Handbook on Sustainability Transition and Sustainable Peace

**Key messages by Jürgen Scheffran for book launch
at IST 2016 conference in Wuppertal, September 9, 2016**

Key issues:

➢ Move from disciplinary perspectives towards
  transdisciplinary & anticipatory transformative approach

➢ Research deficits and future research needs on sustainability transition,
  on sustainable peace, and on the linkages between both discourses

➢ Move from knowledge to action, governance strategies, policies and
  measures aiming at *Sustainability Transition with Sustainable Peace*.

**Four examples** of transformative scientific approach towards proactive policies:

1. Sustainable energy transition achievable by moving from fossil fuels to
   enhancing energy efficiency and to renewables, granting access to energy for
   up to twelve billion people by 2100, while GHG emissions would be reduced.

2. Shift from resource- and carbon-intensive agriculture and a high degree of waste in
   the food sector to climate-smart agriculture with less waste.

3. Changes to different lifestyles in industrialized countries.

4. Shift in values as suggested, learning from indigenous people (e.g. Happyness Index).

Alternatives

➢ indicate that new viable pathways are needed towards a sustainable and peaceful
  world, and

➢ enable us to move beyond a continuation of the unsustainable Western way of life
  based on abundance and waste in consumption and production.
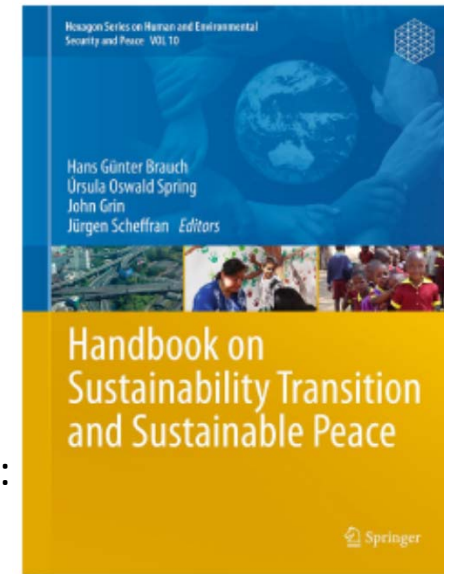
System approach to natural and anthropogenic factors of global environmental change
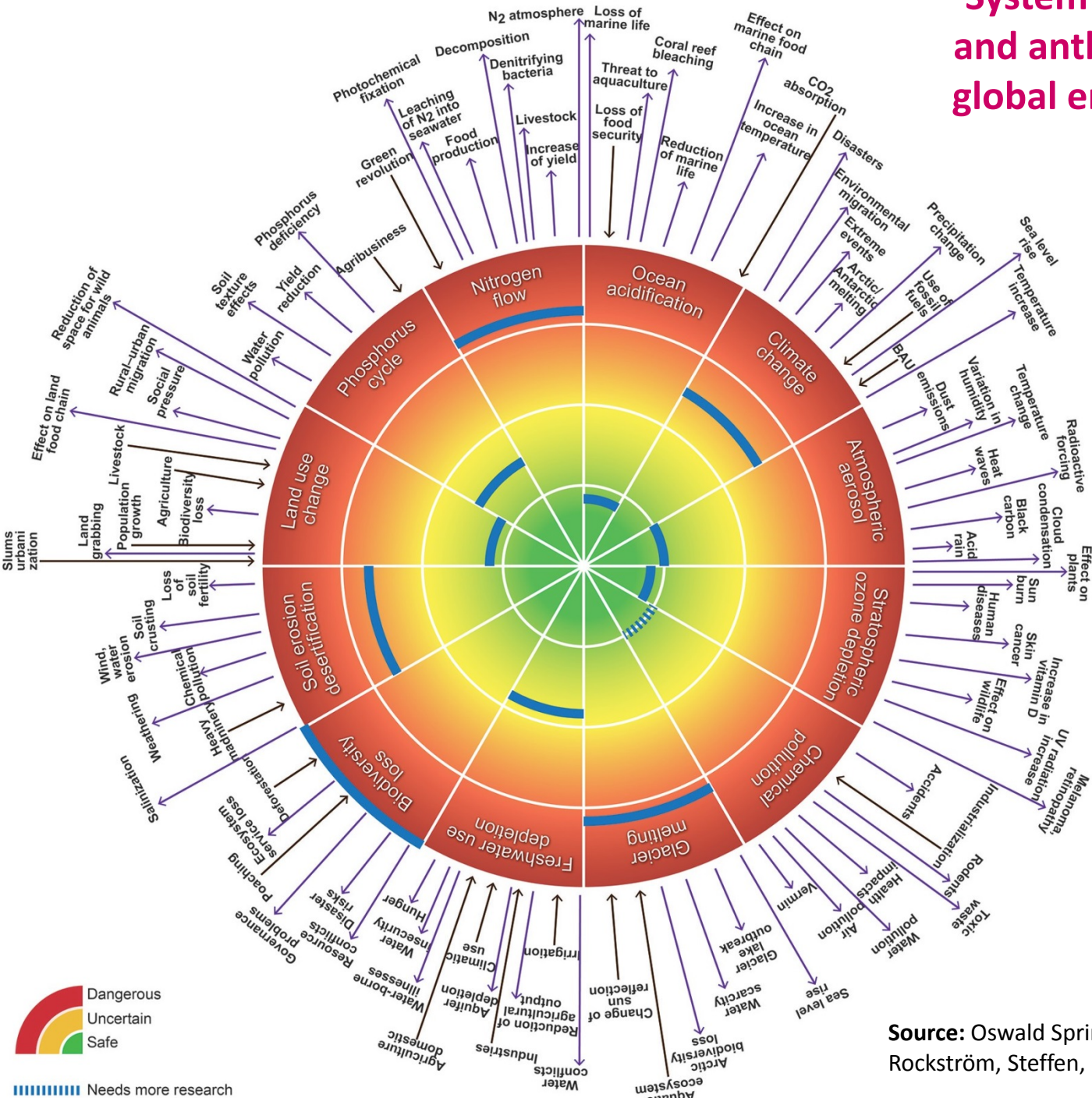
Source: Oswald Spring (2016), based on data from Rockström, Steffen, Noone et al. (2009).

From Disciplinary, Multi-, Inter- and Transdisciplinary Approaches towards Transformative and Anticipatory Science

Linkages between sustainability transition and sustainable peace require bridge-building between scientific disciplines in natural and social sciences, between environmental & development, peace & security studies.

Fundamental shift from narrow disciplinary and programme-specific approaches to transdisciplinary and transformative research *designs*

Transdisciplinarity establishes a common research objective crossing disciplinary boundaries. A holistic approach addresses complex problems that require close cooperation between several disciplines, combining *system knowledge, target knowledge, transformation knowledge.*

Move from a 'transdisciplinary' approach to 'transformative science', 'transformative education', 'anticipatory science'.

Political geo-ecology approach to Anthropocene links physical geography with 'political' dimension of human security within political science and peace and security studies.

Peace ecology approach to encourage bridge-building research and discourse between two parallel research programmes.

Need for Research: Deficits and Mapping

Previous approaches on sustainability transitions largely excluded the demand side, the values, preferences and behaviour of human beings as customers and citizens.

More holistic approach *Social Contract for Sustainability* (WBGU 2011): megatrends, changing values, stages of great transformation, technical-economic feasibility, agents of transformation, transformation governance, transformative science and education.
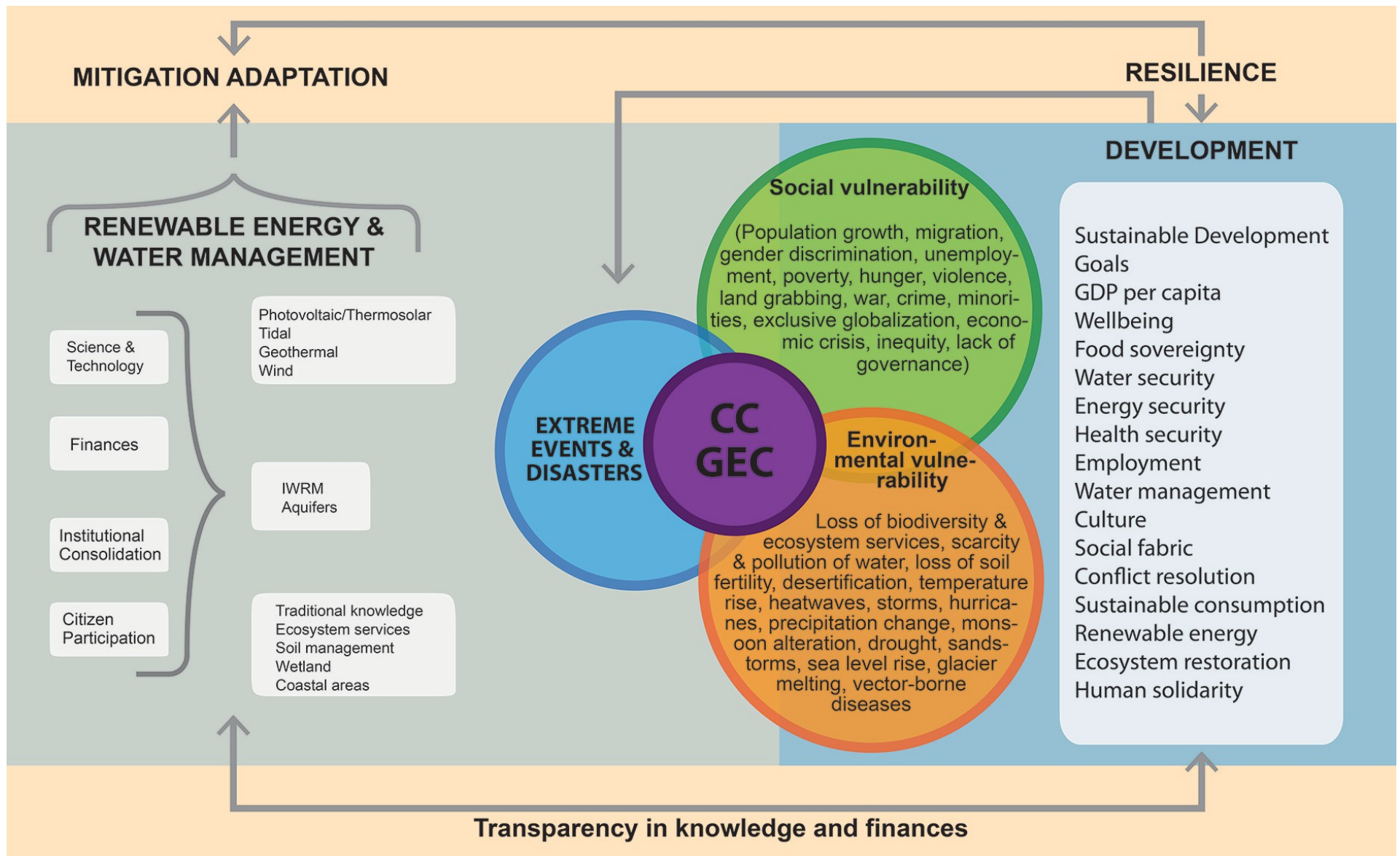
Many approaches are top-down and not bottom-up and have often involved only policymakers, opinion leaders in society, scientists and a few businesspeople, neglecting grassroots movements calling for slow growth or 'de-growth' strategies.

Initiatives in Africa, Asia, Latin America, Europe and Australia to link the transition process with sustainable peace initiatives.

Research on sustainable peace exists in peace psychology, conflict prevention and post-conflict peace-building, but scarcely in environmental problems (peace with nature)

Emerging debates on the root causes of violence with gender and patriarchy, GEC in the Anthropocene, religious movements for justice, peace and the preservation of creation.

Transition to sustainability

MITIGATION ADAPTATION

RESILIENCE

DEVELOPMENT

RENEWABLE ENERGY & WATER MANAGEMENT

Science & Technology

Finances

Institutional Consolidation

Citizen Participation

Photovoltaic/Thermosolar
Tidal
Geothermal
Wind

IWRM
Aquifers

Traditional knowledge
Ecosystem services
Soil management
Wetland
Coastal areas

EXTREME EVENTS & DISASTERS

CC GEC

Social vulnerability

(Population growth, migration, gender discrimination, unemployment, poverty, hunger, violence, land grabbing, war, crime, minorities, exclusive globalization, economic crisis, inequity, lack of governance)

Environmental vulnerability

Loss of biodiversity & ecosystem services, scarcity & pollution of water, loss of soil fertility, desertification, temperature rise, heatwaves, storms, hurricanes, precipitation change, monsoon alteration, drought, sandstorms, sea level rise, glacier melting, vector-borne diseases

Sustainable Development Goals
GDP per capita
Wellbeing
Food sovereignty
Water security
Energy security
Health security
Employment
Water management
Culture
Social fabric
Conflict resolution
Sustainable consumption
Renewable energy
Ecosystem restoration
Human solidarity

Transparency in knowledge and finances

Source: Brauch et al. 2016, based on Oswald Spring (2016)

From Knowledge to Action: Sustainability Transition with Sustainable Peace

There is little scientific knowledge about linkages of policies for sustainability transition and sustainable peace.

Anticipatory and transformative research and science integrates a 'proactive policy perspective' into research designs to shift away from reactive business-as-usual policy of adaptation.
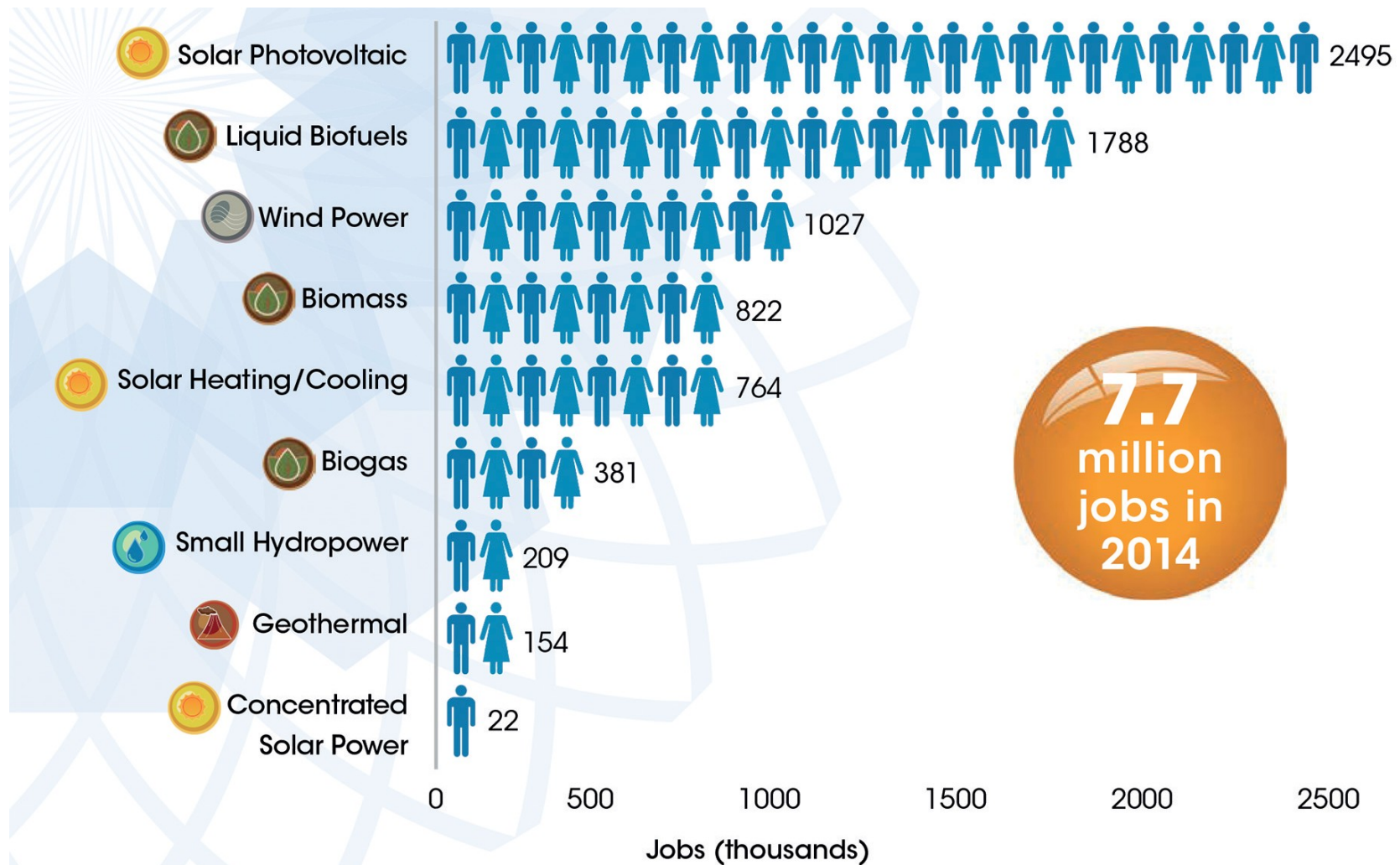→ Contain the causes instead of addressing the consequences.

Need for a systematic analysis of constraints and opposed political and societal actors (e.g. businesses and workers in the fossil fuel industry).

Anthropogenic impacts of global environmental change, extreme events and natural resource exploitation, have put pressure on the natural cycles of nitrogen, phosphorous, sulphur, and dioxide, acting as 'threat multipliers' that destroy development path of poor countries.

Solid development paths that are human-oriented and take most vulnerable into account, could better manage new threats to water, food, energy, health security which could affect peace.

Peaceful negotiations at international, national and local levels on efficient management of scarce resources to reduce environmental footprint in a decarbonized, dematerialized sustainable world with constructive human relations, care and solidarity for most vulnerable.

Renewable Energy and Jobs

Category	Jobs (thousands)
Solar Photovoltaic	2495
Liquid Biofuels	1788
Wind Power	1027
Biomass	822
Solar Heating/Cooling	764
Biogas	381
Small Hydropower	209
Geothermal	154
Concentrated Solar Power	22

7.7 million jobs in 2014

Jobs (thousands)

From Agribusiness and Hunger to a Sustainable and Equitable Livelihood

Despite the MDGs of 2000, by 2015 the level of global hunger had remained quite high: Hunger, undernourishment and obesity create a vicious circle along with ignorance, poverty, disease, dependency and cultural discrimination.

Call for climate-smart agriculture integrating the whole food chain into it, including waste management and losses in field, harvest, staple and market, with drastic reductions in the carbon, water, soil, biological and ecosystem service footprints.

Locally-based food production, also called 'food sovereignty', reduces the dependence of national governments on the world economy and on short-term investments, and inhibits speculation on food staples.

Positive linkages between a safe environment, restored ecosystem services, a healthy population and cultural diversity also allows the creation of new political arenas, in which a participative society can contribute to an agenda of sustainable well-being.

How to spread sustainable lifestyles
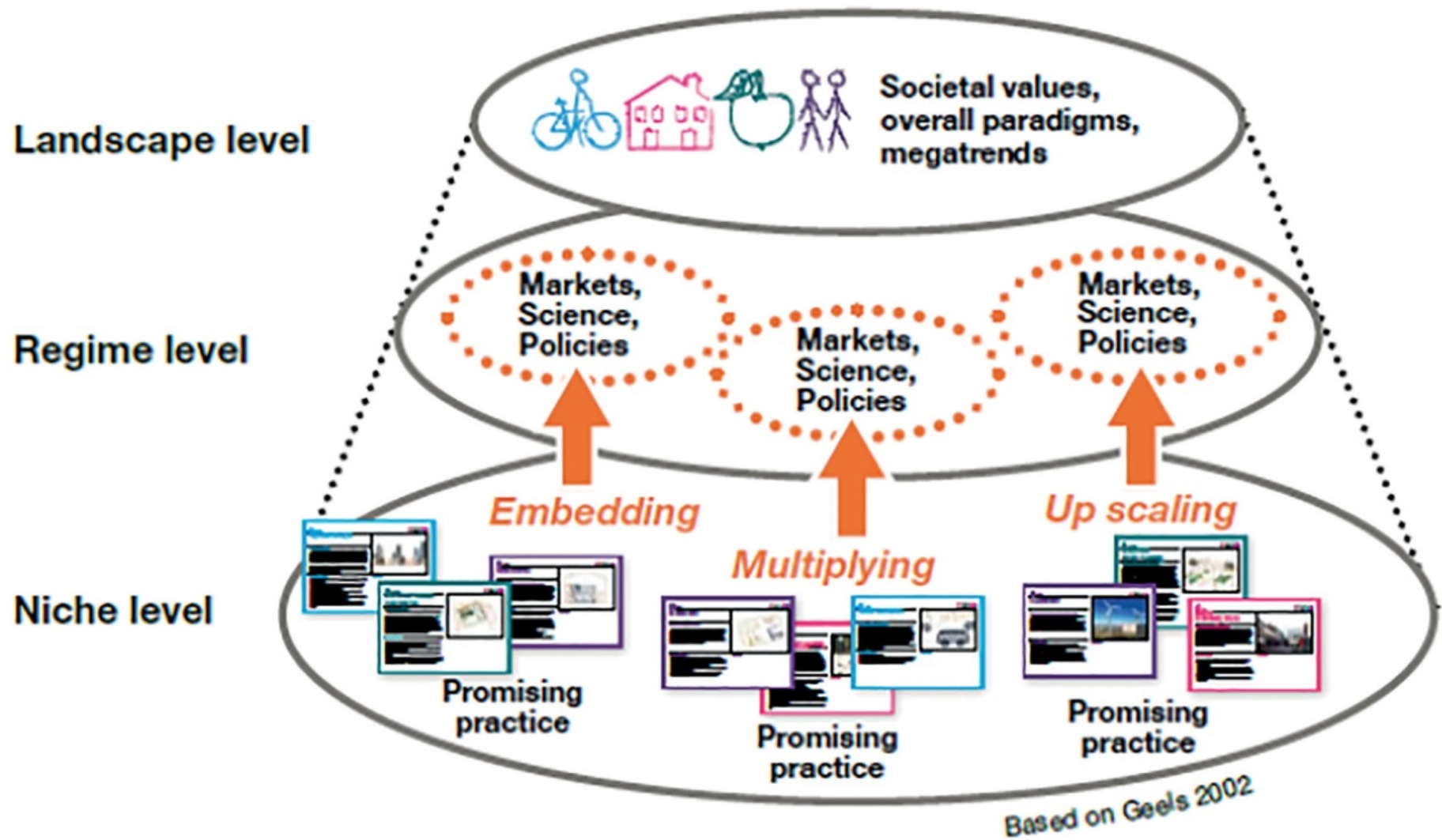
Source: SPREAD: *Scenarios for Sustainable Lifestyles–From Global Champions to Local Loops* (Wuppertal: 2013), based on Geels (2002).

Alternative Indigenous World Views and Mindsets

Gross national happiness index: nature and human beings live together in harmony and peace,where diverse traditions and rules open the way to cultural diversity

Post-modern understanding recovers deep indigenous knowledge of 'cosmovisions' and their traditions in an indigenous society has developed new structures of power sharing, which was exposed during hundreds of years of colonialization to exploitation, discrimination and violence

Learning process involves governments and enterprises, indigenous people, non-governmental organizations (NGOs), and civil society organizations (CSOs).

Extreme hydro-meteorological events have reinforced solidarity among the affected and their capacity for sharing scarce resources among the most vulnerable communities.

New world view and way of life which is mostly carbon-free and dematerialized, where waste is recycled and consumption oriented towards renewable production and consumption.

Indigenous world view links the transition to sustainability and sustainable peace-building with the recovery of crucial ecosystem services and the environment.

Interest-driven political and economic interests are controlled by participative governance and collective decision-making to protect the most vulnerable and the environment.
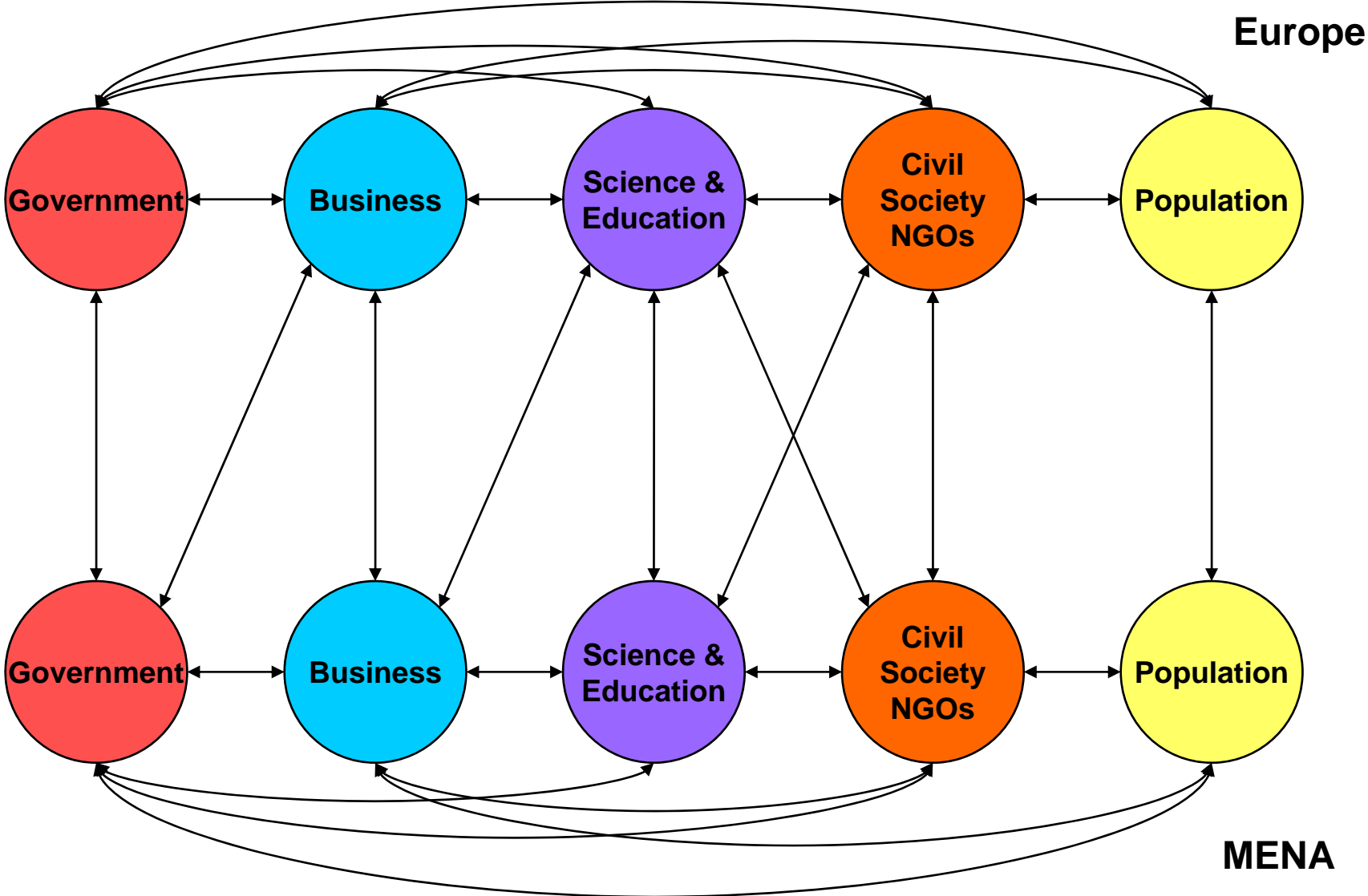
Tipping points and pathways in sustainability transitions: Adaptive and anticipative governance

Source: Scheffran 2016
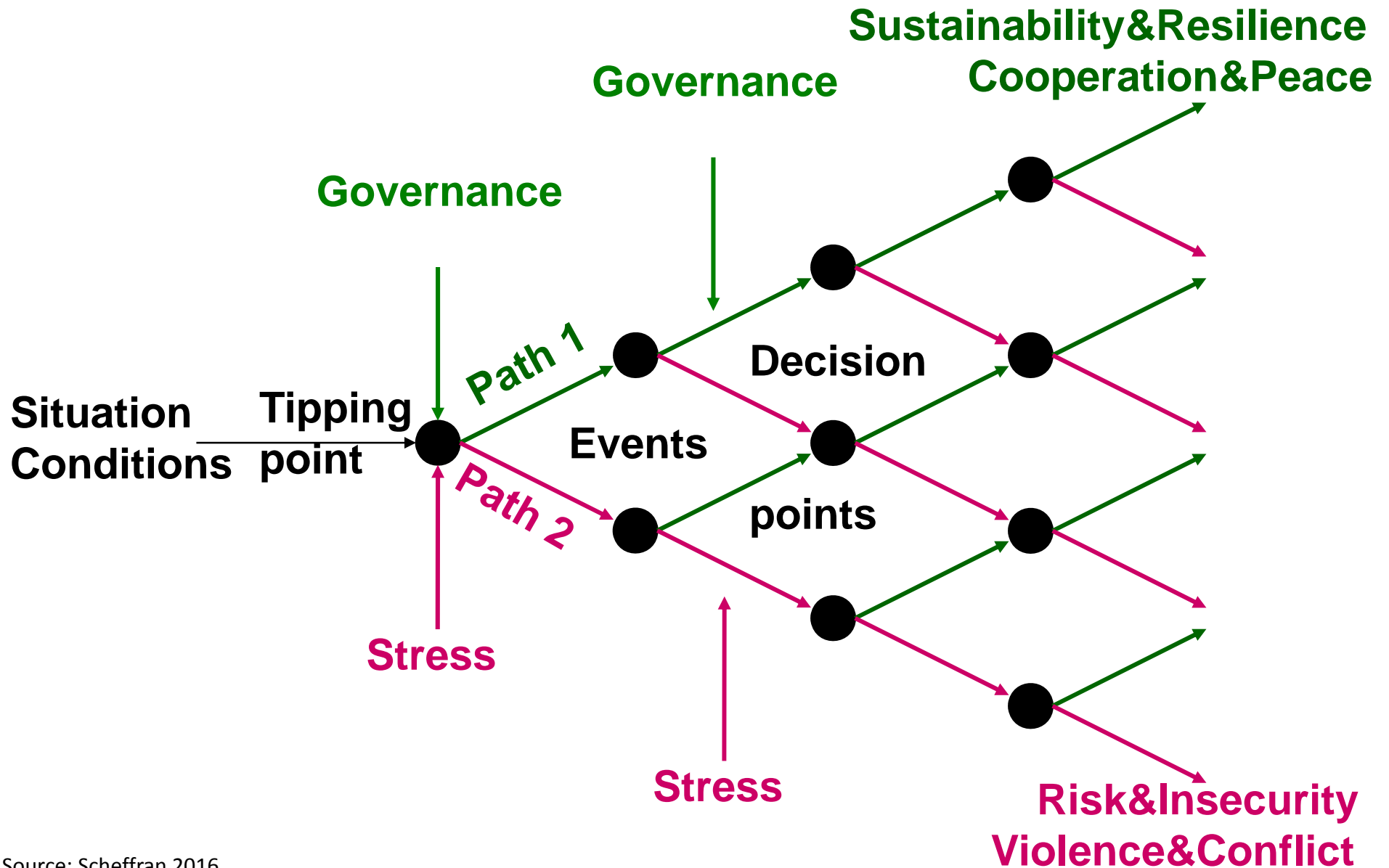
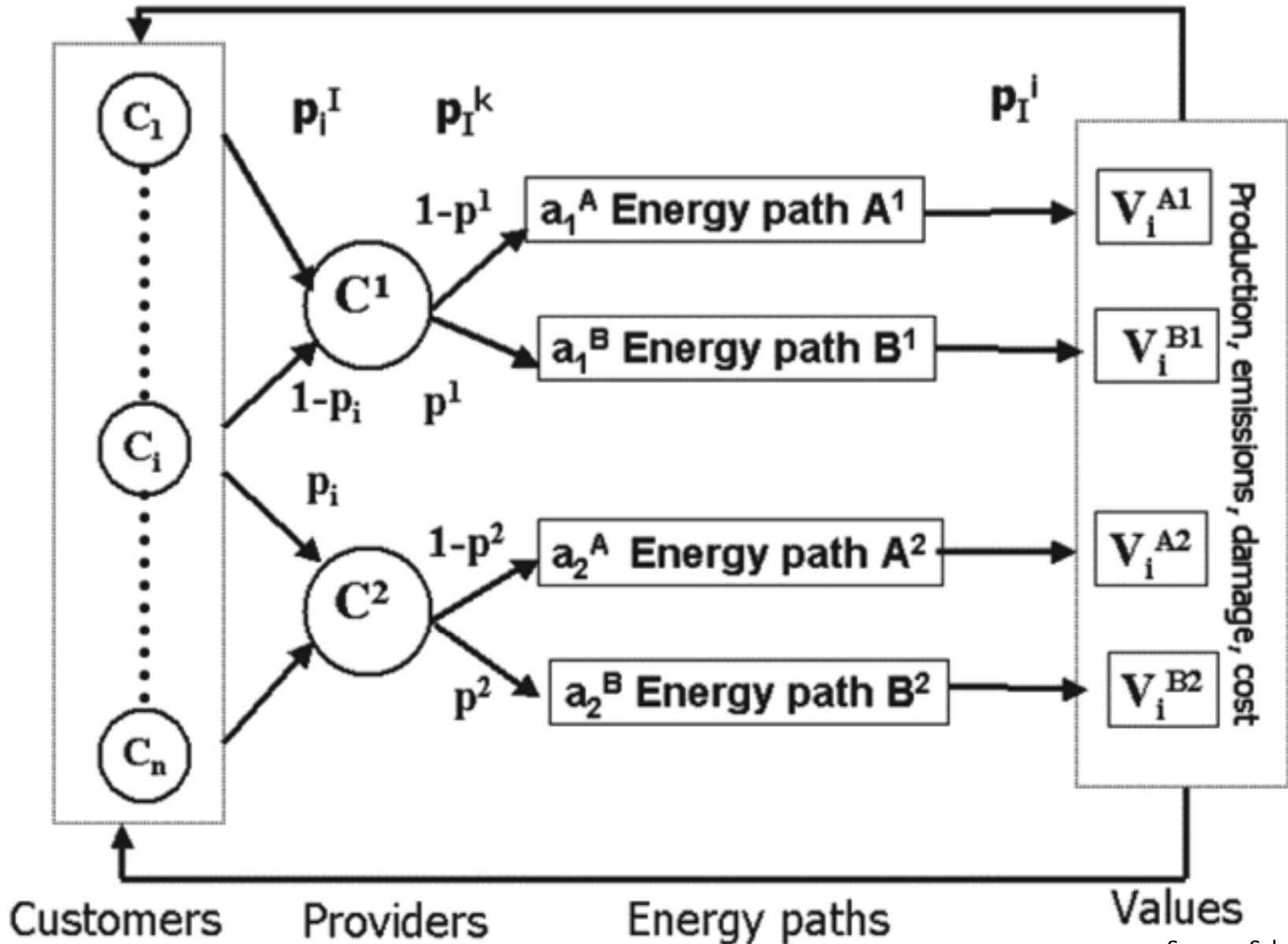# Micro-Macro: Multi-level interaction
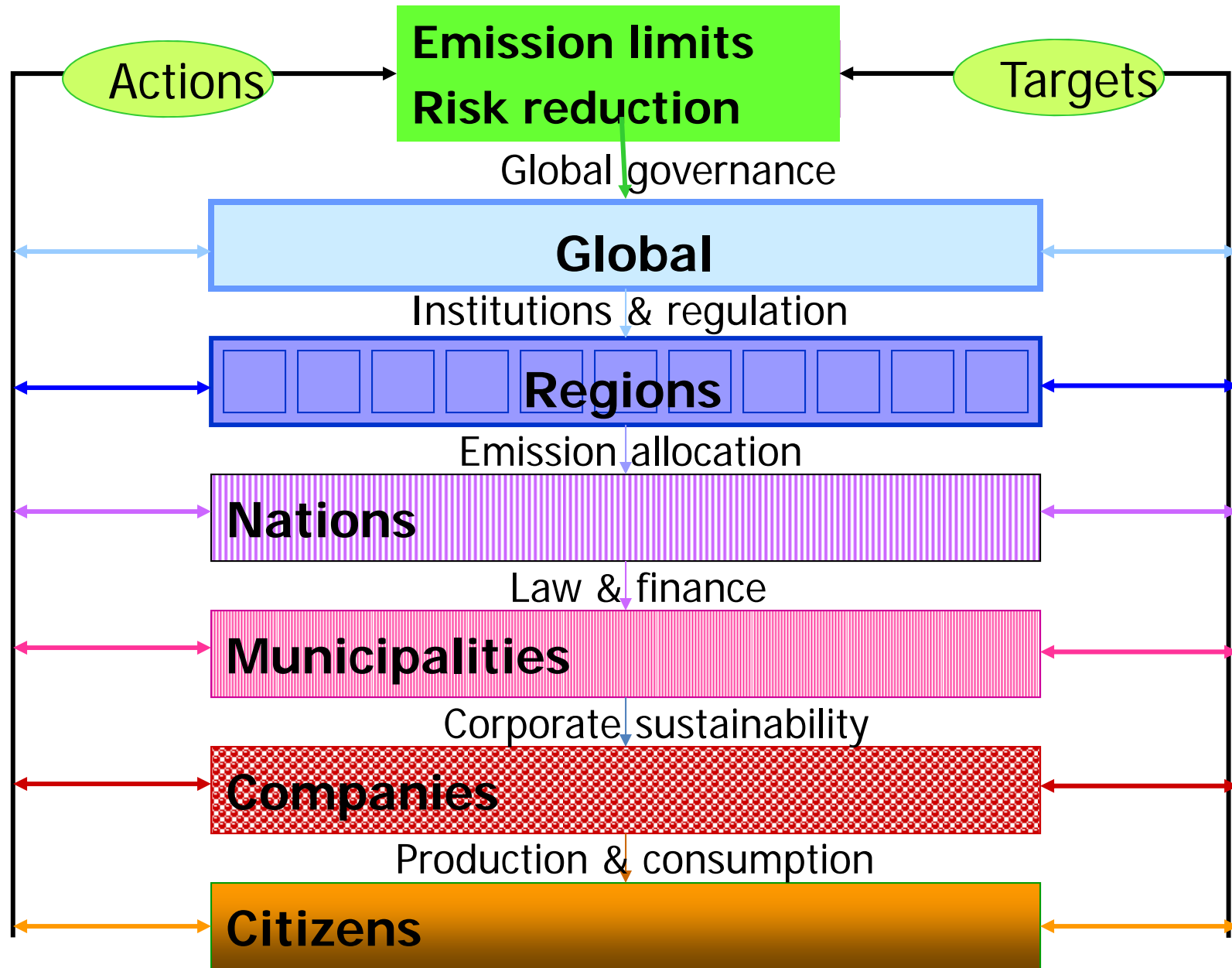
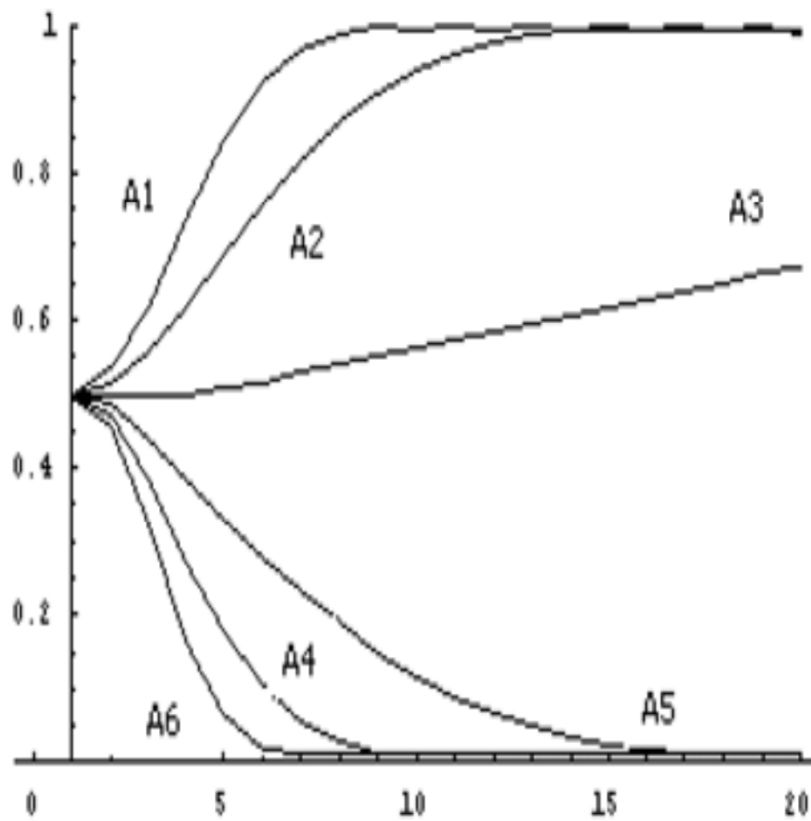# Network formation processes in renewable energy between EU and MENA

Interplay of energy providers and customers for two energy paths
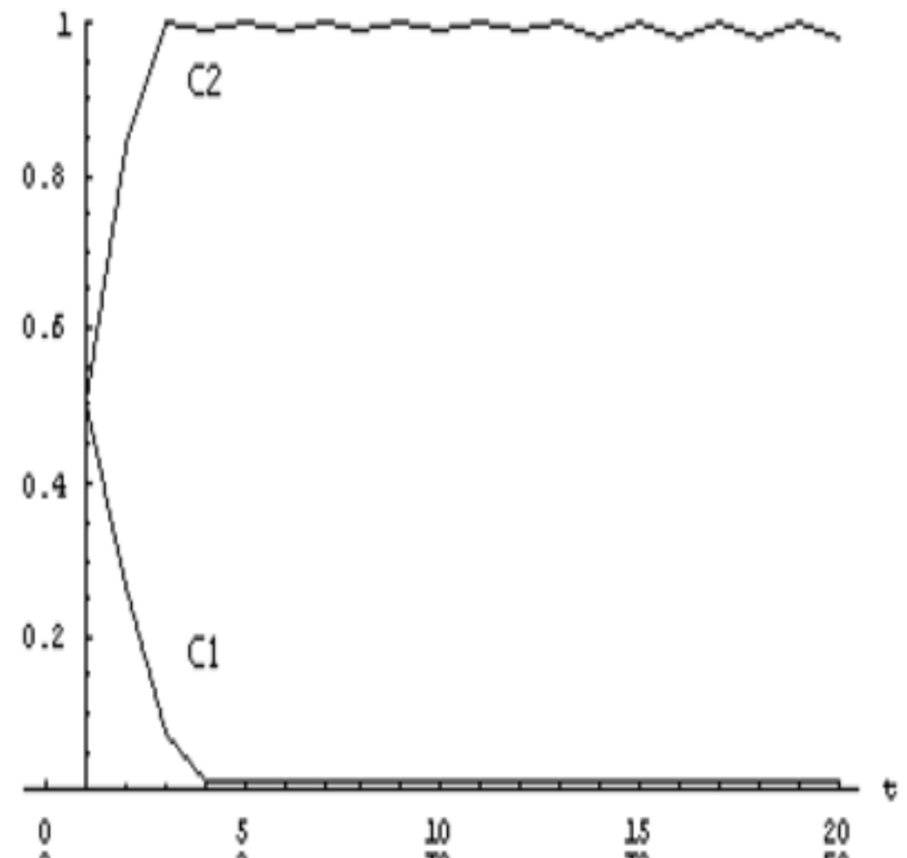## Agent-based modeling of coalition formation in transition networks

Customers Providers Energy paths Values

Transitions between high and low emission energy pathways

Source: Scheffran 2006

Conceptions of sustainable peace

→ Negative interactions (vicious cycle) between under-development, environmental destruction and armed conflict undermines natural and social living conditions
→ Positive linkages (virtuous cycle) between human development, environmental protection and peace building strenghtens natural and social living conditions

➢ Can sustainable development be achieved under non-peaceful conditions?
➢ Is peace possible under unsustainable conditions?
➢ Is there a tipping point between positive (cooperative) or negative (conflictive) links?

Sustainable peace: Preventive strategy of global risk reduction, rooted in satisfaction of human needs without destroying conditions of life, harmonizing conflicting goals.

Dimensions of sustainable peace:
➢ Preservation – upholding (Erhaltung)
➢ Development – unfolding (Entfaltung)
➢ Configuration – immolding (Gestaltung)

→ Upholding current abilities serves as a basis for unfolding enabling opportunities and immolding environmental transformations towards new pathways and spaces.

Viability of human-environment interactions

Concept of viability: 'viabilis' = *via* and *abile*: able and enabling pathway

➢ System's *ability* to live, grow, and develop within given limits and without compromising the viability of other systems.

➢ Viability theory provides methods and tools to maintain adaptive systems dynamics within *boundarie*s of human-environment interaction.

➢ Alterations of *crucial couplings* to improve viability in resource networks, which allows the resolution of conflicts between agents.

➢ *Non-viable pathways* contribute to destabilization and violent conflict

➢ *Viable pathways* lead to effective, resilient and sustainable integration of natural and social systems

Viable adaptive governance transforms non-viable to viable pathways in complex human-environment interactions.

Integration of concepts