

Why Countries Are Constructing Ecosystem Accounts

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1. Ecosystem accounts: Netherlands and Zanzibar

....a simple approach for (mostly)
market goods and services



Netherlands: economic accounts for the North Sea

Reporting under the EU Marine Strategy Framework Directive

		Employment, thousand FTE	Value-added, million euros
Dutch Continental Shelf (1 large area)			
	Shipping	0.2	37
	Fisheries	0.2	45
	Oil & Gas	0.8	5,866
	Sand	na	na
	Wind power	na	11
	Total	1.2	5,959
Coast (1 mile behind shoreline) & 5 Seaports			
		110.4	13,852
TOTAL		111.6	19,811

Zanzibar: marine and coastal ecosystem accounts

Managing development of fragile coastal environment for sustainable growth and poverty reduction—

- What are the (dis)incentives for sustainable management faced by local communities, government and others?
- How can tourism benefit local communities?

Employment, contribution to GDP, and distribution of income by stakeholder group for

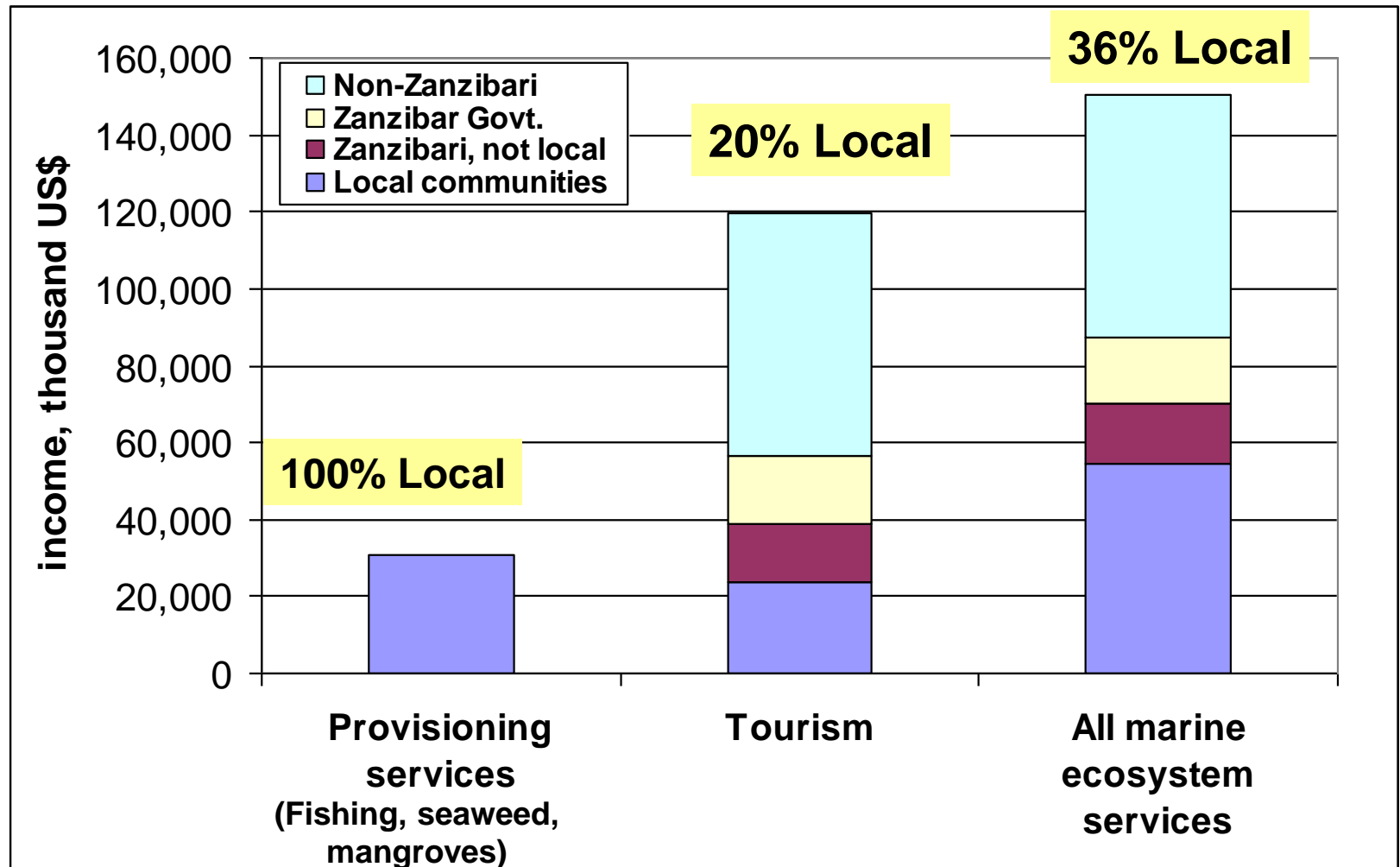
- Tourism, fishing, seaweed farming, mangrove harvesting
- Land accounts for the shoreline--access to shoreline by different stakeholders and incomes generated



Marine & coastal ecosystem services

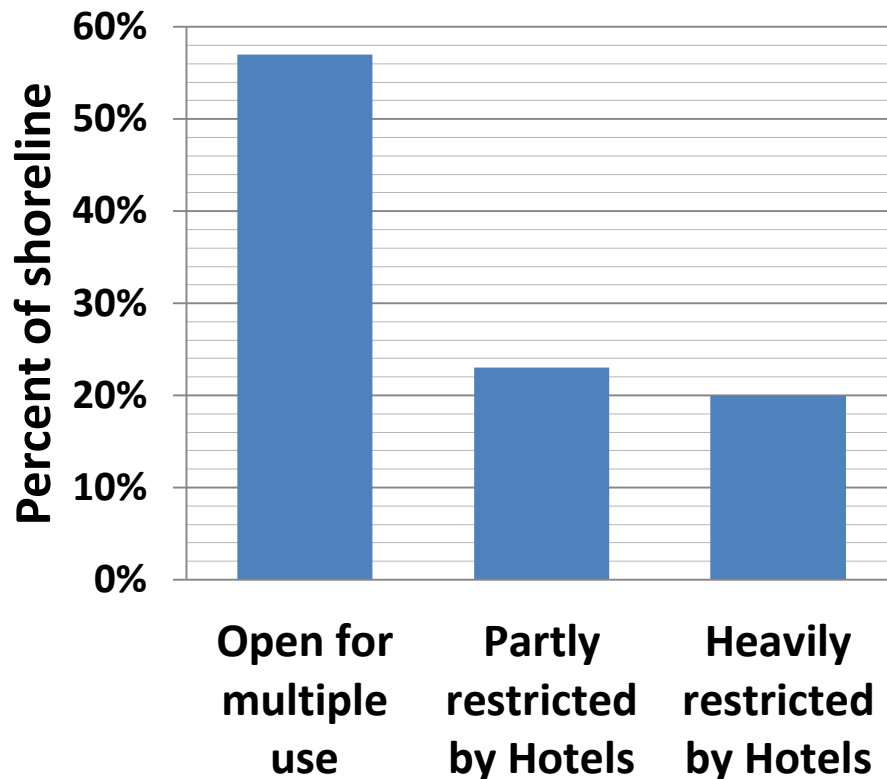
Contribution to GDP = 30%

Benefits to local communities vary a great deal!



Access to Shoreline for Livelihoods: potential conflict between local communities and tourism

Access to Sandy Shoreline



Shoreline classified as

- Sandy (106 km),
- Rocky/Cliff (135 km)
- Mangrove (164km)
- Urban/Industrial (2 km)
- River estuary (<1 km)

Usable shoreline limited to **sandy shoreline.**

Economic activity mapped to 5 regions (and tourism to 23 subregions)

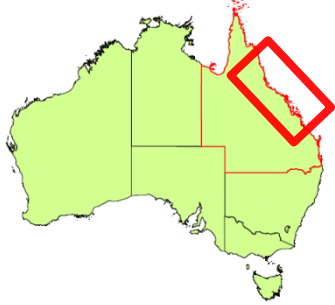
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2. Ecosystem accounts:

....taking into account non-market ecosystem services and 'externalities' like pollution



Protecting Australia's Great Barrier Reef

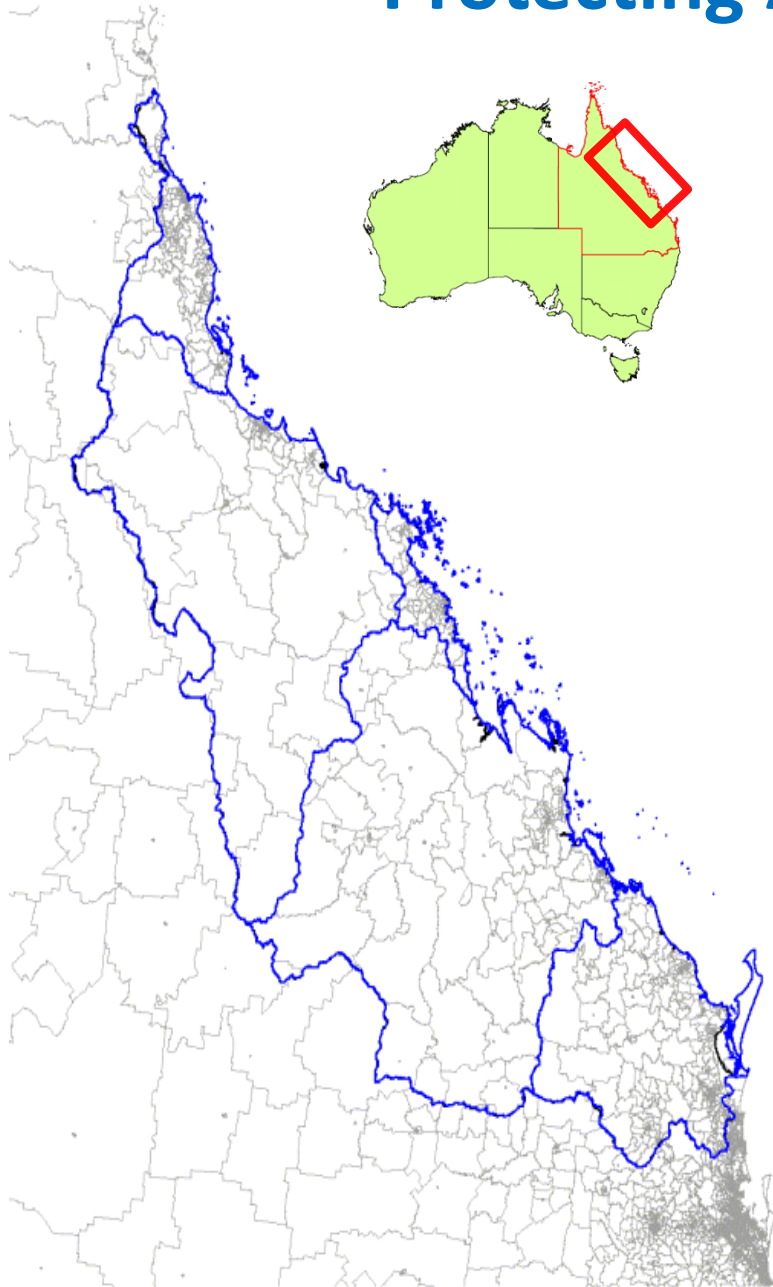


Major asset, source of income and jobs from:

- Tourism
- Fishing industry

**Coral reef managed well--
protected from overfishing, overuse
by tourism**

**BUT,
Major threats from *on-shore
activities*—
sediment, pollutants (phosphorus,
nitrogen) mainly from Agriculture**



Ecosystem Accounts: linking land use to water quality impacting Great Barrier Reef

	Total suspended solids	Total nitrogen	Total phosphorus	PS11 herbicides
Natural Resource Mgmt Region	ktonnes/yr	tonnes/yr	tonnes/yr	kg/yr
Cape York	2388	2998	1516	n/a
Wet Tropics	1360	4400	2037	10054
Burdekin	4738	2446	2555	4911
Mackay-Whitsundays	1542	912	2172	10019
Fitzroy	4109	1672	4142	2269
Mary Burnett	3076	1463	3092	990
Total GBR region	17213	13891	15514	28243

Land use in the watershed:

- agricultural practices and land use:
 - land characteristics
 - agricultural practices (crop, tilling, agr chemical use)
 - resulting runoff of sediment & chemicals
 - number of jobs and income affected
- (also urban, industrial land use & economic activities)

Prioritize areas to target for improved land management



Watershed land management for water quality in Costa Rica and Himachal Pradesh, India

Hydropower = 100% of electricity, and major export of HP

But hydro faces threat from **high sediment runoff** due to current land use (clogs turbines/fills dams)

Both have nationally mandated **Payment for Environmental Services (PES)** schemes to improve land management for water quality and carbon storage (Costa Rica), and need to

- estimate value of soil retention service,
- set payments for land use change to promote soil retention, and
- identify priority areas for payments where sediment control is greatest.

But they lack information...Watershed ecosystem accounts will provide this information:

- forested land cover & use (land cover, slope, rainfall, etc.),
- Water flow regulation and soil retention/sediment runoff (modeled)