
Early Warning Systems

With regard to the Pathways project

Early Warning Systems (EWS) at a Glance

EWS designed to predict and mitigate the harm of natural and human-initiated disasters and other undesirable events.

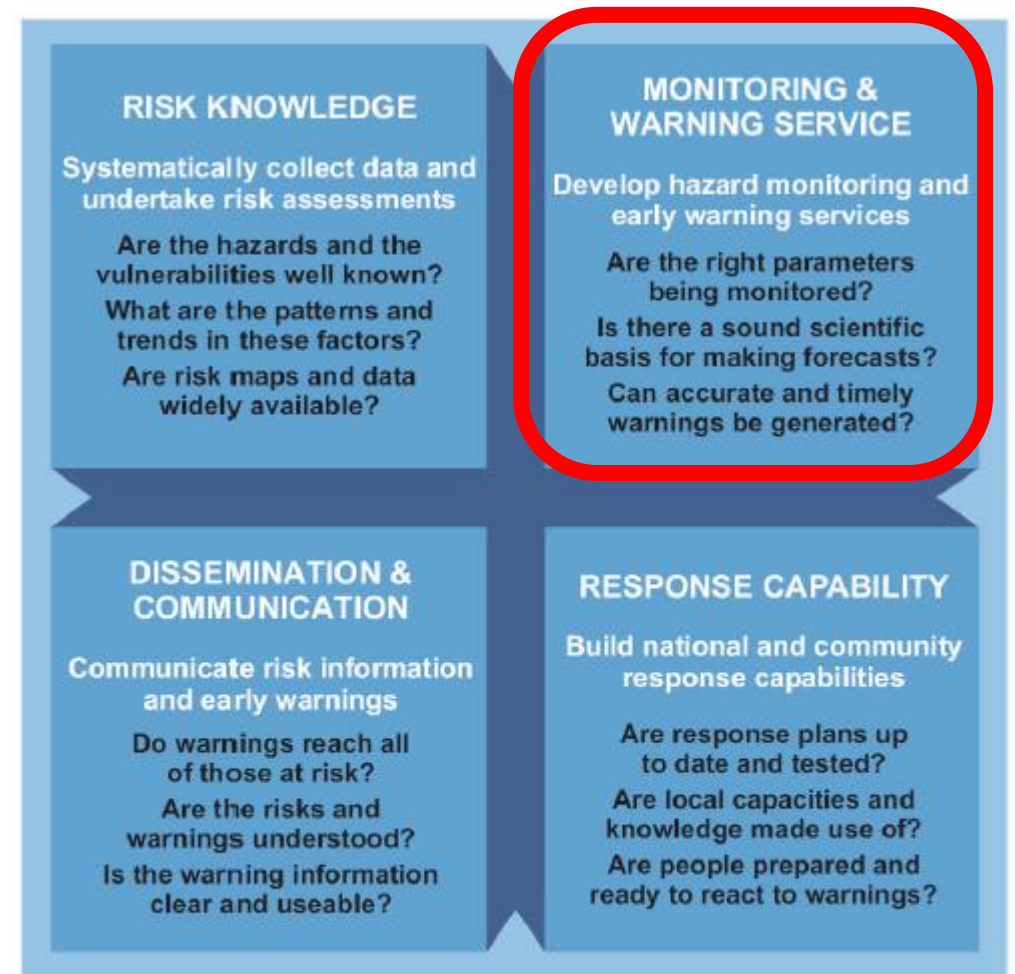
Commonly used in the context of disaster risk management to prepare for and confront the power of hazards

The aim of an EWS is to provide a useful framework for:

- increasing awareness
- comprehensive data collection and analysis
- formulation and implementation of intervening or correcting measures

Early Warning Systems at a Glance

- **Risk Knowledge:**
 - Identification, evaluation, prioritization
 - Outside project scope
- **Monitoring and Warning:**
 - Parameter selection and quantification based on modelling
 - Within project scope
 - Monitoring
 - Outside project scope
- **Communication and Response Capability:**
 - Outside project scope



Four Elements of People-centred Early Warning Systems

Source: UNISDR Platform for the Promotion of Early Warning

Early Warning Systems: Use of Scenarios and forecasting?

- Pathways Project: drivers of “wanted change” - Indicators describe states we want to achieve.
- *“[Indicators] help incorporate physical and social science knowledge into decision-making, and they can help measure and calibrate progress toward sustainable development goals. **They can provide an early warning** to prevent economic, social and environmental setbacks. They are also useful tools to communicate ideas, thoughts and values” (United Nations, 2007)*
- The modelling (and the results) as the early warning system

Integrating the KPIs/LPGs and coming up with Sign-Posts/IPIs

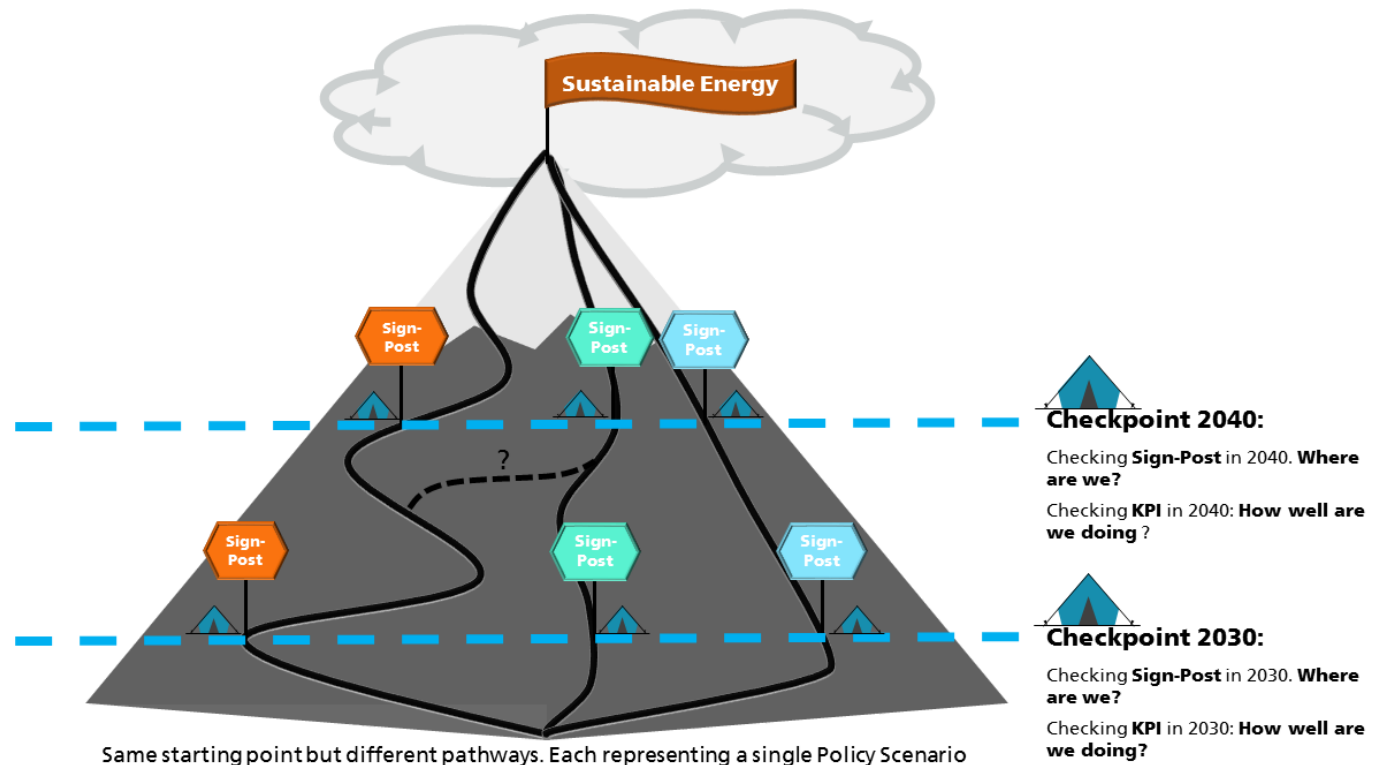
- **KPIs and LPGs** are used to assess the sustainability of the system. In each scenarios they will likely evolve differently over time
- Intermediate KPI/LPG results from the model can provide orientation with regard to the **degree of sustainability reached**
- **Sign-posts/IPIs** should be used to identify the scenario that we are in. The most characteristic results from each scenario should be used as sign-posts in order to **identify the path** we are on
 - Examples: share of technologies, raw material prices
- Moreover, model-inputs can be used (even if they are scenario independent). If the world moves far away from our input assumptions all other comparisons lose their validity
- Ideally this can be done on a regional basis

Integrating the KPIs/LPGs and coming up with Sign-Posts/IPIs

Key performance indicators (KPI)

assess the sustainability of the system. KPIs are to likely differ by scenario and over time:

Sign-posts identify the scenario that we are in. The most characteristic results of each scenario serve as sign-posts in order to **identify the path** we are on.



Developing a policy-driven framework: Indicator System

- **Translate results into a comprehensible framework**
 - KPIs/Signposts **should improve decision-making** for sustainable development
 - KPIs/Signposts should **explain linkages** of decisions and decision outcomes
- **Defining and analysing KPIs/Signposts:**
 - Usefulness of a signposts depends upon what is to be measured, achieved and improved
 - Definition of ranges – when does significant deviation happen?
- **Establish an Sustainable Indicator System that clusters KPIs/Signposts:**
 - Define: which questions are to be targeted?
 - Example: *Given expenditures on renewable technologies, what is the impact on economic growth, competitiveness, environment?*

Adaptive policy pathways

Ongoing work. Currently in conceptualization phase

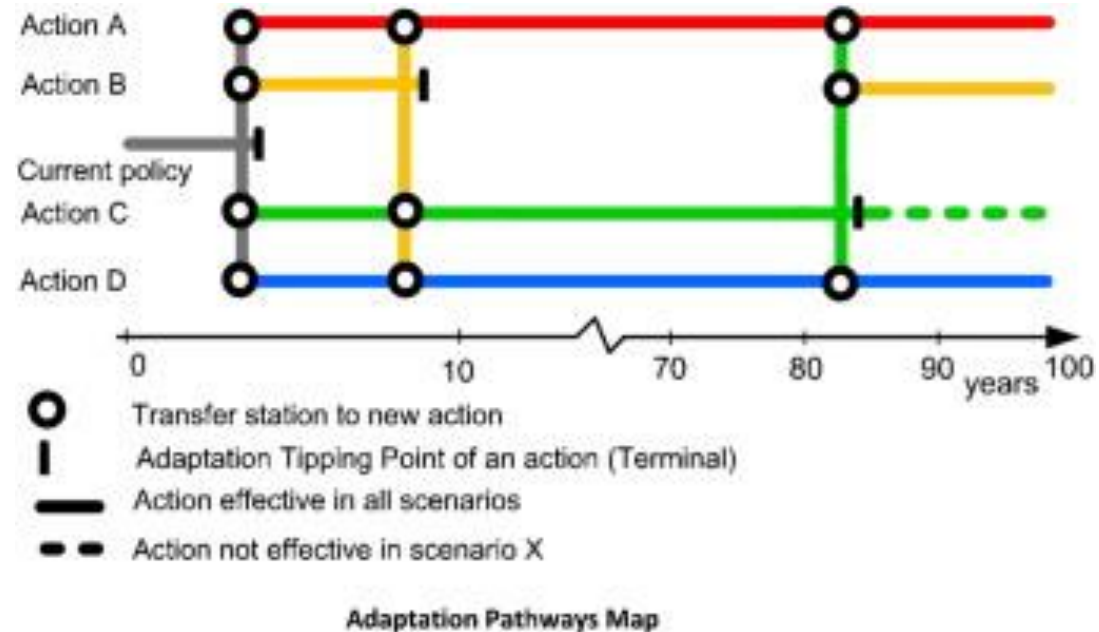
Adaptation pathway approach

analytical approach to explore a set of possible actions

An adaptation **tipping point** is the point at which a particular action is no longer adequate for meeting the plan's objectives. A new action is therefore necessary.

Adaptation map: presents alternative routes to get to the same point in future

(Kwadijk et al., 2010, Haasnoot et al., 2013).



Example of an Adaptation Pathways map and a scorecard presenting the costs and benefits of the 9 possible pathways presented in the map. Source: Haasnoot et al., 2013

Discussion

What are your expectations of the EWS?

How it can be designed to be of most use for policy decision making?

Which questions need to be targeted?