Group 1

Environmental Monitoring

Concept

Understand land surface processes and
Human interactions

- Functionality
- Monitoring
- Technology development

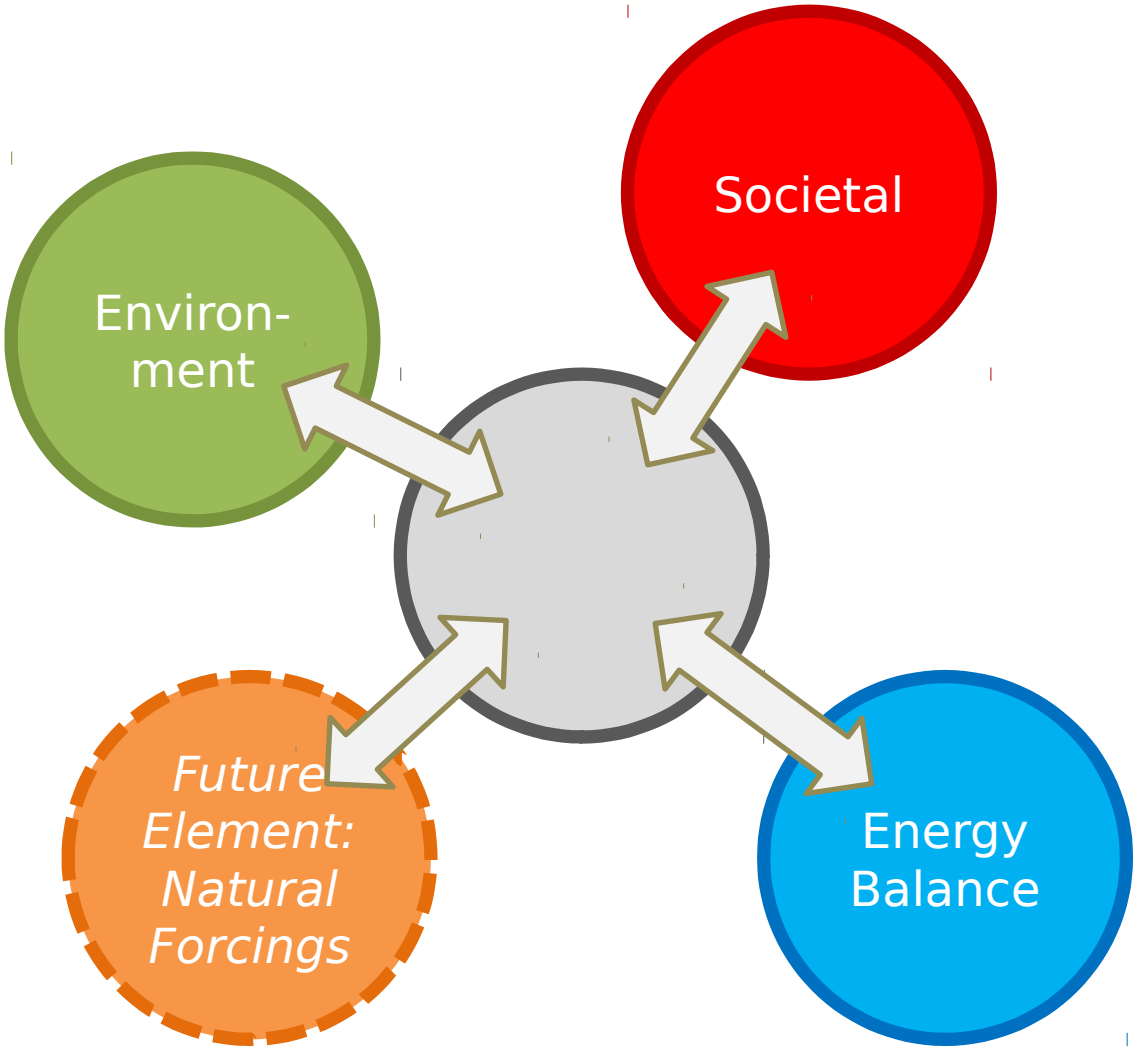
Prepare

- Scenarios
- Management tools
- Mitigation action
- Socioeconomic aspects

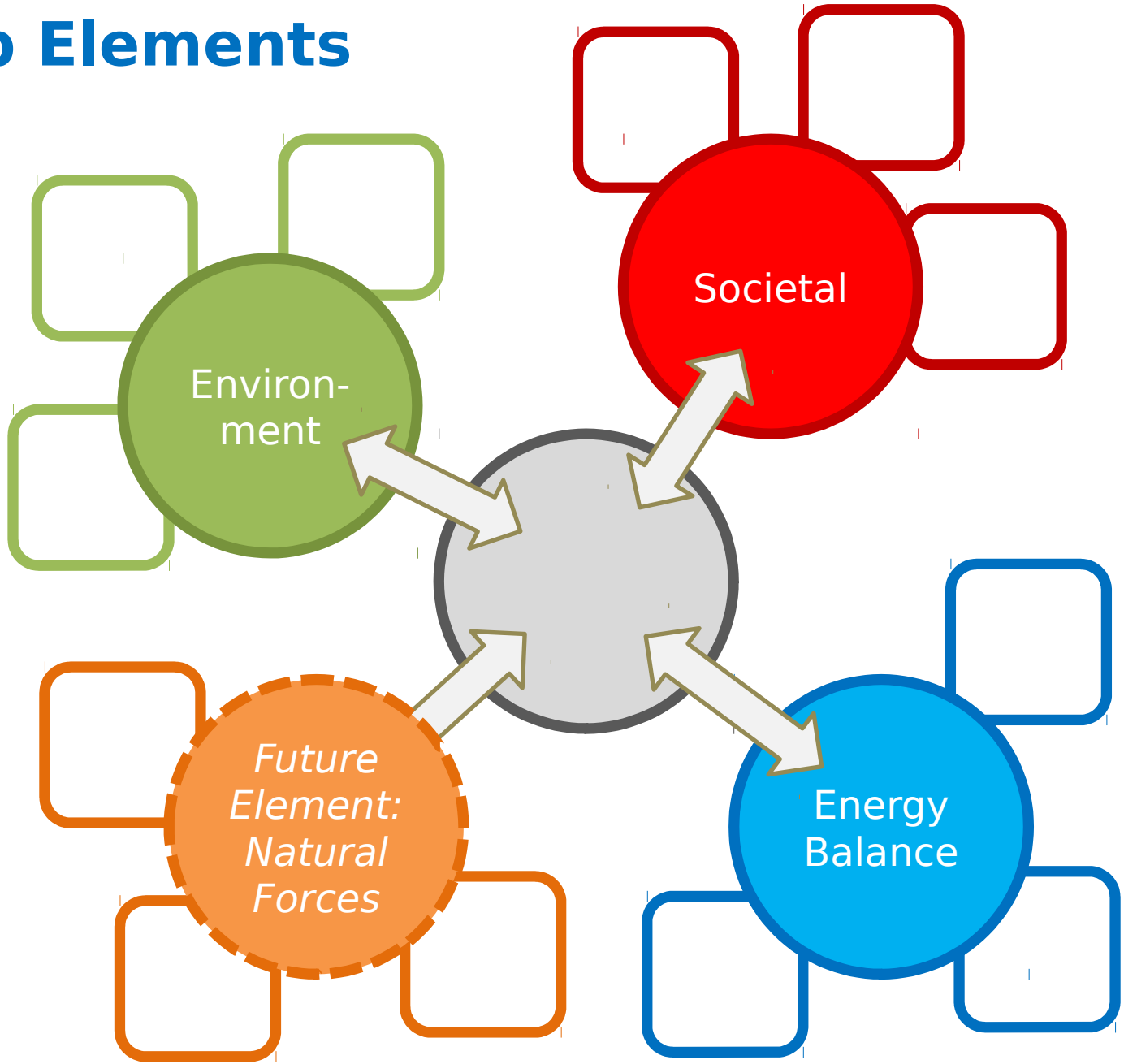
Inform

- Education
- Feedback

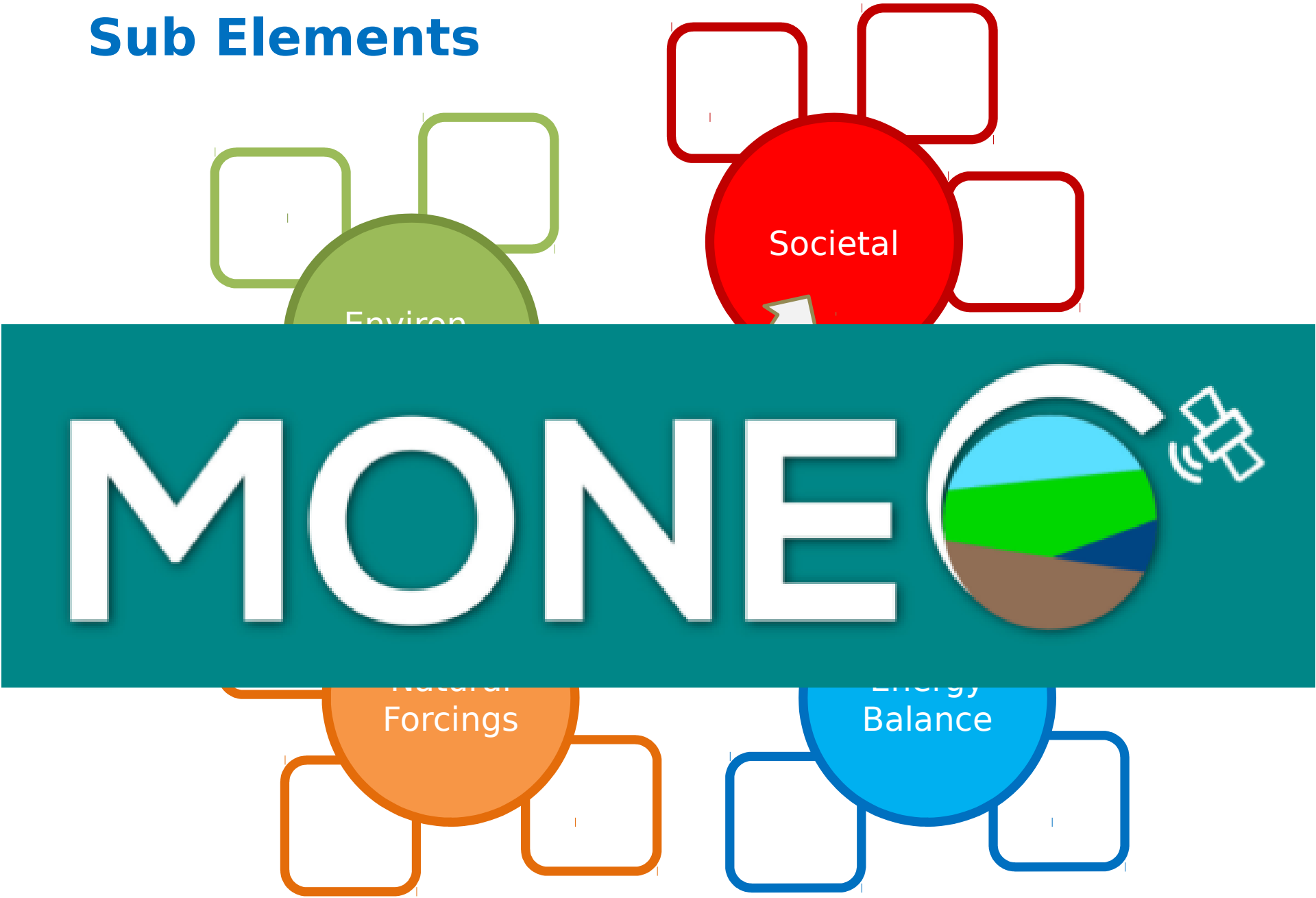
Core Elements



Sub Elements



Sub Elements



Concept and Elements - Energy -

Optimization of bioenergy production towards carbon and nutrient neutrality (example agriculture)

- **Agriculture: erosion, carbon emission, soil degradation, waste, loss of nutrients, …**
- **human income, economic aspect**
- **negative reputation of CRs organic agro products**
- **High energy demand**

Develop a system for an improved and sustainable energy balance management

- **Monitoring + analyses (MONEO + models)**
- **Technology towards optimization of energy generation**
- **Scenario modelling Impact to**

To improve the agricultural productions system through a better energy balance management

Concept and Elements
- Energy -

Concept and Elements
- Societal -

Objectives

- Attitudes, perceptions and behaviors (general and personal)
- personal perceived risk
- Readiness of change
- Building program

Human Impact /Influence on the Eco System

Further our understanding of the social ecological awareness of the Costa Rican population (how do people understand the relationship between human and the eco-system, their risk perception and their readiness to change)

Methods

Target group determination:

- MONEO (Environment)
- Socioeconomic (age, income …)

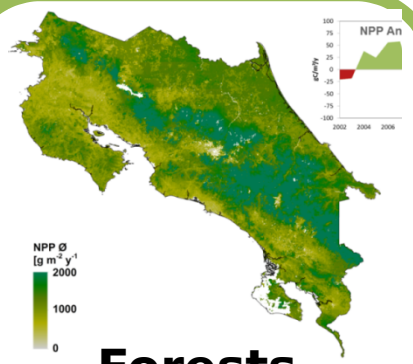
Survey studies

Linkage back to env.

Partners

- Academic Institutions
- Governmental Institutions

Concept and Elements
- Envi



Forests = C sinks?

- Improve predictions of forest C seques-tration and storage
- Effects of degradation / role of secondary forests /

Towards a better understanding of forest functionality (health) monitoring
(includes biodiversity, roductivity, ecosystem services)

properties on ground
- MONEO - proxies for forest properties
- Relate biodiversity information (species richness)

Concept and Elements

- Envi

- Analysis of the agricultural system (crops, soils, etc.)
- Crop types: e.g. pineapple, sugarcane, oil palm, ...

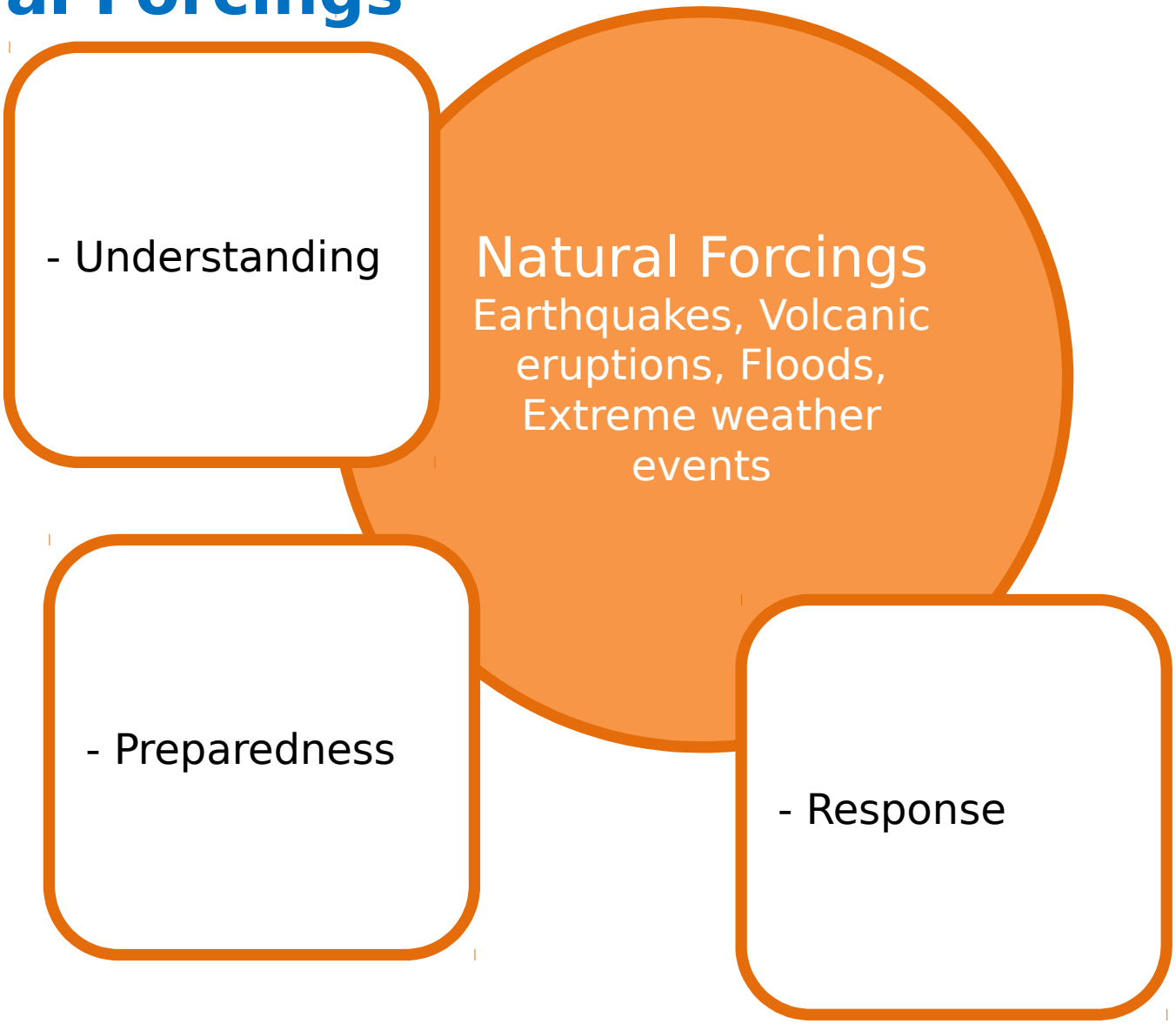
- MONEO - Spatial distribution of crop plantations (e.g. pineapple, sugarcane, oil palm)
- Temporal dynamics of crop coverage

Dynamics of crop plantations

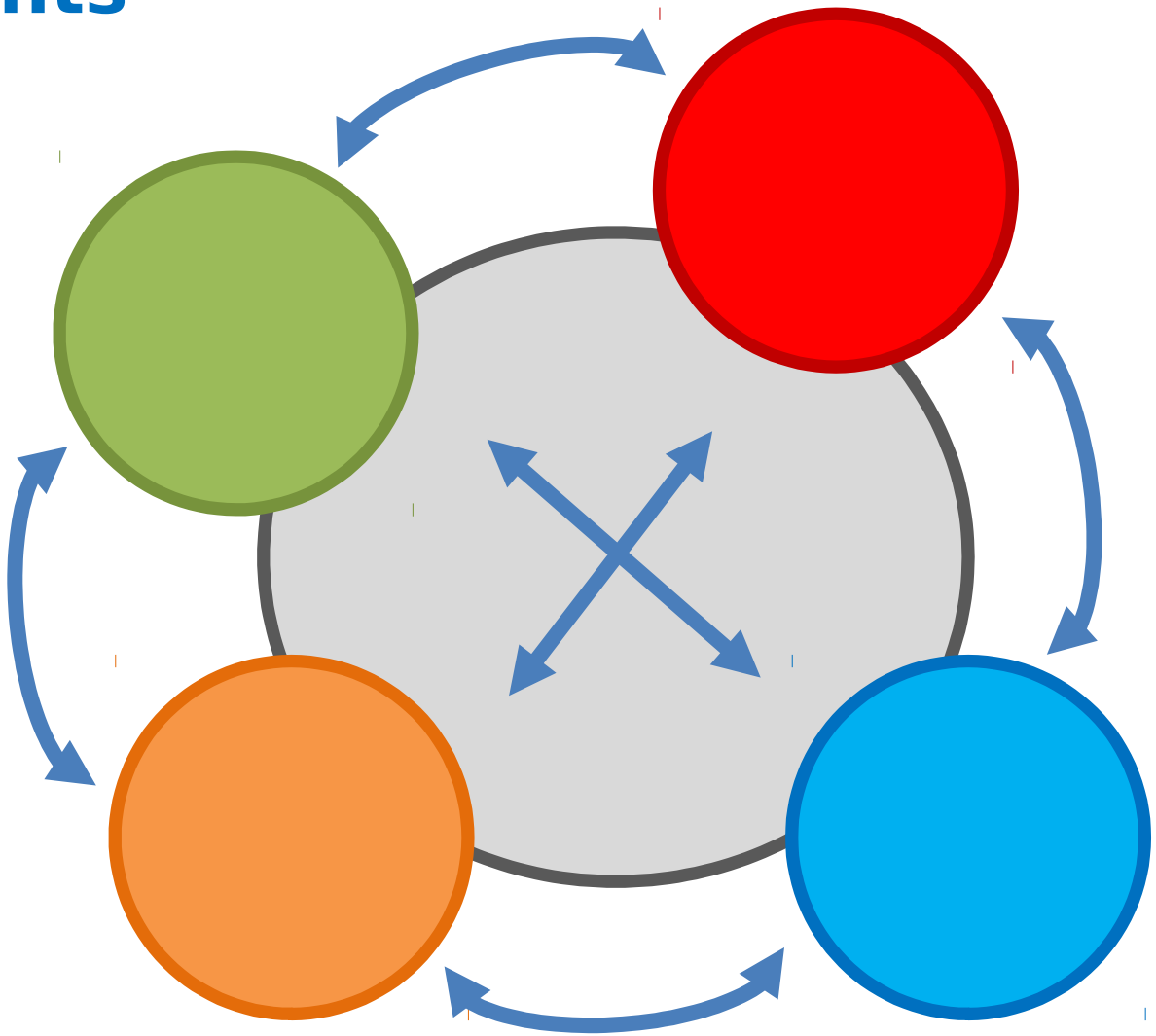
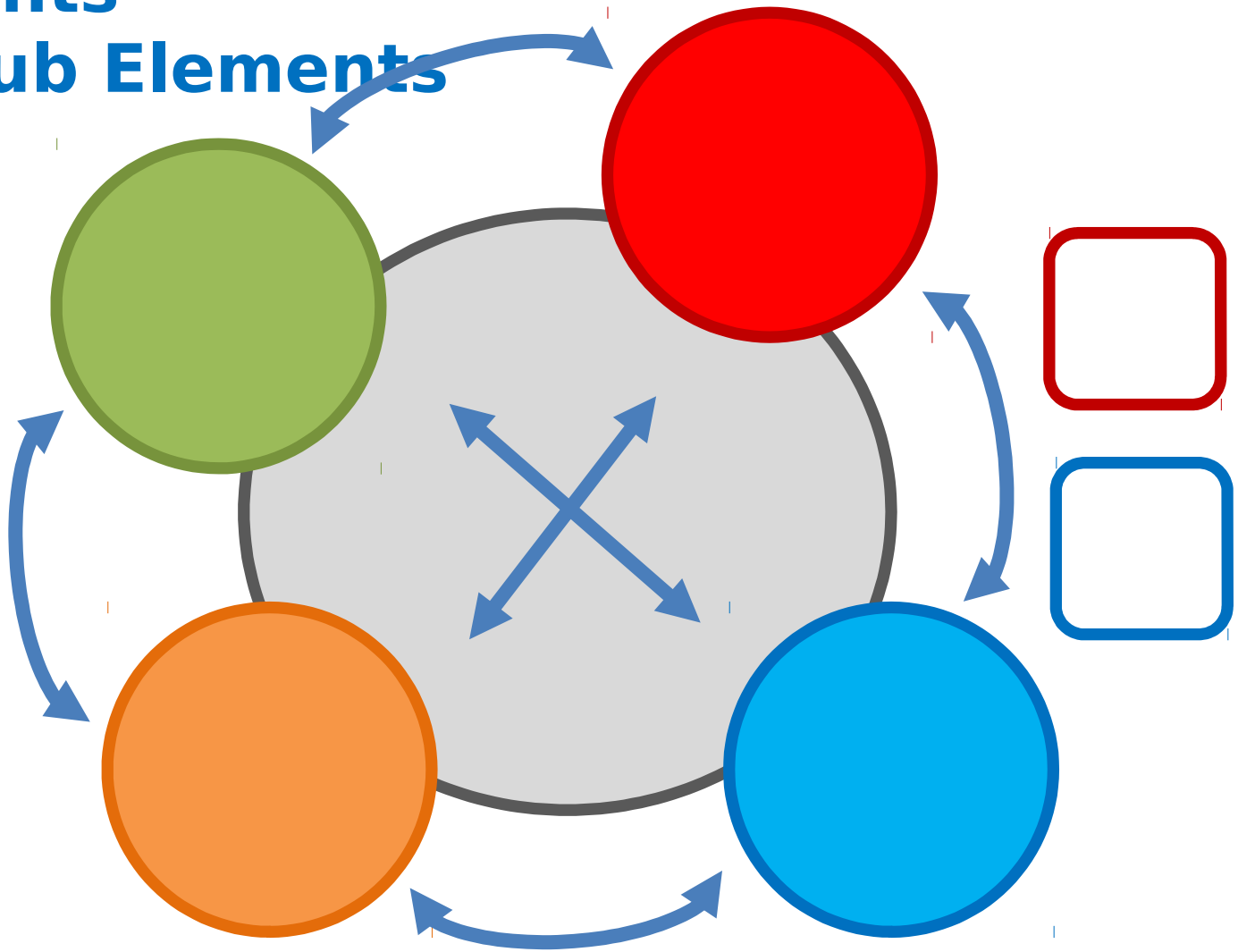
Effects of degradation / role of plantations / REDD+

- Environmental impact (effects on soil properties, erosion, polution, pesticide and antibiotics detection in soil, water and fertilizers)

Future Element
- Natural Forcings -



Linkages between Elements



Linkages between Elements and Sub Elements