

Regional approach

- **Regional impacts:** climate change is a global concern but the effects will be felt and dealt with at the regional or local level (Rannow et al, 2010).
- **Regional approach (RA):** the importance of regional approach meets the requirement of international and thus national need.
- **Interactive system:** (1) to meet national need, the political decision-making will depend on region locations; (2) and the scientific issue will be different for different regions.

(Chiang et al., 2011)

National
initiation

Interaction

Regional
approach

NSC-Project on promoting
Climate Change Adaptation Technology (CCAT)

top-down

TAIWAN

at high risk from natural hazards
e.g. the typhoon

bottom-up

Changing climate, regional impacts!

NTSAT-IR LRIT (v4.0e) - Fldw_07 October 2007 06:00 (GMT+00) - 1x26e, 0.7km

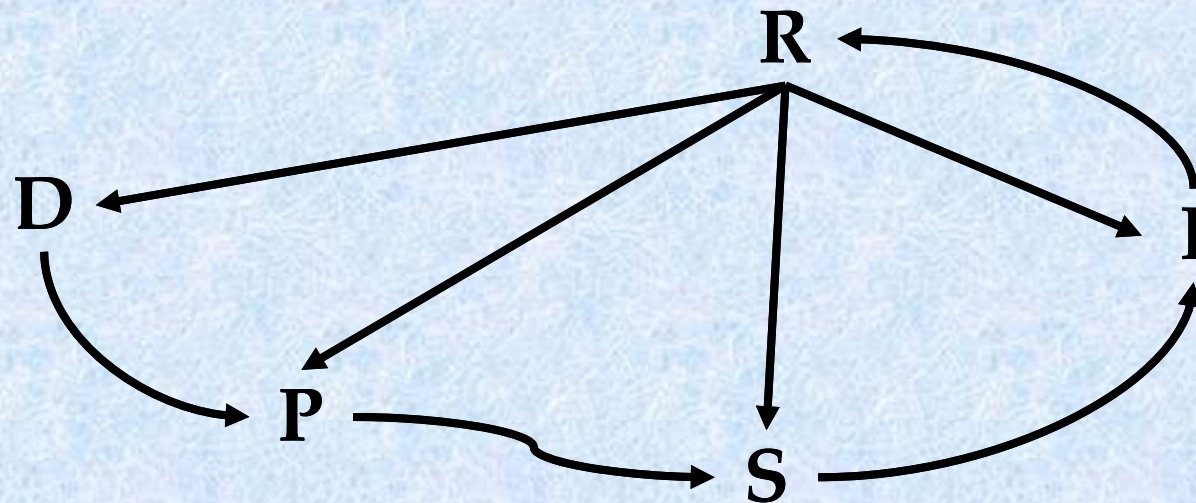
Receivd from NCEP/Climate Prediction Center (CPC)
Data calculated
NCWetter

MC-Wetter

DPSIR framework

- **Social-ecological system:** climate adaptation is an adjustment in social-ecological system in response to climatic impacts (IHDP, 2011).
- **DPSIR framework: Drivers-Pressures-State-Impact-Response** (DPSIR) framework represents a system that includes **social and ecological subsystems** in mutual interactions (Rounsevell et al., 2010), and is thus capable of **exchanging information** among various sectors and disciplines.

- **Formulation:** the regional **State (S)** is the result of specific **Drivers (D)** and **Pressure (P)**, which presents **Impacts (I)** on the environment; the **Responses (R)** represent the solutions for improving and maintaining the state (EEA, 2010).



Research Strengths

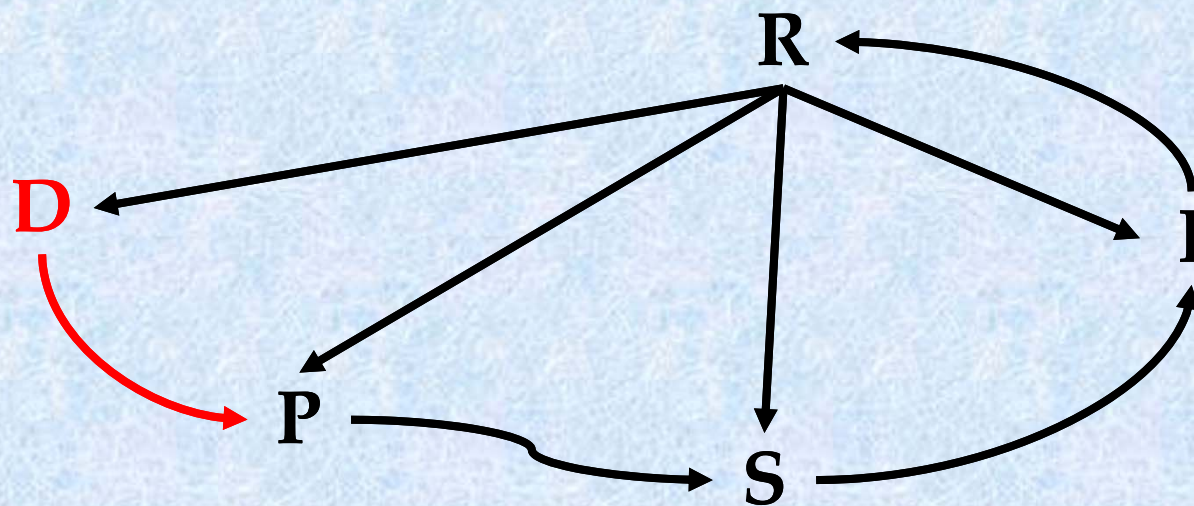
- **Environmental System Analysis:**
 - Monitoring and analyzing for Greenhouse gases, Climate change, Extreme weather, Marine environment, Change detection, and Ecosystem
- **Vulnerability Assessment:**
 - For Water resources, Public health, Ecological environment, Food security, and Disaster prevention
- **Adaptation Planning:**
 - For Risk management, Technological innovation, Policy and governance, and Spatial planning
- **Integrated Efforts:**
 - National Central University, National Taiwan University, National Tsing Hua University, National Cheng Kung University, National Taiwan Ocean University, and Academia Sinica

Conceptualization

- **CVA structure:** D, P, S, I, and R components in causal relationship are useful to formulate the links of **climate change (C)**, **vulnerability (V)**, and **adaptation (A)**.
- **Working groups:** accordingly, three working groups focused on **Environmental system Analysis (EA)**, **Vulnerability Assessment (VA)**, and **Adaptation Planning (AP)** are figured out.
- **Contexts:** **functional and spatial** contexts are established for realizing the tasks of working groups considering the gap between **adaptation theory and practice** (McEvoy et al., 2010).

- **EA task :**

- developing **environmental system assessment database,**
- understanding human-induced climate change that as **Driver** may cause global warming and some extreme weather events,
- combining **climate projections** with enhanced environmental monitoring technologies.



Satellite observation



Airborne observation



Sounding observation



Slope-land disaster monitoring

Sea surface and coastal monitoring

Doppler radar



Resource satellite station



VHF radar



Ground observation

Underground water monitoring



Ships

Buoy, trestle

Biosphere monitoring



Vehicular radar



Solar radiation sensors



Lidar

Omni-directional Environment Monitoring Network

Pacific Greenhouse Gases Measurement Project



440 ppmv

Mauna
Loa
387.50

