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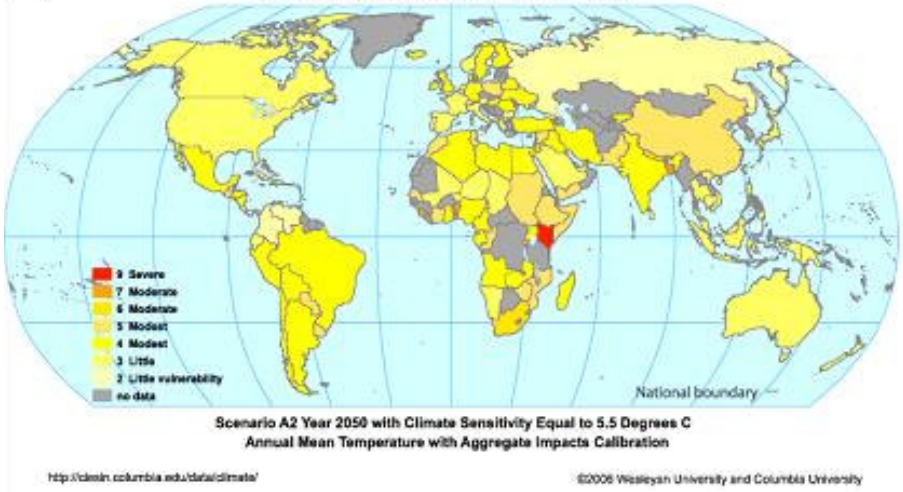
Climate Change: Impacts & Adaptations

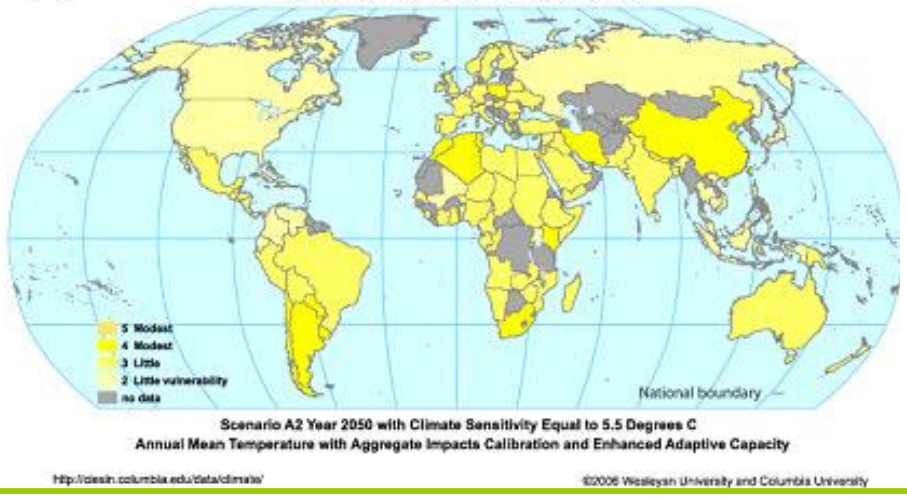
Introduction

Global climate change models project the impacts of climate change to vary greatly across the world (map A). Similarly, the vulnerability to these impacts varies greatly across regions, cultures and societies. *Climate vulnerability* is the degree to which a system is unable to cope with negative impacts of climate change, such as changes in average conditions and the occurrence of extreme events and variability. *Climate change adaptation* is a way to decrease climate vulnerability; map B shows a widespread decrease in climate change impact given an enhanced adaptive capacity.

Map A. Global Distribution of Vulnerability to Climate Change Impact



Map B. Global Distribution of Vulnerability to Climate Change Impact with Enhanced Adaptive Capacity



Climate Change Adaptation

The Intergovernmental Panel of Climate Change (IPCC) defines *climate change adaptation* as "the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects which moderates harm or exploits beneficial opportunities." (2007)

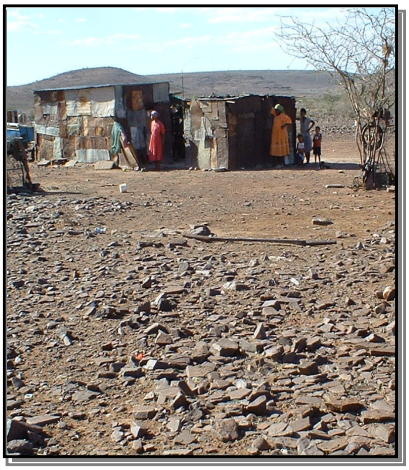
Types of Adaptation

- *Autonomous adaptation* is change that takes place separate from planning or outside involvement
- *Reactive adaptation* is an emergency response to conditions
- *Planned anticipatory adaptation* uses specific action to address environmental change

Adaptive Capacity is the ability to plan, prepare for and implement adaptation initiatives. Adaptive capacity is determined by economic wealth, and access to resources, technology, information and skills, stability, social capital, among other factors.

The Approach of adaptation measures and strategies can be:

- technological
- behavioral
- managerial
- policy-oriented



Barriers to the successful implementation of adaptation measures include:

- financial
- institutional
- technological
- cultural
- knowledge
- capacity

Household Adaptation Measures to Climate Change in Namibia

Adaptation measures can be driven by the individual households and/or guided by political decision makers to address specific impacts and vulnerabilities. In rural Namibian households adaptation must be cost-effective and tied to subsistence farming. Specifically, energy-related adaptation must be tied to basic energy uses, namely cooking, lighting and communication devices, and the provision of such services.

The image below illustrates the scope of implementable household energy-related adaptation in rural Namibia.

Energy-related Household Adaptation in Namibia

To minimize the negative impacts of climate change on energy use and services in rural Namibia, priority energy-related adaptation in households should target the high dependence on wood fuel, enhance the stability of inside temperatures, secure reliable access to water, promote small-scale energy generation, and reduce the household dependence on transport fuels and services. To reinforce the interconnectedness of individual adaptation measures, energy-related rural household adaptations can be clustered according to the following themes:

- Food access, preparation and consumption
- Energy efficient building technologies and design
- Water supply
- Household solar technology
- Transport

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