

Willkommen
Welcome
Bienvenue



How to build e-waste plastic recycling systems

Experiences from different projects: involving stakeholders for sustainability

Michael Gasser 12.11.2020

Short introduction



Requirements for recycling household plastics in Switzerland



Simple sorting solutions for e-waste plastics with partners.
Available in Spanish

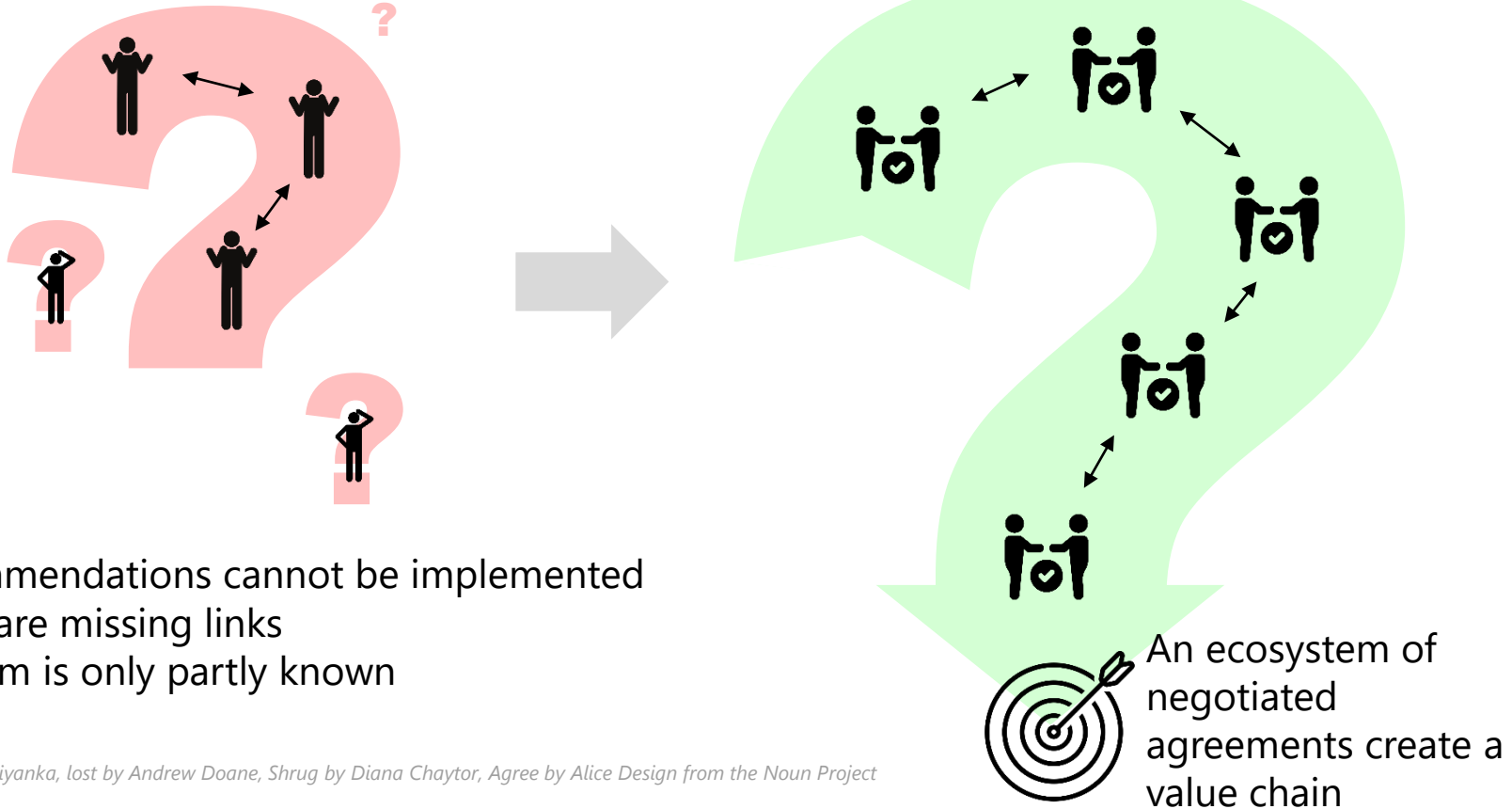


Monitoring System for Plastic Recycling



International Experience with plastic recycling challenges

Interactions are the key for sustainable e-waste plastic management



(1) Have a vision and a plan

- Your vision has to be **big** yet also **credible**.
- You need a good **roadmap** that is **reactive**
- Employ change management **tools**

A big and credible vision

- What makes for a big vision:
 - It goes **beyond** what a **single stakeholder** can achieve on its own
 - It combines / includes the **interest** of many stakeholders (**not** their **position**)

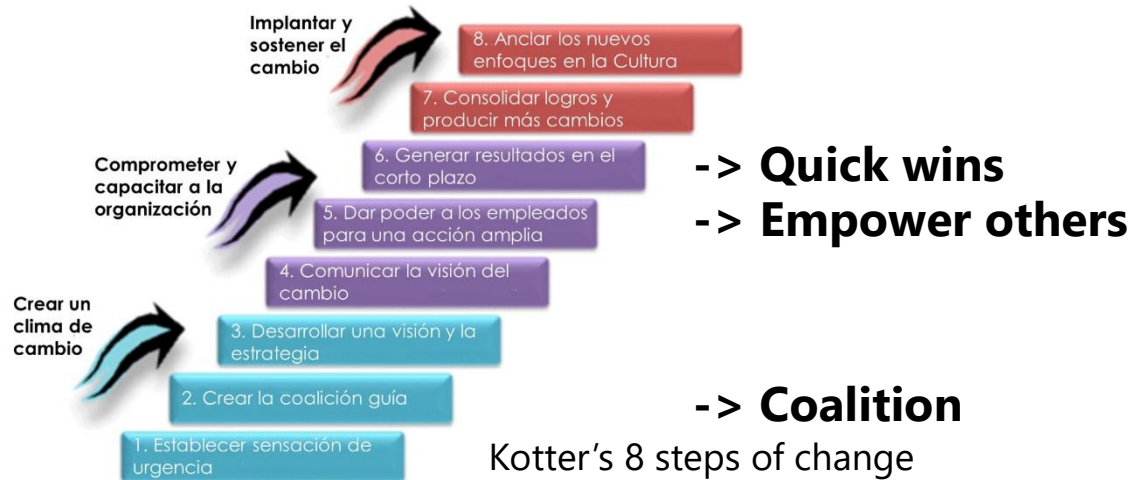
- How a vision becomes credible:
 - Identify **key obstacles**.
 - Tell the **story** looking back from the future:
 - How was the obstacle solved (possible, general solution)
 - How did each solution contribute to the vision step-by-step?

Your reactive roadmap

- **Adapt** when presented with new opportunities, challenges, information
- It is like driving before Google Maps: You don't know for certain where the roadblocks and diversions are.

Employ change management tools

- Change management tools ensure a **broad perspective**
- They are designed for single organizations: **Adapt to your situation**
- Use the tools you find **most useful**



Example: Swiss Plastic Household Plastic Recycling

- **Initial state:** Most packaging plastic is disposed in waste incineration plants
- **Vision:** A unified collection system for packaging plastics in Switzerland
- **Key Obstacles:**
 1. Many local initiatives that are not united.
 2. Trust in the technology and the industry players (export, financial diligence)
 3. Entrenched positions of Government (Federal and Regional), Operators of Incineration Plants
- **Roadmap:**
 1. Establish common requirements. Build a monitoring system for all collection systems operated by an association
 2. Ensure transparent reporting on the status and challenges to build trust and public pressure
 3. Include Government and Waste Incineration Plant Operators one by one on the basis of their interest and slowly harmonize existing initiatives
- **Change Management:** Coalition building, Quick wins, Empower institutions

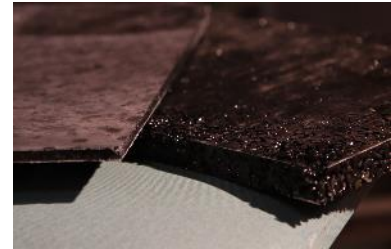
(2) Involve the right people

- Look beyond your network.
- Look for **energy, knowledge and balance**

- Look for people that:
 - challenge others, especially yourself.
 - bring in new capabilities and interests,
 - counteract particularly strong stakeholders

Example: Extend the Ecosystems Capabilities

- **Ongoing Project:** Assess the feasibility of using e-waste plastic for the creation of street signs and other applications in Ghana.
 - How could the future value chain look like?
 - What is the roadmap?
- **Issue:** Little practical experience what is feasible in Ghana
- **Solution:** Involve Precious Plastic Chapters



- Think of: Universities, Youth Groups, NGOs, Start-ups, Neighborhoods

(3) Streamline and enable Interactions

- Create facts and resolve missing links
- Use the power of facilitation to your advantage.
- Build platforms for change

Facilitation power

- Use the power of the process and invitations to your advantage
 - If you have been invited but didn't participate, you cannot complain about the result.
- Useful rules when dealing with complex issues:
 - Nothing is agreed until everything is agreed.
 - Chatham's house rule: Every participant is free to use the information received, but neither the identity nor the affiliation of the source may be revealed.
 - Can participants decide or only discuss? Is their participation public or not?

Platforms for change

- Platforms are stable and transparent systems (IT Tools, Roundtables, Specifications, Requirements etc.) that tie the ecosystem together
- Platform need an in-built ability to openly and quickly iterate.
- Platforms:
 - have to provide access to all relevant stakeholders
 - need to have one continuous base / host

Example 3:

- Platform of Change:
 - Public Requirements
 - Public Monitoring Processes
 - Public Advisory Group of selected stakeholders to review process and progress every year
- Facilitation power:
 - Initially stakeholders did not trust the association
 - Hesitant Stakeholders
 - > "Sounding Group" with participation without formal recognition

*Hosted by an
independent
association*



Building the ecosystem of interactions

1. Have a vision and a plan
 - Big and credible
 - Flexible roadmap
 - Use change management tools
2. Involve the right people
 - Look beyond your friends
 - Look for energy, knowledge and balance
3. Streamline people's interactions
 - Create facts
 - Use the power of facilitation
 - Build platforms for change

Thank you for your attention!



www.empa.ch/care

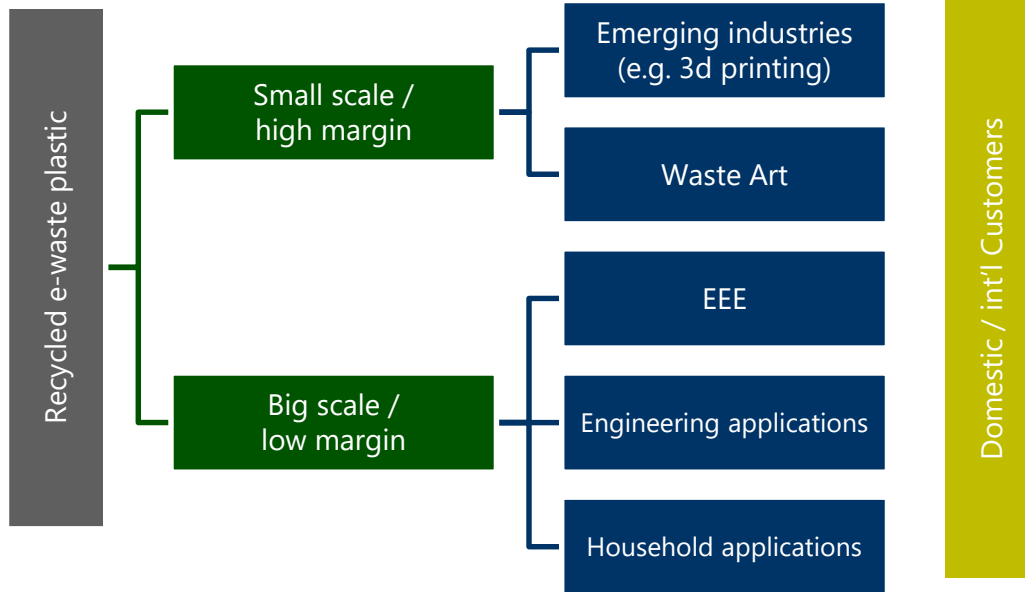


www.sustainable-recycling.org

Michael Gasser
Empa, Swiss Federal Laboratories for Materials Science and Technology
St. Gallen, Switzerland
michael.gasser@empa.ch

Additional Slides

Customers and applications for recycled e-waste plastics



International examples

[Coolrec / ReFil 3d Printing Filaments](https://www.re-filament.com/)
<https://www.re-filament.com/>

<http://www.perpetualplasticproject.com/>

[Components of small household equipment \(Philipps\)](#)

[Stamps form e-waste plastic](#)

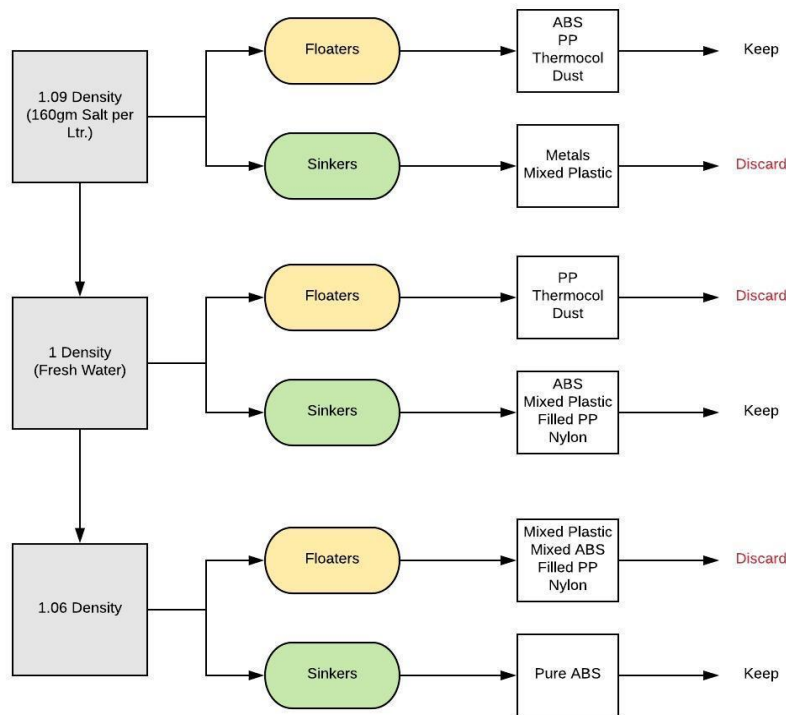
... and many more!

Domestic use: What sort of plastic products are manufactured / demanded locally? Which plastic types are used?

High quality ABS sourced from the informal sector in India for EEE



?



Engineering Applications: Car-bumper example



Banyan Nation



- Close-Loop recycling of car bumpers (brand quality) in India
- E-waste to car bumper recycling (aftermarket quality) in western Africa

Startups

Hyd-based Banyan Nation becomes 1st Indian firm to win Circular Economy Award at WEF

It won the award in the People's Choice category.

Shilpa S Ranipeta | Tuesday, January 23, 2018 - 10:29

[Follow @Shilparanipeta](#)



Hyderabad-based plastic recycling startup Banyan Nation has won the Dell People's Choice Award for Circular Economy Entrepreneur as part of the Circularity Awards at the World Economic Forum being held at Davos. It is the first ever Indian firm to be shortlisted for and to win the Circular Economy awards.

Use local Industry for household products



Mixed cable plastics
(Ghana)



PE for Buckets



PVC for waste water pipes

- High import taxes for virgin plastics render recycled plastic very cost-effective
- Legal compliance needs to be ensured (Heavy metals in PVC)

Sorting for export



Mixed cooling appliance plastics (Ghana)



ABS, for export



HI(PS), for export