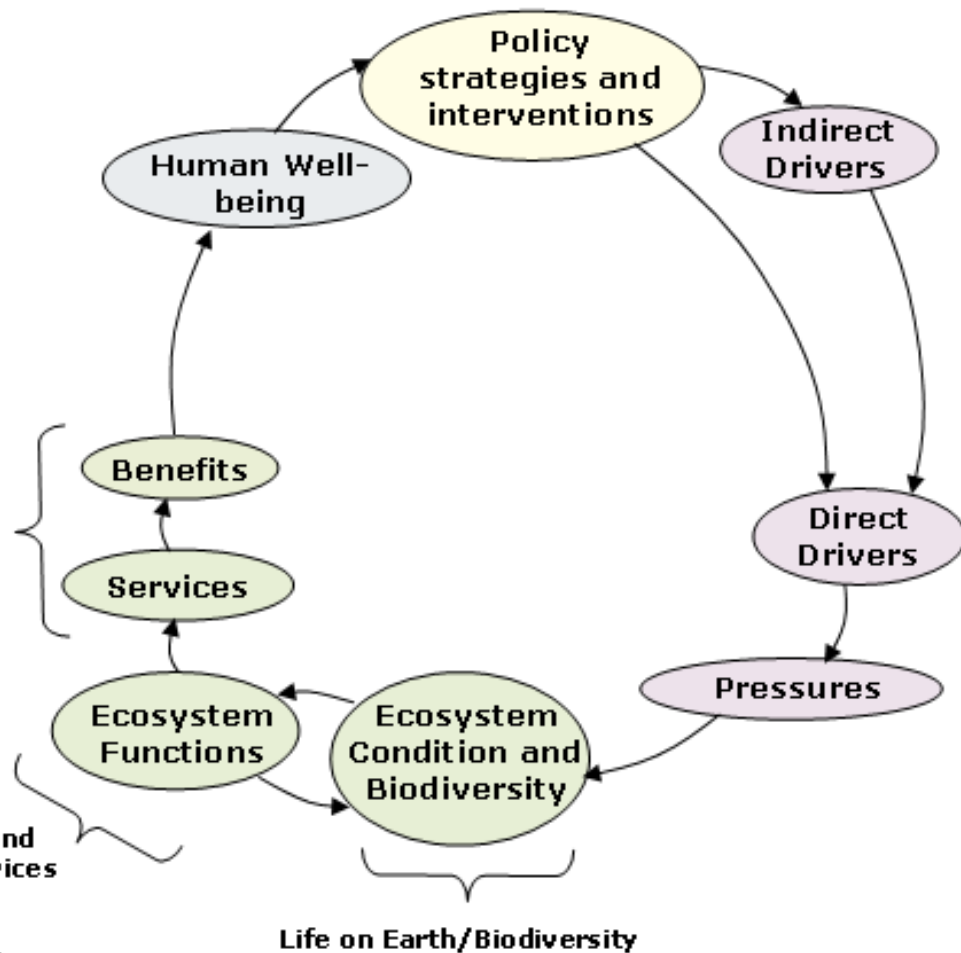


Most Provisioning and Many Cultural Services

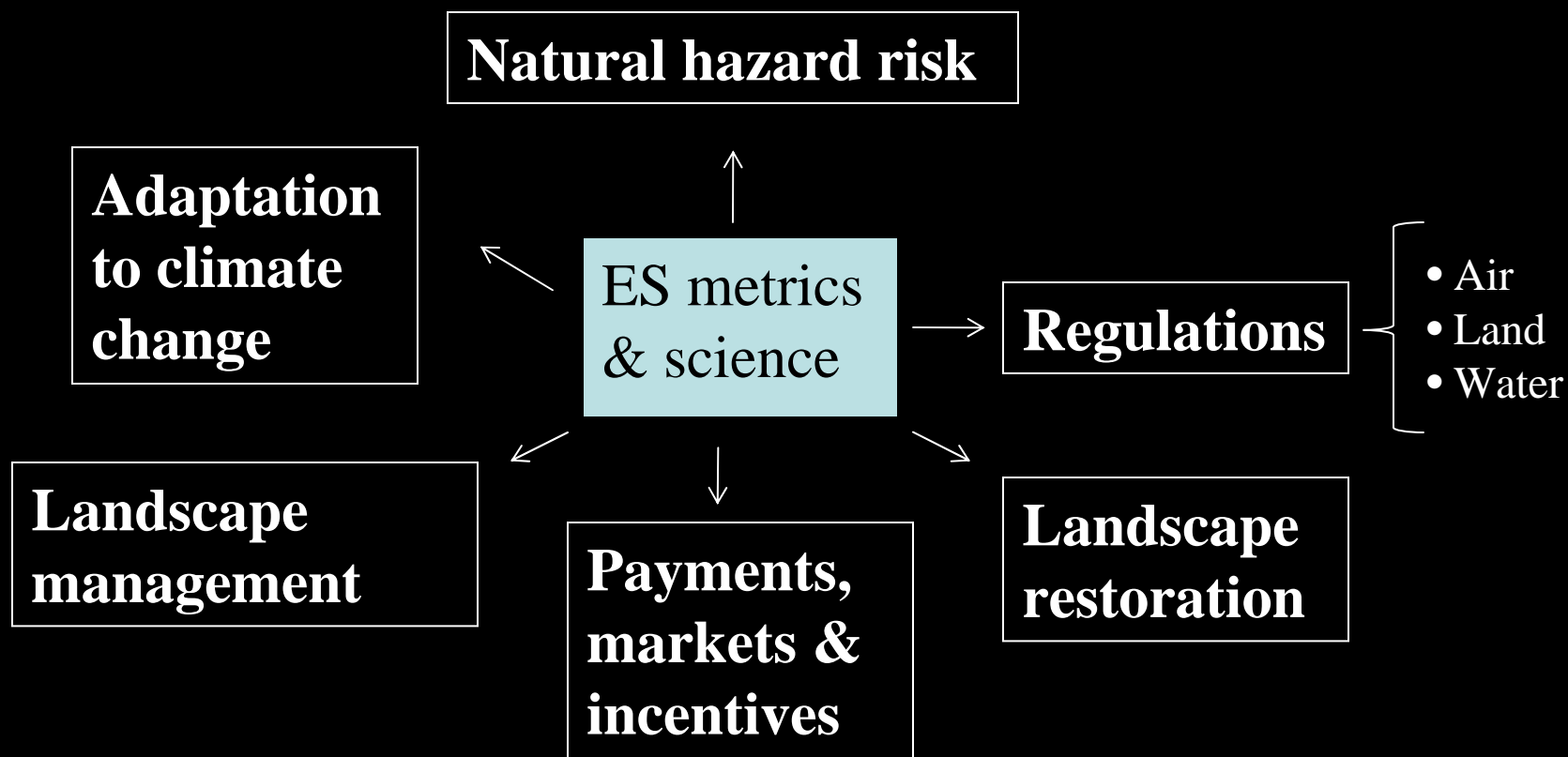
- Food
- Biological raw materials
- Biomass fuels
- Freshwater
- Genetic resources
- Biochemicals, natural medicines, and pharmaceuticals
- Recreation and ecotourism

Most Regulating and Supporting Services

- Water regulation
- Erosion regulation
- Water purification and waste treatment
- Disease regulation
- Soil quality regulation
- Pest regulation
- Pollination
- Natural hazard regulation
- Nutrient cycling
- Primary production
- Water cycling



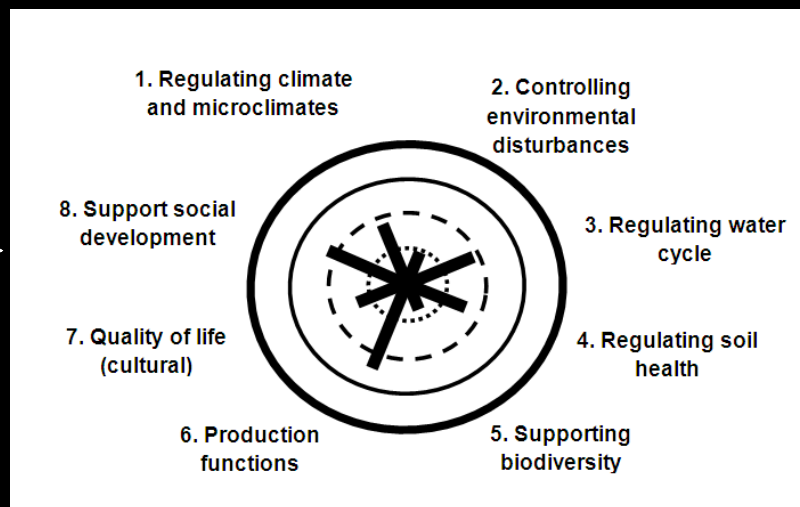
Long term utility of ecosystem services



- Ecosystem functions
- Dependence
- Flows to people
- Tradeoffs
- Multiple scales

Ecosystem services and agriculture

- Erosion control
- Water purification
- Soil quality
- Pest mitigation
- Pollination
- Flood control
- Etc.

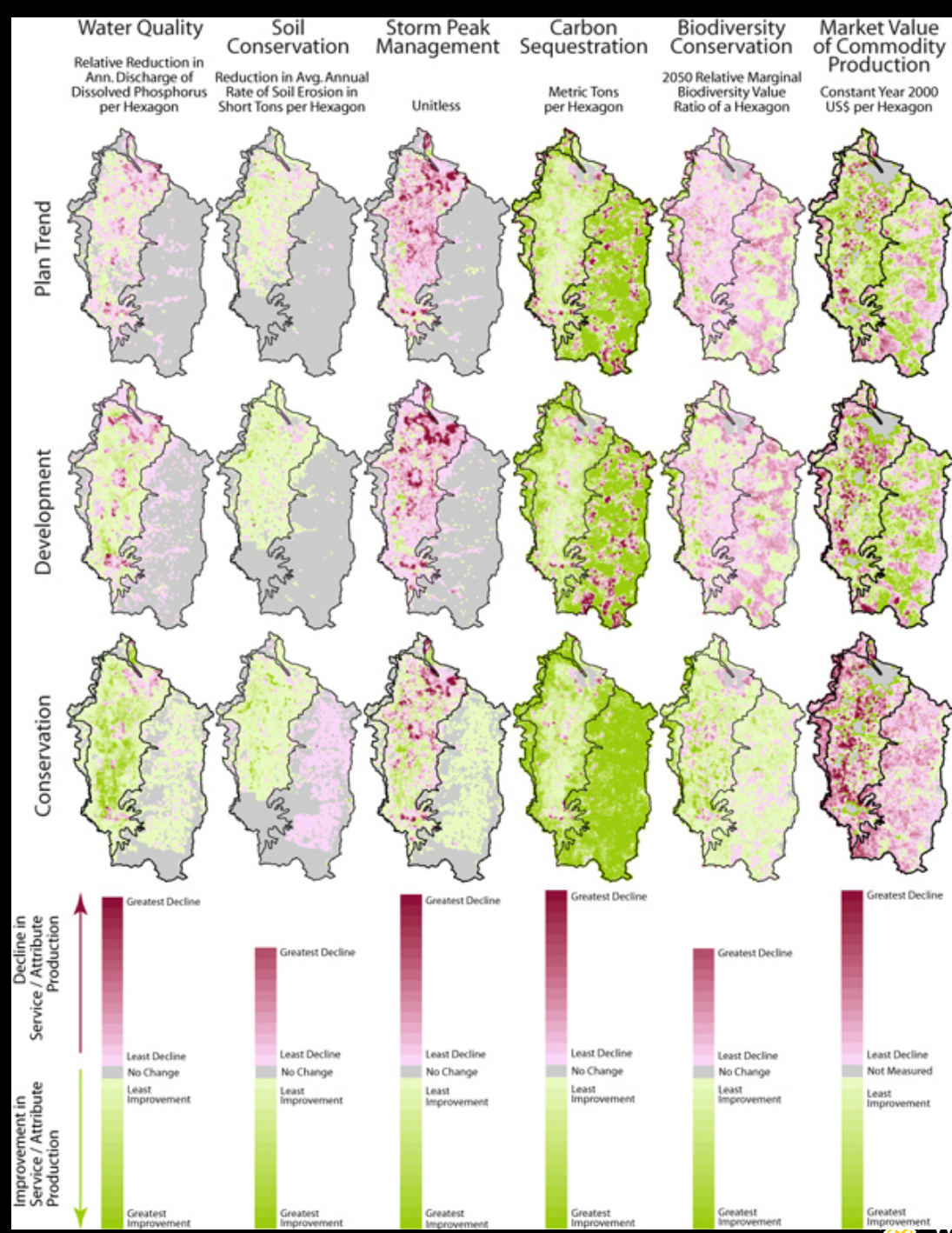


- Water quantity
- Water quality
- GHG seq.
- Pollination
- Flood control
- Etc.

MANAGEMENT GOALS

- NRCS/cost share (CEAP)
- Markets (e.g., nutrient, carbon)
- Supply chain development
- Grower outreach (Gates)

Flows of ecosystem services



Payments for ecosystem services

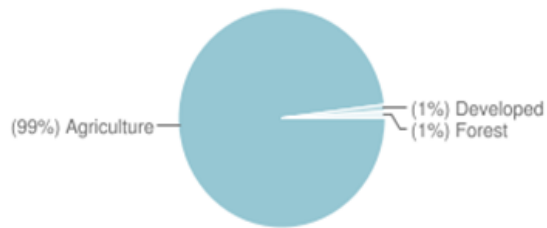


Site level analysis

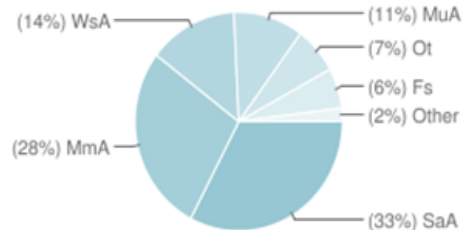


reducing watershed nutrient runoff

Land Cover



Soil Types



Ecoregion

Middle Atlantic Coastal Plain

Physiographic Region

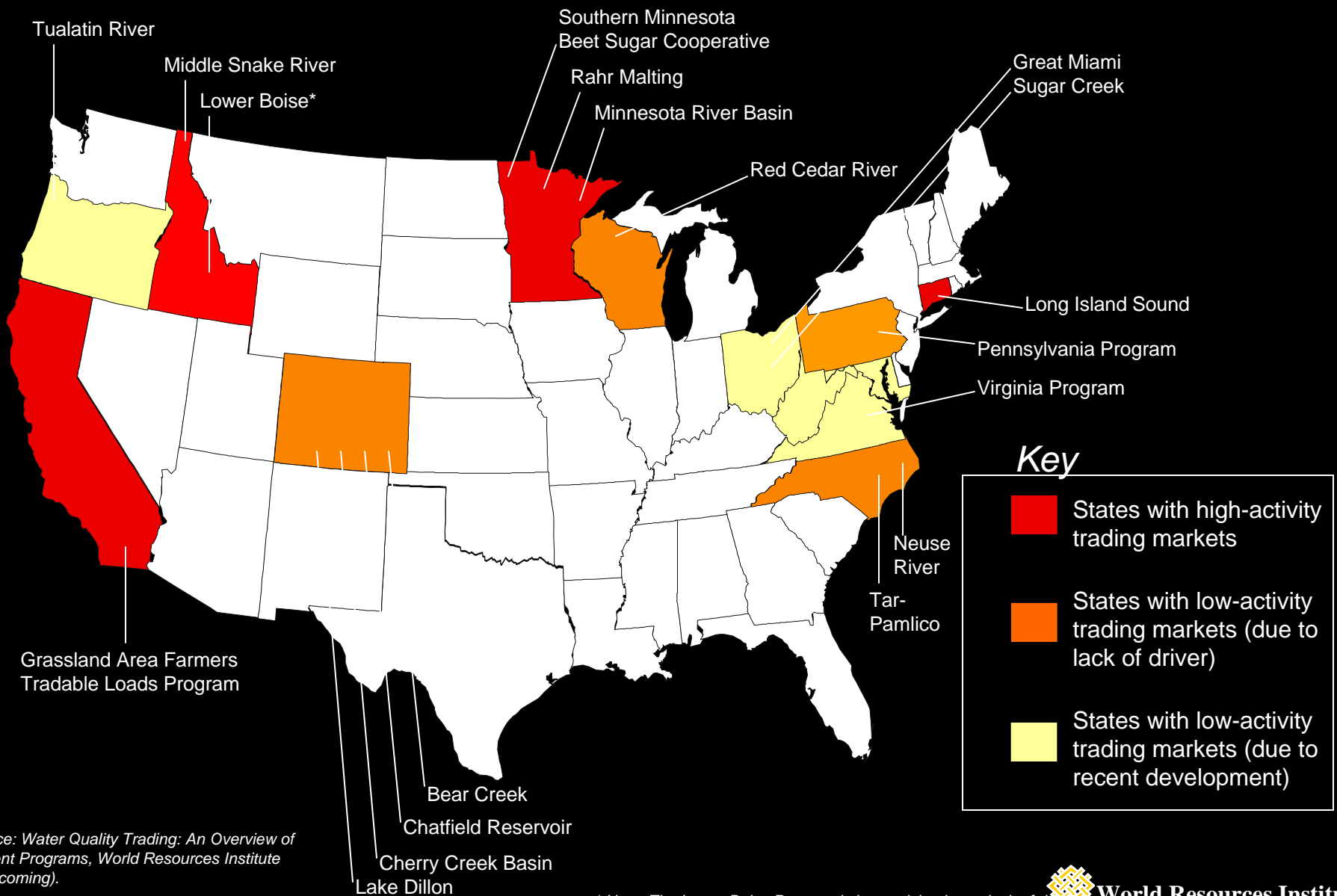
Coastal Plain

Median slope: 2.36%
Average Aspect: Southwest
Average Elevation: 25.2 feet

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Water markets currently in operation



Source: *Water Quality Trading: An Overview of Current Programs*, World Resources Institute (forthcoming).

* Note: The Lower Boise Program is low-activity due to lack of driver.

For more information:
www.wri.org/ecosystems

John Finisdore

+1 202 729-7897

john.finisdore@wri.org



**Guidelines for Identifying Business Risks
and Opportunities Arising from Ecosystem Change**

Version 1.0



Agenda

10:50 Ecosystem Services

Pest regulation

Pollination

Waste assimilation (detoxification)

11:00 Management frameworks

11:05 Flows (services and disservices) s

THE CORPORATE ECOSYSTEM SERVICES REVIEW



Guidelines for Identifying Business Risks and Opportunities Arising from Ecosystem Change

Version 1.0



World Business Council for
Sustainable Development



Meridian Institute
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