

SDG workshop

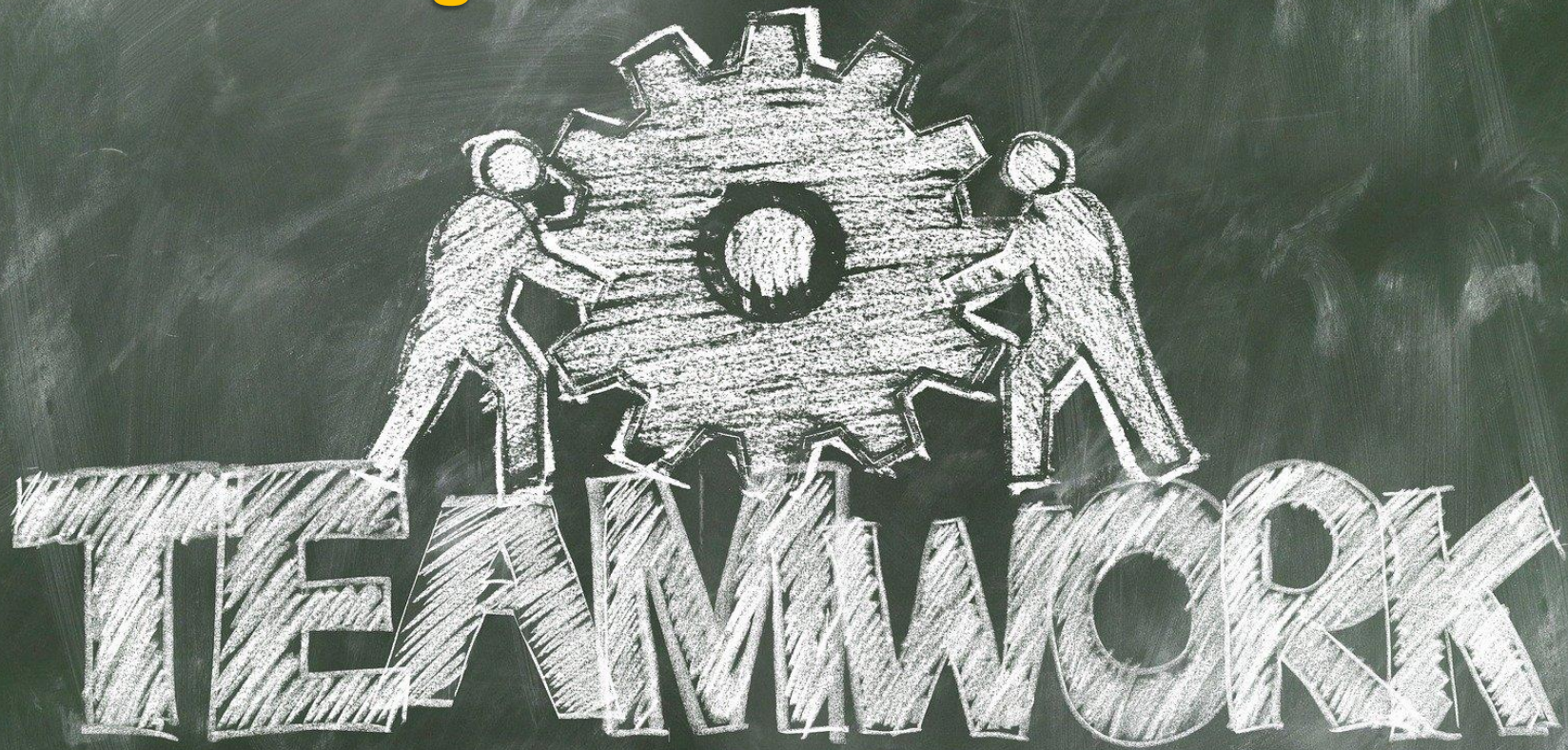
Getfam Hotel, Addis Ababa

28.04.2022, 09:00 am – 01:00 pm



SDG colour wheel: <https://www.un.org/sustainabledevelopment/news/communications-material/>

Let's get to know each other!





Workshop organisers



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University of Stuttgart



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ENDA Ethiopia



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University of Ghana



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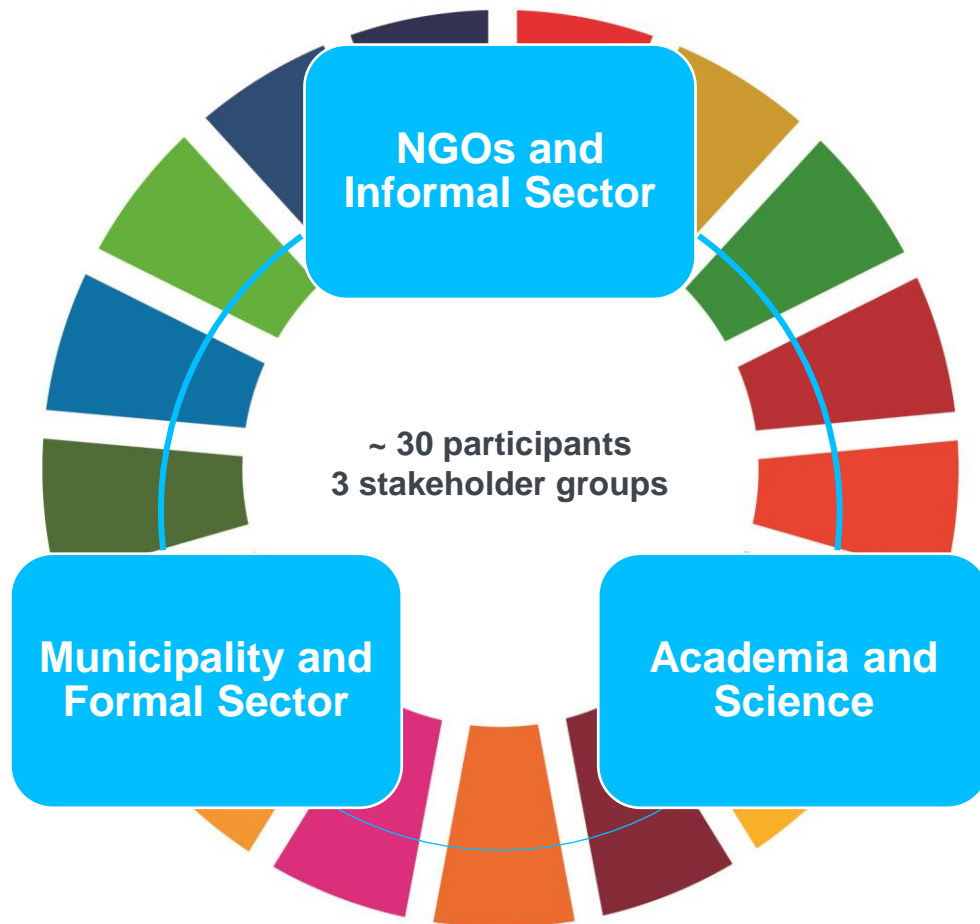
Stephanie Maier
University of Stuttgart



Karoline Owusu-Sekyere
University of Stuttgart



**Dr. Gabriela Garces
Sanchez**
University of Stuttgart



Workshop goal

SuCESS24 SDG workshop

Need for a tailored SDG-based indicator set

Thematic priorities
of stakeholders are
addressed

Assessment system
is tailored to local
context (structure of
waste management
system)

The assessment
provides meaningful
results for decision-
makers

Goal of this workshop

SUSTAINABLE DEVELOPMENT GOALS

Identification of relevant sustainability topics addressed by the SDGs



Goal of this workshop

SUSTAINABLE DEVELOPMENT GOALS



Identification of **sustainability topics:**

- with a **high relevance**
- for the different **stakeholder groups**
- in the context of municipal solid **waste management**
- in the **Addis Ababa - Adama corridor**

SDG poster: <https://www.un.org/sustainabledevelopment/news/communications-material/>

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Joint Research Project SuCESS24

Sustainable Development Goals
Workshop

Dr.-Ing. Gerold Hafner



**Sustainable Cities,
Circular Economy in
Sub-Saharan Africa
2024**

Project Partners:

- University of Stuttgart (ISWA and IABP)
- AT-Association (association for the promotion of socially & environmentally appropriate technologies e.V.)
- Addis Ababa University (AAiT)
- ENDA (Environmental Development Action)
- City Government of Addis Ababa, Solid Waste Management Agency
- University of Ghana (Department of geography and resource development)
- WASCAL (West African Science Service Centre on Climate Change and Adapted Land Use)
- AMA (Accra Metropolitan Assembly)

Funding:

- BMBF (Federal Ministry of Education and Research)
- DAAD (German Academic Exchange Service)
- DLR-PT (DLR Project Management Agency)



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DLR Projektträger



University of Stuttgart
Institute for Acoustics and Building Physics
Life Cycle Engineering GaBi





Overall objectives of the project



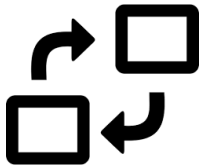
- **Strengthening circular economy and waste management** through methodological development



- Development of a simplified **toolkit for the analysis, assessment and optimisation** of circular economy and waste management systems in cities and urban areas in Sub-Saharan Africa



- Development of a **joint postgraduate education and training programme**



- **Intercultural exchanges**
- **Knowledge exchanges** between the participating universities as well as between academics, students, technicians, decision makers, etc.

Goals and Measures

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Sustainable Cities, Circular Economy, Sub-Sahara Africa 2024

Background

Optimization of waste management systems in Sub-Saharan Africa
Applying **life cycle thinking and sustainable development** in line with the SDGs.

Priority topics

Supporting **circular economy**

Development of sustainable and **resilient waste management** methods

Meet the needs of the population

Contribute directly to the **mitigation of climate change**

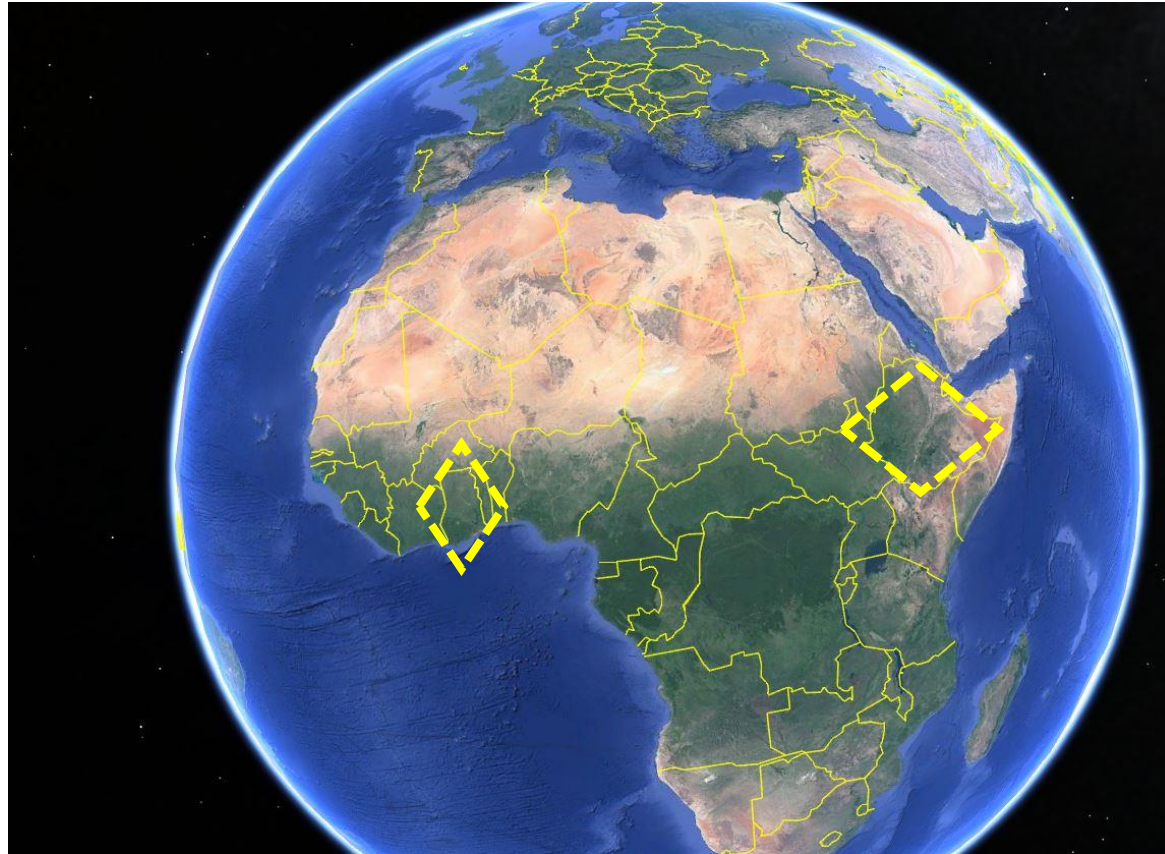
Reduction of **land degradation and migration**

Recycling of reusable materials, **recovery** of organic matter and **safe landfilling**



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Sustainable Cities, Circular Economy, Sub-Sahara Africa 2024



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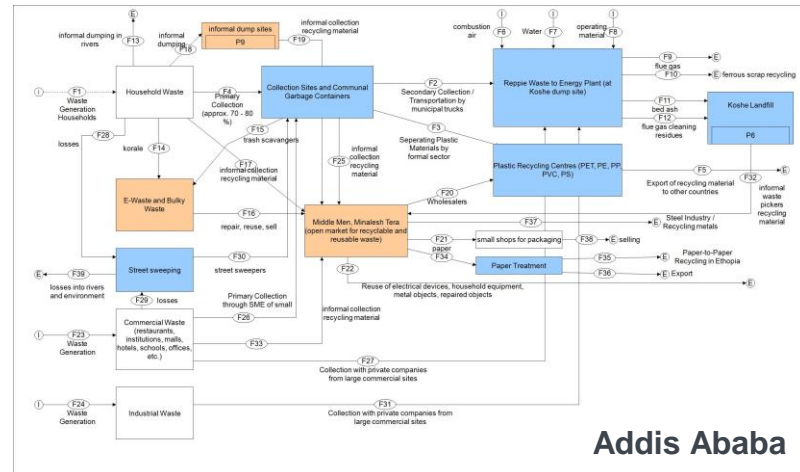
Sustainable Cities, Circular Economy, Sub-Saharan Africa 2024

Applied Methodology 1: *Material Flow Analysis (MFA)*

System analysis of material flows in the corridor:

MFA of resource and waste streams in Addis Ababa - Adama corridor Hot-spot analysis and system modelling

- Data research
- Interviews
- Questionnaires
- Site visits
- Model development
- Model verification



Addis Ababa

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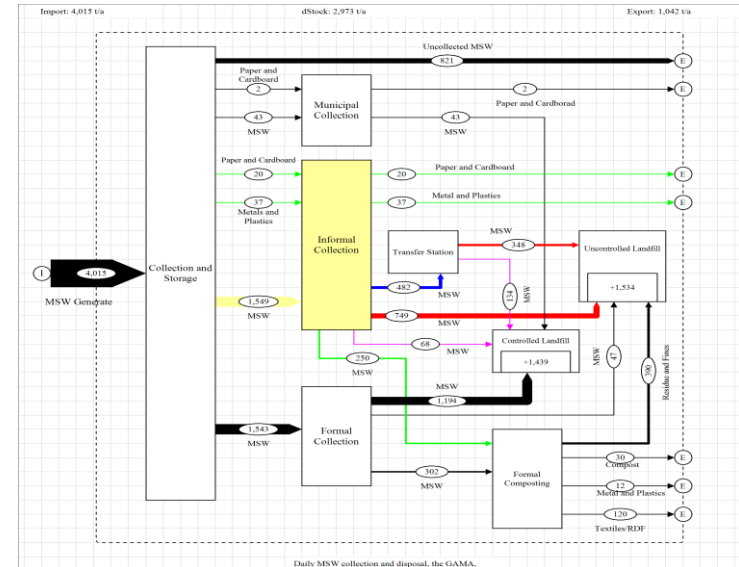
Sustainable Cities, Circular Economy, Sub-Sahara Africa 2024

Applied Methodology 1: *Material Flow Analysis (MFA)*

System analysis of material flows in the corridor:

MFA of resource and waste streams in Accra - Tema corridor
Hot-spot analysis and system modelling

- Data research
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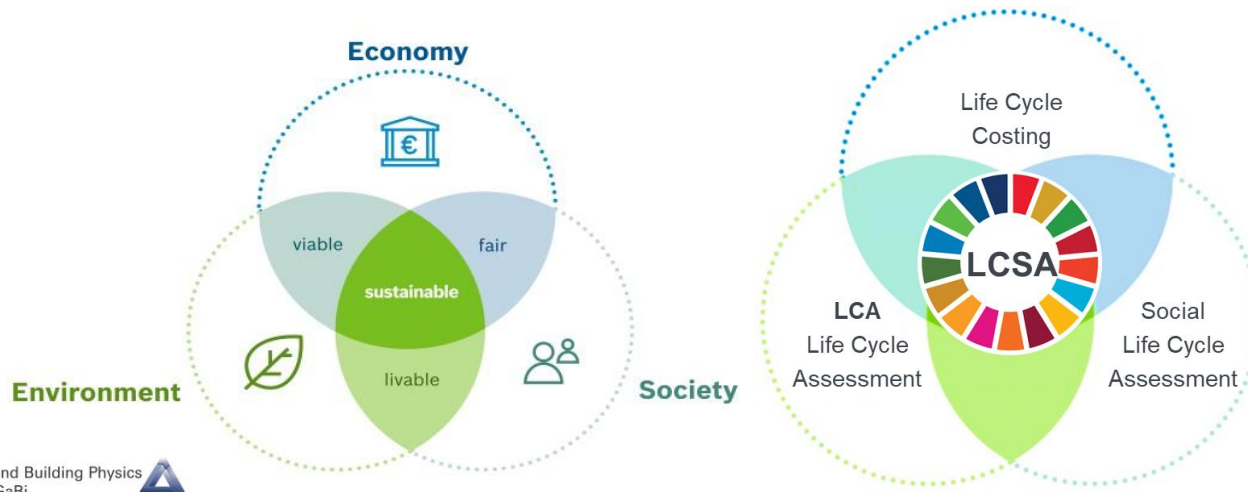
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Applied Methodology 2: *Life Cycle Sustainability Assessment (LCSA)*

Method development based on the Sustainable Development Goals (SDGs):

Analysis of social, economic and environmental impact of resource and waste management structure



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MFA: material flow analysis of waste streams in Addis Ababa - Adama corridor

LCSA: Life Cycle Sustainability Assessment method development based on the SDGs

Tool kit:
Development of a practical tool kit for application by local decision makers

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Sustainable Cities, Circular Economy, Sub-Sahara Africa 2024

MFA: material flow analysis of waste streams in Addis Ababa corridor

LCSA: Life Cycle Sustainability Assessment method development based on the SDGs

Tool kit: Development of a practical tool kit for application by local decision makers

Increase the visibility of African scientists

- Scholarship opportunities
- Especially for African scientists
 - Winter schools in Ethiopia
 - Summer schools in Ghana
 - Supervision of postgraduate research projects
 - Master theses
 - PhD theses

• 2021 - 2024

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**Thank you
for your attention**

Introduction to the SDGs

Sustainable Development Goals (SDGs)

SUSTAINABLE DEVELOPMENT GOALS



SDG poster: <https://www.un.org/sustainabledevelopment/news/communications-material/>

- 2030 Agenda for Sustainable Development
- Adopted by all **United Nations Members** in **2015**
- **17 goals** to reach peace and prosperity for people and planet, now and into the future



Sustainable Development Goals (SDGs)

- Balance the **3 dimensions** of sustainable development: economic, social and environmental
- Every goal has **8 to 12 targets**
- Total of **169 targets**
- Every target has **1 to 4 indicators**
 - Used to measure, monitor and visualize progress towards each target
 - total of **231 indicators**

SUSTAINABLE DEVELOPMENT GOALS



SDG poster: <https://www.un.org/sustainabledevelopment/news/communications-material/>

Sustainable Development Goals (SDGs) - Example



Goal 13: Climate Action

- **5 targets** and **8 indicators**
- **Exemplary targets:**
 - 13.1 **Strengthen resilience** and **adaptive capacity** to climate-related hazards and natural disasters in all countries
 - 13.2 Integrate climate change measures into **national policies, strategies and planning**
 - 13.3 **Improve education, awareness-raising** and **human** and **institutional capacity** on climate change mitigation, adaptation, impact reduction and early warning

Sustainable Development Goals (SDGs) - Example



Goal 13: Climate Action

Target:

13.2: Integrate climate change measures into **national policies, strategies and planning**

Indicators:

13.2.1: **Number of countries** with **nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications**, as reported to the secretariat of the United Nations Framework Convention on Climate Change

13.2.2: Total **greenhouse gas emissions** per year

<https://www.un.org/sustainabledevelopment/news/communications-material/>

Why are the SDGs relevant for Waste Management?

The SDGs address **waste management** with various targets and indicators.



<https://unhabitat.org/wwc-tool>

Why are the SDGs relevant for Waste Management?

The SDGs address **waste management** with various targets and indicators.

Goal 11: Sustainable cities and communities

Target 11.6: By 2030, **reduce** the **adverse** per capita **environmental impact** of cities, including by paying special attention to air quality and **municipal** and **other waste management**



<https://unhabitat.org/wwc-tool>

Goal 6: Clean water and sanitation

Target 6.3: By 2030, improve water quality by **reducing pollution eliminating dumping and minimizing release of hazardous chemicals and materials**, halving the proportion of untreated wastewater and substantially increasing **recycling** and **safe reuse globally**



Why are the SDGs relevant for Waste Management?

The SDGs address **waste management** with various targets and indicators.

Goal 12: Responsible consumption and production

Target 12.5: By 2030, **substantially reduce waste generation** through prevention, reduction, recycling and reuse



Goal 14: Life below water

Target 14.1 By 2025, prevent and significantly **reduce marine pollution** of all kinds, in particular from land-based activities, **including marine debris** and nutrient pollution

<https://unhabitat.org/wwc-tool>

Getting started



SDG colour wheel: <https://www.un.org/sustainabledevelopment/news/communications-material/>

Sustainability topics

Poverty

Hunger

Health and safety

Effective,
accountable and
inclusive
institutions

Water and
sanitation

Egalitarian society

Education and skill
development

Climate Change

Terrestrial
ecosystem

Abiotic resource
depletion

Energy supply and
efficiency

Economic growth,
employment and
decent work

Aquatic
ecosystems

Biodiversity





Poverty

- Poverty in waste sector
- Exemplary indicator:
 - Income of actors below (inter)national poverty line



Hunger

- Hunger in waste sector
- Exemplary indicator:
 - Prevalence of undernourishment

3 GOOD HEALTH AND WELL-BEING



Health and safety

- Health and safety issues in waste sector
- Exemplary indicators:
 - Risk of health incidences and accidents
 - Particulate matter formation

13 CLIMATE ACTION



Climate Change

- Climate change and its impacts in waste sector
- Exemplary indicator:
 - Global Warming Potential (GWP)

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Effective, accountable and inclusive institutions

- Institutions/industry in waste sector that are productive, profitable, responsible and inclusive/fair
- Exemplary indicators:
 - Rate of female and male and diverse workers, by occupation, age and persons with disabilities and ethnicity in decision-making institutions (municipality/ associations (registered and unregistered))
 - Costs in relation to waste management

Sustainability topics



Egalitarian Society

- All are considered equal, regardless of gender, race, religion, or age in waste sector
- Exemplary indicators:
 - Inclusion of low-income households in waste service
 - Inclusion of informal sector
 - Gender pay gap



Education and skill development

- Inclusive and equitable/fair quality education in waste sector
- Exemplary indicators:
 - Provision and participation of trainings/campaigns
 - Social participation in waste separation



Sustainability topics

8 DECENT WORK AND ECONOMIC GROWTH



Economic growth, employment and decent work

- Sustained, inclusive and sustainable economic growth, full and productive employment and decent work in waste sector
- Exemplary indicators:
 - Job creation in waste sector
 - Quality of jobs created

14 LIFE BELOW WATER



Aquatic ecosystems

- Conservation and sustainable use of lakes, rivers and marine resources for sustainable development in waste sector
- Exemplary indicators:
 - Freshwater Aquatic Ecotoxicity Potential
 - Eutrophication Potential
 - Water consumption



Sustainability topics



Abiotic resource depletion

- Depletion of nonliving (abiotic) resources: fossil fuels and minerals in waste sector
- Exemplary indicator:
 - Abiotic depletion potential elements/fossil



Terrestrial ecosystem

- Protection, restoration and promotion of sustainable use of terrestrial ecosystems, sustainable management of forests, combat of desertification, and halting and reversal of land degradation in waste sector
- Exemplary indicators:
 - Land consumption due to landfilling
 - Terrestrial Acidification Potential

6 CLEAN WATER AND SANITATION



Water and sanitation

- **Access to improved sanitation facilities** (hygienically separating human waste from human contact)
- **Access to improved drinking-water sources** (protected from outside contamination and esp. from faecal matter)
- Exemplary indicators:
 - Proportion of population/workers using improved sanitation facilities
 - Proportion of population/workers using a hand-washing facility with soap and water services
 - Proportion of workers using improved drinking water sources

Def. of improved drinking-water sources and improved sanitation facilities: <https://www.who.int/data/nutrition/nlis/info/improved-sanitation-facilities-and-drinking-water-sources#:~:text=Improved%20drinking%2Dwater%20sources%20are,protected%20springs%20and%20rainwater%20collection>

SDG Icon: <https://www.un.org/sustainabledevelopment/news/communications-material/>



Sustainability topics

7 AFFORDABLE AND CLEAN ENERGY



Energy supply and efficiency

- Affordable, reliable, sustainable and modern energy in waste sector
- Exemplary indicators:
 - Energy consumption
 - Energy intensity


15 LIFE ON LAND



Biodiversity

- Protection, restoration and promotion of biodiversity and halting its loss in waste sector
- Exemplary indicators:
 - Red List Index
 - Index of Common Bird Species





**Relevance definition
and
introduction of
materiality matrix**

Definition of relevance in this workshop:

A sustainability topic can be relevant to your stakeholder group as it ...

1) ... can **act effectively** in the field

or

2) ... is **affected** by the economic/
social/environmental **sustainability**
impacts of municipal solid waste
management



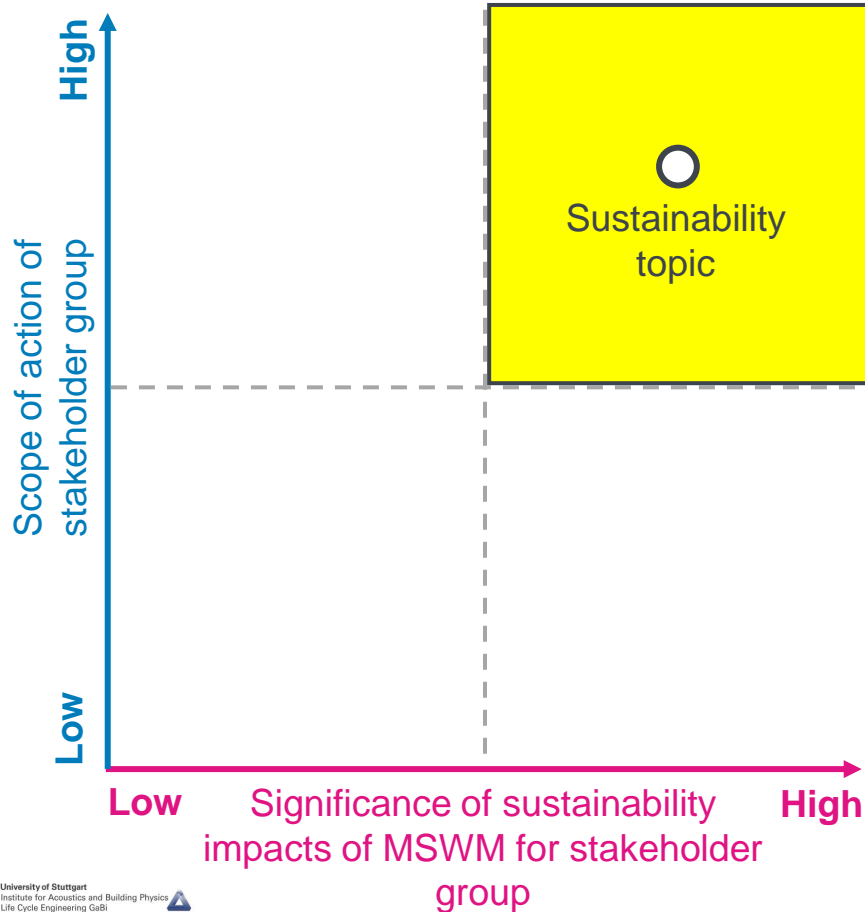
Example: Recycling plastic bottles
to reduce waste and resource
consumption



Example: Polluted drinking water
due to leachate from landfills

Please keep in mind to take the perspective
of your stakeholder group!

Materiality matrix



Topics within this quadrant are of high relevance for MSWM



will be used for development of indicator set

Relevance of a sustainability topic:

- 1) Stakeholder group can **act effectively** in the field
- 2) Stakeholder group is **affected** by the sustainability impacts of MSWM

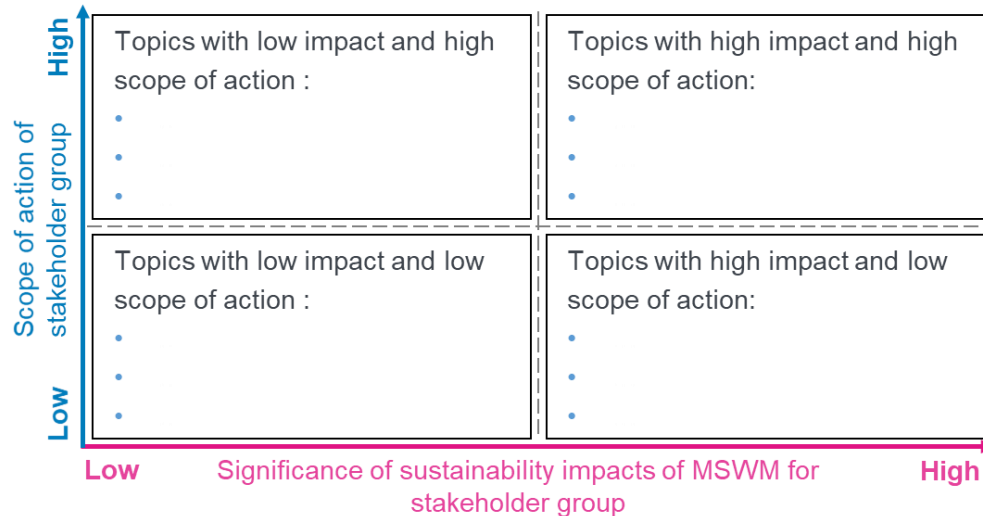
Working steps

Work session 1: Discussing where to place the sustainability topics on the materiality matrix - within your stakeholder group

Work session 1



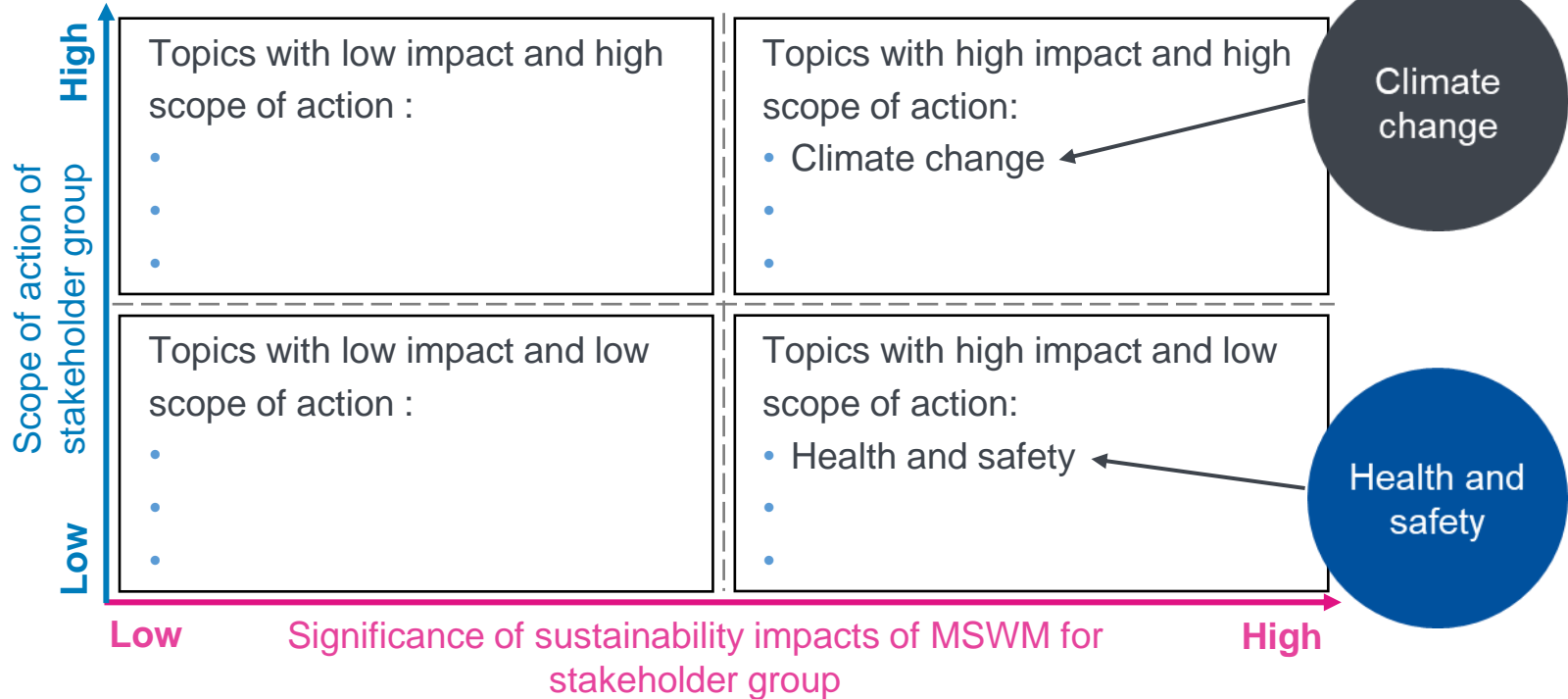
- List of sustainability topics



- Materiality matrix

Work session 1

For example:



Working steps

Work session 1: Discussing where to place the sustainability topics on the materiality matrix - within your stakeholder group



Work session 2: Presenting and discussing the results



Wrap-up round: Giving top 5 thematic priorities - each stakeholder group

Dr. Berhanu Assefa

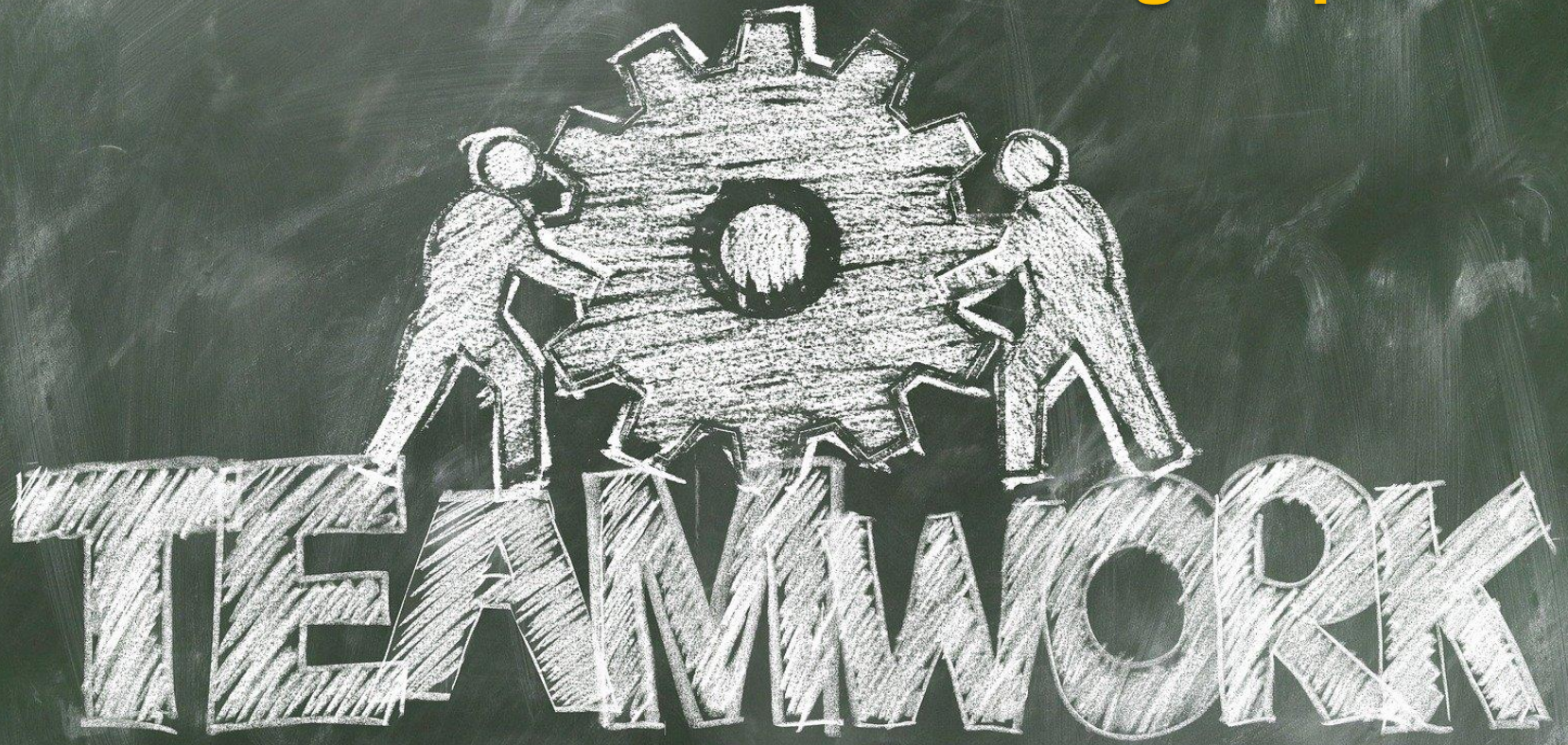
**Solid waste
management practice
in Addis Ababa City**

Coffee break



Dr. Shimelis Kebede
Solid Waste Management
Practice in the Greater
Accra Metropolitan Area,
Ghana

Formation of stakeholder groups

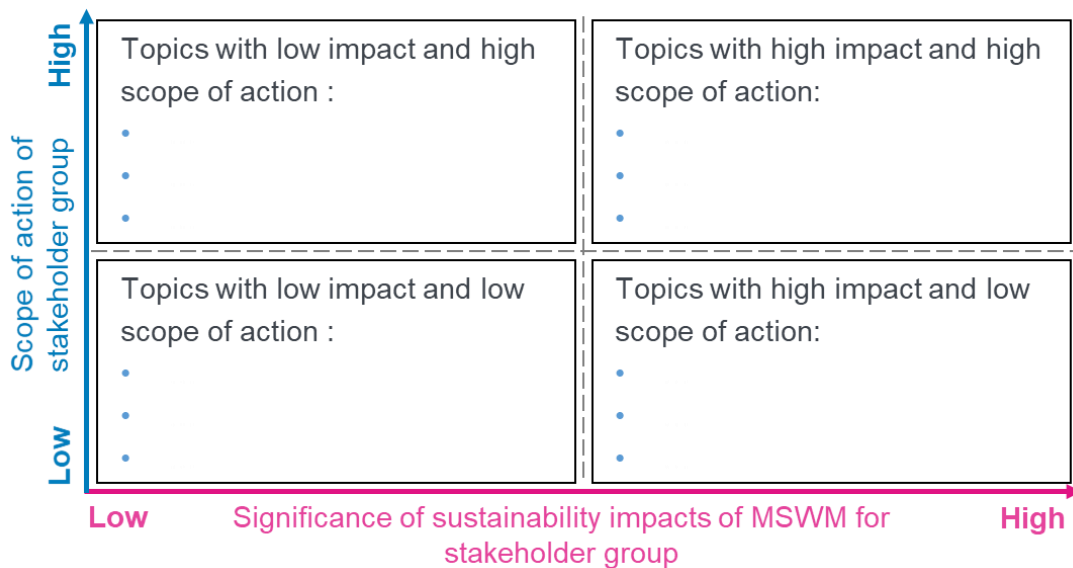


Work session 1

Task: Discussing where to place the sustainability topics on the materiality matrix - within your stakeholder group

Work session 1

Poverty	Hunger	Health and safety	Effective, accountable and inclusive institutions	Water and sanitation	Egalitarian society	Education and skill development
Climate Change	Terrestrial ecosystem	Abiotic resource depletion	Energy supply and efficiency	Economic growth, employment and decent work	Aquatic ecosystems	Biodiversity



Relevance of a sustainability topic:

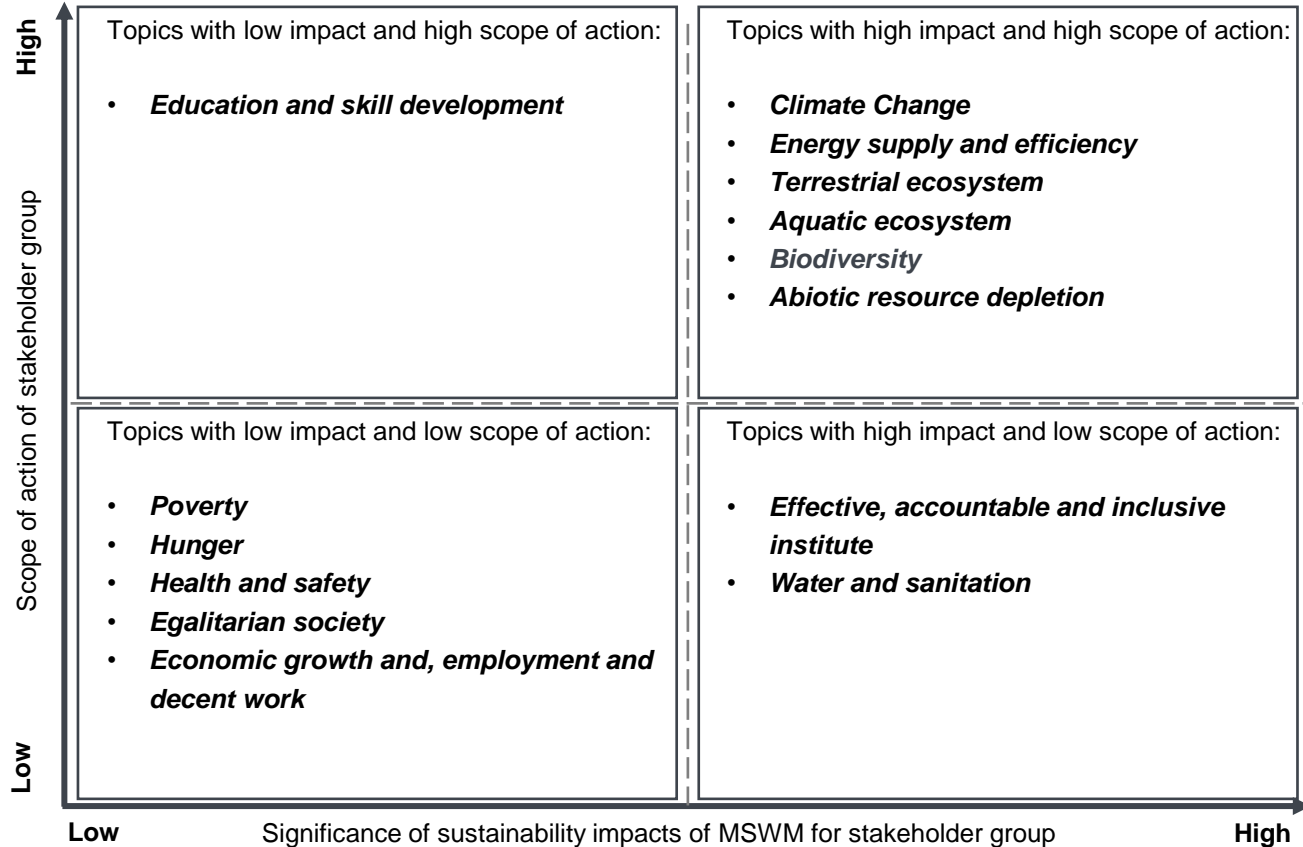
- 1) Stakeholder group can **act effectively** in the field
- 2) Stakeholder group is **affected** by the sustainability impacts of MSWM

Work session 2

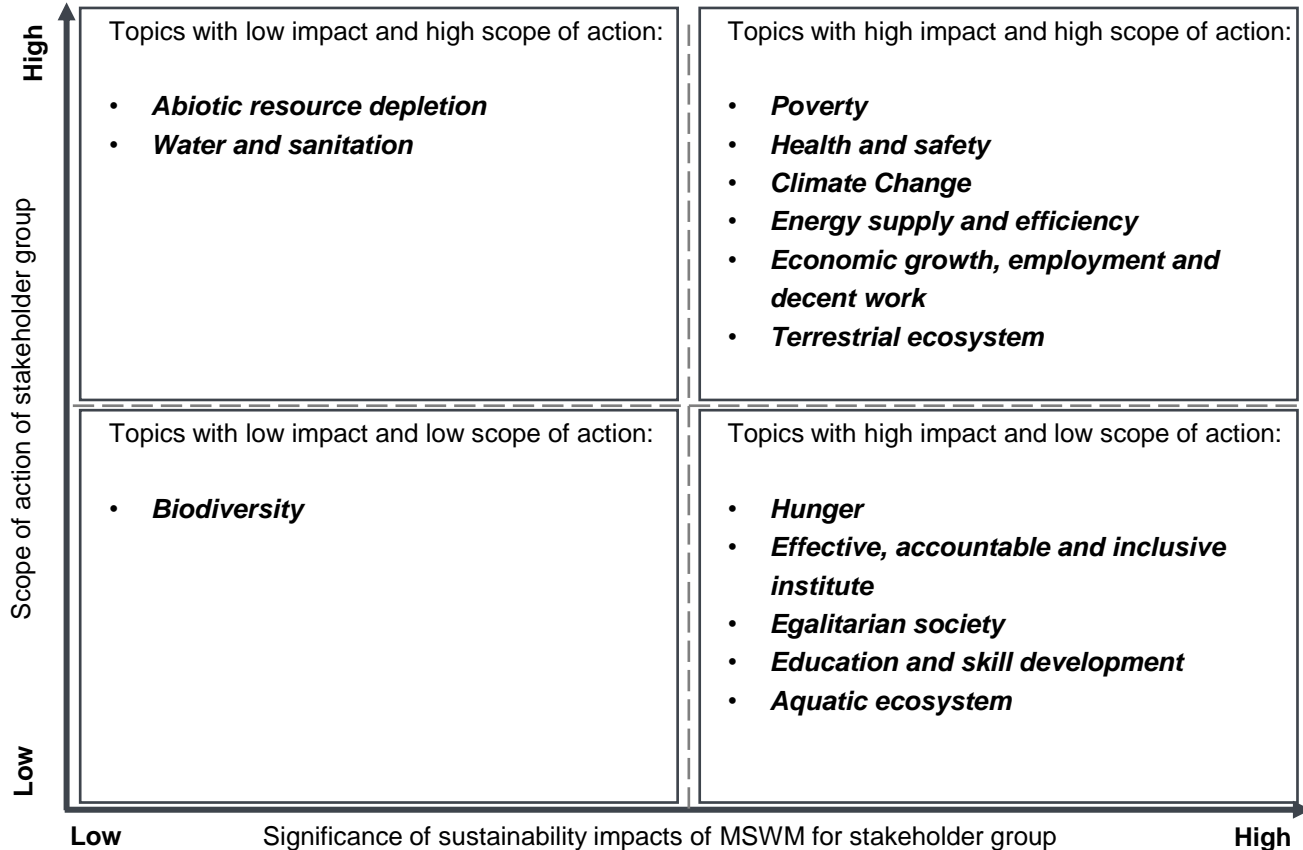
**Task: Presenting and discussing
the results**

Academia and science

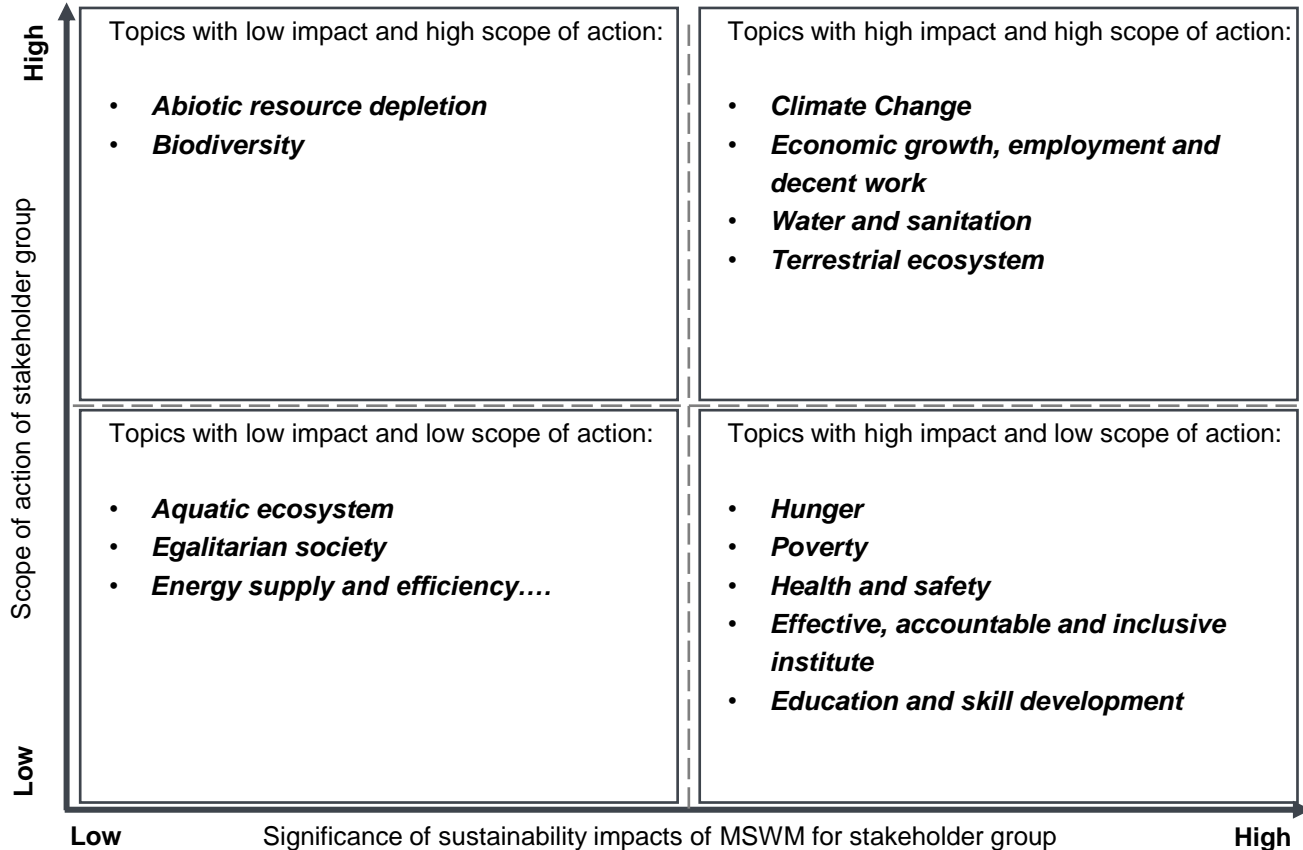
Results



Municipality and Formal Sector Results



NGOs and Informal Sector Results



Wrap-up round

Task: Giving top 5 thematic priorities - each stakeholder group

Academia and Science

Top 5 thematic priorities

Academia and science

- 1.... *Energy supply and efficiency*
- 2.... *Biodiversity*
- 3.... *Climate Change*
- 4.... *Terrestrial ecosystem*
- 5.... *Aquatic ecosystem*
- 6.... *Abiotic resource depletion*

Municipality and Formal Sector

Top 5 thematic priorities

Formal waste sector and municipality

1.... *Health and safety*

2.... *Climate Change*

3.... *Water and sanitation*

4.... *Economic growth, employment
and decent work*

5.... *Energy supply and efficiency*

NGOs and Informal Sector

Top 5 thematic priorities

Informal waste sector and NGOs

- 1.... ***Climate Change***
- 2.... ***Economic growth, employment and decent work***
- 3.... ***Education and skill development***
- 4.... ***Water and sanitation***
- 5.... ***Effective, accountable and inclusive institute***

Outlook



Next steps in the project:



To access the workshop materials, please visit the workshop website:

<https://www.project.uni-stuttgart.de/success24/activities/sdg-workshop-in-addis-ababa-2022/>

To follow the project, please visit the project website:

<https://www.project.uni-stuttgart.de/success24/>