

Resilience

Unpacking the concept of resilience



Facilitator: Rita Muckenhirn

Resilience



Graph: Rita Muckenhirn

Resilience

Shocks and stressors



Level of well-being
+
-

Social - Ecological System(s)
(SES)

Systems and structures

Graph: Rita Muckenhirn

Disturbances

Disturbances may come in the form of:

- **rapid or slow onset shocks** (i.e., natural or man-made hazards) such as earthquakes, drought, disease epidemics, pest outbreaks, and conflict outbreaks, or
- **longer-term stresses** (e.g. environmental degradation, political instability, protracted conflicts, price inflation).

Stressors

Long-term trends or pressures that

- **undermine the stability of a system** and
- **increase vulnerability** within it.

Examples:

Ecological stressors: climate change, erratic rainfall, prolonged drought, land degradation, watershed degradation, pest and diseases, deforestation, water contamination, water scarcity

Economical stressors: price and market fluctuations, economic crisis, building in illegal and dangerous places, market variability, not complying with building codes

Social stressors: migration, social conflict, religious conflict

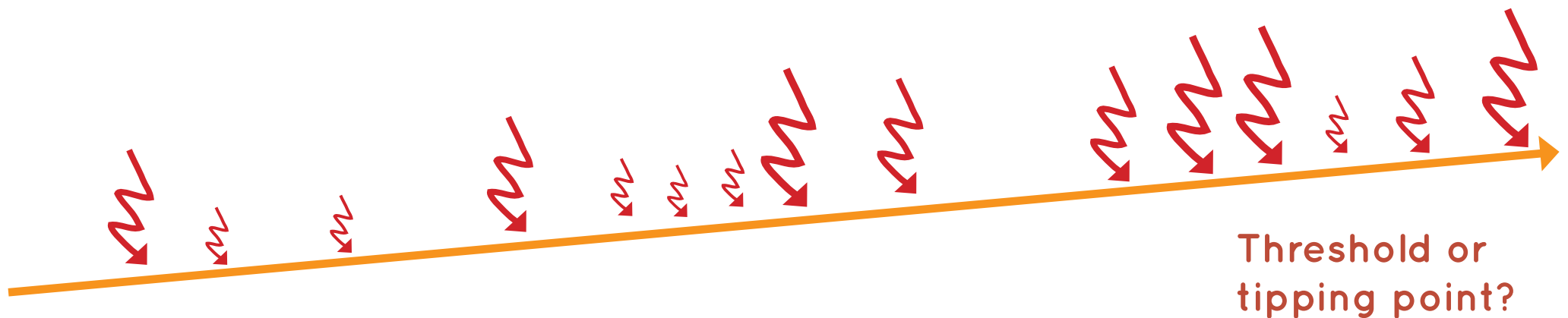
Political stressors: poor governance, corruption, politics of vulnerability and disasters, governmental/political indifference, no support to relocate people, inability to respond/prepare/mitigate

Shocks

External short-term deviations from long-term trends that have **substantial negative effects** on people's current state of well-being, level of assets, livelihoods, or safety, or their ability to withstand future shocks.

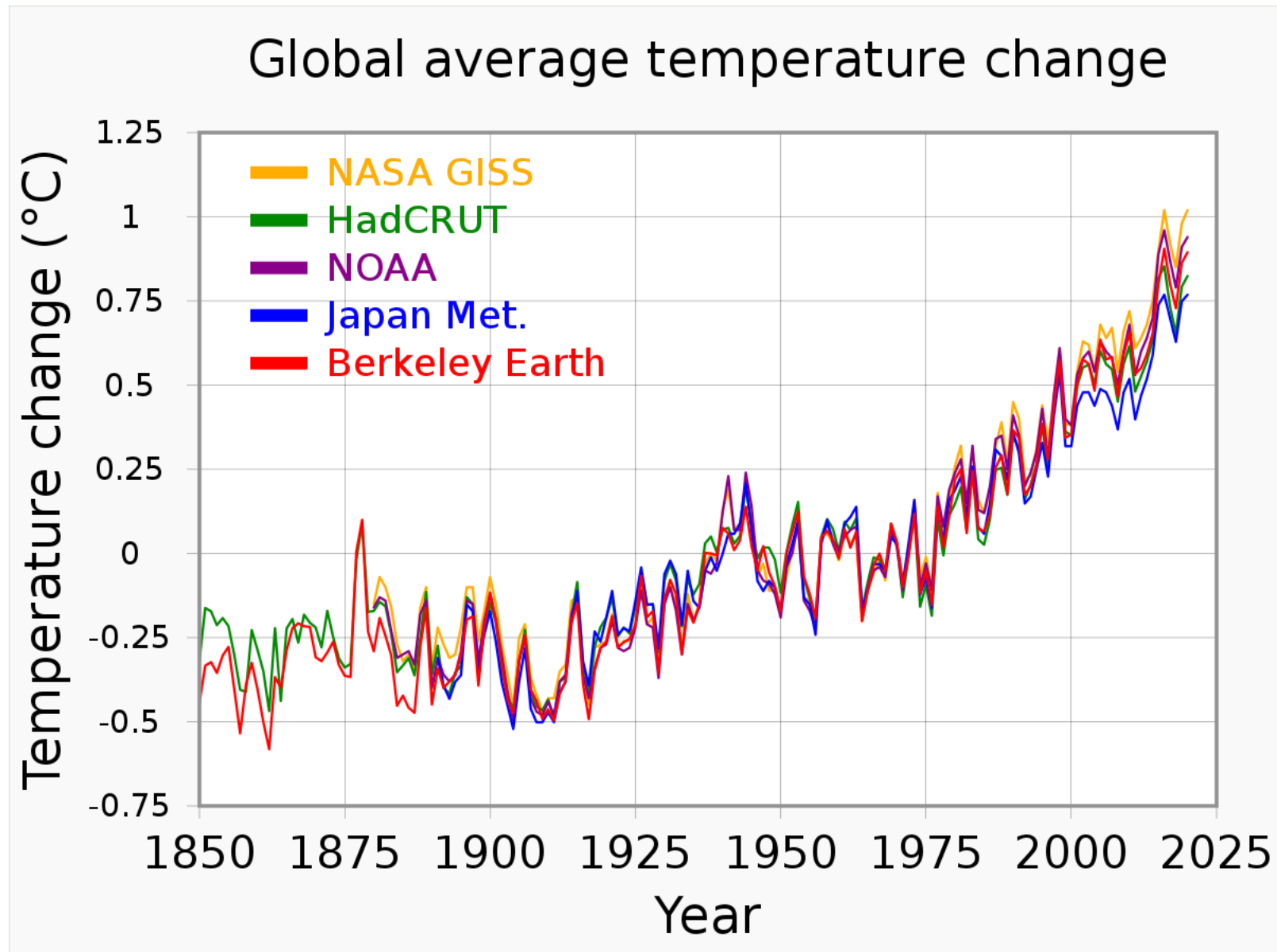
Examples:

Drought, flood, cyclone, hurricane/typhoon, earthquake, tsunami, volcano eruption, price crisis, pest or disease, illness, physical or emotional aggression, violent conflict outbreak, war, etc.



Source:

Climate Change as a Stressor



Climate Change related Shocks



One shock or stressor doesn't come alone



Conflict



Covid-19

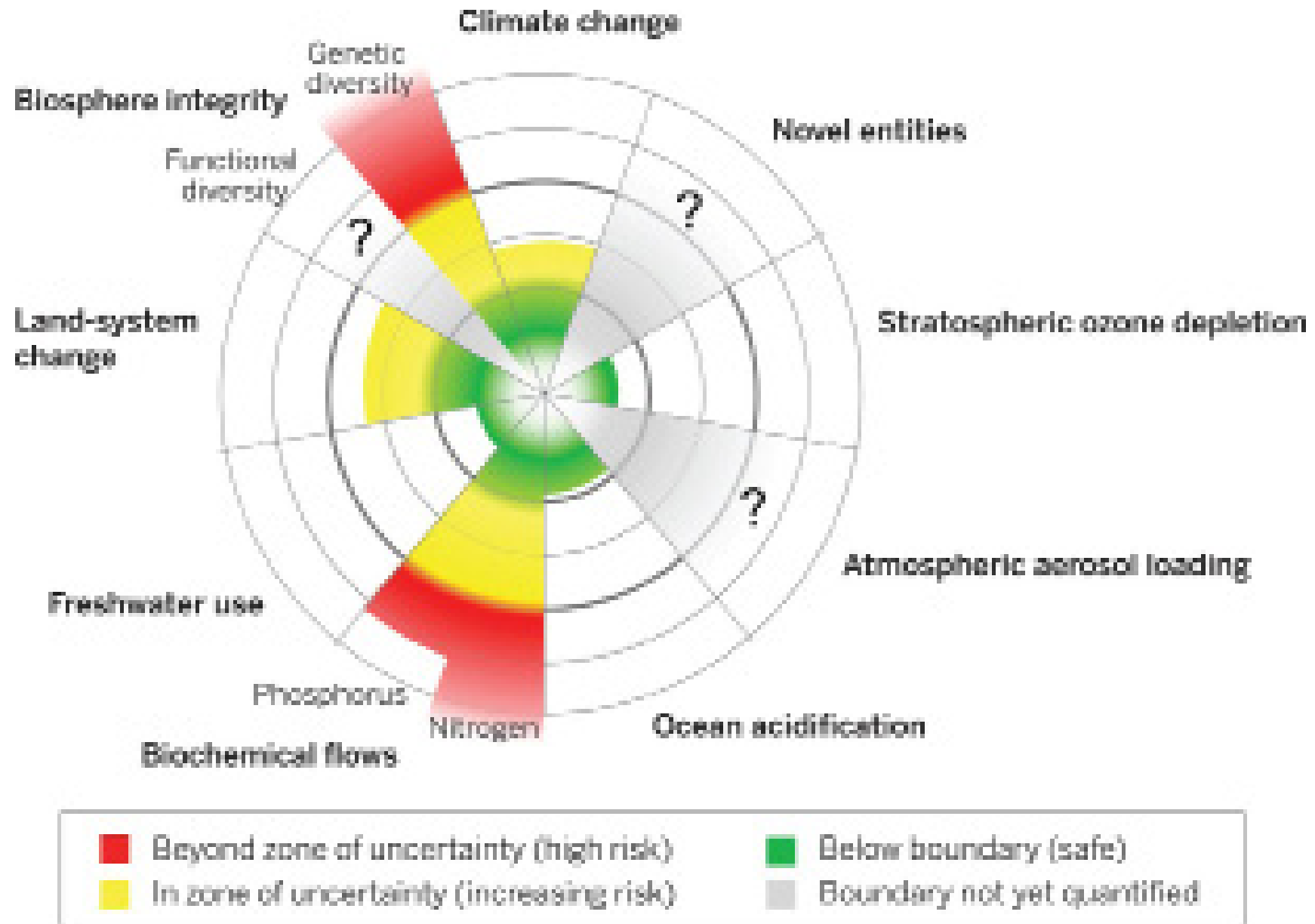


Climate Change

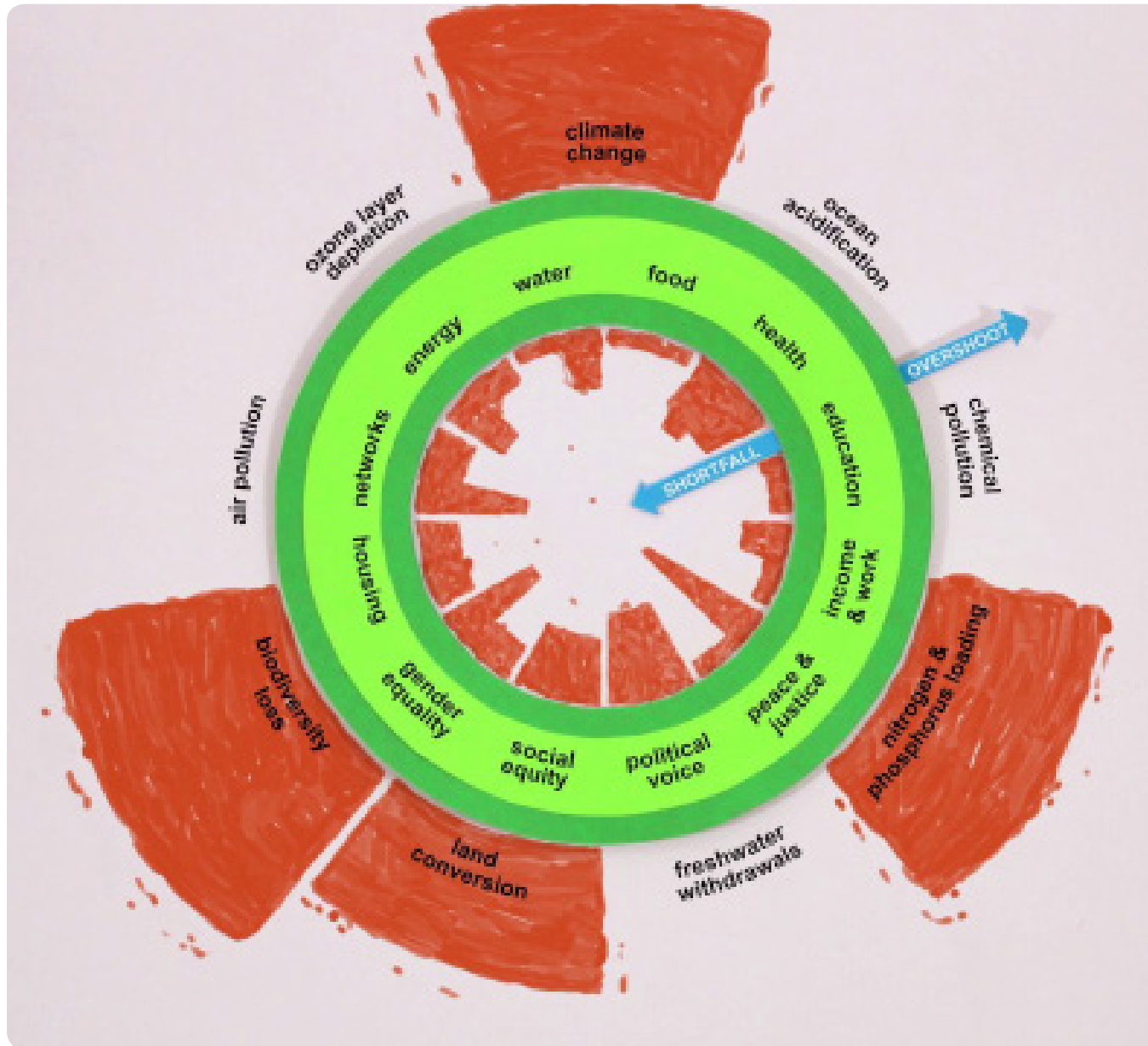


Corruption (161 von 180)

9 Planetary Boundaries (Rockström et al, 2009)



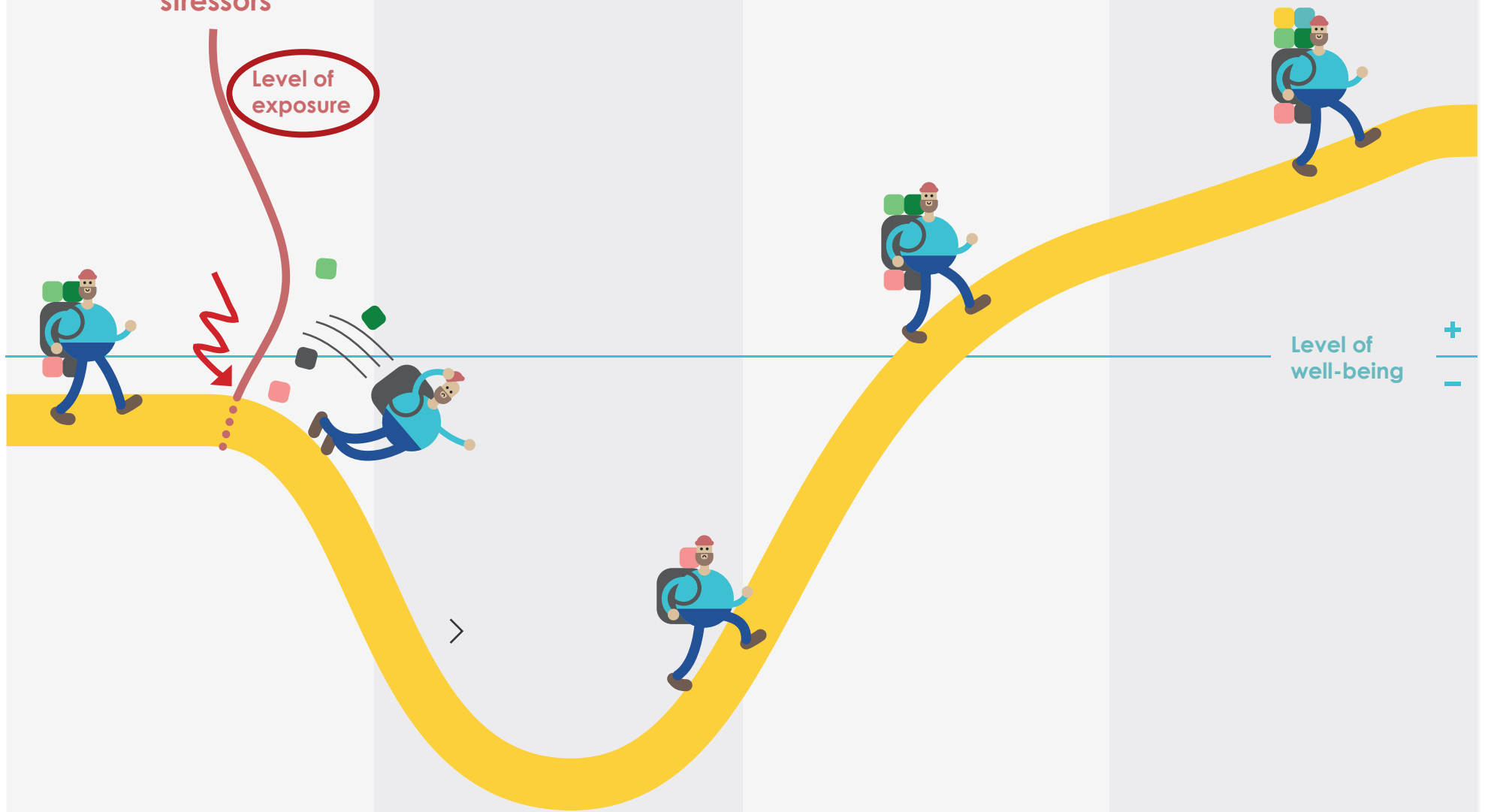
Doughnut Economy (Kate Raworth, 2017)



Resilience

Shocks and stressors

Level of exposure



Level of well-being
+
-

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Level of exposure

Exposure is a function of the

- **magnitude,**
- **frequency,** and
- **duration**

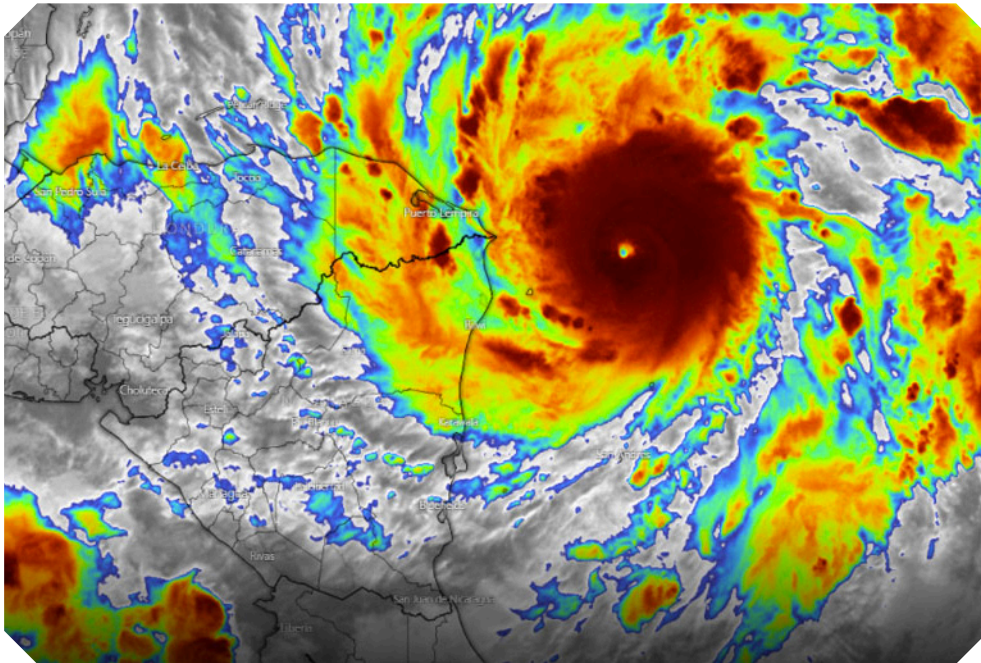
of a shock or stress.

Some shocks come on **quickly**, with little or no advance warning and are over quickly while others may be so **slow** to progress that their duration can be marked in years.

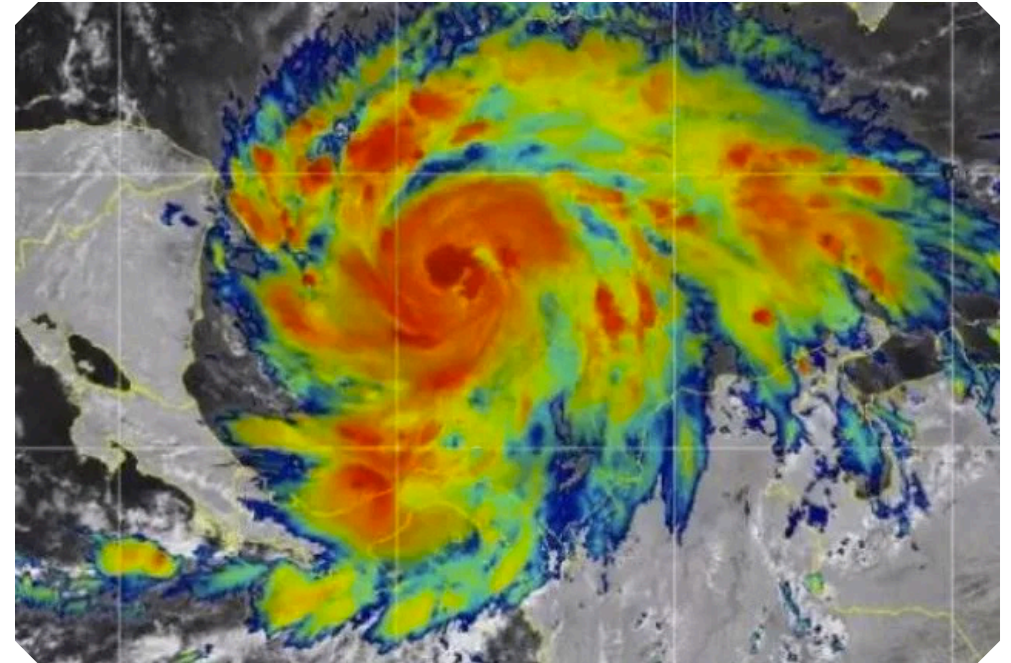
Duration only refers to the **actual shock** itself, **not the resulting impact**, which may be short- or long-term.

Increasing Frequency and Intensity

Hurricane **Eta**



Hurricane **Iota**



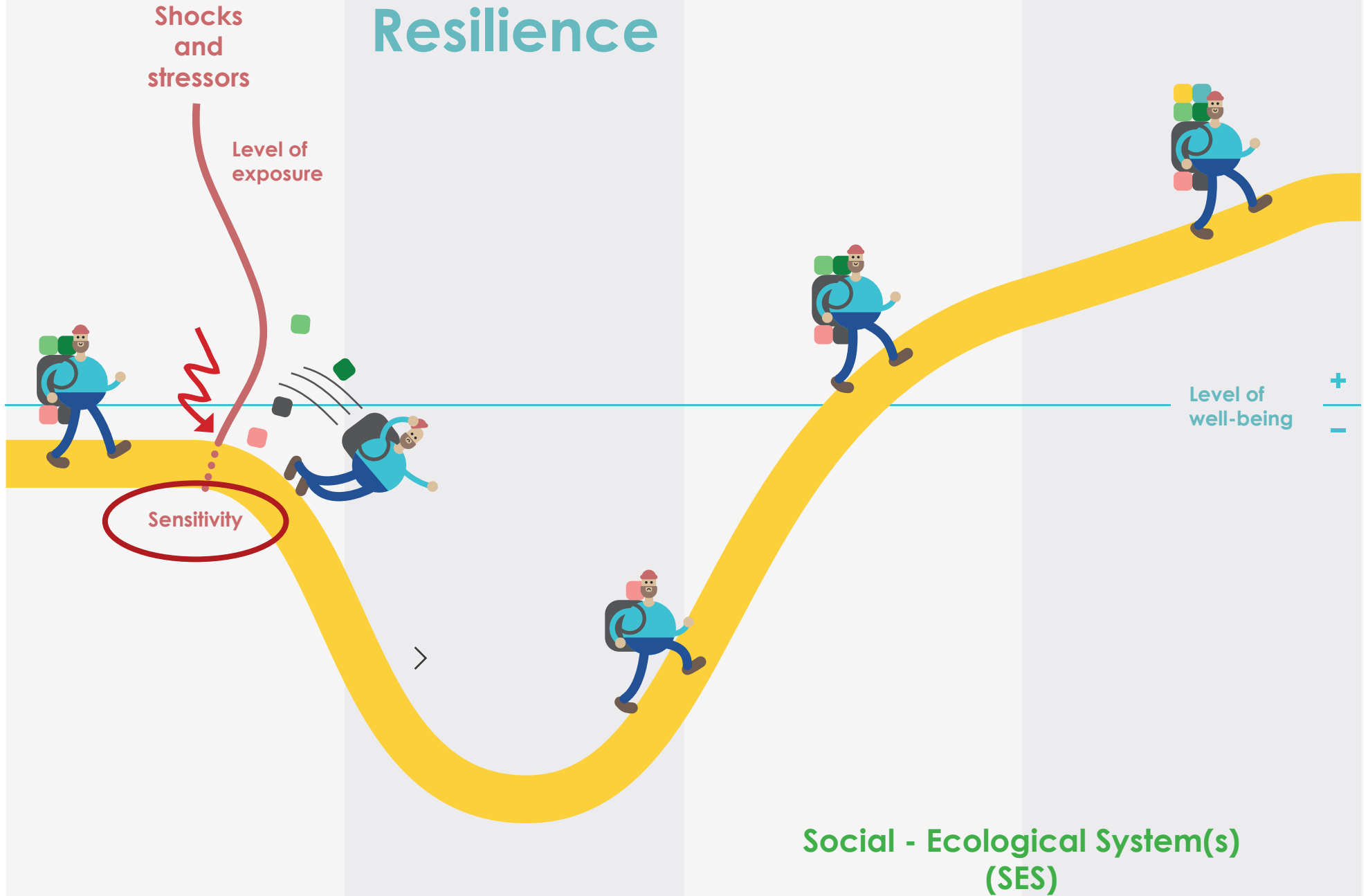
From 1st until 17th of November 447,8 mm rainfall:

- 5 times as much as during the whole month of November
- 50% of rainfall as during a normal 6 month period raining session.

Sources:

- Climate monitoring report from Jinotega. La Cuculmeca.
- Informe Preliminar. Centro Humboldt. 23.11.20 <https://humboldt.org.ni/reportes-preliminar-impacto-de-eta-iota-en-nicaragua/>

Resilience



Graph: Rita Muckenhirn

Social - Ecological System(s)
(SES)

Systems and structures

Sensitivity

The **degree** to which an **individual, household, community or higher-level system** will be **affected** by a given **shock or stressor**.

Example:

- Neighbours with different types of houses.
- Differences based on gender, age groups, disabilities, ethnic group, religion, social-economical strata...

Global South more affected by climate change consequences than the Global North (→ climate justice)

Sensitivity facing Climate Change

Mapping the Impacts of Climate Change

Select below

Extreme Weather

Direct Risks

Overall Vulnerability

Sea Level Rise

Direct Risks

Overall Vulnerability

Agricultural Productivity Loss

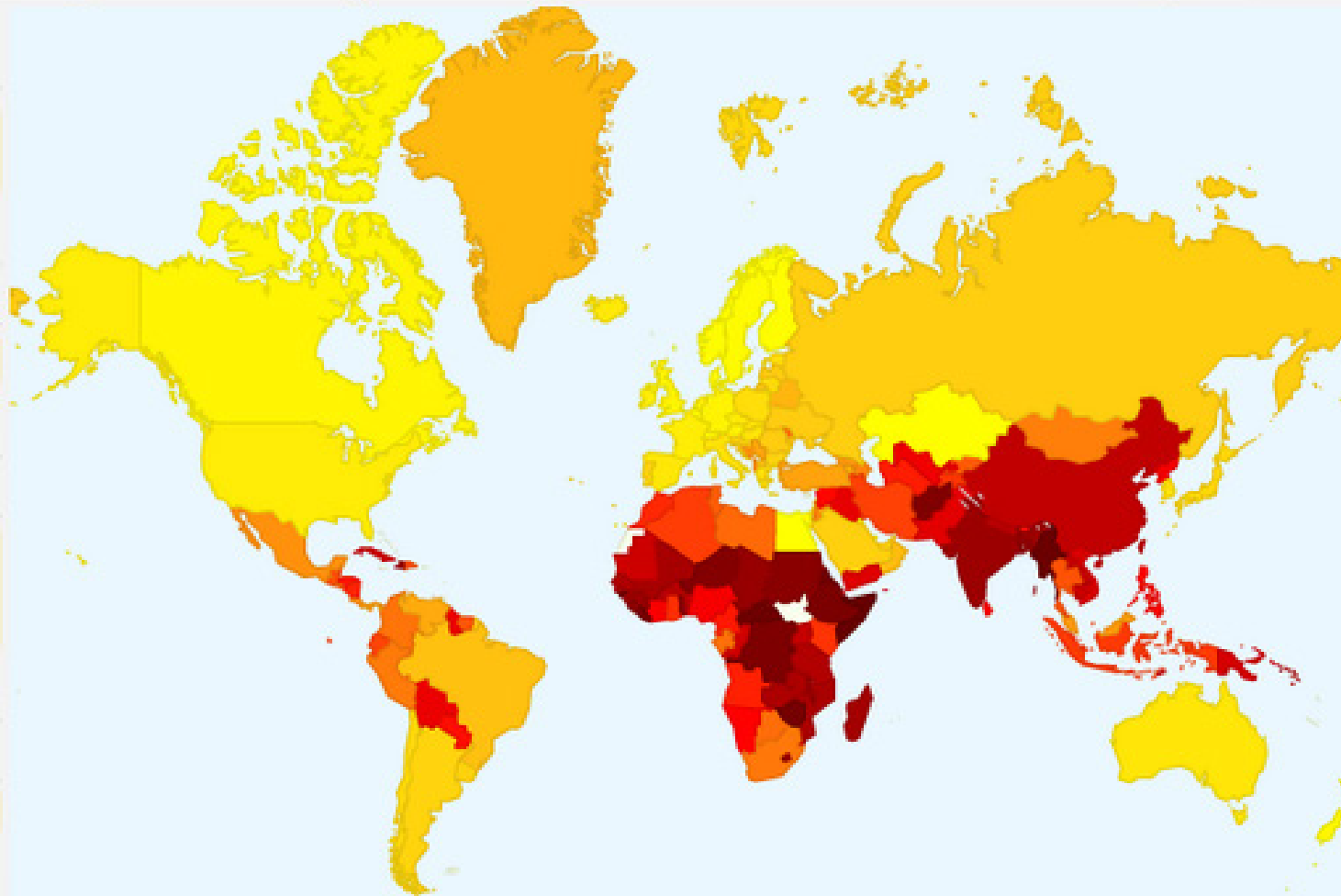
Direct Risks

Overall Vulnerability

Overall

Direct Risks

Overall Vulnerability

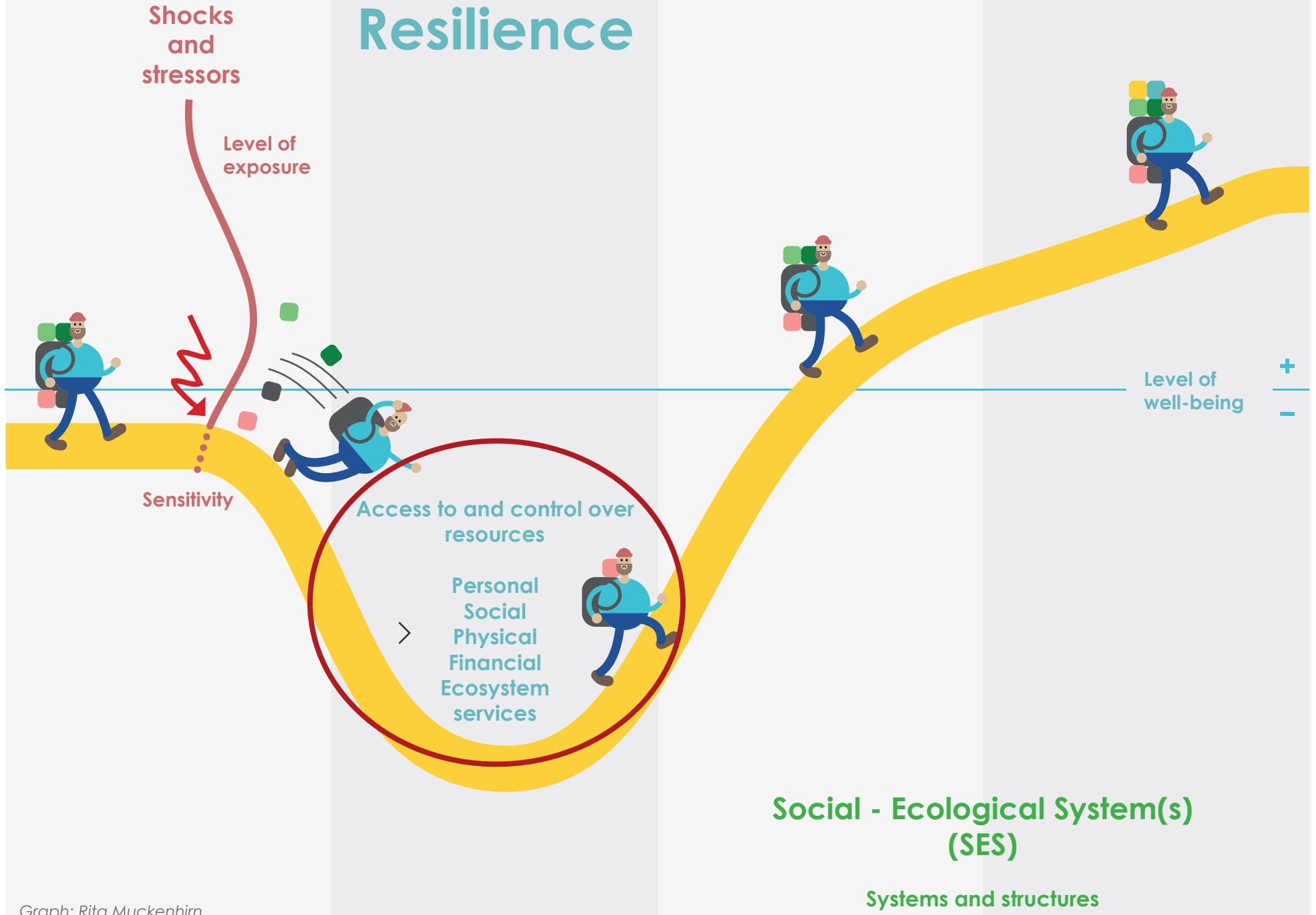


Rank 1  169

Overall Overall Vulnerability:

Physical Impacts Adjusted For Coping Ability

Resilience



Graph: Rita Muckenhirn

Resources

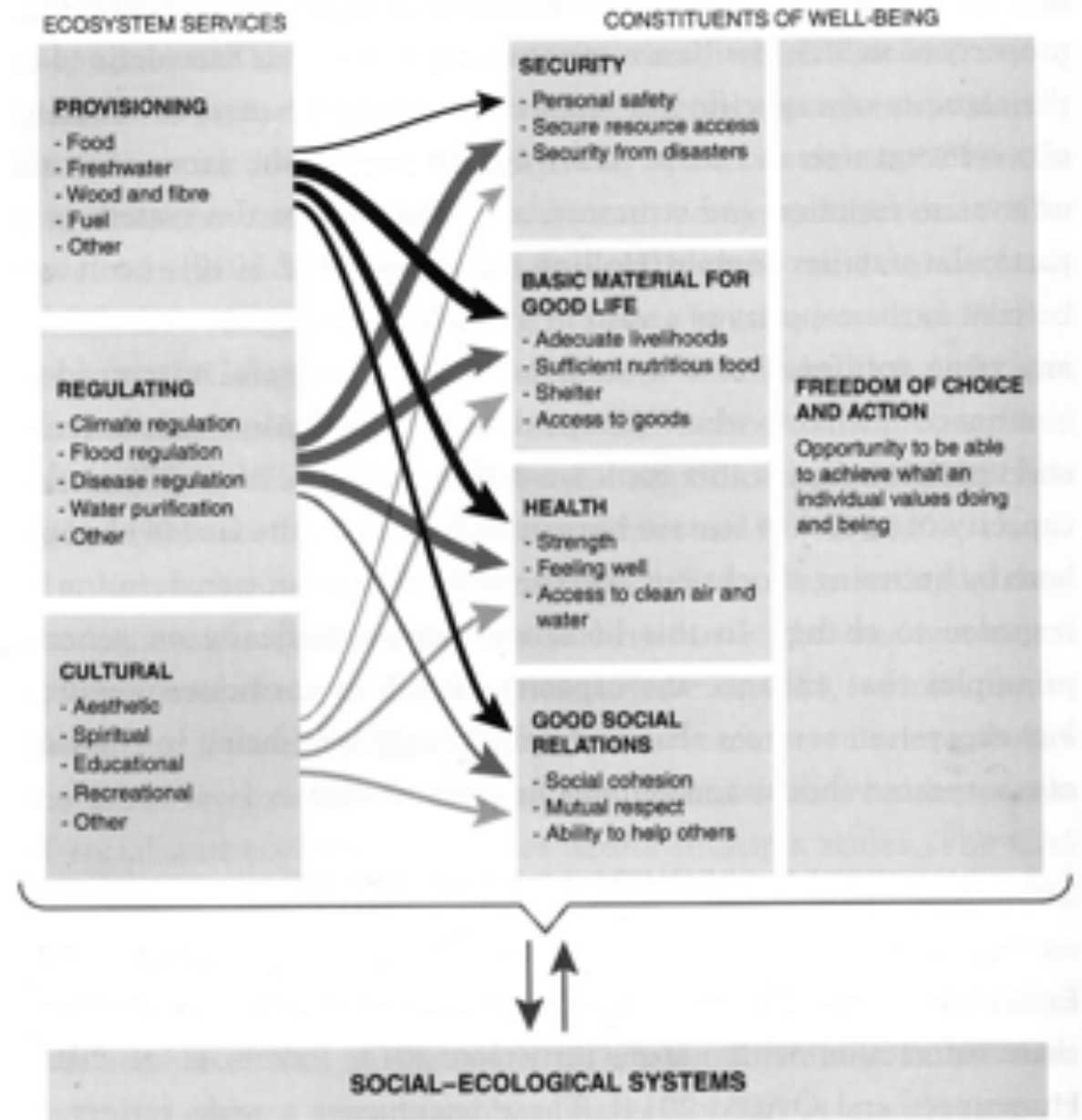
The **tangible and intangible assets** that allow individuals, households, organizations and communities **to develop their livelihoods and cope with stressors and shocks.**

Livelihoods' security depends on the **sustainable combination of six assets**: financial, physical, political, human, social and natural.

- Human or personal assets
- Social assets
- Political assets
- Physical assets
- Financial assets
- Natural assets or ecosystem services

Ecosystem Services

The people obtain services from their **interaction with nature**, including **provisioning services** (e.g. food, water, wood and fiber, fuel), **regulating services** (e.g. climate regulation, flood regulation, disease regulation, water purification) and **cultural services** (e.g. nature-based aesthetic, spiritual, educational, recreational and cultural activities) (Biggs et al.)



Access to and control over resources

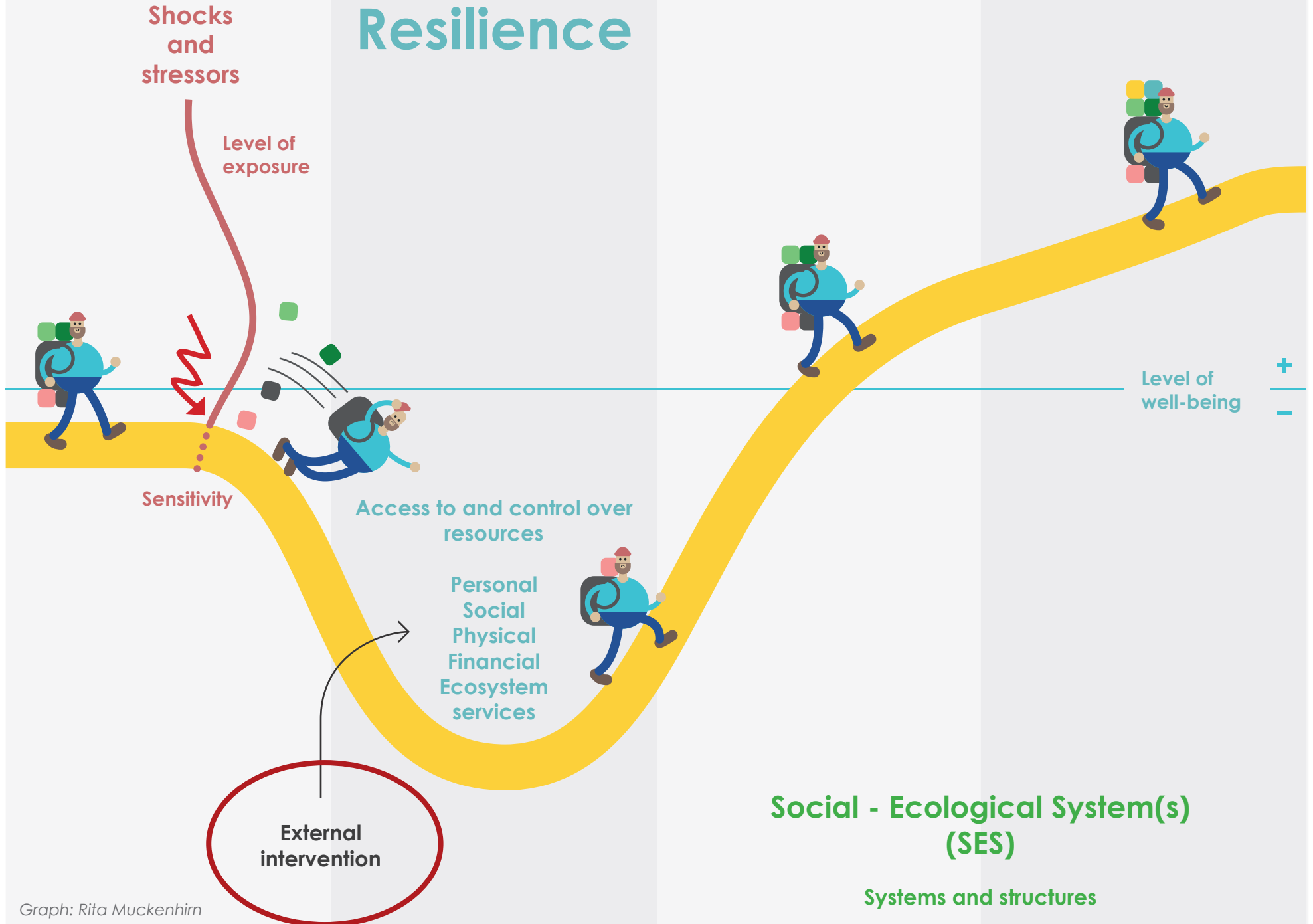
Recognizes the **social differentiation** that results from **differential access to and control over assets** as a **result of decision-making and negotiation power** given by **differences in gender, caste, class, wealth, age, origins**, and other aspects of **social identity**.

Some key elements:

- decision-making power,
- negotiation power,
- opportunities



Resilience



Graph: Rita Muckenhirn

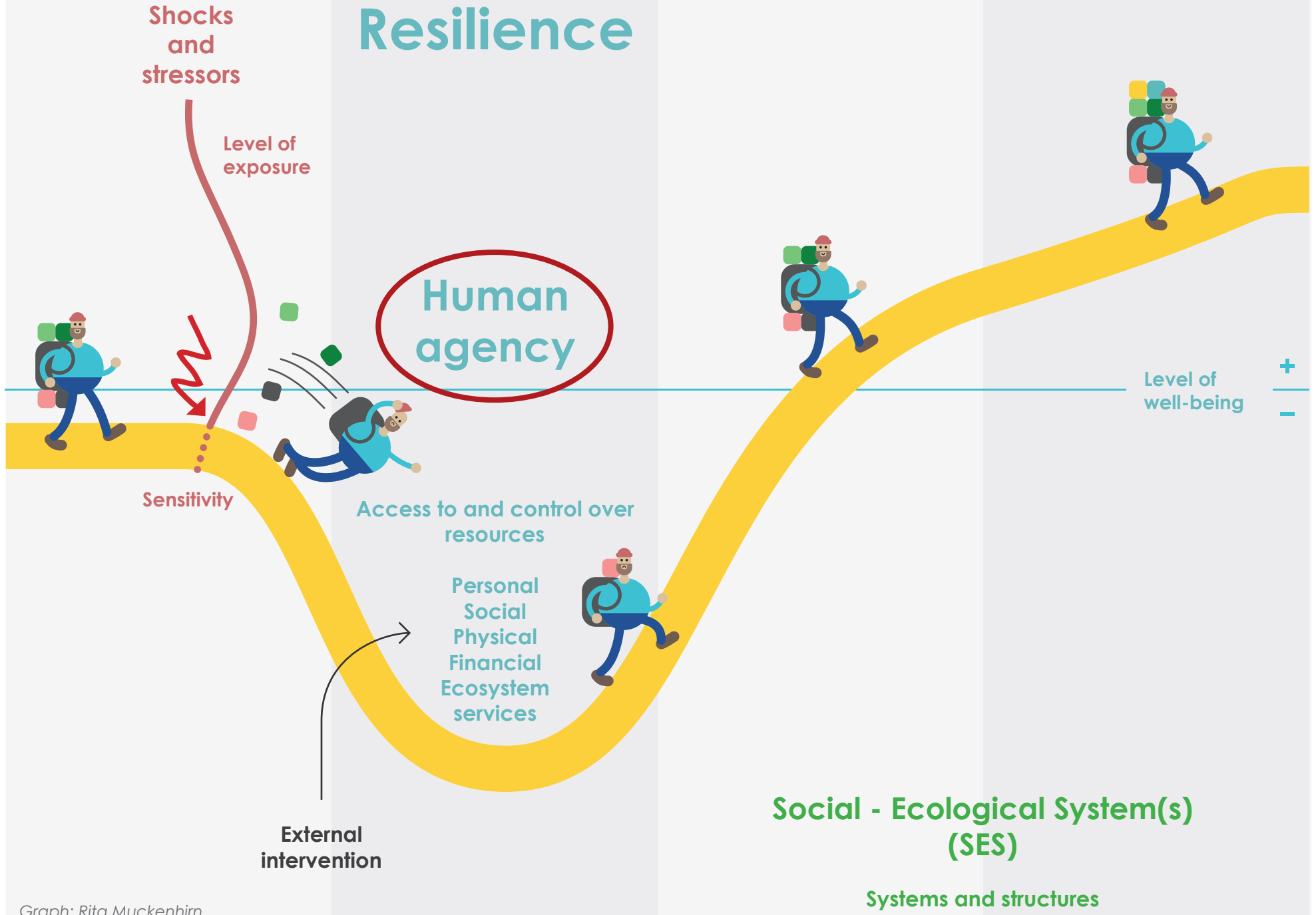
External Intervention

External intervention may be provided by

- national or international NGO,
- the government,
- churches or
- other stakeholders who are not part of the community.

Generally, they **build or strengthen competences and personal resources**, facilitate the **creation or re-enforcement of relationships and networking** between the different stakeholders at local and/or national level and **provide physical and financial resources** to cope with shocks and stressors, to adapt and to transform the individual, collective and institutional culture.

Resilience



Graph: Rita Muckenhirn

Human Agency

The capacity of human beings to **make choices, take decisions, act and be held responsible for its decisions and actions**, recognizing them as **agents of their own development**.

- Individual changes
- Changes in relations
- Changes in organizational processes
- Changes in social and ecological systems and structures

Related to individual changes, there are three very important elements:

- Knowledge and skills
- Good attitude and humour (examples: work hard, be positive, be open for new challenges...)
- A clear vision of where I want to be (the dream, the purpose or an objective the person pursues)

Resilience

Shocks and stressors

Level of exposure

Human agency

Sensitivity

Coping actions

Access to and control over resources

- Personal
- Social
- Physical
- Financial
- Ecosystem services

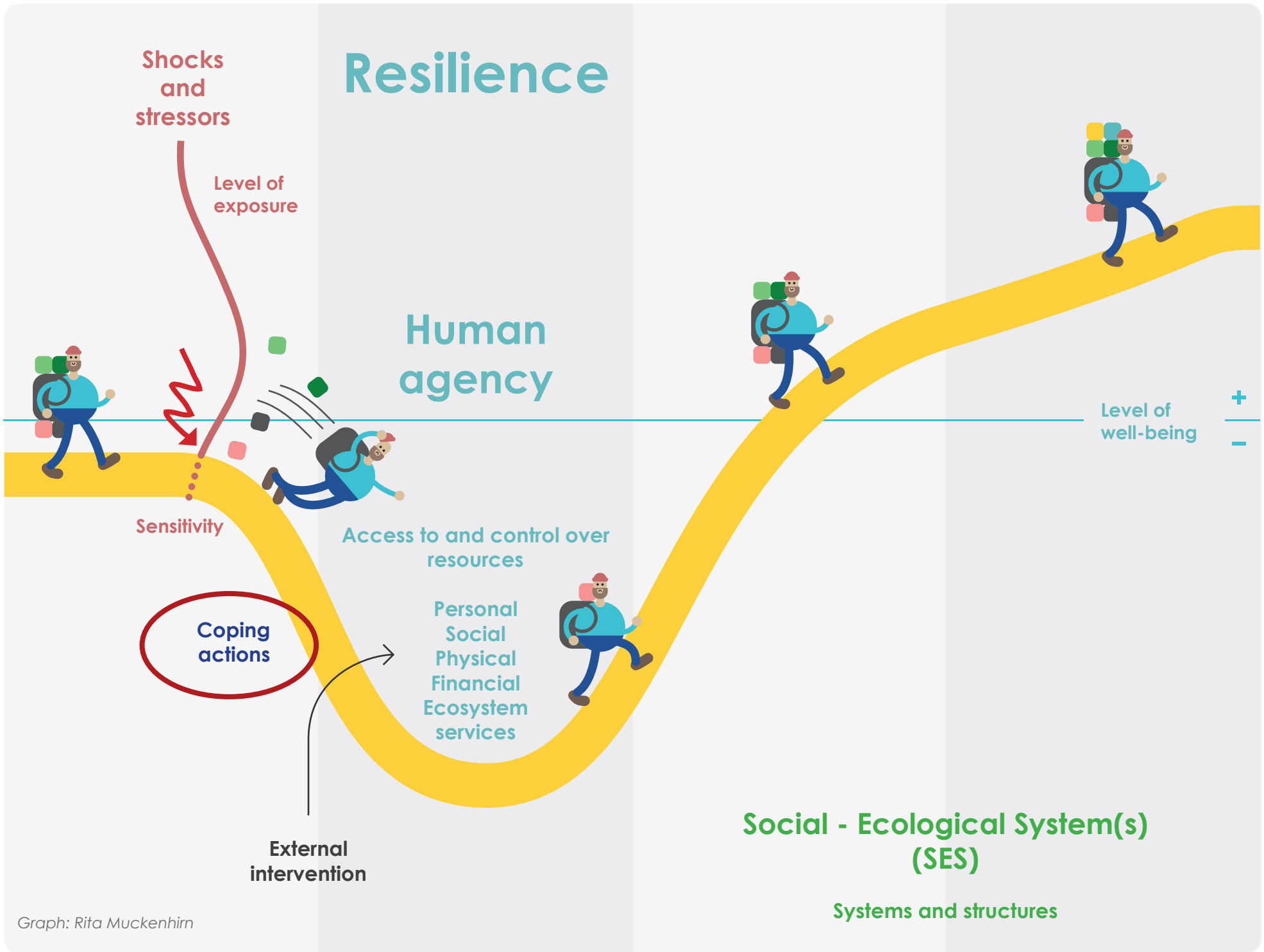
External intervention

Social - Ecological System(s) (SES)

Systems and structures

Level of well-being
+
-

Graph: Rita Muckenhirn



Coping Actions

Refer to the actions taken by individuals, households, communities or higher-level systems to **immediately minimize the exposure to stressors and shocks** and to **recover quickly from their effects**.



Image sources

Food distribution: <https://images.app.goo.gl/wDch95DmaEt26Kar9>

Shelter: <https://images.app.goo.gl/33HuatFfKV BqWEj18>

Resilience

Shocks and stressors

Level of exposure

Human agency

Level of well-being +
-

Sensitivity

Access to and control over resources

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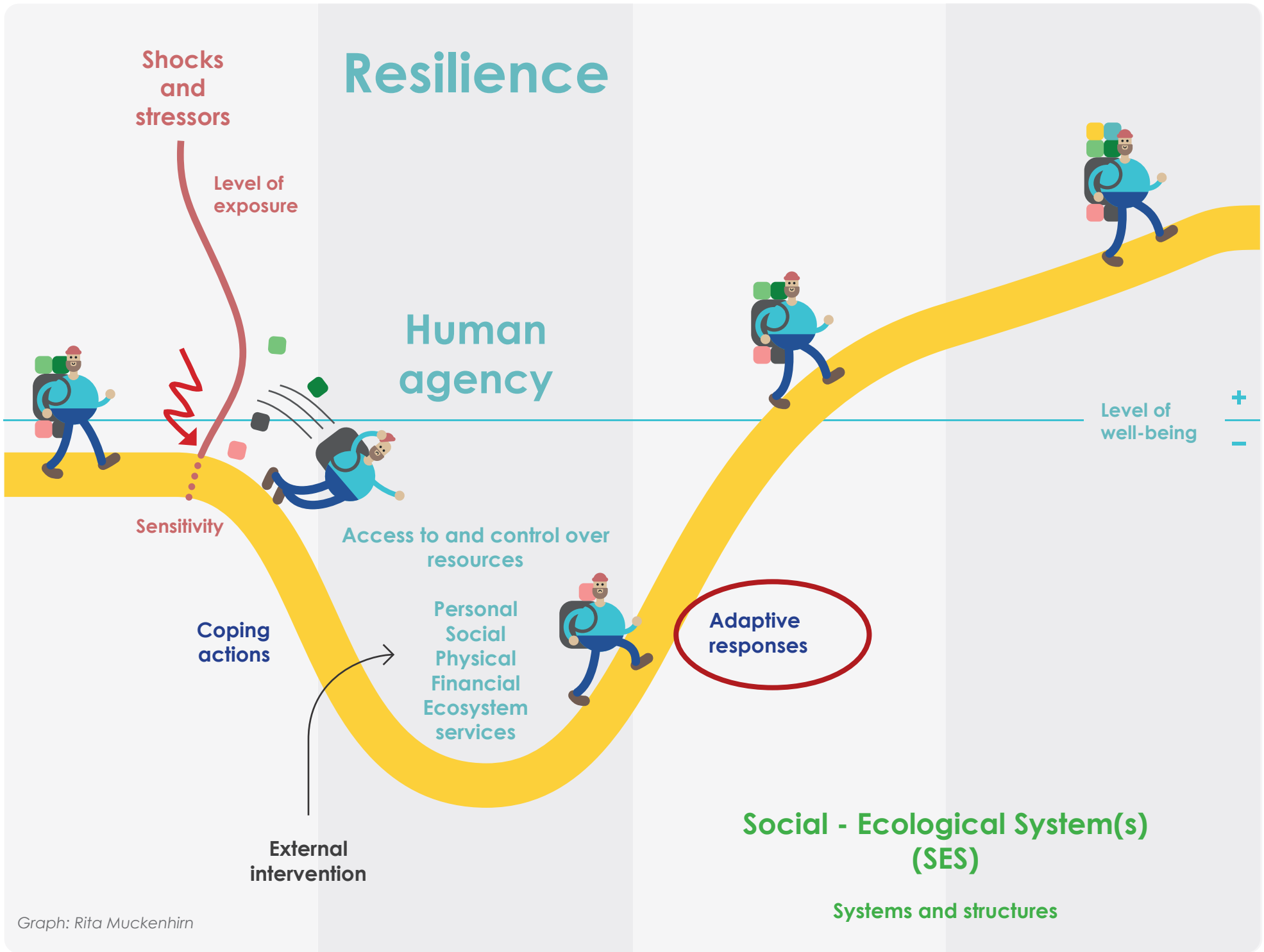
Adaptive responses

External intervention

Social - Ecological System(s) (SES)

Systems and structures

Graph: Rita Muckenhirn



Adaptive Responses

Refer to the **proactive and informed responses** taken by individuals, households, communities and higher-level systems to **adapt to longer-term trends and changing conditions** in order to **minimize negative consequences of stressors and shocks**, or to **exploit positive opportunities**.

You are doing something to **cope with the same challenging situations in the future**.

- Diversifying crops and using drought resistant seeds
- Infrastructure to protect houses from floods
- Building a house which is resistant to earthquakes...

Resilience

Shocks and stressors

Level of exposure

Human agency

Transformative strategies

Level of well-being

+
-

Sensitivity

Access to and control over resources

Coping actions

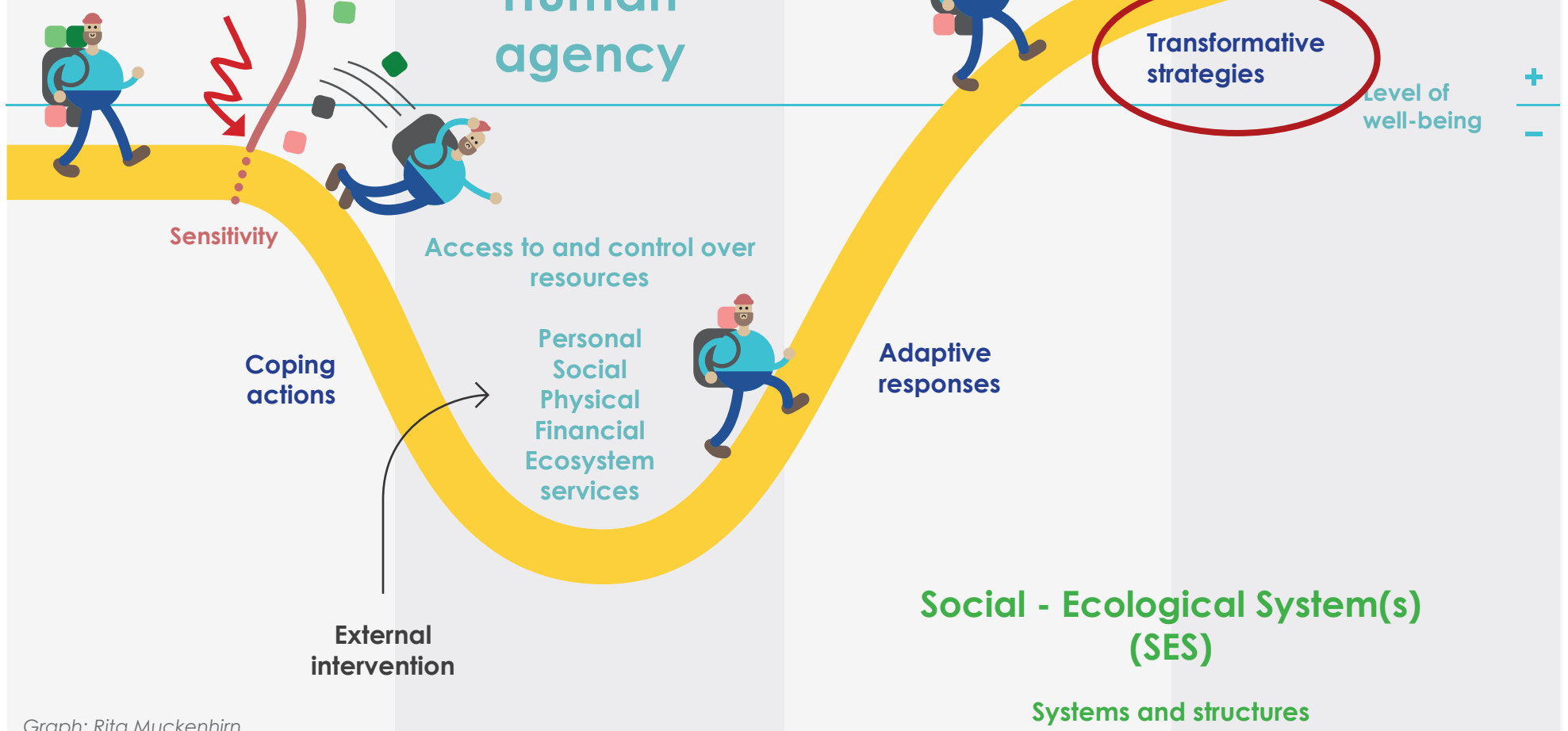
Personal
Social
Physical
Financial
Ecosystem services

Adaptive responses

External intervention

Social - Ecological System(s)
(SES)

Systems and structures



Graph: Rita Muckenhirn

Transformative Strategies

Refer to the implemented **strategies to create an enabling environment** through:

- investment in good governance,
- infrastructure,
- formal and informal social protection mechanisms,
- basic service delivery, and
- policies/regulations that constitute the conditions necessary for systemic change.

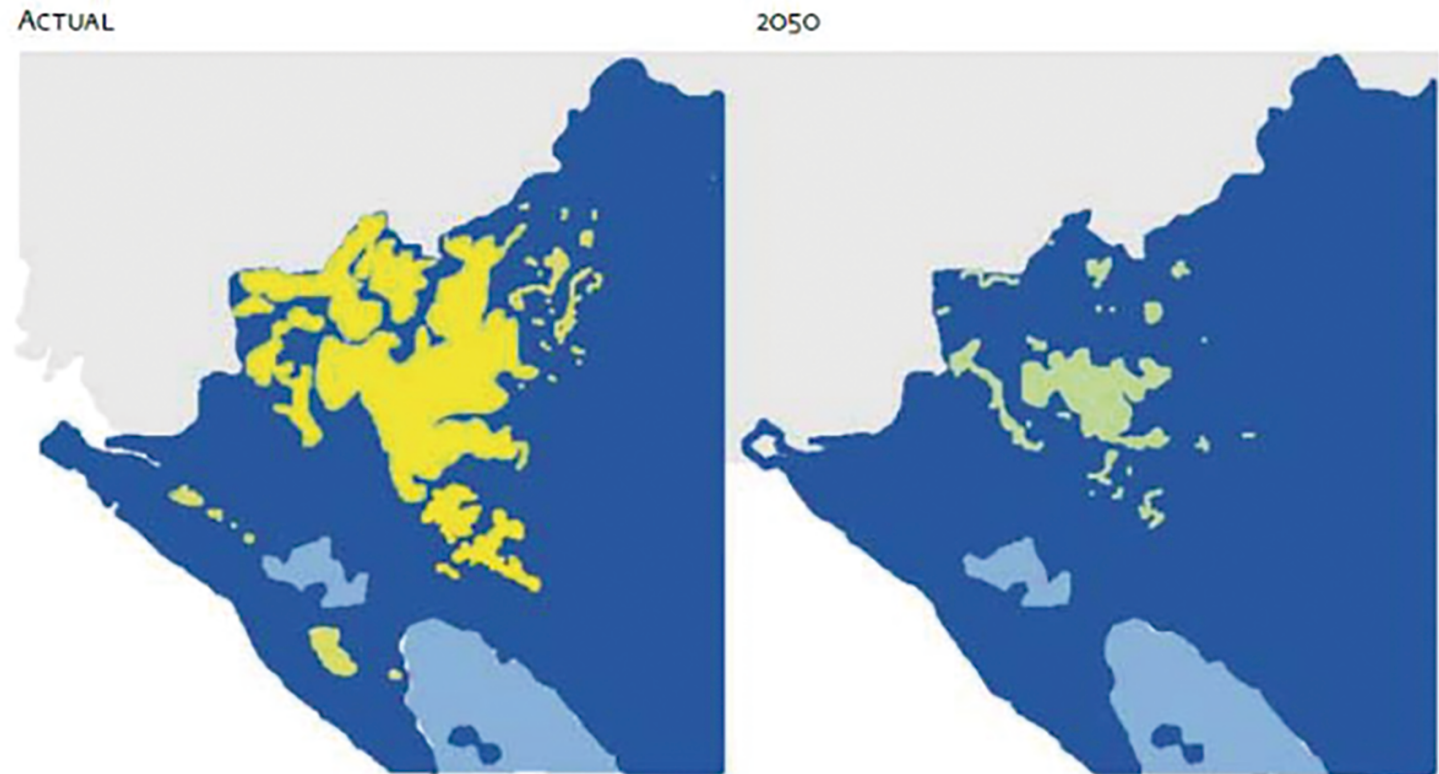
Adaptive Responses or Transformative Strategies

Nicaragua

Areas suitable for coffee cultivation now (2011) and in 2050 according to climate change forecasts



Coffee rust



a/ Se trata del coeficiente de variación para zonas aptas para el cultivo de *Coffea arabica*.
Fuente: Laderach et al., 2011.

Adaptive Responses

Maladaptation:

For example:

- Planting Robusta coffee
- Giving just more credits to overcome shocks
- Providing chemical fertilizer to increase productivity

Resilience

Shocks and stressors

Level of exposure

Pathways

- Sustainable/prosperous
- Resilient
- Vulnerable

Human agency

Transformative strategies

Level of well-being

+

-

Sensitivity

Access to and control over resources

Coping actions

Personal
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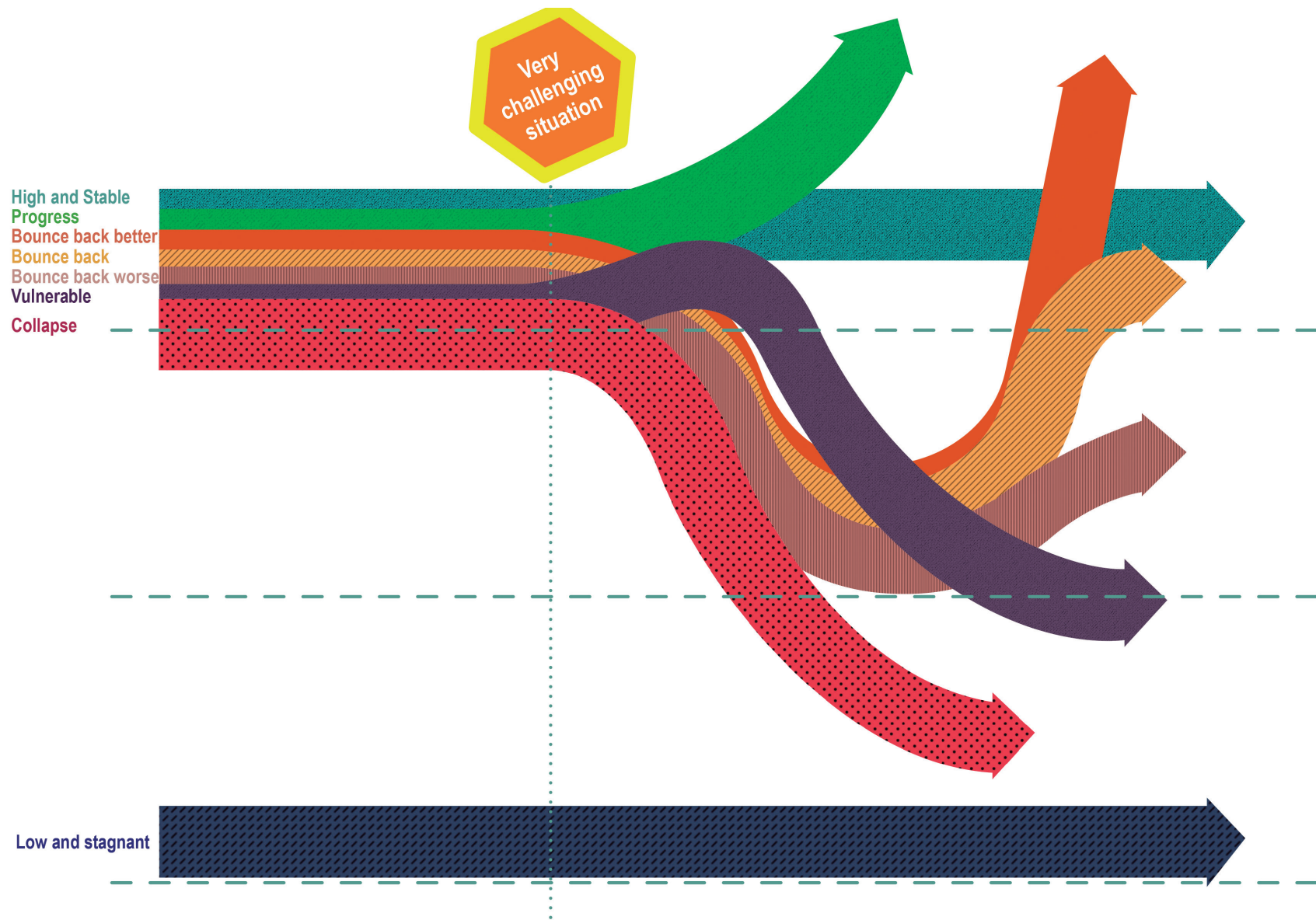
Graph: Rita Muckenhirn

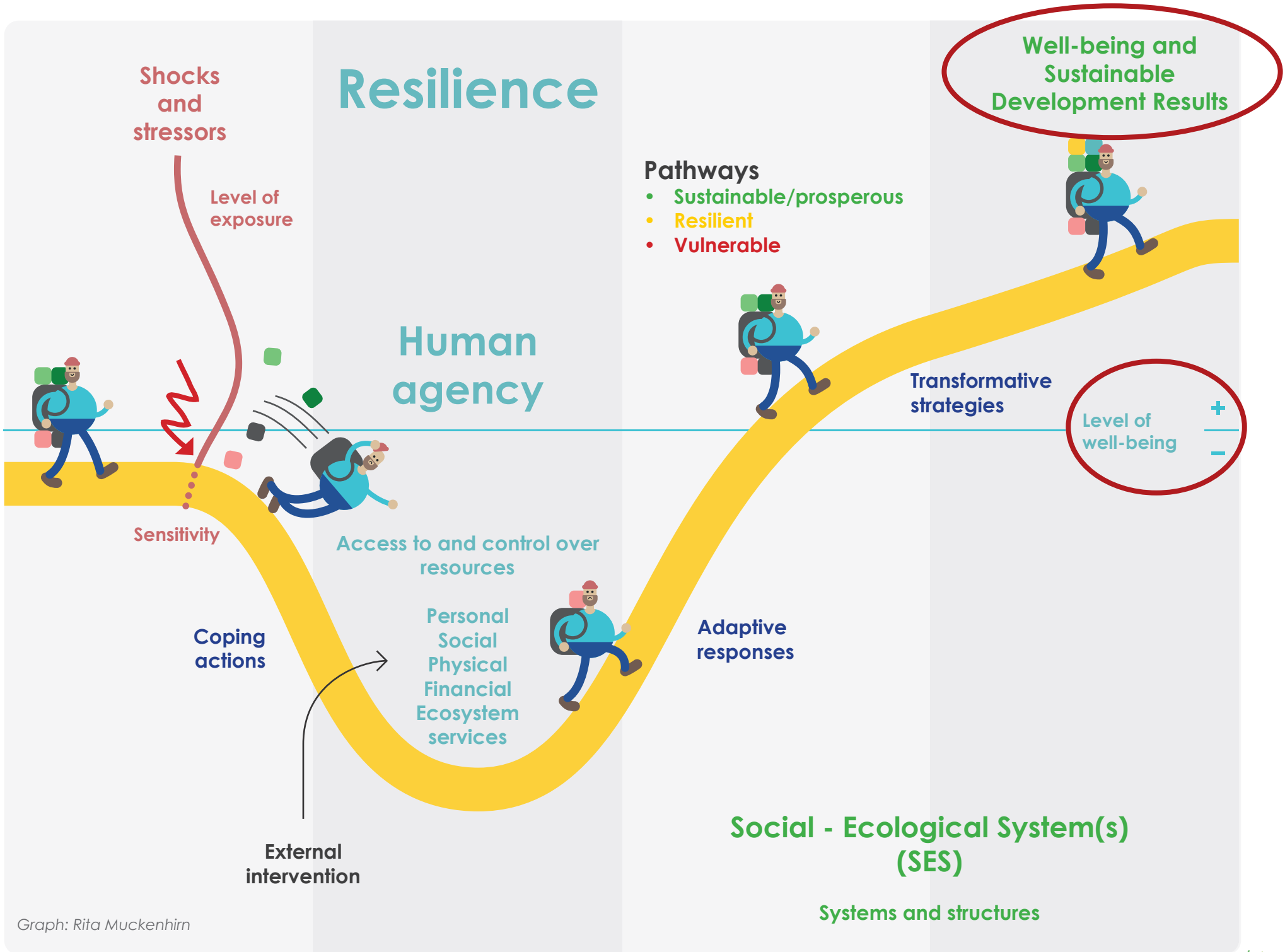
Pathways

The term 'pathways' underscores the idea that **prosperity, resilience and vulnerability** are properly viewed as **processes rather than static states**.

Thus, refer to the **process** followed by individuals, households, communities or higher-level systems in **reaction to stressors or shocks**, given their **access and control to assets**, and the **coping actions, adaptive responses and transformative strategies** taken, which determine their **degree of sensitivity** and their **level of well-being**.

Pathways

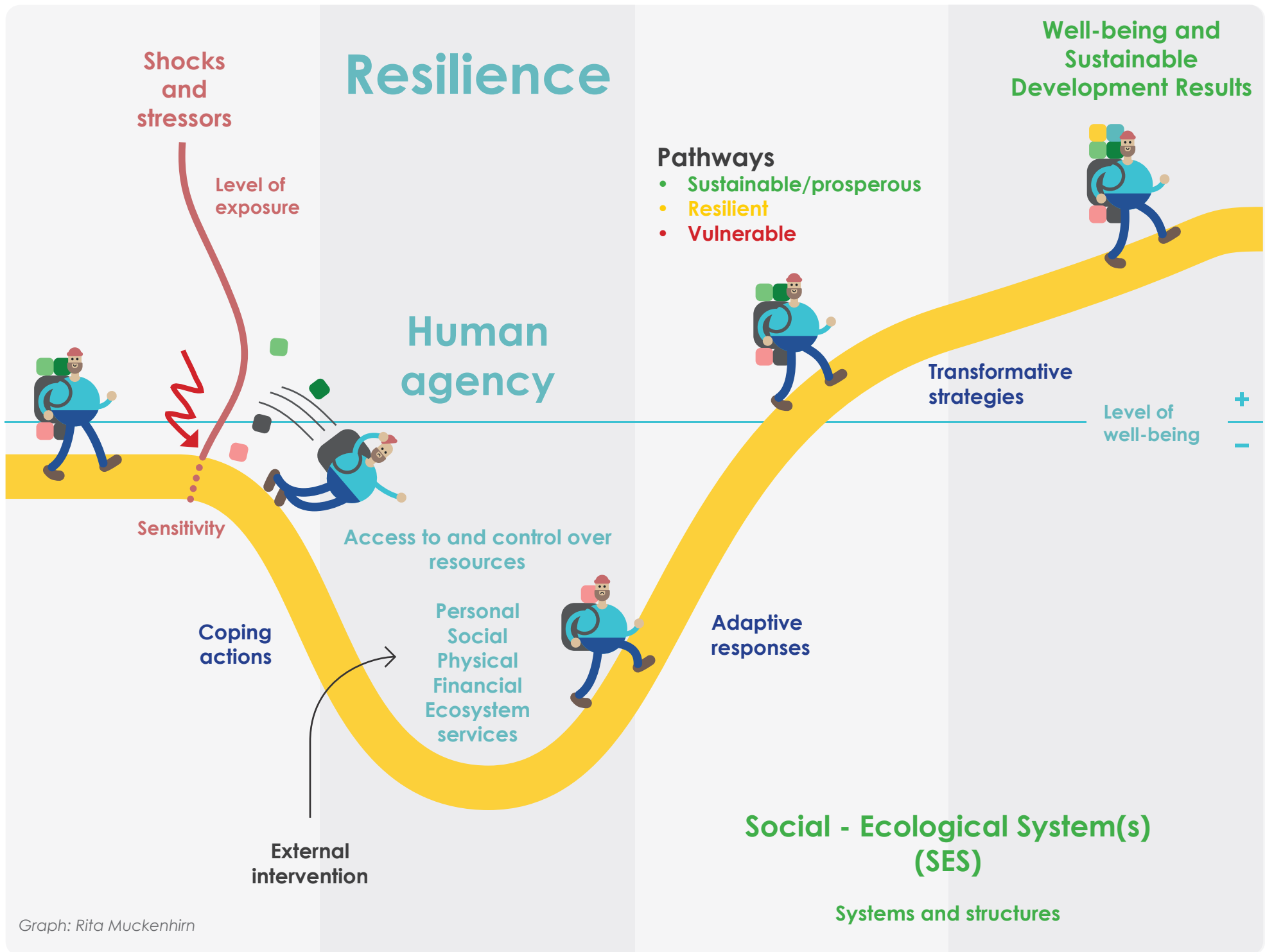




Graph: Rita Muckenhirn

Sustainable Development Goals





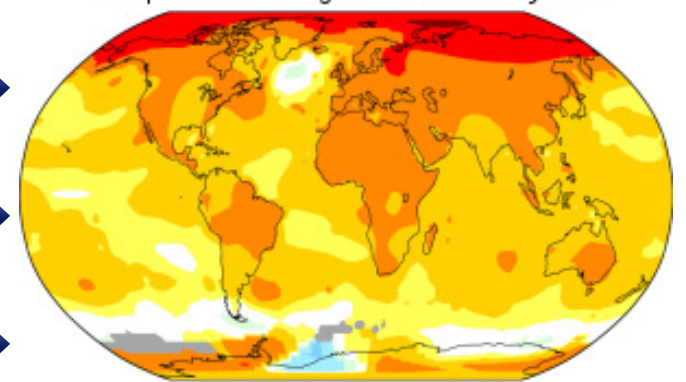
Graph: Rita Muckenhirn

Learning team 1: Resilience to face climate change

For each type of response:

Share examples from your context about how do you and your community face climate change and may get prepared for the future.

- Coping actions →
- Adaptive responses →
- Transformative strategies →



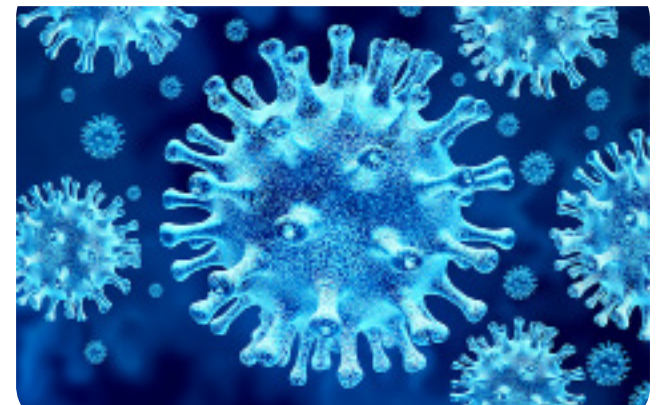
Share your examples in the Resilience forum.

Learning team 2: Resilience to face covid-19 and future pandemics

For each type of response:

Share examples from your context about how did you face covid-19 and may get prepared for future pandemics.

- Coping actions →
- Adaptive responses →
- Transformative strategies →



Share your examples in the Resilience forum.

Learning team 3: Resilience to face conflicts

For each type of response:

Share examples from your context about how did you and your community face a conflict and may get prepared for future conflicts.

- Coping actions →
- Adaptive responses →
- Transformative strategies →



Share your examples in the Resilience forum.

Learning teams: Resilience

For each type of response:

- Coping actions
- Adaptive responses
- Transformative strategies

Share examples from your context about how did you face and may get prepared for future shocks and stressors.

Learning team 1: climate change

Learning team 2: covid-19 pandemic

Learning team 3: conflict

Sources

In addition to the already cited sources, the presentation is based on insights from the following authors:

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