

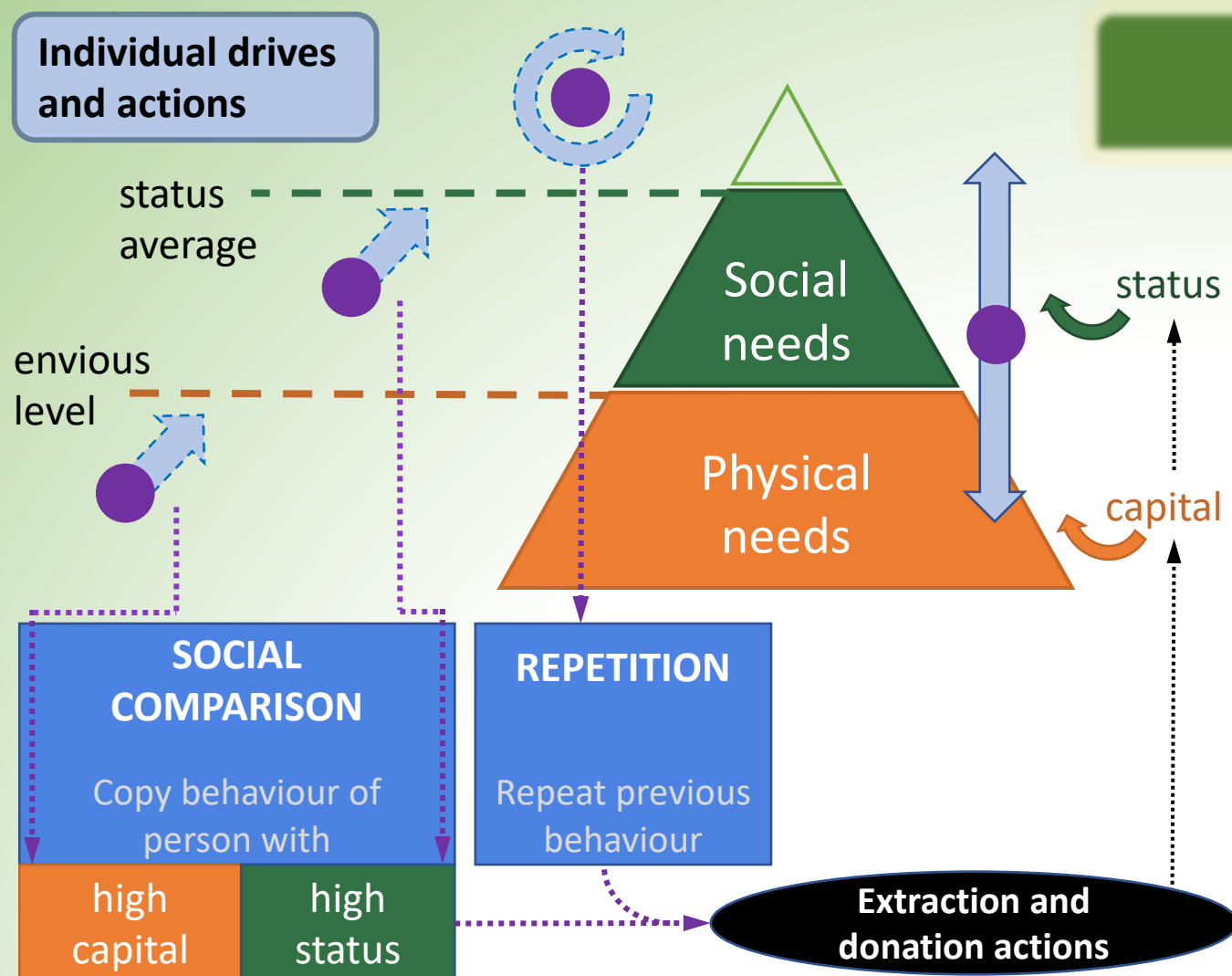
Differences in sociality may heavily influence resource sharing success.

An agent based model of sustainable resource extraction by different social groups with individuals driven by physical and social needs.

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Aim

Investigate the effects of having similar or different internal social norms (sociality types) in communities with interconnected resources, on local and total extraction sustainability.



Model Design

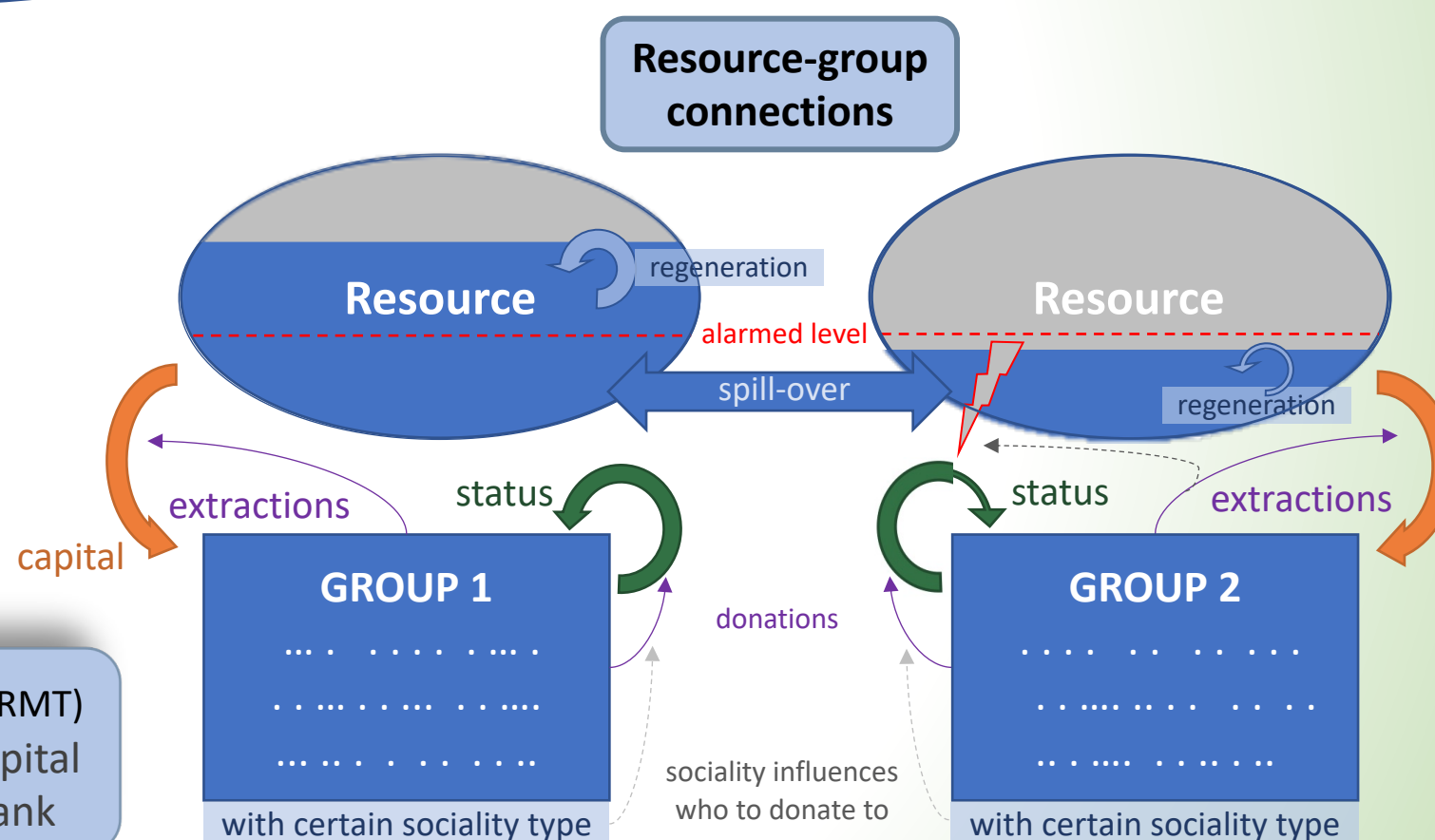
Individual behavior based on hierarchy of needs and social mimicking:

- **Check if physical needs met:**
capital > envious level in group
If not: mimic person high in capital.
- **Check if social needs met:**
status > average status group
If not: mimic person high in status.
- **If both met: content**
Repeat own previous behaviour.

Resource extraction by different groups:

- **Extractions from resource** → capital
- **Donations within group** → status
- **Regeneration of resource**
- **Spill-over between resource locations**
- **If resource < alarmed level**
highest extractors penalized
(in status or capital)

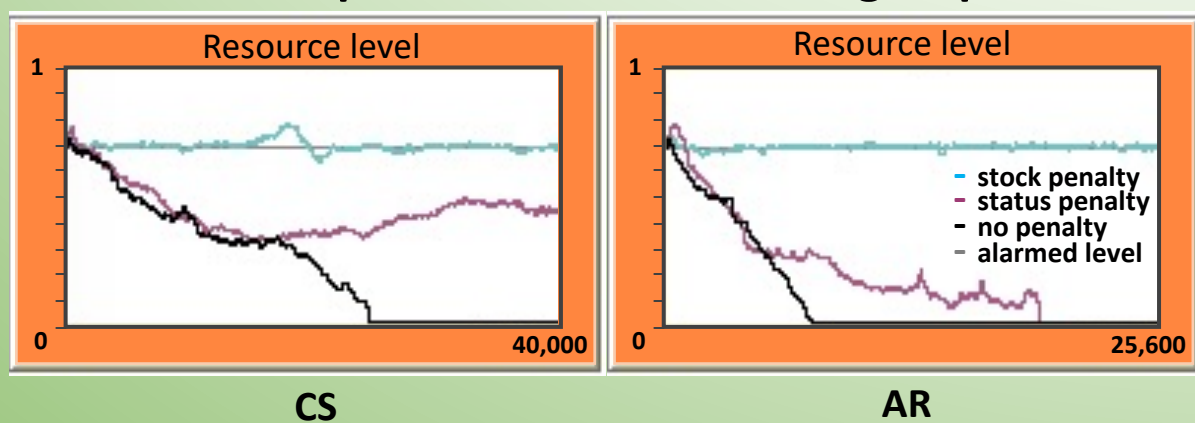
With two opposing sociality types: (from Alan Fiske's RMT)
Communal Sharing (CS): donate to agents with lower capital
Authority Ranking (AR): donate to agents with higher rank



Findings

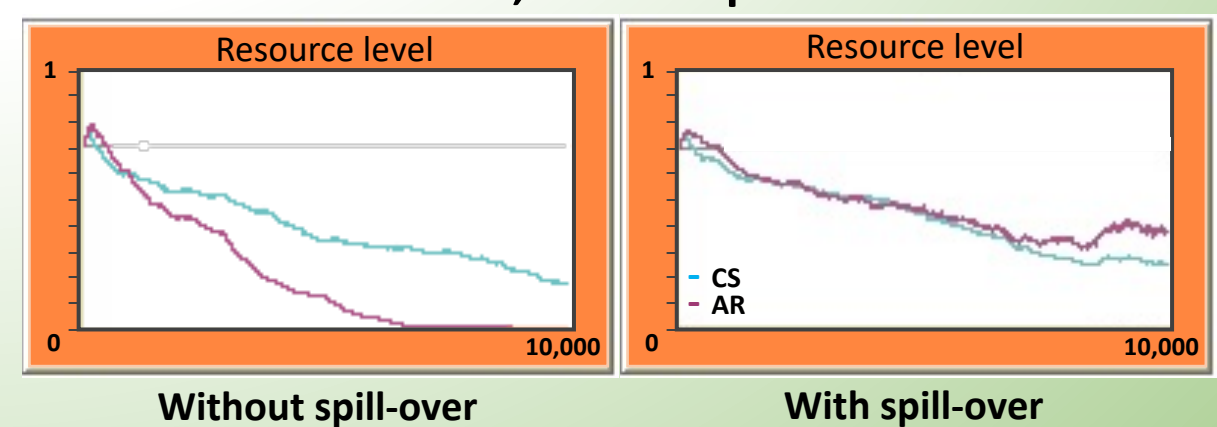
Both stock and status penalties can help sustainable resource use. How well the status penalty works, differs per sociality type.

Effect penalties on CS and AR groups



When resources are connected via spill-over, a waterbed effect may occur between a penalizing and non-penalizing group.

CS vs AR, without penalties



Some sociality type communities may benefit from being connected via spill-over, on the expense of others.

AR vs AR, 1 group penalty (in stock)

