

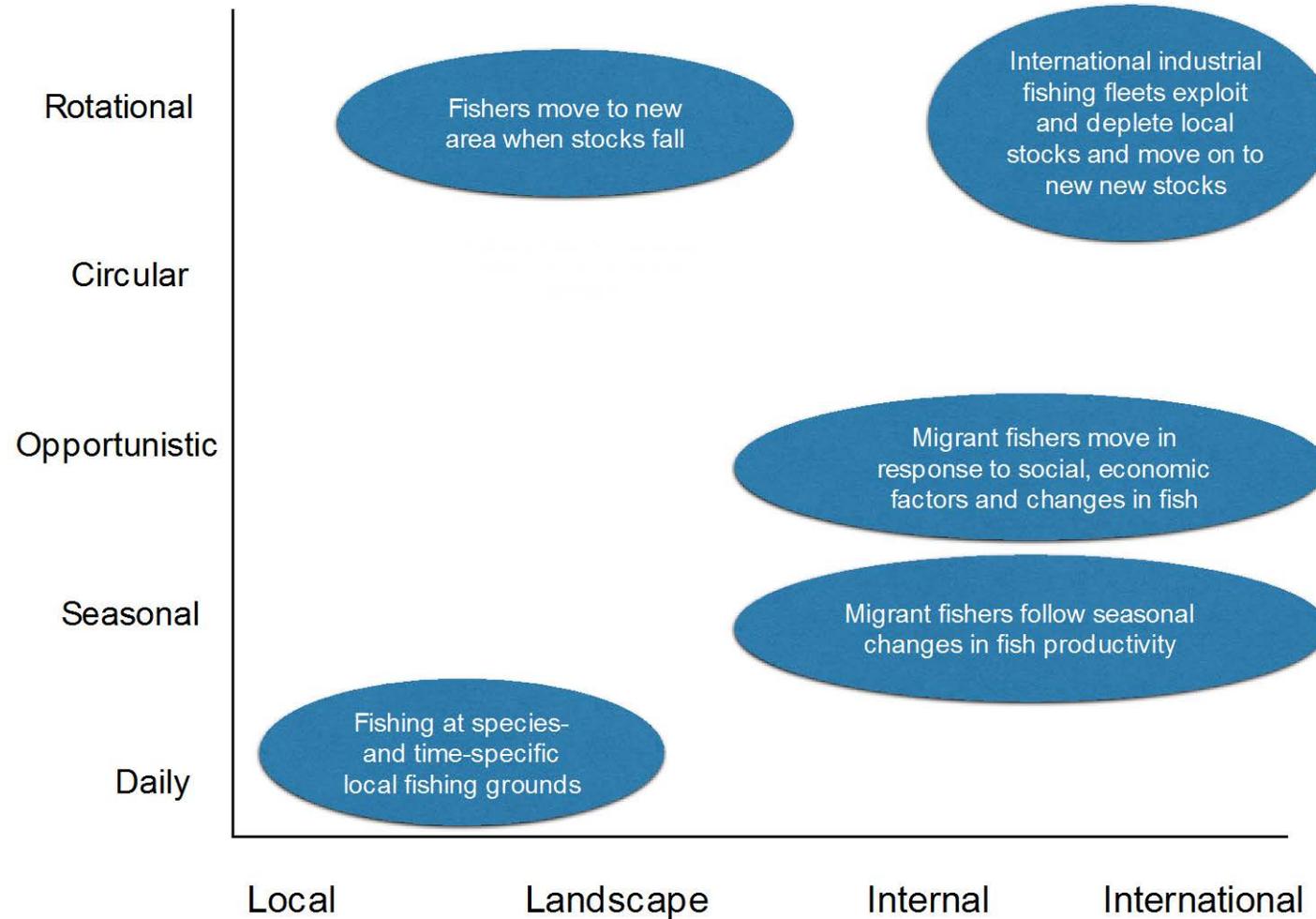
Interactions of migration and
population dynamics with ecosystem
services

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Four issues and some frontiers

1. Ecosystems are mobile, so are people
 2. Migration systems interact with ecosystem services
 3. Migration decisions have consequences for ecosystem services at source and destination
 4. Ecosystem services interact with population dynamics
- Frontiers of research: urban ecosystem services; managing mobility; involuntary migration

Ecosystems are mobile, so are people

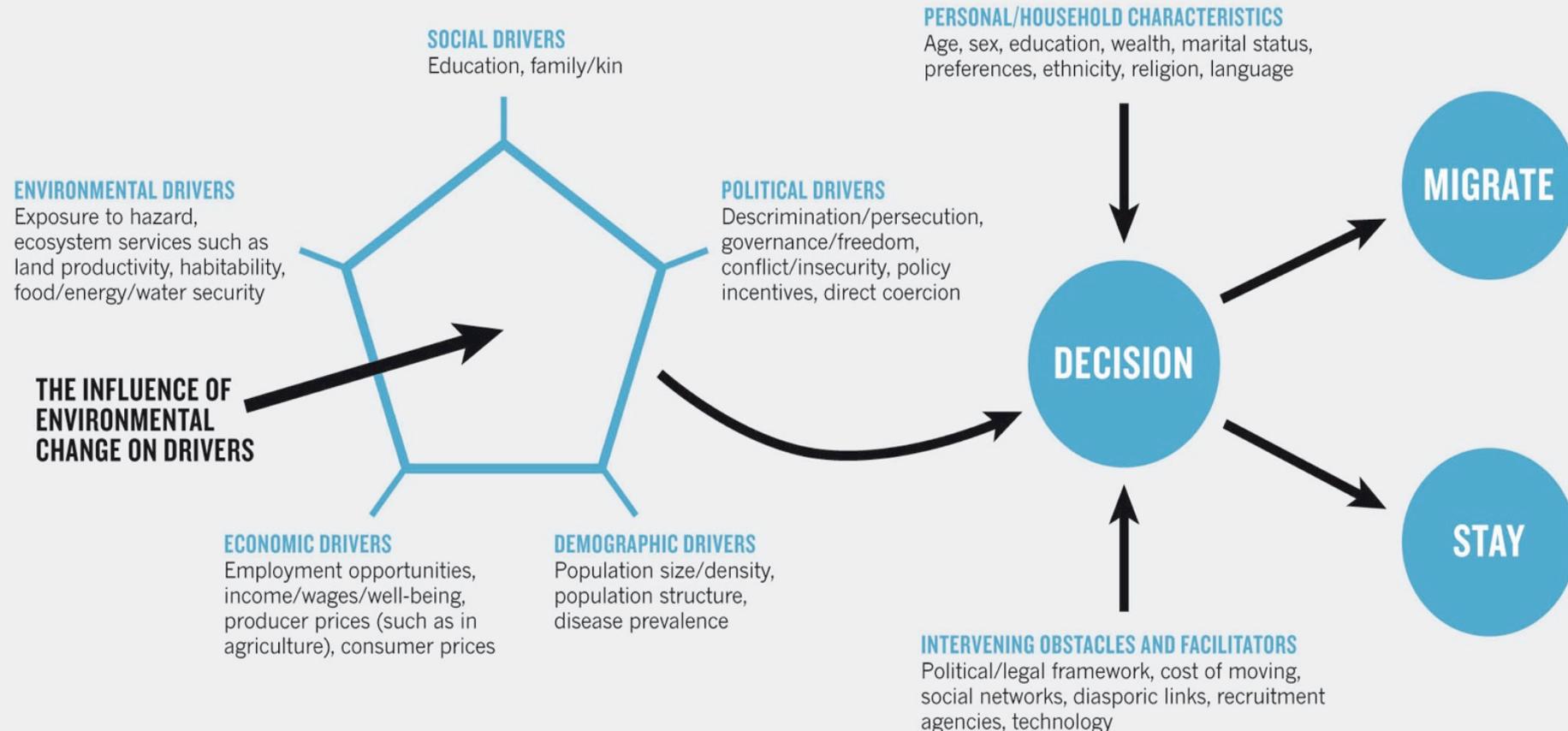


Spatial-temporal variability and mobility of fishers and fisheries

Migration decisions ↔ ecosystem services

THE DRIVERS OF MIGRATION

Many factors influence whether a person or family will migrate. Their effects are closely intertwined, so it makes little sense to consider any of them in isolation.



Migration decisions ← ecosystem services

Ecosystem service availability and quality influence migration decisions:

Principal drivers of migration are economic and education opportunities

Ecosystems play a role by influencing opportunities and risks in source and destination areas

Cultural ecosystem services provide landscapes of meaning and place attachment

Migration decisions ← ecosystem services

Loss of ecosystem services affects natural hazards and involuntary displacement

Migration outcomes of long and short term change complex:

Shocks can reduce opportunities for migration as a livelihood strategy

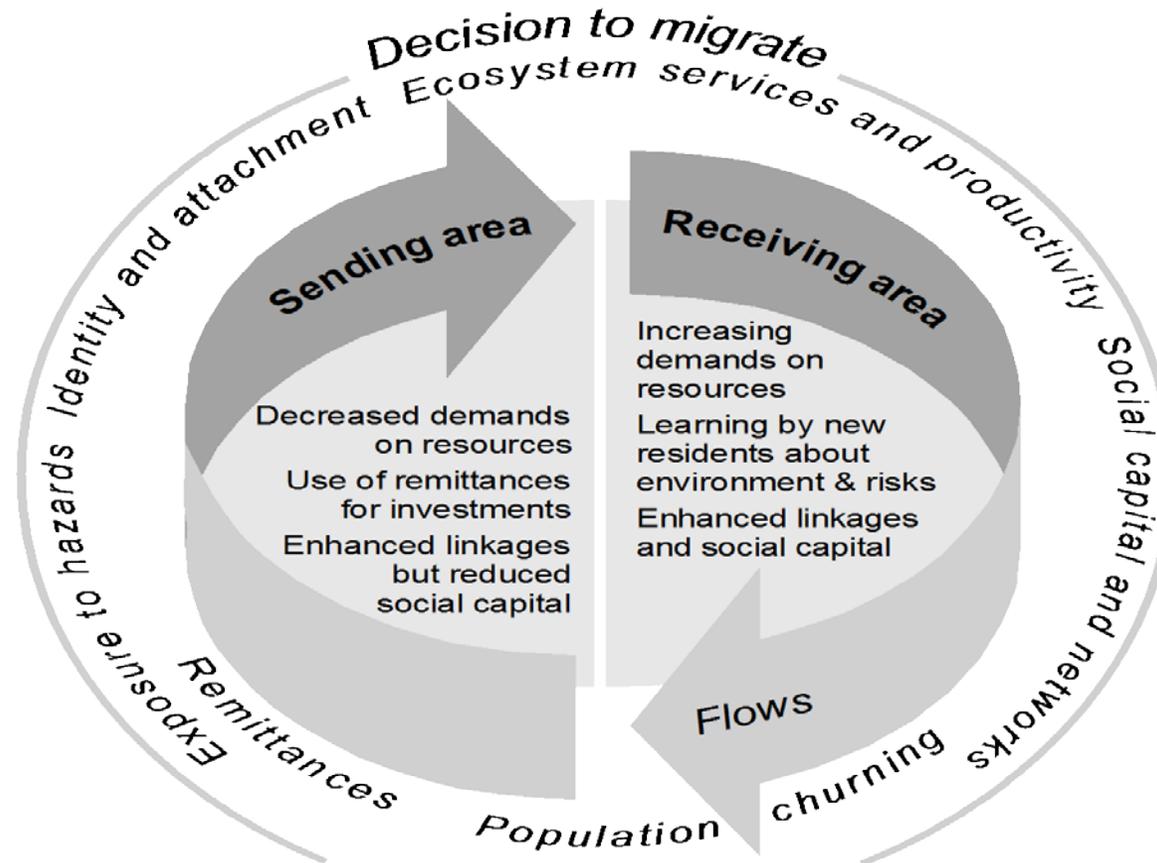
Most vulnerable may have least capacity to migrate

Location	Environmental shock or change	Key ecosystem service effects	Impact on migration
Vietnam (Dun, 2011)	Increasing frequency of extreme floods events	Loss of annual agricultural productivity	↑
Ethiopia (Gray and Mueller, 2012)	Drought	Loss of livestock and crops	↑ ↓
Bangladesh (Call et al., 2017)	Precipitation, temperature and flooding variability	Destruction of crops and reduced productivity	↓ ↑

Migration decisions
at source and destination



ecosystem services



Population dynamics and ecosystem services

Demand for ecosystem services changes over lifecourse

Shrinking household sizes increase environmental burdens

Ecosystem loss leads to livelihood insecurity, with potential interaction effects with migration and fertility choice

Research frontiers

- I. Given dominant rural to urban migration flows, can ecosystem services in urban areas and rural-urban flows be managed to make safe and sustainable cities?
- II. How do ecosystem services affect long-term population movements? How can the maintenance of services minimise involuntary migration?
- III. How can ecosystem management and poverty alleviation strategies account for human mobility and ecosystem service variability in space and time?