

CLIMATE CHANGE CONCEPTS AND & DEFINITIONS

Prepared by George J. Sayulla
Selian Agricultural Research Institute
(SARI) - Arusha

Climate Change

- "Climate change" means a **change of climate** which is attributed directly or indirectly to **human activity** that alters the composition of the global atmosphere and which is **in addition to natural climate variability** observed over comparable time periods.
- Climate change refers to a **change in the state** of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to **natural internal processes** or external forces, or to persistent **anthropogenic changes** in the composition of the atmosphere or in land use. +). Climate change therefore, refers to any change in climate over time, whether due to natural variability or as a result of human activity.
- Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to **natural internal processes** or external forces, or to persistent **anthropogenic changes** in the composition of the atmosphere or in land use.

Global warming

- Global Warming is defined as the increase of the average temperature on Earth

GREENHOUSE GASES

- Greenhouse gases are gases that trap heat in the Earth's atmosphere. They are called greenhouse gases because they act like the glass of a greenhouse. The glass of a greenhouse lets in heat from the outside sunshine but prevents heat from being lost from the greenhouse to the outside. These are:
 - Carbon Dioxide (CO₂);
 - Methane (CH₄);
 - Nitrous Oxide (N₂O);
 - Hydrofluorocarbons (HFCs);
 - Perfluorocarbons (PFCs); and
 - Sulphur Hexafluoride (SF₆)

Vulnerability

- Vulnerability is the degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change, including climate variability and extremes (IPCC 2001)
- It is the social and ecological context that shapes the ability to cope or secure well-being in the face of climate variability and change
 - *a function of exposure to stressors, sensitivity of a system to a stressor and the adaptive capacity of a system to recover from an event.*

Exposure

- The degree of climate stress upon a particular unit of analysis; it may be represented as either long-term change in climate conditions or by changes in climate variability, including the magnitude and frequency of extreme events.

Sensitivity

- The degree to which a system will be affected by or responsive to, climate stimuli.

Resilience

- **Resilience** is the potential of a system to remain in a particular configuration and to maintain its feedback and function, and involves the ability of the system to re-organize, following disturbance driven-change. **Resilience to climate change** represents the ability of a system or community to withstand the impact of the trends and shocks, absorbing the shocks while maintain the function.

ADAPTATION

- It is the adjustments in ecological, social or economic systems in response to actual or expected stimuli and their effects or impacts. This refers to changes in processes, practices, and structures to moderate potential damages or benefits from opportunities associated with climate change.

ADAPTIVE CAPACITY

- It is defined as the ability of a system to adjust to climate change, including climate variability and extremes, to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.*

Adaptation deficit

- The lack of adaptive capacity to deal with climate change variability and climate change. A useful starting point in addressing adaptation can be to tackle the adaptation deficit before embarking on new adaptation activities.

Mainstreaming

- Mainstreaming climate change into development largely refers to ensuring that projections of climate change are considered in decisions on climate-specific adjustments. It involves the integration of policies and measures that address climate change into development planning and ongoing sectoral decision-making, so as to ensure the long-term sustainability of investments as well as to reduce the sensitivity of development activities to both today's and tomorrows' climate

Climate Change Mitigation

- CCM refers to strategies to reduce the emissions of greenhouse gases from human activities, thereby reducing or completely eliminating the human-induced climate change component and and slow down global warming.
- CCM reduces or avoids greenhouse gas emissions by adopting alternative approaches to the approaches causing the proliferation of the greenhouse gases. New and sustainable energy sources that produce little or no greenhouse gases will have to be developed to mitigate the growing effects of climate change.

Livelihoods

- *A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base*

Livelihood resources

- The basic material and social, tangible, and intangible assets that people use for constructing their livelihoods
- Conceptualized as different types of 'capital' to stress their role as a resource base '...from which different productive streams are derived from which livelihoods are constructed'