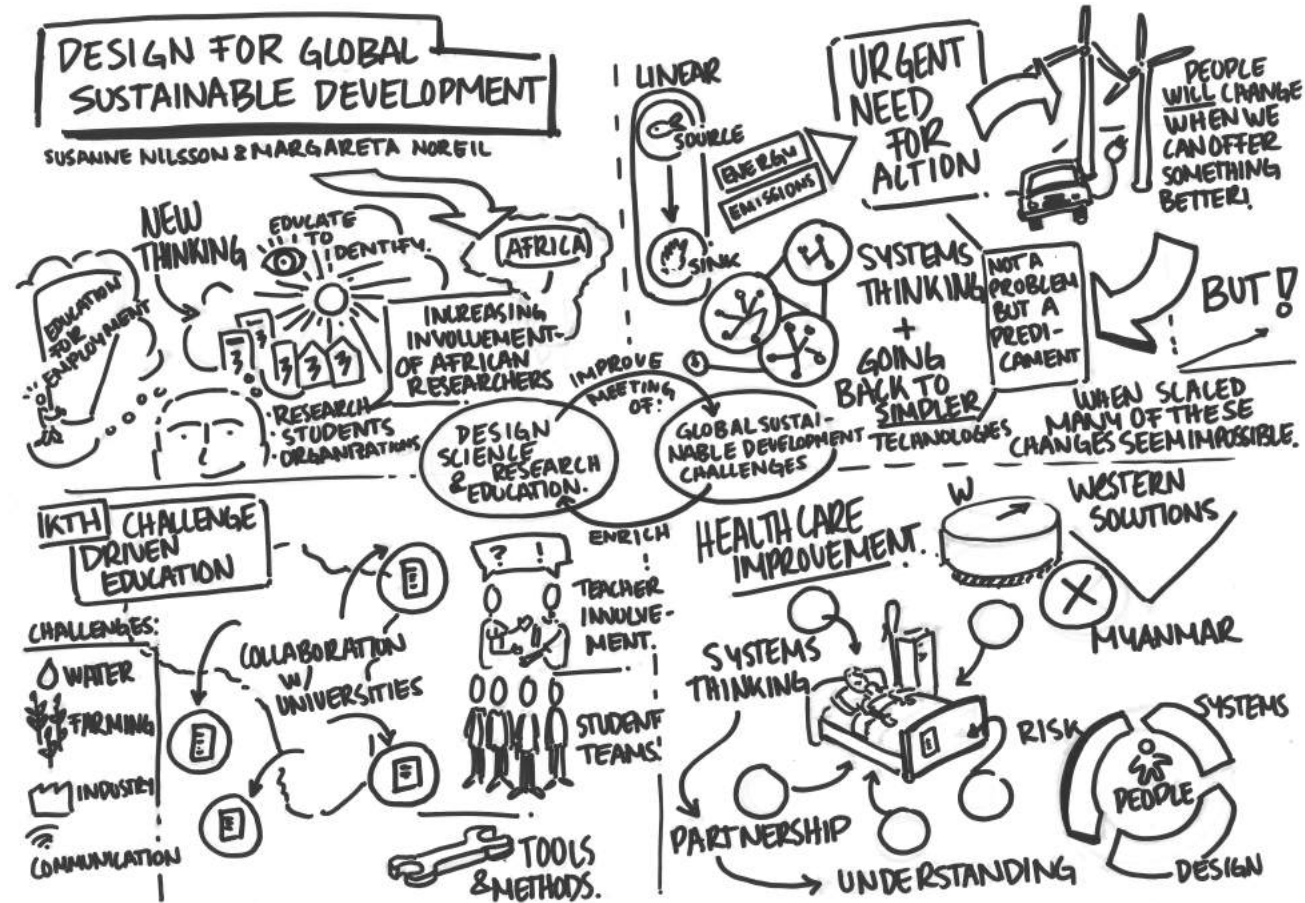# Summary Report on ICED2019 Workshop on Design for Global Sustainable Development

Challenge definitions and actions developed during the workshop

In the following slides we have color-coded the challenge definitions and actions developed during the workshop according to four overarching themes:

- Design and systems approaches for complex system contributing to the SDG´s
- Co-designing design education for sustainable development
- Efficient resource usage/low tech development
- Sustainable product-service design methods and tools

The four themes are based on our clustering of the topics of interest that each workshop participant delivered.

Red Team

What can we, as a design community, learn from and contribute to from collaborating in a global development context when it comes to… Design and systems approaches for complex systems contributing to the SDG´s

Florian Bratec
Melissa Greene
Torben Beernaert
Aria Collopy
Christopher Mattson
Eckart Frankenberg
Erin McDonald
Flore Vallet
John Clarkson
Matteo Vigwoil
Phillip Stevenson
Tatioana Bratec

Design and systems approaches for complex system contributing to the SDG´s

Design a way for people to co-develop their healthcare system **in/at** local community level **to better** serve people in the communities

Design a way for people headed to places other than home **in/at** leaving work **to better** carpool/take public transportation, leave car at home in the morning.

Design a way for local communities and researchers **in/at** developing nations **to better** integrate conservation and development goals.

Design a way for shareholder/farmers **in/at** the Amazon **to better** process their crops/sustainably use their natural resources.

Design a way for people to co-develop their healthcare system **in/at** local community level **to better** serve people in the communities

Design a way for people **in/at** dry regions **to better** obtain water.

Design a way for children **in/at** places with nutrition issues **to better** obtain the right amount of vitamins and nutrients

Design (to be redefined) **a way for** local people with high diversity **in/at** small town or village in rural context **to better** life for them (to be defined with them) under highly constrained economic, environmental context.

Design a way for life **in/at** our world **to better** live

Design a way for caregivers **in/at** daycare/rehabilitation centres **to better** communication (social-psychological challenges) with their carerecievers (active, involved, inclusive, motivating)

Design a way for rural people **in/at** Botswana (Africa) **to better** eradicate poverty

Actions

Mobility actions (ex. Sao Paolo)
- Understand transportation patterns (journey mapping, surveying, GPS data, lead users)
- Digital driver board
- Algorithmic challenge (matching riders and drivers)
- Timing and flexibility of schedule
- Globally reducing travel but libery/freedom to move freely to enhancing communication
- Psychological travelling w. people they do not know
- Group sharing - relationships, conversations that happen in cars
- Rewards, incentives
- Where is the responsibility?
- Understand rebound effects in transportation
- Understand impact

Green Team

What can we as a design community learn from and contribute to from collaborating in a global development context when it comes to…

Co-designing design education for sustainable development

Alexander Komashie

Amer Etoji

Giulia Wally Sourati

Gwenola Yannou - le Bris

Kate Bissett-Johnson

Marianna Coulentianos

Yuki Taoka

Yvonne Eriksson

What can we as a design community learn from and contribute to from collaborating in a global development context when it comes to...

Co-designing design education for sustainable development

Design a way for *students **in/at** places without internet/isolated places **to better** access knowledge/connect with the world*

Design a way for *teachers in higher education, researchers, students **in/at** how to create a sustainable way to teach/conduct research **to better** contribute to a sustainable society.*

Design a way for *young (inexperienced) engineers **in/at** manufacturing roles **to better** understand the sustainability impact of design decisions*

Design a way for *students, educators, researchers **in/at** university or industry-sponsored design projects (resource sponsors) **to better** implement lasting impactful designs (resource needs)*

Design a way for *children/teenagers **in/at** primary schools/schools **to better** understand the nature and its problems/concerns.*

Design a way for *experts (professors or engineers) **in/at** specific domain (eg innovation, sustainable design etc.) **to better** connect and communicate about the different matter of this specific domain (knowledge sharing)*

Design a way for *environmental oriented people; students; users **in/at** participative allies **to better** define their environmental life; develop practices*

Design a way for *HIC and LMIC partners **in/at** both Europe and Africa **to better** understand a more holistic way of addressing the SDGs*

Design a way for *students/graduates **in/at** global sustainable development curriculum **to better** find jobs where they can apply these skills*

Design a way for *innovations **in/at** universities **to better** get implemented and achieve impact.*

Design a way for *students/graduates **in/at** global sustainable development curriculum **to better** find jobs where they can apply these skills*

Design a way for *innovations **in/at** universities **to better** get implemented and achieve impact.*

Design a way for *students who studies engineering **in/at** university East Timor (where resources are limited **to better** design and implement solutions toward local problems in the country.*

Design a way for *for a local public authority , techno-economical scenarios of building waste treatment **in/at** a pilot site **to better** treat waste in local/ecological waste treatment value chain in a circular economy perspective.*

Design a way for *students employment **in/at** Botswana (Africa) **to better** increase the employment opportunities.*

Actions

Challenge: Educating (*new definition: enabling change*) the society – continuous training in University +

- To make a study on local needs/problems/challenges
- Identify actors that could be in interaction
- Develop programmes/goals for the education both for children and adults
  - Identify context
    - Family context
    - Parents
  - Explore needs
    - Children, Professionals
  - Develop program and test
    - For children and professionals
    - Interaction with stakeholders
  - Review

What can we as a design community learn from and contribute to from collaborating in a global development context when it comes to...

Efficient resource usage/low tech development

Chris McMahon

Cluzel France

Henu Boptiste

Katharina Helten

Tim McAloone

Troussier Nadigl

Vincenzo Ferrero

What can we as a design community learn from and contribute to from collaborating in a global development context when it comes to… Efficient resource usage/low tech development

Design a way for families **in/at** neighborhoods **to better** share low use products (such as lawn equipment).

Design a way for 1. Western countries 2. Manufacturing firms **in/at** 1. the so called "developed world" 2. the whole world **to better** 1. learn from so called "developing economies" about satisfaction and value creation and 2. manage decoupling value creation activities from resource consumption.

Design a way for families and small communities **in/at** locations that are ramping up their electrical energy use **to better** use materials in the devices that they use.

Design a way for society (everyday users) **in/at** using consumer products **to better** understand the resources that they are wasting in that particular moment of use.

Design a way for society in full as well as individual consumers **in/at** the "consumption society" **to better** address the problem of resource consumption (radically change the consumption itself "how/what")

Design a way for versatile product development **in/at** local stage **to better** use of ever produced (2:nd hand) products/pieces

Design a way for local mining companies **in/at** developing countries **to better** extract scarce materials from mining and re-use, recycle minerals and metals instead of extracting raw material

Actions

Resources – reducing needs

- Sharing

- Make more durable

- Frugal engineering – focus on function – "good enough" - be satisfied with simpler

- Make it easier to recycle – dissassembly; modularity and standards

- Avoid downcycling + dispersion

- Reduce consumable use in use phase

- Multi-functional modular design…reuse of modules…

- Reducing technical and marketing obsolescence e.g. slow fashion

- Change industry offering

- Use natural material

- Efficiency vs effectiveness

- Move to PSS…whole life responsibility

- Industrial ecology

Resources on resources
Amory Lovins …factor 4
Julian Allwood…with both eyes open
Philippe Bihouix… the future of metals (in french)

Maize Team

What can we as a design community learn from and contribute to from collaborating in a global development context when it comes to… Sustainable product-service design methods and tools

Harrisson Kim, Illinois

Lars Almefelt

Renan Liguneira

Santosh Maurya

Sophie Hallstedt Sweden

Srinath Doss

Ting Liao

What can we as a design community learn from and contribute to from collaborating in a global development context when it comes to... Sustainable product-service design methods and tools

Design a way for co-design teams **in/at** a global setting (diverse people from various places on one team) **to better** understand and work with the local power/politics dynamic.

Design a way for engineers **in/at** local communities **to better** relate to user scenarios/needs

Design a way for self empowerment of local communities through co-design **in/at** a culturally relevant manner (global setting) **to better** address issues of poverty (water/food/security/health/education...) in developing countries

Design a way for co-designing with stakeholders (per lifecycle phase) e.g. user scenarios **in/at** understanding their needs (requirements, wish) **to better** develop concepts which are solutions and to evaluate their life cycle impact.

Design a way for people who needs prosthetic legs **in/at** India (developing countries) **to better** walk experience

Design a way for heater for household day-to-day use (cooking, heating) **in/at setting** where there is no electricity readily available **to better** help to use heat (solar capture) for storage and cooking/heating (there are products available)

Design a way for farmers **in/at** rural areas **to better** connect with technology to increase the production.

Actions I

Form a co-design team

- Establish common rules
- Establish (simple) methods
- Build trust
- Establishing ownership
- Sharing of information
- Capture/store/reuse information
- Standard for sharing outcomes/results
- Clarify roles
- Finding the right stakeholders
- Financing co-design teams

Actions II

Farmers challenge in Africa

Goal: To increase production by technology

Step 1: Understand needs

Step 2: Understand constraints

       Available infrastructure; information; Level of knowledge of end-users (farmers)

Step 3: Understand contexts (technologies, practices…)

Step 4: Explore sensor technologies to predict climate condition

Step 5: Develop database to recommend seeds for distributors of seeds