

# Identifying Perverse vs. Benign Adaptation Strategies

Fig. 1. Four plausible scenarios result from the interaction of climate adaptation strategies with climate change and with other elements of global change.

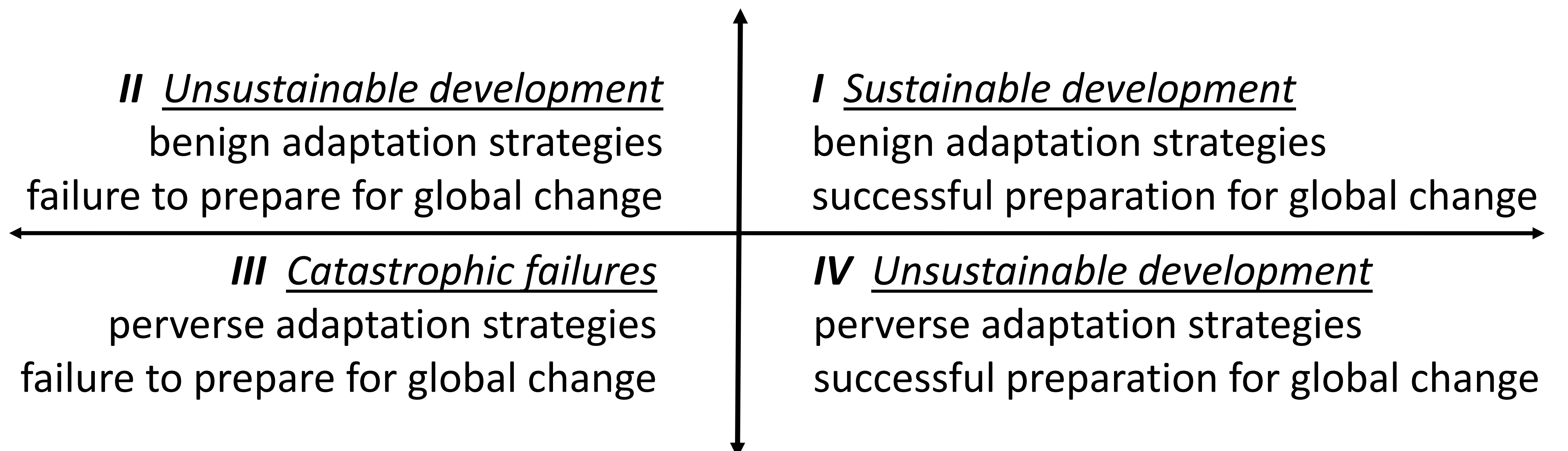


Fig. 2. The electricity industry in Tanzania is based largely on hydroelectric generation, threatened by increased severity and frequency of droughts. One option is clearly benign and one is clearly perverse.

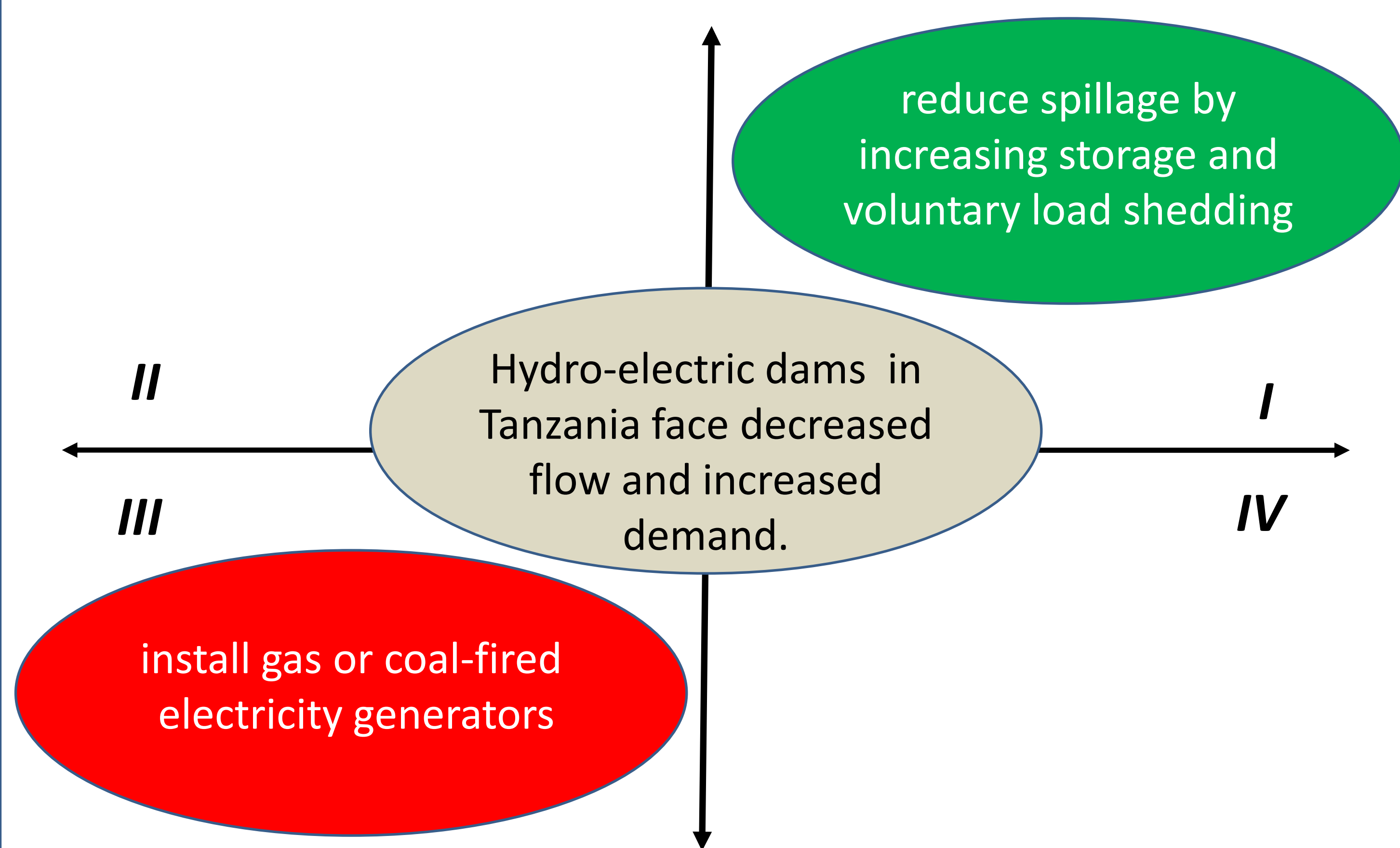
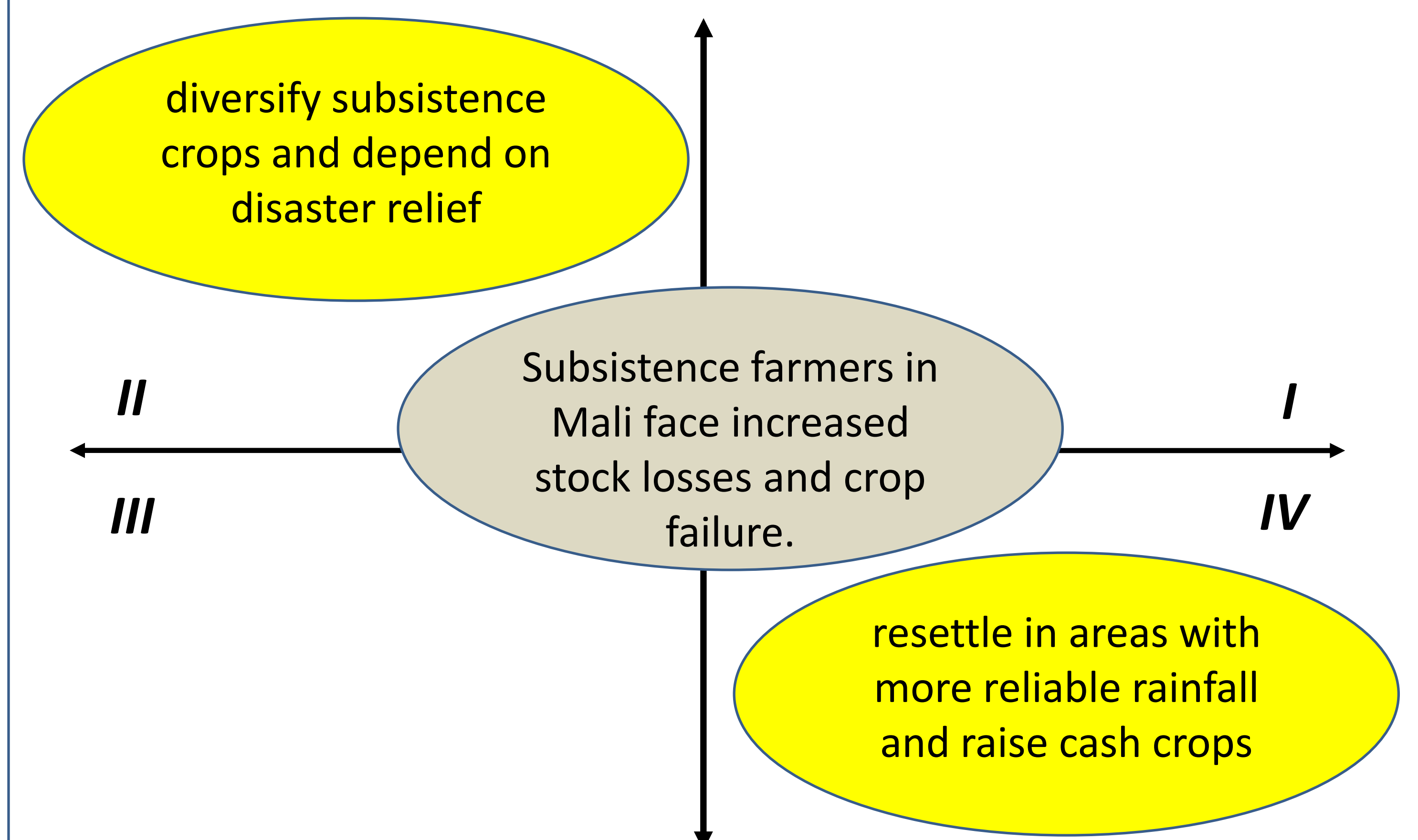


Fig. 3. Rain-fed subsistence farmers in Mali also face an increased severity and frequency of droughts. They also have two options, but neither improves their overall ability to manage systemic risks.



Note: These case studies are taken from Chaisemartin *et al.*, 2010, who assesses their economics, not their associated risks as described here.

Adaptation strategies will succeed or fail to the extent that they help human and natural ecosystems cope with rapid climate change and increased climate variability, regardless of whether, or at what level, global mean temperature eventually stabilizes.

We will not know in advance either the pace of rapid climate change or the magnitude of climate variability.

We can be confident that resources for adaptation will be limited and should therefore be directed where they can be most beneficial.

Caron (1990) introduced the concept that some strategies that make it easier to manage problems now might, perversely, make them worse over the long term.

Once climate changes significantly, such perverse strategies will fail and future generations will waste a great deal of resources trying to avert those failures.

Some perverse adaptation strategies will arise unintentionally from unanticipated impacts of climate change.

For example, toxic waste dumps situated in coastal, flood-prone, areas may have been designed to survive a 500 year flood event, but not several such floods, let alone permanent inundation.

Such dumps will require ever-increasing investment to defend and, eventually, to relocate or they will fail catastrophically.

Other perverse strategies will arise intentionally from deliberate decisions to (a) ignore synergies among climate change and other aspects of global change and (b) shift impacts from one set of current actors to another set of future actors.

Examples include failing to maintain aging infrastructure and making a water supply increasingly dependent on coal-powered electricity.

Four plausible scenarios result from the interaction between two continuous variables: whether adaptation strategies are perverse or benign; and whether their synergistic interactions with other global change strategies generates positive or negative feedback.

Many proposed adaptation strategies ignore both global change and potentially perverse outcomes, combining to create future conditions in which both global change and perverse strategies lead to catastrophic failures (Fig. 1 quadrant III).

Early action to stabilize and reverse perverse adaptation strategies will promote sustainable development (Fig. 1 quadrant I).

Caron, D. 1990. When law makes climate change worse: rethinking the law of baselines in light of a rising sea level. *Ecology Law Quarterly* 17:621-653. [http://works.bepress.com/david\\_caron/59/](http://works.bepress.com/david_caron/59/)

Chaisemartin, A. de, M. Normann and J. Pestiaux, 2010. Extreme climate conditions: How Africa can adapt. McKinsey & Company. [https://www.mckinseyquarterly.com/Energy\\_Resources\\_Materials/Environment/Extreme\\_climate\\_conditions\\_How\\_Africa\\_can\\_adapt\\_2616](https://www.mckinseyquarterly.com/Energy_Resources_Materials/Environment/Extreme_climate_conditions_How_Africa_can_adapt_2616)