

BATTERY SYSTEM

Overview

GLOBAL BATTERY ALLIANCE

BATTERIES POWERING
SUSTAINABLE DEVELOPMENT

WORLD
ECONOMIC
FORUM

COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

80+ organizations support the GBA

Public & international organizations

Hosted by

Support from

NGOs, foundations, associations

Technology, Services & Academia

Technology & Services

Academia

Industry



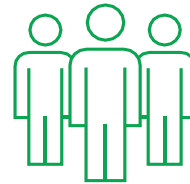
GBA vision: the potential of a sustainable battery value chain in 2030



Establishing a circular battery value chain is a major driver for achieving the Paris Agreement

30% emission reduction
in the transport and power sector

50% emission reduction in
the battery value chain

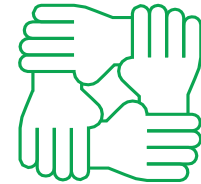


Transforming the economy in the value chain creates new jobs and economic value

10 m additional jobs

150 bn in economic value generated
in a responsible and just value chain

35% increase in battery demand



Safeguarding human rights and economic development is in line with the UN SDGs¹

600 m additional people with access
to electricity, reducing the gap of people
without electricity by 70%

Ensuring safe working conditions, fostering
anti-corruption practice and eliminating
child/forced labor

Additional impact of a sustainable value chain in 2030 compared to business as usual – unattainable with business as usual

¹ Sustainable Development Goals

10 GBA principles for a sustainable battery value chain

Establish a circular battery value chain as a major driver to achieve the Paris Agreement



- 1 Maximizing the productivity of batteries in their first life
- 2 Enabling a productive and safe second life use
- 3 Ensuring the circular recovery of battery materials

Establish a low-carbon economy in the value chain, create new jobs and additional economic value



- 4 Disclosing and progressively decreasing greenhouse gas emissions
- 5 Prioritizing energy efficiency measures and substantially increase the use of renewable energy as a source of power and heat when available
- 6 Fostering battery-enabled renewable energy integration and access with a focus on developing countries
- 7 Supporting high quality job creation and skills development

Safeguard human rights and economic development consistent with the UN Sustainable Development Goals



- 8 Immediately and urgently eliminating child and forced labour, strengthening communities and respecting the human rights of those employed by the value chain
- 9 Fostering protection of public health and the environment, minimizing and remediating the impact from pollution in the value chain
- 10 Supporting responsible trade and anti-corruption practices, local value creation and economic diversification

BATTERY SYSTEM

Battery Passport

**GLOBAL
BATTERY
ALLIANCE**

BATTERIES POWERING
SUSTAINABLE DEVELOPMENT

ESG+ principles for full Battery Passport (Battery Passport 2.0)

The ambition of the full Battery Passport are to cover most important ESG principles in addition to battery identity data

Illustrative

Lifecycle information

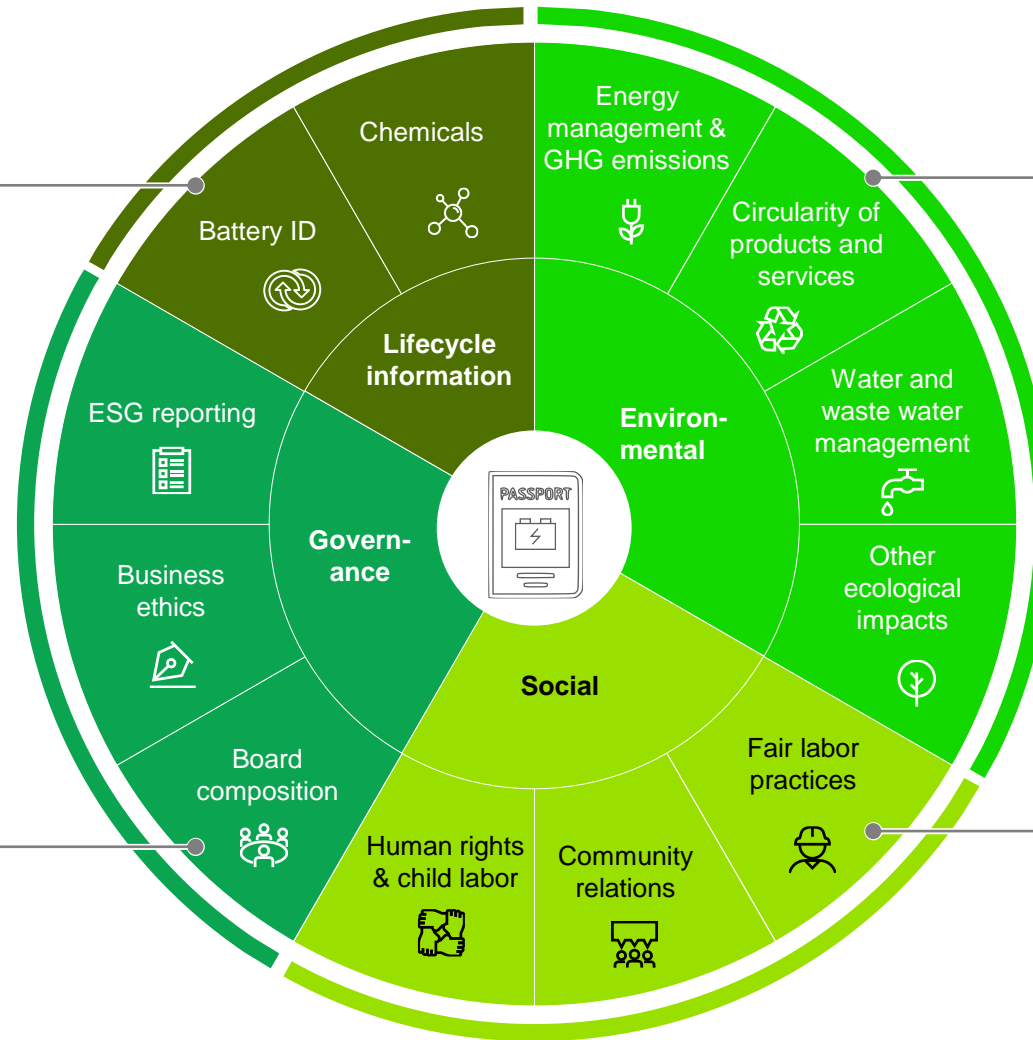


Battery traceability and identity with a focus on the cell and pack level; disclose limited battery data such as battery chemistry, and recycled content as well as dynamic data e.g., battery health, safety and lifecycle

Governance



Demonstration of business ethics, extensive and transparent ESG reporting



Environmental



Disclosure of GHG footprint and general ecological impact

Social



Proof of compliance with human rights, fair labor practices, and community relations

GBA Vision: Overarching value proposition of the Battery Passport

GBA Assurance Platform

Pre-scribing certain rules/framing rules
Auditing Data
Ensuring data integrity
Benchmarking (transparency level)

Characteristics



Data transparency

Providing next-level data transparency and business confidence for all interactions along the value chain



Data verifiability

Verifying authenticity of information and securing transactions along the battery value chain



Data traceability

Measuring and tracking data concerning economic, social, and environmental dimensions



Value proposition



Provenance of materials and Social Impact

Verification of material provenance and proof of compliance with human rights and anti-corruption policies



Enabling sustainable business models

Establishing a mechanism for service-based business models



Emission footprint disclosure

Disclosure of GHG footprint and general environmental impact



Enabling Compliance

Proof of general compliance with sustainability requirements

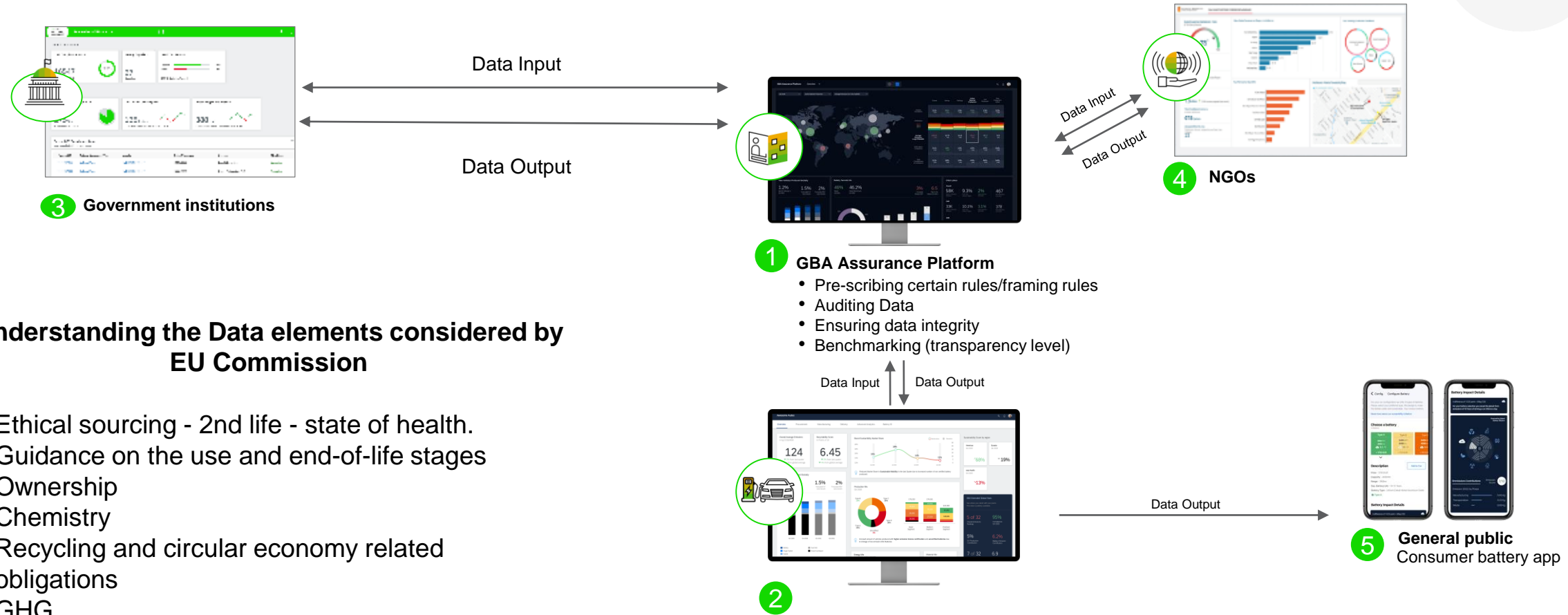


Circularity

Extension of battery life together with an increase in residual value and reduction in cost

Basis for a global battery label ("quality seal") – demonstrating sustainability and responsibility norms and principles along the value chain

Aligning with European Commission goals on labeling and data requirements



Global Battery Alliance Energy Access Initiative



Goals

- **A roadmap for** public-private interventions to address the barriers for energy access via batteries and recycling capacity
 - **energy access potential and key barriers**
 - **Ensuring effective recycling and end of life system**
 - **Tracing batteries through end of life management**



Partners



WORLD BANK GROUP



**THE FARADAY
INSTITUTION**



**MINISTRY OF FOREIGN AFFAIRS
OF DENMARK**

giz

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



**United Nations
Economic Commission for Africa**



**AFRICAN
CIRCULAR
ECONOMY
ALLIANCE**

Creating an Environmentally Conscious Lifecycle for Lead-Acid Batteries

Technical and Regulatory Guidelines for Closed Loop Recycling of Used Lead-Acid Batteries



“One in three children globally are lead poisoned, with inadequate lead-acid battery recycling being the core of the problem. The impact on GDP is enormous: lead is responsible for a reduction of 2 percent of GDP in Asia, 4 percent in Africa because lead damages intelligence, reducing lifetime earnings, productivity and entrepreneurship.”

- Compile and publish a set of best practices and regulatory frameworks in lead acid battery recycling
- Support the scale-up of these systems across low-and middle- income countries by engaging policy leaders

Lead Authors:



ILA

3 Next Steps: Optimizing Transboundary Flow of Batteries to Enable Circularity Via Recycling, Repurposing and Second Use – Current Regulation and Future Facilitation

Develop a model framework for a circular economy of EV Batteries in selected countries with public and private partners with a focus on enabling three types of transactions:

- 1. End of Life:** Create a stream-lined process or establish a non-waste exemption classification for EV batteries shipped to another country for repair and refurbishment to extend life as EV battery.
- 2. Second Use:** Create a stream-lined process or establish a non-waste exemption classification for EV batteries shipped to another country for 2nd use application.
- 3. Recycling:** Implement an expedited consent process for EV batteries shipped for recycling purposes.

BATTERY SYSTEM

Appendix

GLOBAL BATTERY ALLIANCE

BATTERIES POWERING
SUSTAINABLE DEVELOPMENT

The impact of the global battery industry spans across all United Nation Sustainable Development Goals



... and provide access to clean energy, create economic value, and jobs

~850M people of which lack access to electricity world wide, 67% in Sub-Saharan Africa (2017)

Battery industry created **~\$40B** economic value in 2018, and grew annually at ~15% last decade

We estimate that **~2M** people are employed in the battery value chain, of which >1.6M work in developing countries (2018)

Partnerships, such as the Global Battery Alliance, help drive the sustainable scale-up of the battery value chain to achieve the UN Sustainable Development Goals

Addressable United Nations Sustainable Development Goals





COMMITTED TO
IMPROVING THE STATE
OF THE WORLD



A World Economic Forum initiative.

**GLOBAL
BATTERY
ALLIANCE**
BATTERIES POWERING
SUSTAINABLE DEVELOPMENT

Mathy Stanislaus

Interim Director, Global Battery Alliance
Mathy.stanislaus@ce-advisor.com

Jonathan Eckart

Project Lead, Global Battery Alliance, Global
Leadership Fellow, World Economic Forum
jonathan.eckart@weforum.org

Arielle Wat

Project Specialist, Global Battery Alliance,
World Economic Forum
Arielle.Wat@weforum.org