



Tipping points in the social dimension: global supply chain governance as example

Walter J.V. Vermeulen

21st ISDRS Conference, July 8-10, 2015
Geelong (Melbourne), Australia



The Tipping Point: Vulnerability and Adaptive Capacity

Our conference invitation:

- management of social vulnerabilities & enhancement of adaptations
- tipping point as point 'of no return'?



The Tipping Point: as point 'of no return'

Typically in ecology and climate science, etc.: physical domain

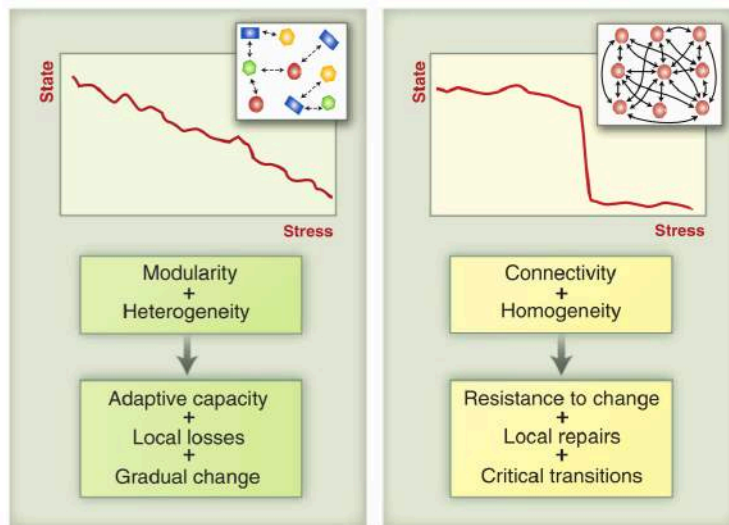


Fig. 1. The connectivity and homogeneity of the units affect the way in which distributed systems with local alternative states respond to changing conditions. Networks in which the components differ (are heterogeneous) and where incomplete connectivity causes modularity tend to have adaptive capacity in that they adjust gradually to change. By contrast, in highly connected networks, local losses tend to be “repaired” by subsidiary inputs from linked units until at a critical stress level the system collapses. The particular structure of connections also has important consequences for the robustness of networks, depending on the kind of interactions between the nodes of the network.

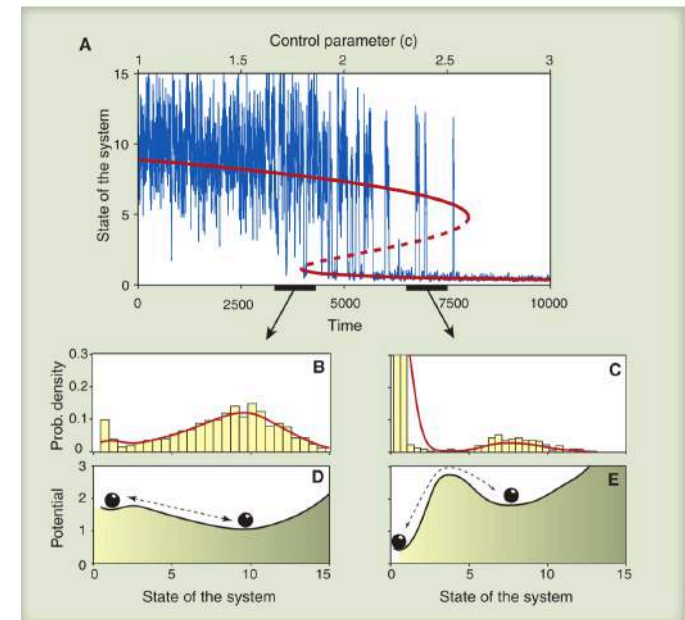


Fig. 3. (A) Flickering to an alternative state as a warning signal in highly stochastic systems. In such situations, the frequency distribution of states (B and C) can be used to approximate the shape of the basins of attraction of the alternative states (D and E). The data in this example are generated with a model of overexploitation (38): $\frac{dx}{dt} = x(1 - \frac{x}{K}) - \frac{\alpha}{1+x}$ with different additive and multiplicative stochastic terms (30) (we used $K = 11$).

Scheffer, M., et al. (2012). Anticipating Critical Transitions, *Science*, 338(6105), 344–348.



The Tipping Point: as point 'of no return'

Typically in ecology and climate science, etc.

Local event,
global impacts

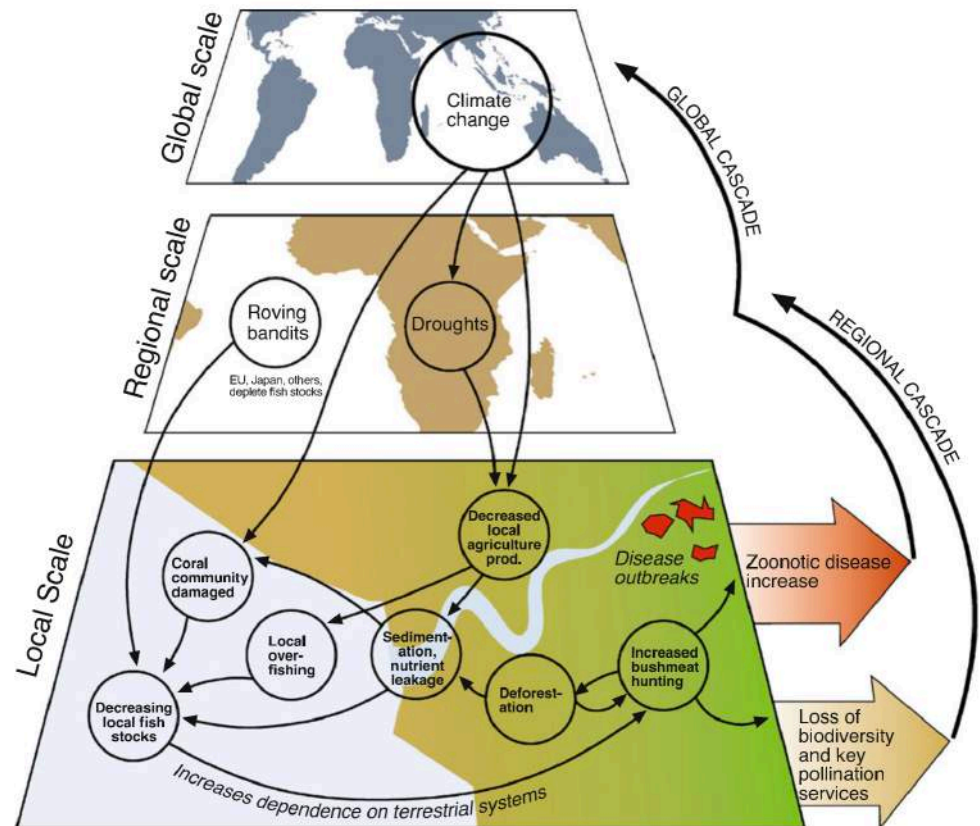


Fig. 7 Example of a multiple cascading social-ecological crises: fish and zoonotic disease (modified from Galaz et al. 2010)

Folke, C., et al. (2011). Reconnecting to the biosphere. *Ambio*, 40(7), 719–738



The Tipping Point: as point 'of no return'

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Local event,
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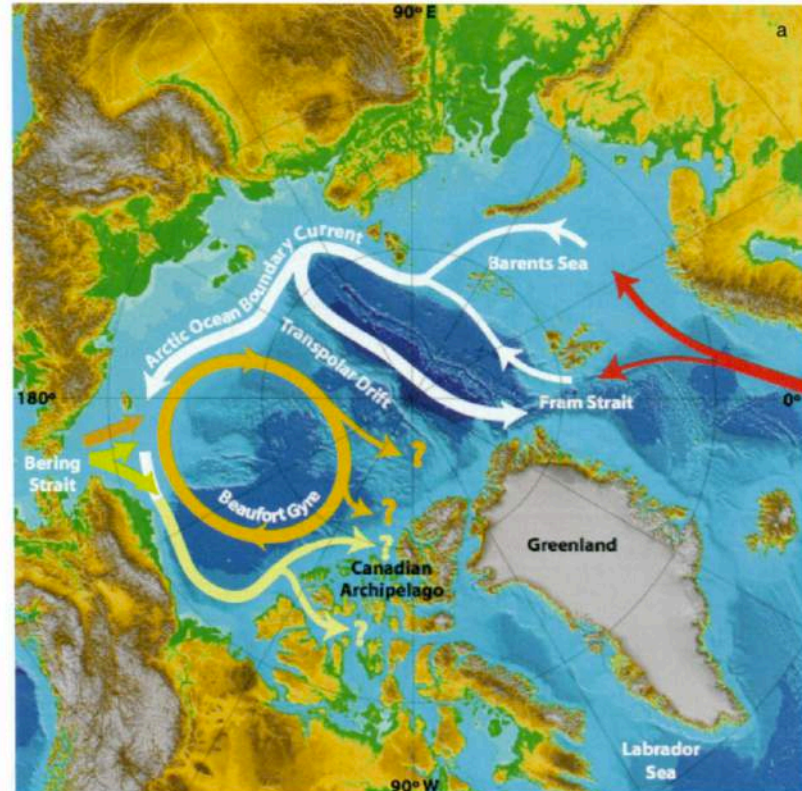


FIG. 2. Upper ocean circulation patterns in the Arctic Ocean (a) before and (b) after the shift to a strongly cyclonic atmospheric circulation regime. Red arrows indicate inflow of Atlantic water into the Arctic Ocean through the Barents Sea and Fram Strait. White arrows indicate surface flows of polar water. Yellow and orange arrows indicate inflow of Pacific water into the Arctic Ocean through the Bering Strait. Pale yellow and orange arrows indicate mixtures of polar- and Pacific-derived waters.

Greene, C. H., et al. (2008). Arctic Climate Change and Its Impacts on the Ecology of the North Atlantic. *Ecology*, 89(11), 24–38.



The Tipping Point: Vulnerability and Adaptive Capacity

Our conference invitation:

- management of social vulnerabilities & enhancement of adaptations
- tipping point as point 'of no return'?
- Rather: tipping point as 'point of transformation'
 - efforts reach a collective crescendo.
 - sustainable behaviour becomes the norm
 - incremental efforts reach a points where a final tiny addition provides a positive change

“We need the positive tip to happen
before a catastrophic negative one occurs”





The Tipping Point: as 'point of transformation'?

The imperatives in Resilience Thinking

"A major governance challenge in this context is to **strengthen social-ecological systems** to deal with such global links and feedbacks and to use them as **opportunities for reconnecting** societal developments to the biosphere."

- Global and regional scale **integrated assessments**
- New flexible forms of **multilevel governance**
- **Experimentation** and **learning** as a strategy

(Folke, C., et al., 2011, p 732-733)



The Tipping Point: Adaptive Capacity?

The imperatives in Adaptive Governance Thinking

Prerequisites:

- Build **knowledge and understanding** of resource and ecosystem dynamics **across scales**;
- **Feed** ecological knowledge **into** adaptive management **practices**;
- Support **flexible institutions** and **multilevel governance** systems;
- **Deal with** external perturbations, uncertainty and **surprise**

Folke, C., et al.(2005). Adaptive Governance of Social-Ecological Systems. Annual Review of Environment and Resources, 30(1), 441–473.

Cash, D. W., et al. (2006). Scale and Cross-Scale Dynamics: Governance and Information in a Multilevel World. Ecology and Society, 11(2), 8.



The Tipping Point: when as 'point of transformation'?

Do we know which mechanism can function as tipping point?

Beyond the 'normative program': when does it work?

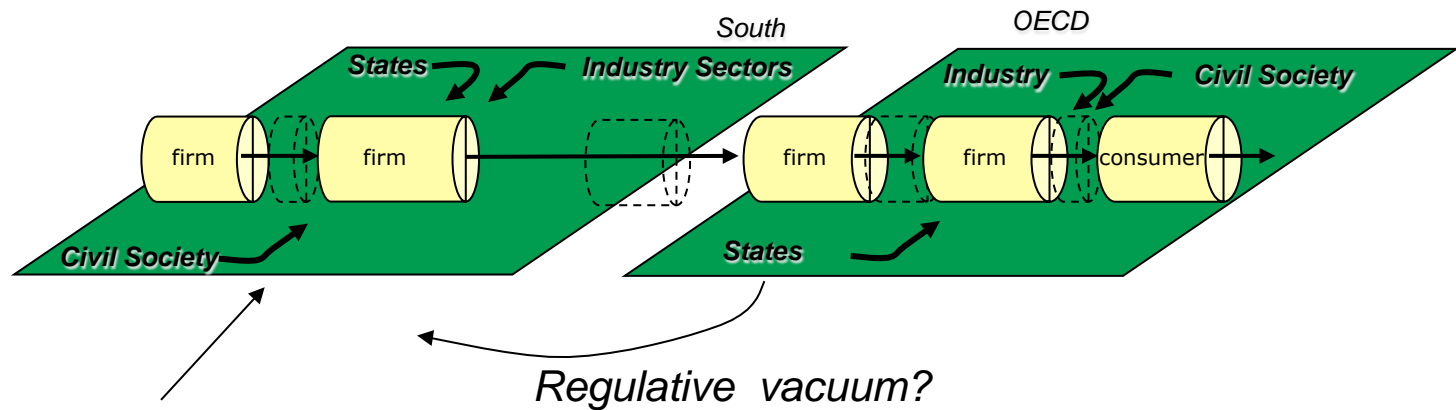
Can we find a field where dynamics are speeding up?



Global Sustainable Supply Chain Governance

What can we learn?

Emerged originally as response to weak transnational governance



Pollution heaven's?

- Lack of regulation
- Lack of enforcement
- Cheap labour

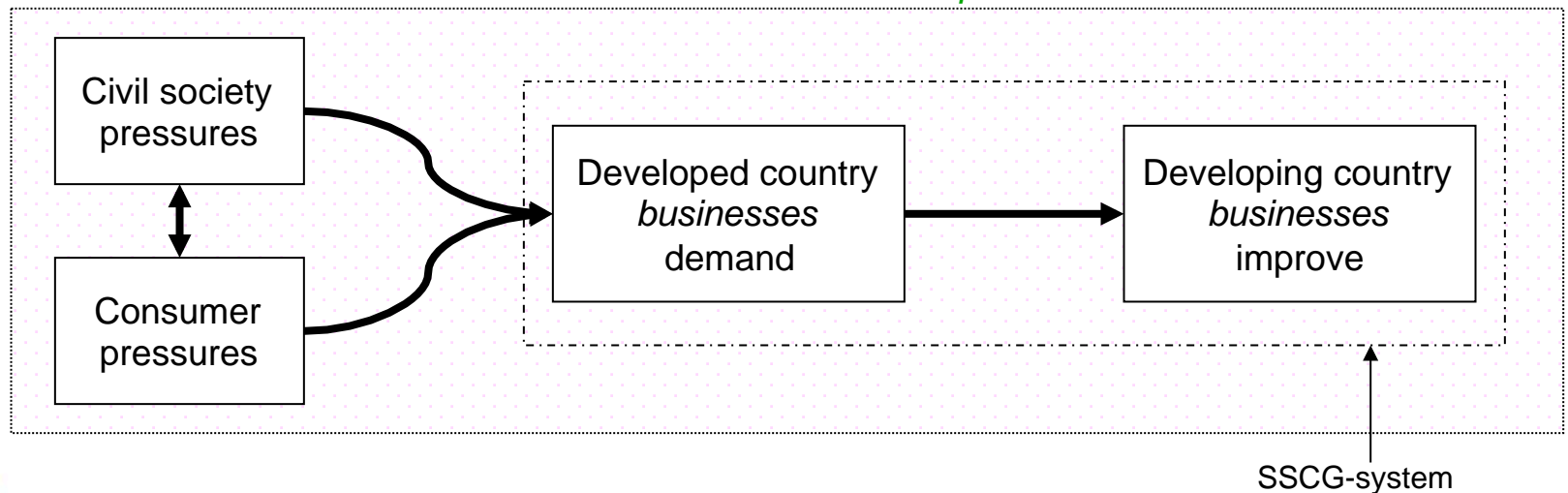


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What can we learn?

Emerged originally as response to weak transnational governance.
As private initiatives: NGO = frontrunners and eco-preneurs in market

Practitioners' basic assumption:



Vermeulen, W. J. V. (2010). Sustainable supply chain governance systems: conditions for effective market based governance in global trade. Progress in Industrial Ecology, 7(2), 138.

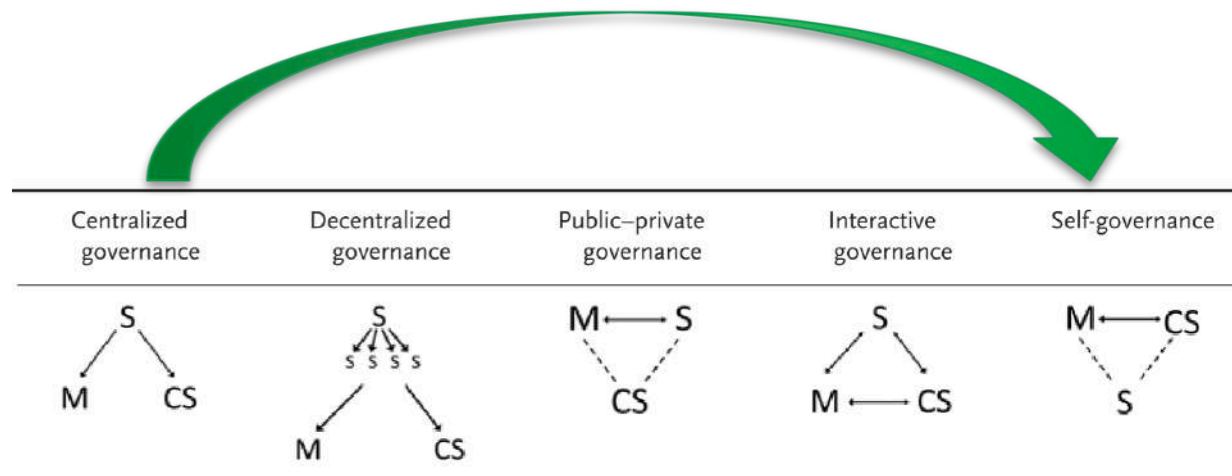


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What can we learn?

Emerged originally as response to weak transnational governance.
As private initiatives: NGO + frontrunners and ecopreneurs in market

Good example of 'self-governance' (?)



Driessen, P. P. J., et al. (2012). Towards a Conceptual Framework for The Study of Shifts in Modes of Environmental Governance - Experiences From The Netherlands. *Environmental Policy and Governance*, 22(3), 143–160.

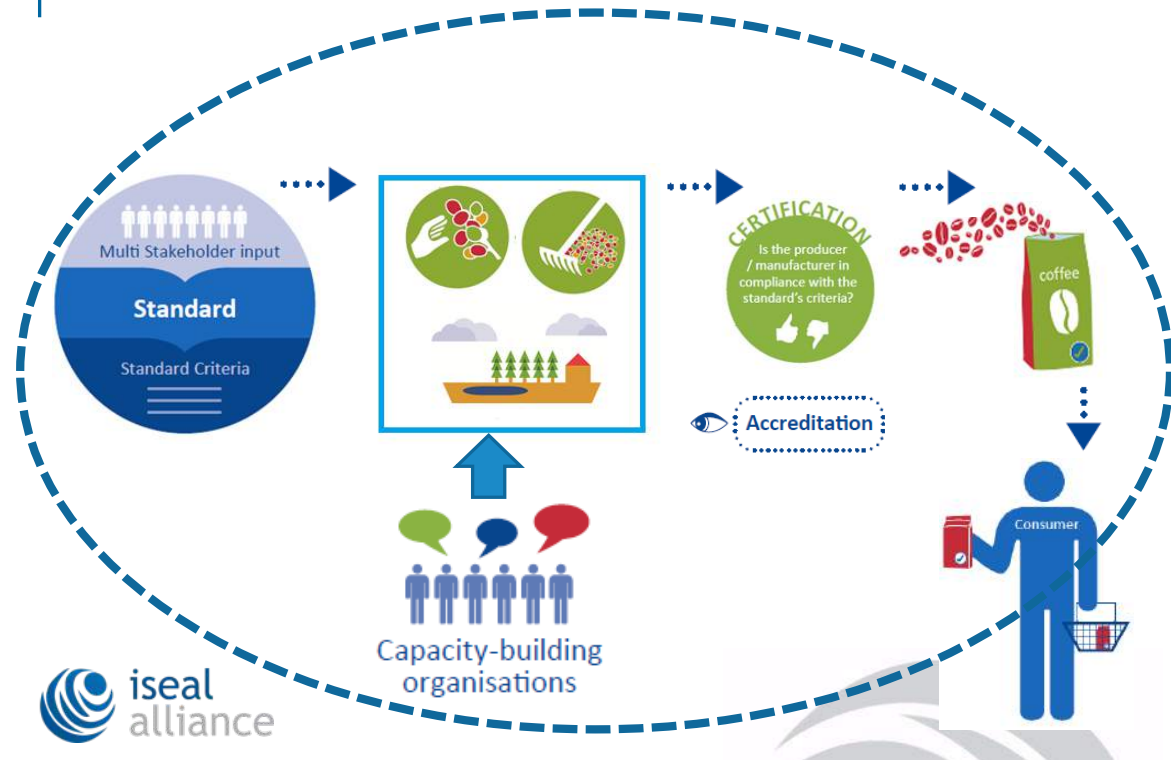


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What can we learn?

But intended **as more** than just Consumer → Business → Demand

What do we mean by “standards system”?





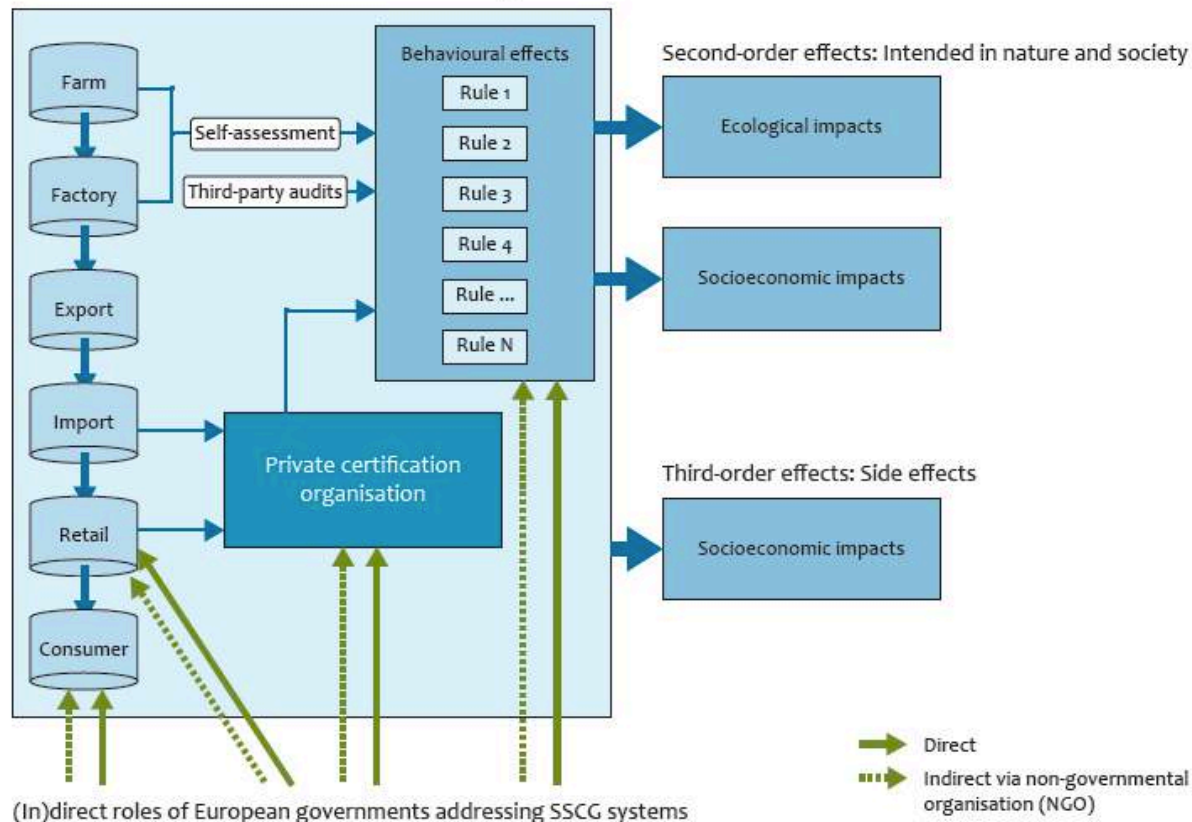
Global Sustainable Supply Chain Governance

What can we learn?

Evaluating outcomes, effects and impacts of sustainable supply chain governance (SSCG) systems

Figure 15

First-order effects: Chain-actor behavioural change



Evaluating outcomes, effects and impacts of sustainable supply chain governance (SSCG) systems



Universiteit Utrecht

Global Sustainable Supply Chain Governance

Where does it lead us?





Global Sustainable Supply Chain Governance

What can we learn?

Total Number of Ecolabels by Year of Launch

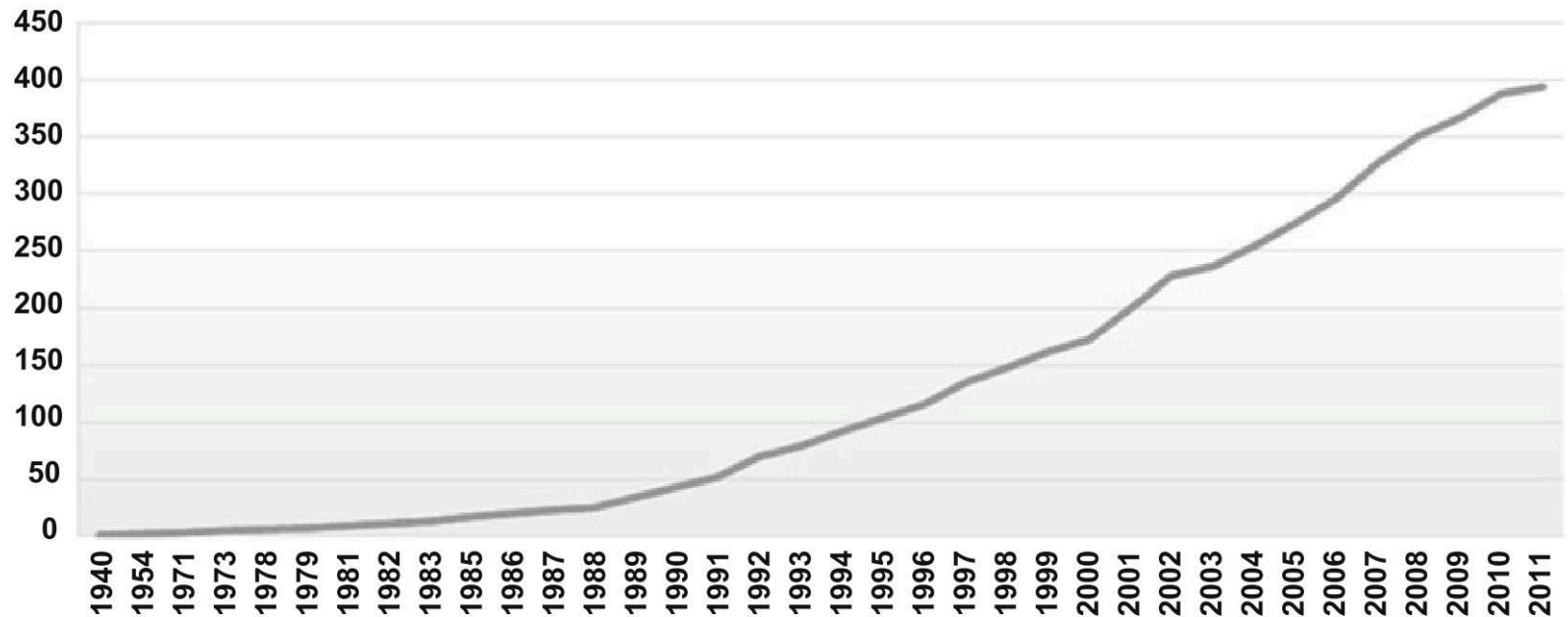


Fig. 1.1 Growth in labelling initiatives (*Source: Ecolabel Index 2013*)

Komives, K., & Jackson, A. (2014). Introduction to Voluntary Sustainability Standard Systems. In Voluntary Standard Systems A Contribution to Sustainable Development (pp. 3–12). doi:10.1007/978-3-642-35716-9



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What can we learn?

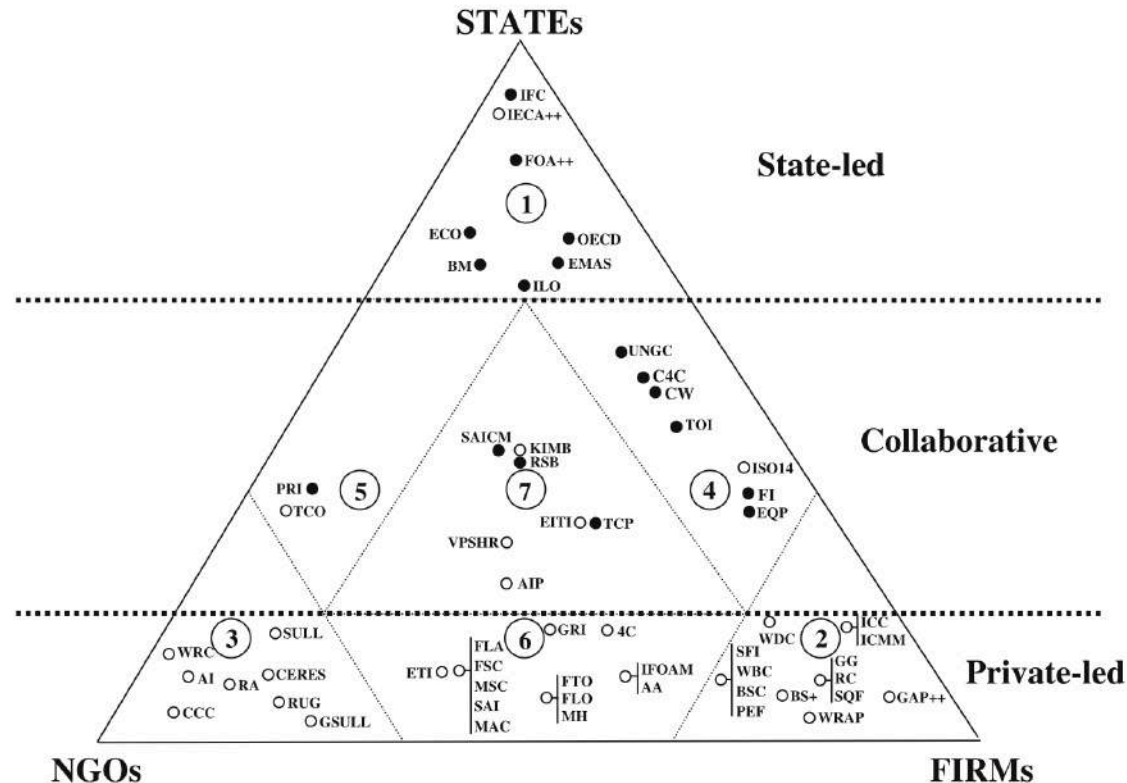


Fig. 1 The governance triangle. Filled circles (●) are RSS schemes with direct IO participation

Abbott, K. W., & Snidal, D. (2010). International regulation without international government: Improving IO performance through orchestration. *Review of International Organizations*, 5(3), 315–344. doi: 10.1007/s11558-010-9092-3

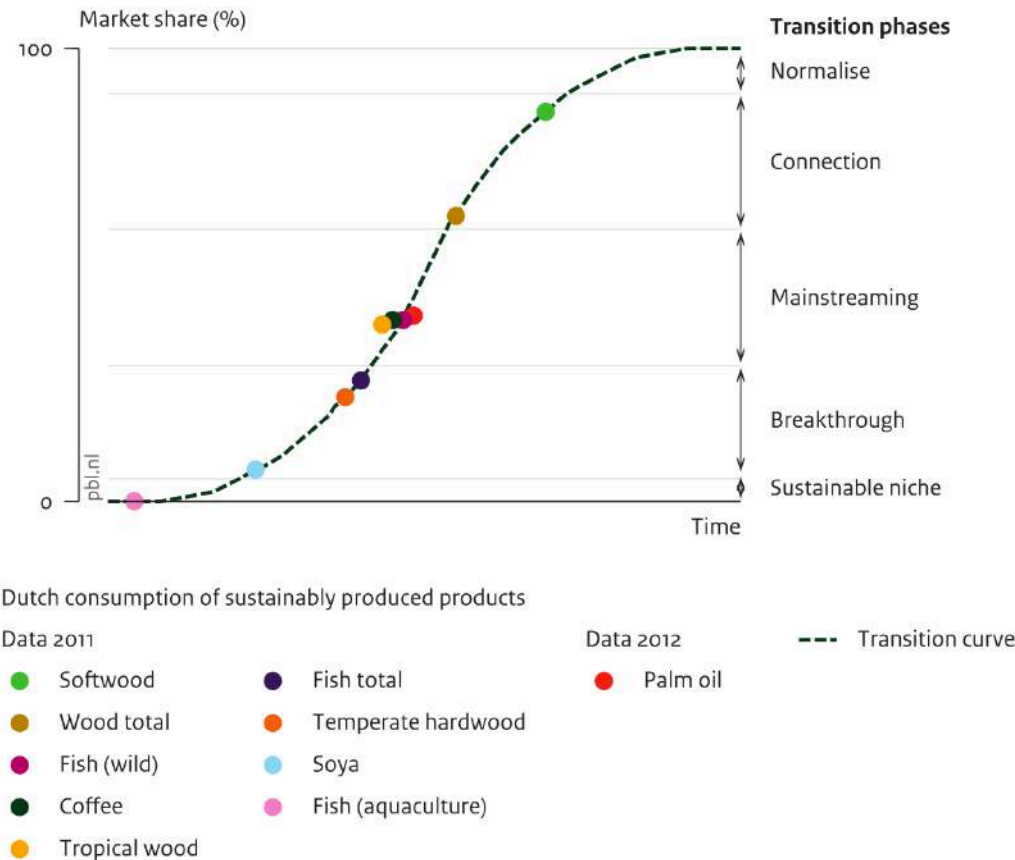


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What impacts?

Figure 15

Market transition towards sustainably produced products

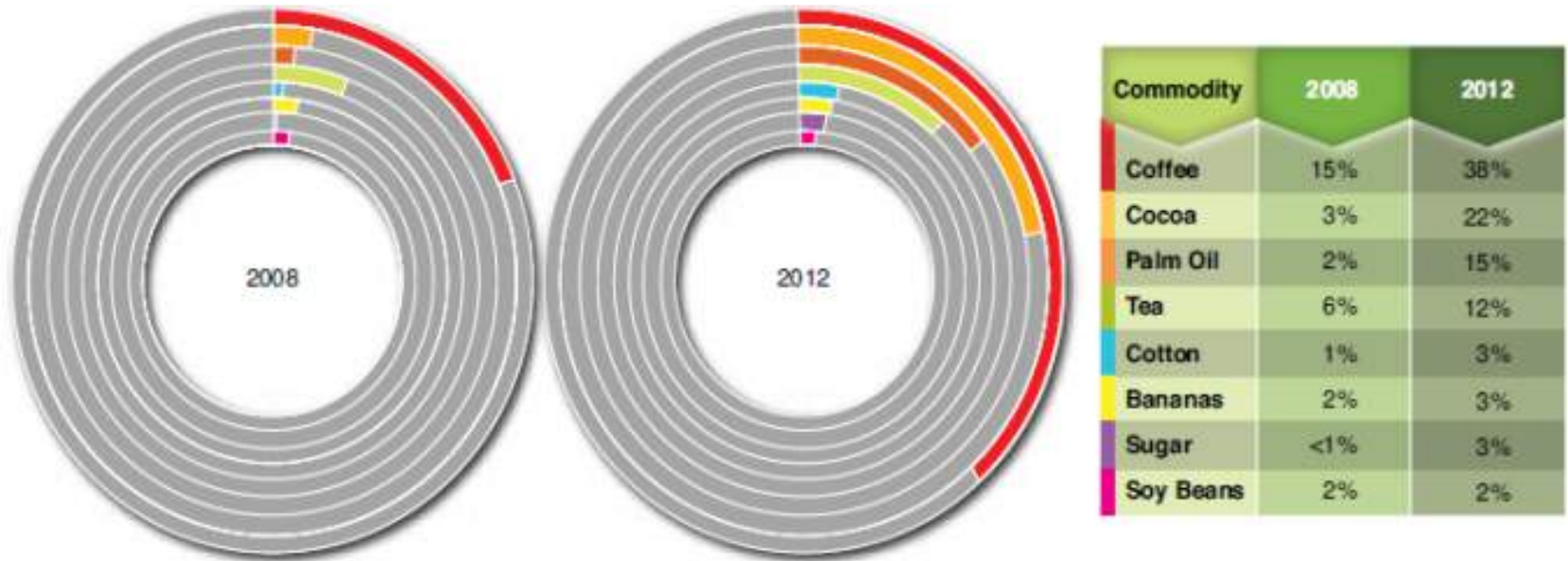




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What impacts?

Sustainable Markets: Compliant production as a percentage of *global* production for 2008 and 2012



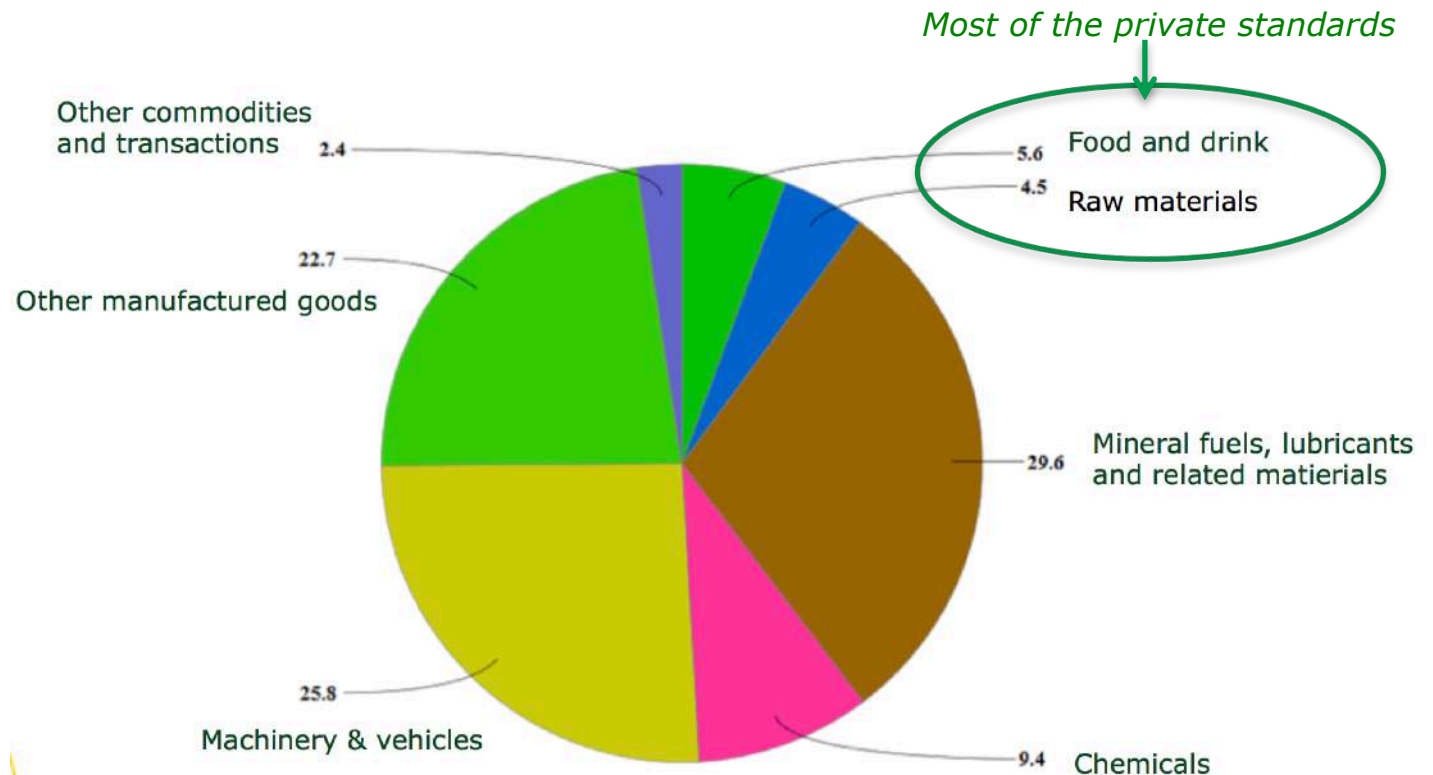
Source: *State of Sustainability Initiatives Review (2014)*



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Impacts in select part of market . .

Trade flows towards EU: EU Imports (EU28) in value terms and in % (2012)





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What can we learn?

Common Findings of Overview Reports

- Breakthrough in several commodity markets, others remain lagging
- Improved interplay between private and public initiatives predicted to enhance impact
- Development does not address largest trade flows
- Few VSS for more complex products
- Impact measurement remains challenging
- Developments do not always address countries that represent socio-economic or environmental hotspots
- Limited impact on domestic markets of low income countries
- Little impact on price mechanisms (labour & trade)



Global Sustainable Supply Chain Governance

What can we learn?

Are prerequisites for transformation applied?

1. Build **knowledge and understanding** of resource and ecosystem dynamics across scales / Global and regional scale **integrated assessments**.
2. **Feed** ecological knowledge **into** adaptive management **practices**;
3. Experimentation and learning as a strategy
4. Support new flexible institutions and multilevel governance systems;
5. **Deal with** external perturbations, uncertainty and **surprise**



Global Sustainable Supply Chain Governance

What can we learn?

Are prerequisites for transformation applied?

1. Build **knowledge and understanding** of resource and ecosystem dynamics across scales / Global and regional scale **integrated assessments**.
 - First (repeated) step in standard formulation: transparent & stakeholder participation



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What can we learn?

- Innovative approaches in global impact mapping

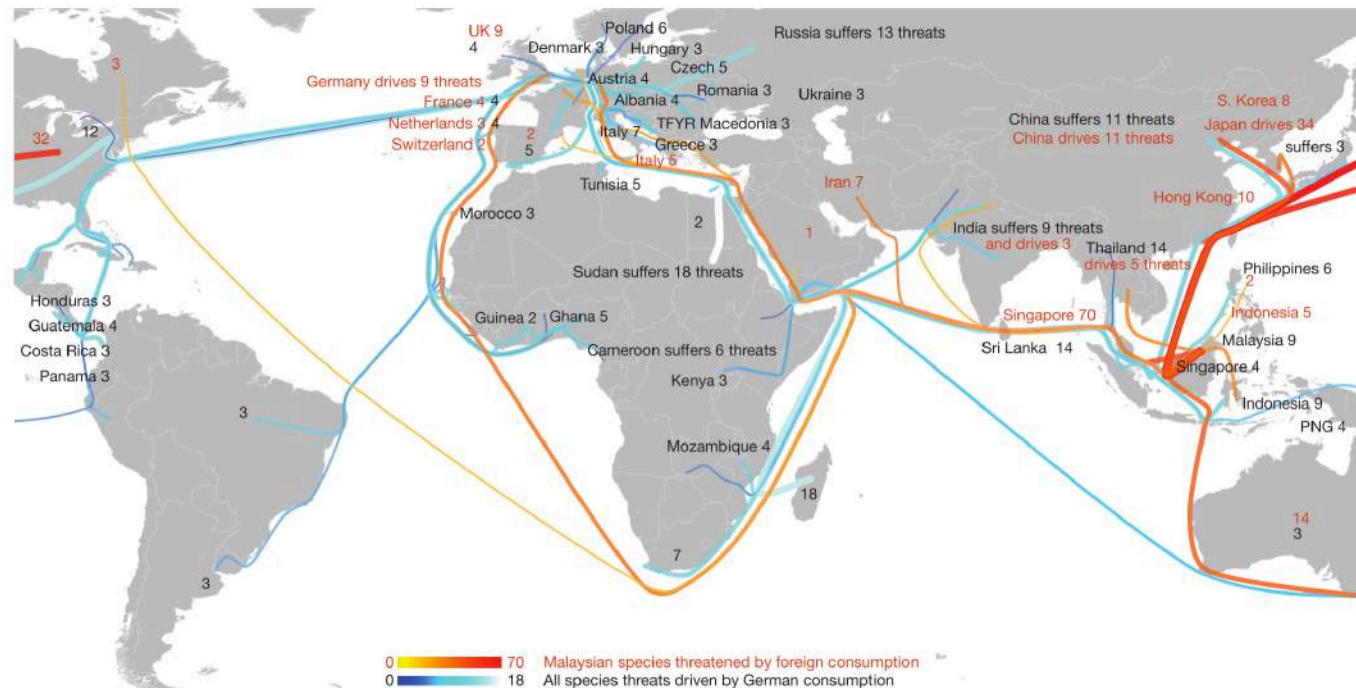


Figure 3 | Flow map of threats to species. Flow map of threats to species caused by exports from Malaysia (reds) and imports into Germany (blues). Note that the lines directly link the producing countries, where threats are

recorded, and final consumer countries. Supply-chain links in intermediate countries are accounted for but not explicitly visualized. An interactive version is available at <http://www.worldmrio.com/biodivmap/>.

Lenzen, M., et al. (2012). International trade drives biodiversity threats in developing nations. *Nature*, 486(7401), 109–12.



Global Sustainable Supply Chain Governance

What can we learn?

Are prerequisites for transformation applied?

1. Build **knowledge and understanding** of resource and ecosystem dynamics across scales / Global and regional scale **integrated assessments**.
 - First (repeated) step in standard formulation: transparant & stakeholder participation
 - Innovative approaches in global impact mapping
 - Growing collaboration in monitoring and evaluation.
 - *Scaling up to combined impacts on landscape level*



Global Sustainable Supply Chain Governance

What can we learn?

Are prerequisites for transformation applied?

2. **Feed** ecological knowledge **into** adaptive management **practices**;
 - Effects business-to-business interactions on large scale
 - Diversity of models applied
 - Key question: is support & learning well organised?



Global Sustainable Supply Chain Governance

What can we learn?

Are prerequisites for transformation applied?

3. Experimentation and **learning** as a strategy

- Competing approaches
- Decisions on what works best in hands of users (companies, governments, consumers)
- Key questions: joint learning between initiatives, and willingness to integrate / harmonize



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What can we learn?

Are prerequisites for transformation applied?

4. Support new **flexible institutions** and **multilevel governance** systems
 - > 400 standard initiatives = rich playing field of diverse forms of self-governance and interactive governance
 - Need for meta-governance
 - Role of ISEAL Alliance
 - Various knowledge brokers active
 - UN and others stepping in again



Global Sustainable Supply Chain Governance

Towards coordination?

ISEAL: Four Goals

- › Demonstrate and improve the **impact** of standards
- › Improve the **effectiveness** of standards
- › Increase **uptake** of credible sustainability standards
- › Define **credibility** for sustainability standards





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What can we learn?

- Various knowledge brokers active: impressive meta-evaluations



WTO-ITC, 2010, 2011

Resolve Inc., 2012

IISD et al., 2012, 2014

PBL, 2014

IFC 2014



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What can we learn?

Are prerequisites for transformation applied?

4. Support new flexible institutions and multilevel governance systems;
 - > 400 standard initiatives = rich playing field of diverse form of self-governance and interactive governance
 - Need for meta-governance
 - Role of ISEAL Alliance
 - Various knowledge brokers active
 - UN and others stepping in again
 - key challenge:
 - Systematic comparison: what works (where)?
 - Implications for practice
 - New mixed models of multi-actor governance?



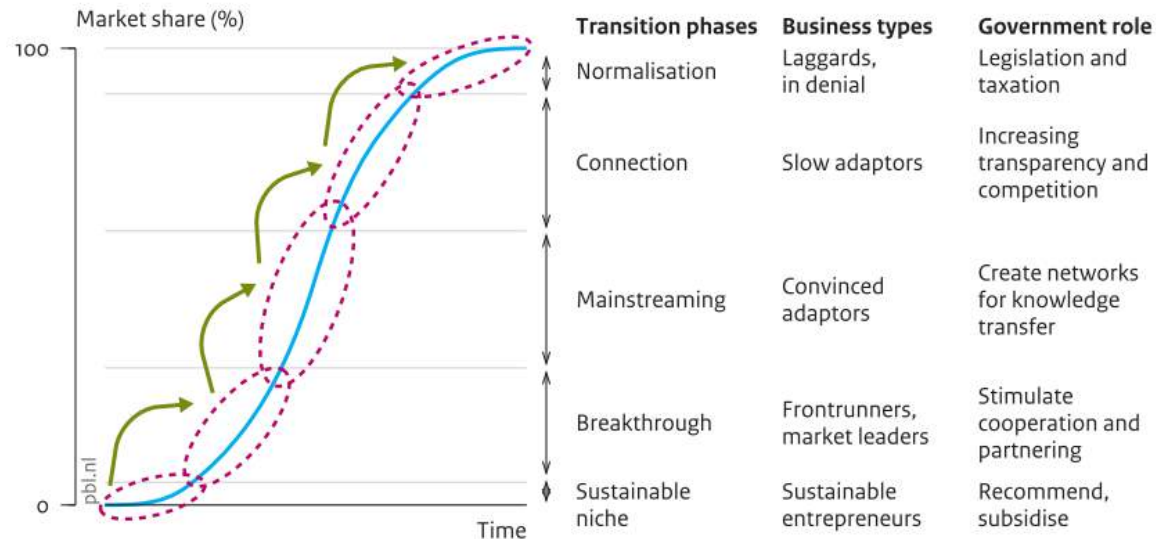
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What can we learn?

- New mixed models of multi-actor governance?

Figure 17

Transition of the market towards more sustainably produced products



Source: PBL, 2013

Different types of businesses are active in the different phases of the transition process towards the use of sustainably produced raw materials. The government can provide the different businesses incentives and mobilise them towards further sustainability. Every type of business requires a different strategy and role in order to accomplish that.

Oorschot, M. van, Kok, M., Brons, J., Esch, S. van der, Janse, J., Rood, T., ... Vermeulen, W. (2014). Sustainability of international Dutch supply chains. Progress, effects and perspectives. The Hague.



Global Sustainable Supply Chain Governance

What can we learn?

Are prerequisites for transformation applied?

5. Deal with external perturbations, uncertainty and surprise.

- How to strengthen collective learning?
 - In the field, between standard initiatives (pre-/post-competitive)
 - Between civil society, market and governments
- Key challenge:
 - better connect general global modelling and impact mapping with sophisticated monitoring and impact data generated by standard initiatives and research on the field.
 - Use business-to-business communication about impacts in a collective learning context.



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Close to a Tipping Point?

Eberlein et al.:

- “Interaction may lead transnational business governance (TBG) schemes to **converge or diverge** in institutional design, standards, and other parameters.
- It may **diffuse ideas and practices** across schemes and sectors, **spurring adaptation and learning**.
- It may result in **concentration or fragmentation**, proliferation or withering away of TBG schemes.
- Standards may become **more or less stringent**, enforcement more or less formal and legalistic.
- Given the numerous forms and mechanisms of interaction, **there are good reasons to expect** TBG to be characterized by unintended consequences, **tipping points**, and emergent properties.”

Eberlein, B., et al. (2014). Transnational business governance interactions: Conceptualization and framework for analysis, *Regulation and Governance*, 8(1), 1–21.



Tipping points What can we learn?

Key points:

- Substantial progress
- Learning at various levels
- Improved understanding of systems, new questions arising

Better analyse why in some contexts quick mainstreaming does work:

- *which are the crucial conditions for tipping points?*
- Enable the competition between sustainability initiatives
- Built on coalitions of the willing through the barriers market, civil society, state



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What can we learn?

Key points for SD science:

- Go beyond the normative agenda of resilience and adaptation literature:
 - Systematic comparison of cases world-wide and cross-sector
 - Complement analysis on micro level (impact firms, consumer) with macro level analysis: global networks and markets, their dynamics.
- Strong collaboration of science and practitioners
- Suitable funding and collaboration platforms



Global Sustainable Supply Chain Governance

What can we learn?

Key role for societies like ISDRS

- Connect researchers
- Connect researchers with practitioners
- Enable forms of transdisciplinary learning
- Same message for the various fields addressed here
 - like cities,
 - renewable energy,
 - construction,
 - nature conservation,
 - sustainable transport,
 - responsible business etc., etc.



ISRDS 21st annual Conference

Let us jointly look
for
the common denominators
for
tipping points towards a sustainable society!!



Share your observations in the wider ISRDS community:

#21ISDRC

and

our **Linkedin discussion group!**

How????



Follower? / green(+) member ??

isdrs.org



Welcome to our ISDR Society!

As a global network of sustainable development professionals the *International Sustainable Development Research Society (ISDRS)* links researchers in academia and implementation practice from all continents to each other. Accomplishing the urgent and far-reaching changes which are needed in our single-planet-society to achieve a fair and clean sustainable society, requires worldwide close collaboration and maximum exchange of knowledge, experiences, best practices and critical reviews.

The ISDRS provides a wide platform with it's 600+ members and 2200+ followers, working groups and annual conferences. We have three membership levels, with increasing benefits and access to this worldwide community of practice. The ISDRS is closely linked to major scientific journals. Follow our latest [discussions](#) and [announcements](#).

For Green(+)-member to get full access to the restricted areas: [Log in here](#).



What is ISDRS?

The International Sustainable Development Research Society organises yearly conferences under the ISDRS flag, with in 2015 the 21st conference in row. With working groups we exchange and disseminate knowledge and educate others about sustainable development.

[More about us](#)

Member Benefits

The ISDRS has three categories of membership for individual members.

- **Followers:** Free: access to social media activities (LinkedIn).
- **Green:** Paid members have additional benefits (reduced fees, free journals).
- **Green+:** Green members for 2nd year or more: more additional benefits (voting).

[Further information](#)

2015 Conference

The International Sustainable Development Research Society (ISDRS) is pleased to announce its 21st Annual conference to be held **10-12 July 2015 in Geelong (Melbourne), Australia**. [Click here](#)

More information on this conference and previous conferences can be found on our [conferences page](#).

Join Groups

ISDRS tries to maintain several thematic working groups with the goal of organizing the annual call for papers preceding each conference. These working groups focus on different areas of sustainable development corresponding to their themes.

[Thematic working groups overview](#)





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Those renewing will have their level upgraded to Green+, with additional benefits being added.

If you have any questions, please email us at [information\[at\]isdrs\[dot\]org](mailto:information[at]isdrs[dot]org).

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(OECD country - € 95)
Paying members with additional benefits, like reduced fee for conferences, access to journals and access to more information on the website.



Green Member

(non-OECD country or PhD student - € 55)
Paying members with additional benefits, like reduced fee for conferences, access to journals and access to more information on the website.



Renewing?

Want to renew your membership? By renewing your membership you will automatically become a Green+ member. This gives you the additional advantage of eligibility to voting in elections for the board and to stand for election yourself. Renew Now! [Log in first!](#)





Go to LinkedIn discussion group

linkedin.com



The screenshot shows the LinkedIn interface for the ISDRS group. At the top, the LinkedIn logo and navigation bar are visible. Below the header, the group name "International Sustainable Development Research Society" is displayed with its logo. The "Discussions" tab is selected. A section titled "Start a discussion with your group" includes a text input field for "Enter a discussion title". Below this, a post by "Walter J.V. Vermeulen" is shown, featuring a profile picture, name, title "Associate Professor, Copernicus Instit...", and a "Manager's Choice" badge. The post content reads: "Welcome to the 21st annual ISDRS conference currently at Geelong (Melbourne), Australia". It continues with an invitation for delegates to share experiences and mentions over 1000 followers. The post has options for "Comment (0)", "Like (0)", and "Unfollow", and is timestamped "4 minutes ago". A comment input field is at the bottom.