

Agricultural development has been pushing the forests of the Eastern Arc Mountains ever further toward the peaks, threatening thousands of rare species, people's livelihoods, and water and power resources. The Natural Capital Project is one partner in the Valuing the Arc program, working with over 40 collaborators in Tanzania, the UK and South Africa to map and value the mountains' many ecosystem services. The maps will be used to steer decisions and resources toward forest conservation and watershed management.

### Providing the scientific foundation for several key ecosystem services policies

Roughly 50% of Tanzania's power generation and 10-25% of its drinking water come from rivers flowing from the Eastern Arc Mountains. Its forested areas also dampen floods, provide medicines, foods, and building supplies to surrounding communities, and store carbon to reduce climate change. Already the impacts of encroaching agriculture are evident: rivers contain less water, especially in the crucial dry seasons, Tanzania's major cities are forced into rolling blackouts, and people travel ever greater distances to collect needed products from the forest.



Several ecosystem services policy initiatives that are just getting started:

- The Tanzanian government has commissioned an ecosystem services task force, which will advise government decision-makers.
- A partnership between WWF and CARE aims to set up the political machinery to compensate suppliers of watershed services via payments from downstream consumers.
- A trust fund has been established for the Eastern Arc Mountains, providing an appealing vehicle for any payment schemes.

To fully succeed, each of these initiatives requires the scientific foundation that our program will provide, and we are working closely with all of them to ensure that our products are as useful as possible and taken up into the policy process.



### Early Results

- At a workshop with over 35 Tanzanian colleagues and stakeholders, we produced a first generation of ecosystem services maps for the Eastern Arc Mountains and the watersheds that drain them, with the InVEST (Integrated Valuation of Ecosystem Services & Tradeoffs) software tool.
- We formed a Project Advisory Committee, composed of high-level government ministry representatives (water, forestry and beekeeping, environment, tourism, energy), NGOs, and donors. The committee is chaired by a member of Tanzania's Vice President's office, has been convened three times in Dar es Salaam, and is charged with helping us target our work for maximum policy effect.
- Field data have been collected and collated for more sophisticated models of several ecosystem services (carbon storage, carbon sequestration, timber production, non-timber forest products, rainfall, in-stream flows, ecotourism) and biodiversity.

NATURAL CAPITAL PROJECT:  
 ■ Eastern Arc Mountains, Tanzania



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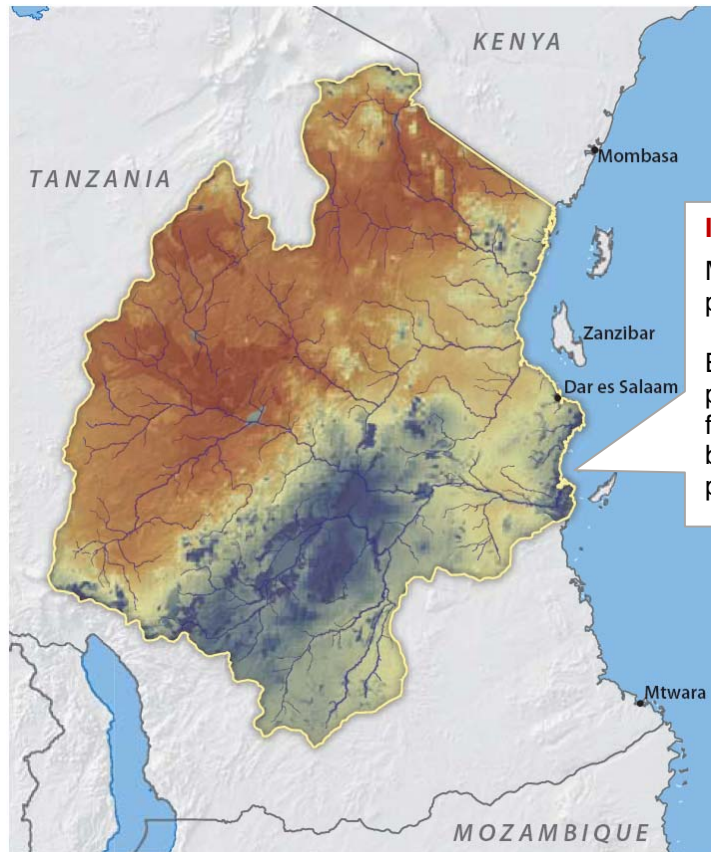
### Eastern Arc Mountains' Life-Support Systems

- **Hydropower:** At least 50% of the electricity used in Tanzania comes from hydropower stations along rivers flowing from the Eastern Arc Mountains.
- **Drinking Water:** The Ruvu River is the main source of drinking water for Dar es Salaam's 3 million residents.
- **Non-timber Forest Products:** The Eastern Arc forests are the major source of firewood, building poles, wild vegetables, bushmeat, and medicinal plants for hundreds of thousands of local people living in the mountains.
- **Size of the Eastern Arcs and its watersheds:** 343,227 sq km
- **Population Affected:** ~ 5 to 8 million (3 million in Dar es Salaam, alone)

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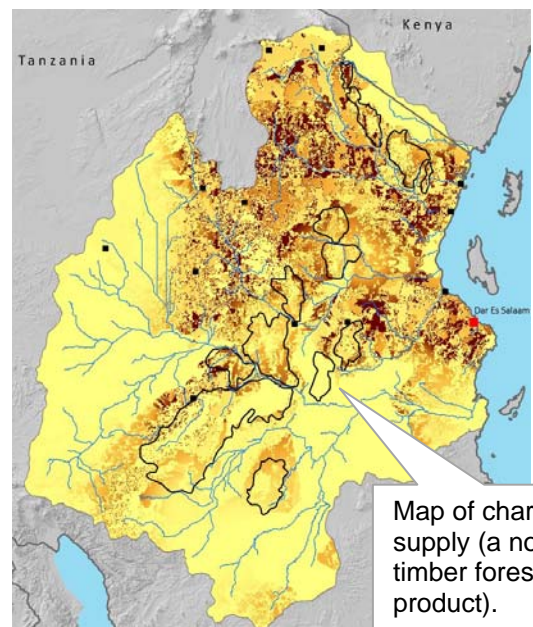
#### InVEST in Action

Map of freshwater provision.

Blue areas produce more freshwater and brown areas produce less.

### Mapping and valuing ecosystem services under alternative policy and development scenarios

Our strategy is to map the ecosystem services originating in the Eastern Arc Mountains under current conditions, estimate their economic value, and identify the key suppliers and consumers of each service. We will also map ecosystem services under several plausible future scenarios, reflecting contrasting policy and development decisions. With these results, we can make vividly clear to decision-makers the future consequences of policy choices on both species and people. We will use all this information to recommend policies for compensating those who provide services by conserving the ecosystems that generate them.



Map of charcoal supply (a non-timber forest product).

Darker brown areas provide more charcoal to local communities.