

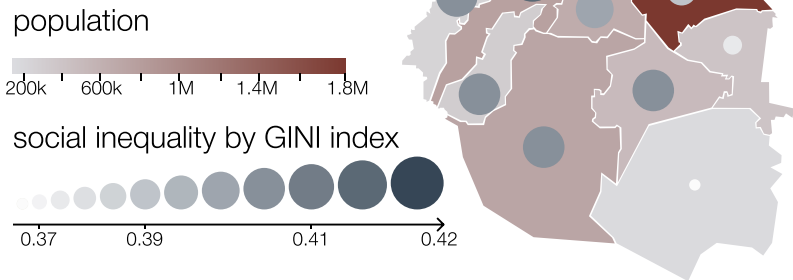
MEXICO CITY

Holistic Diagnosis

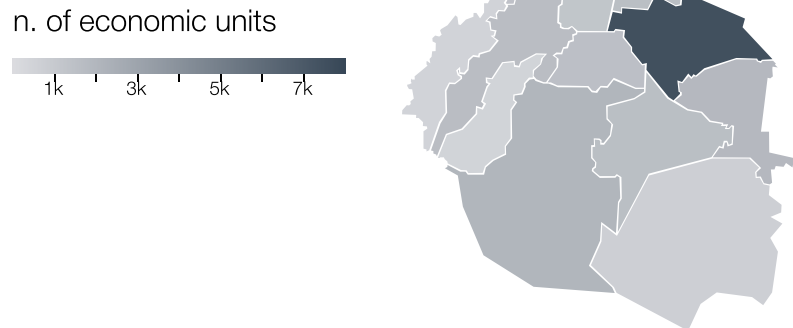
Use of soil



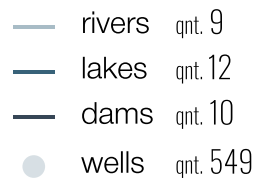
Distribution of population and inequality



Distribution of economic units



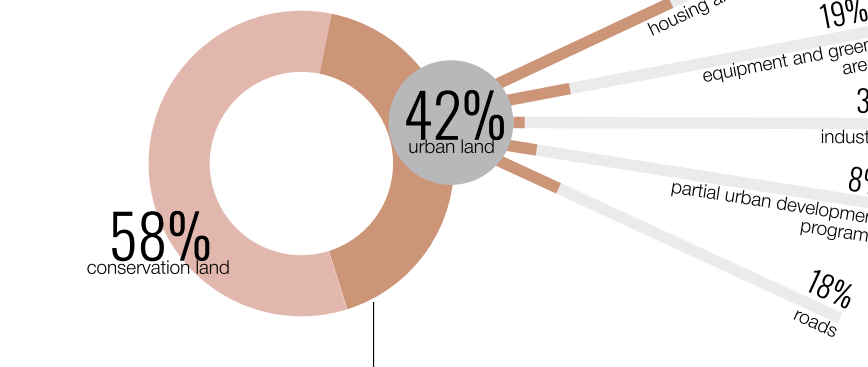
Hydrography



Primary roads and airport

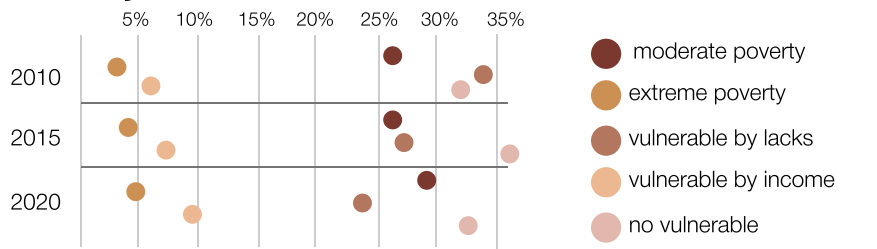


16 municipality
1,485 km²

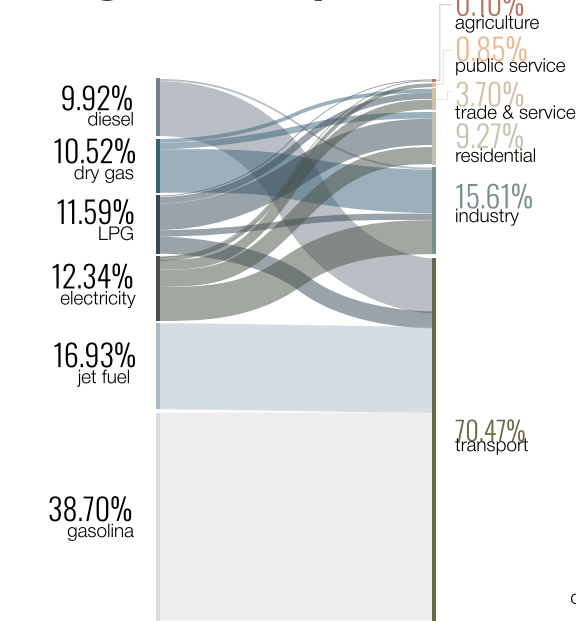


9,301,956 inhabitants
6,163 inha/km²
31 y.o. average age

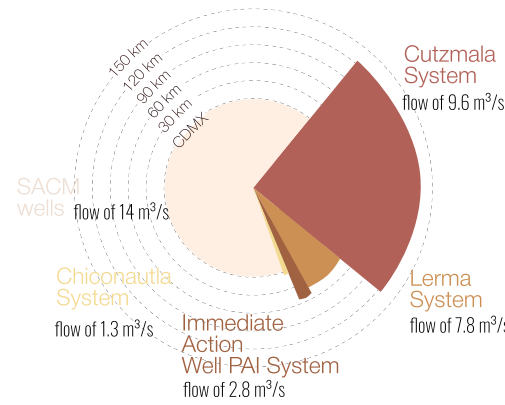
Poverty indicator



Energy consumption



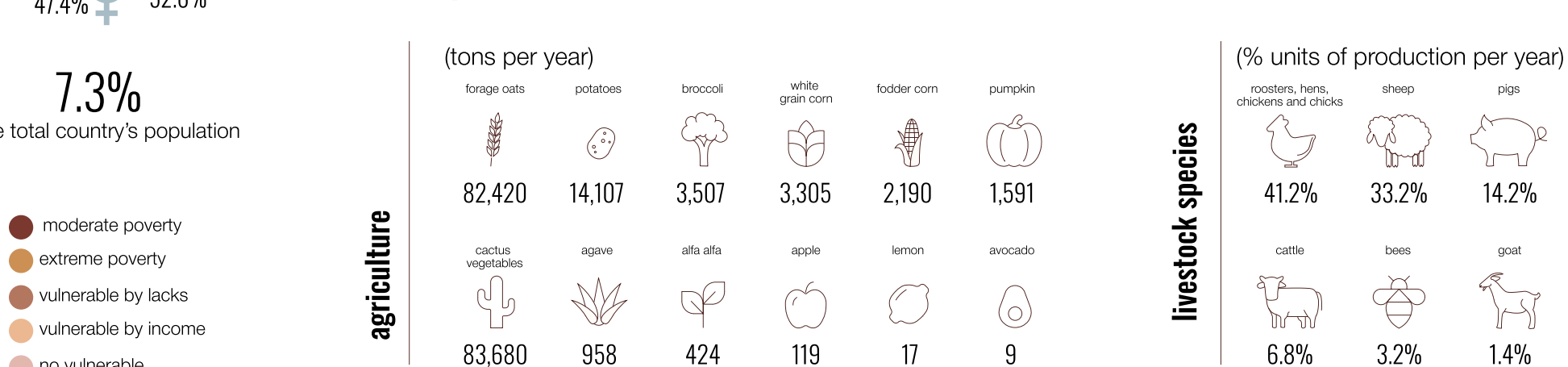
Water supply



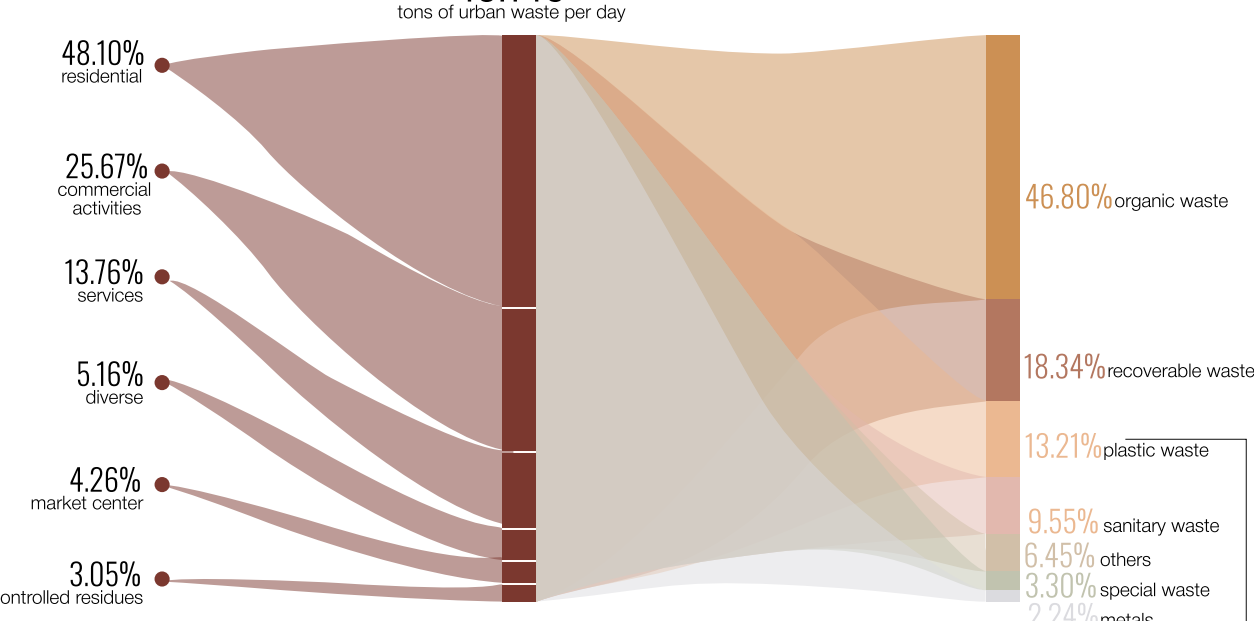
506.51 cars
per 1,000 inhabitants

230,929 trucks
87.7% general goods
12.3% specialized loads

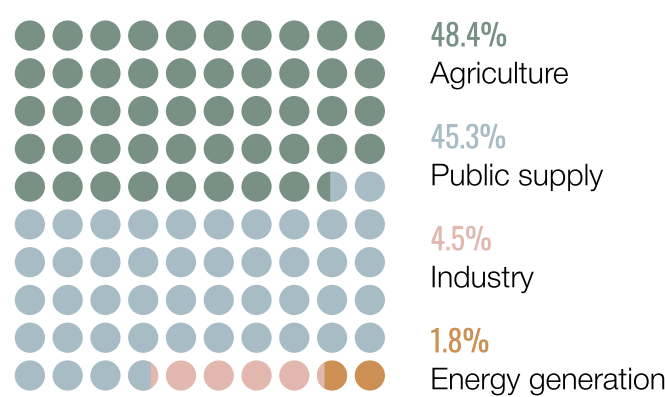
Main production



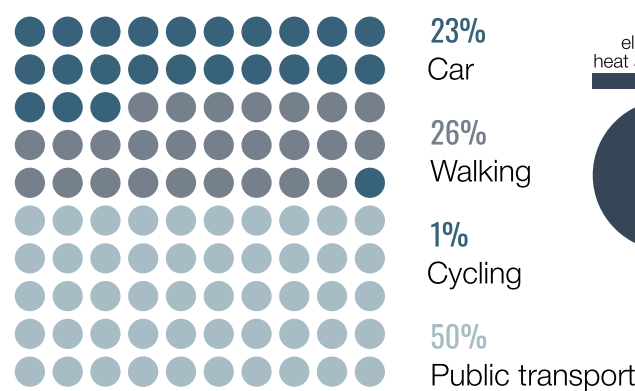
Urban waste



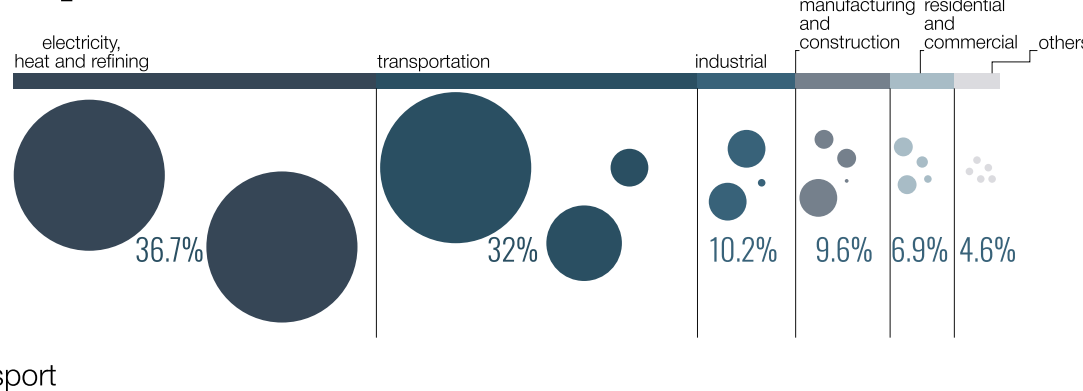
Water usage



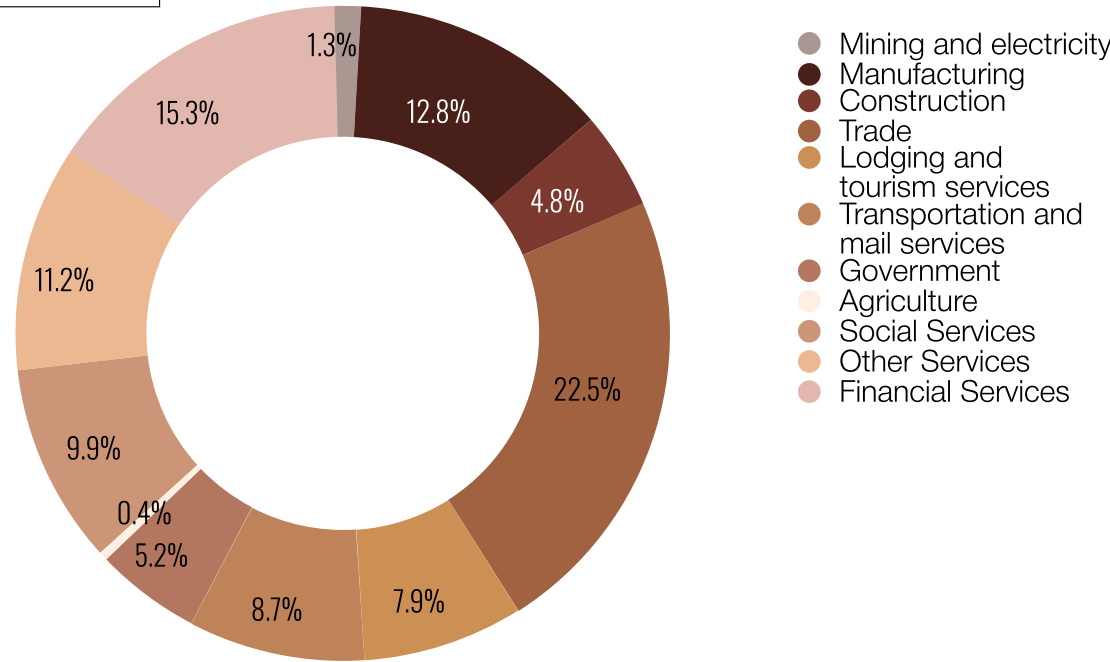
Urban mobility system



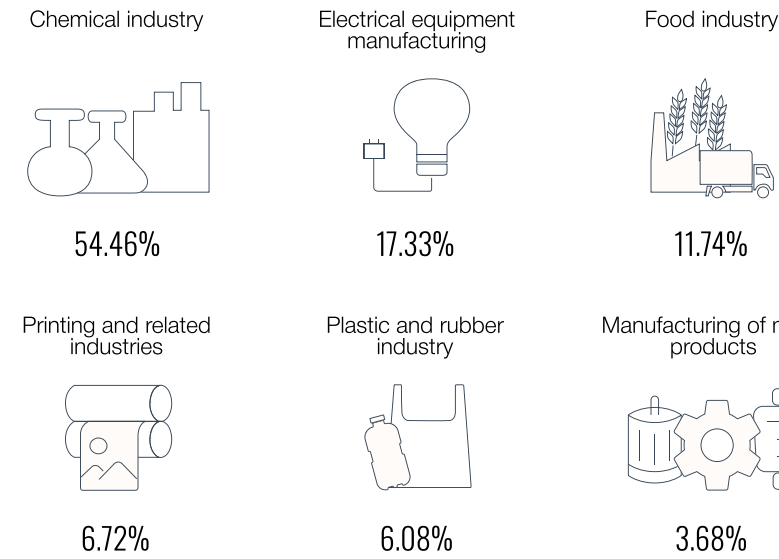
CO₂ emission



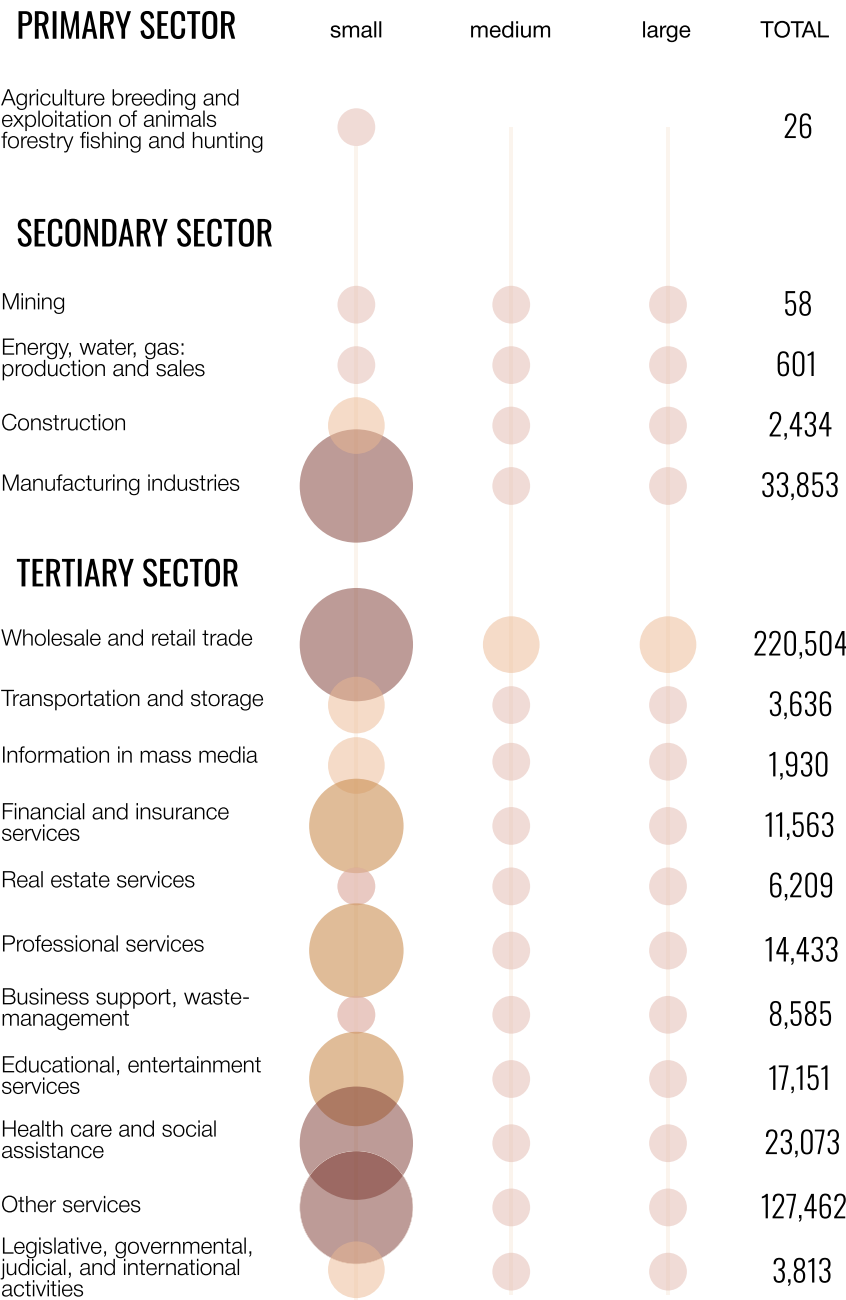
Employed per economic sector



Expertise by subsector



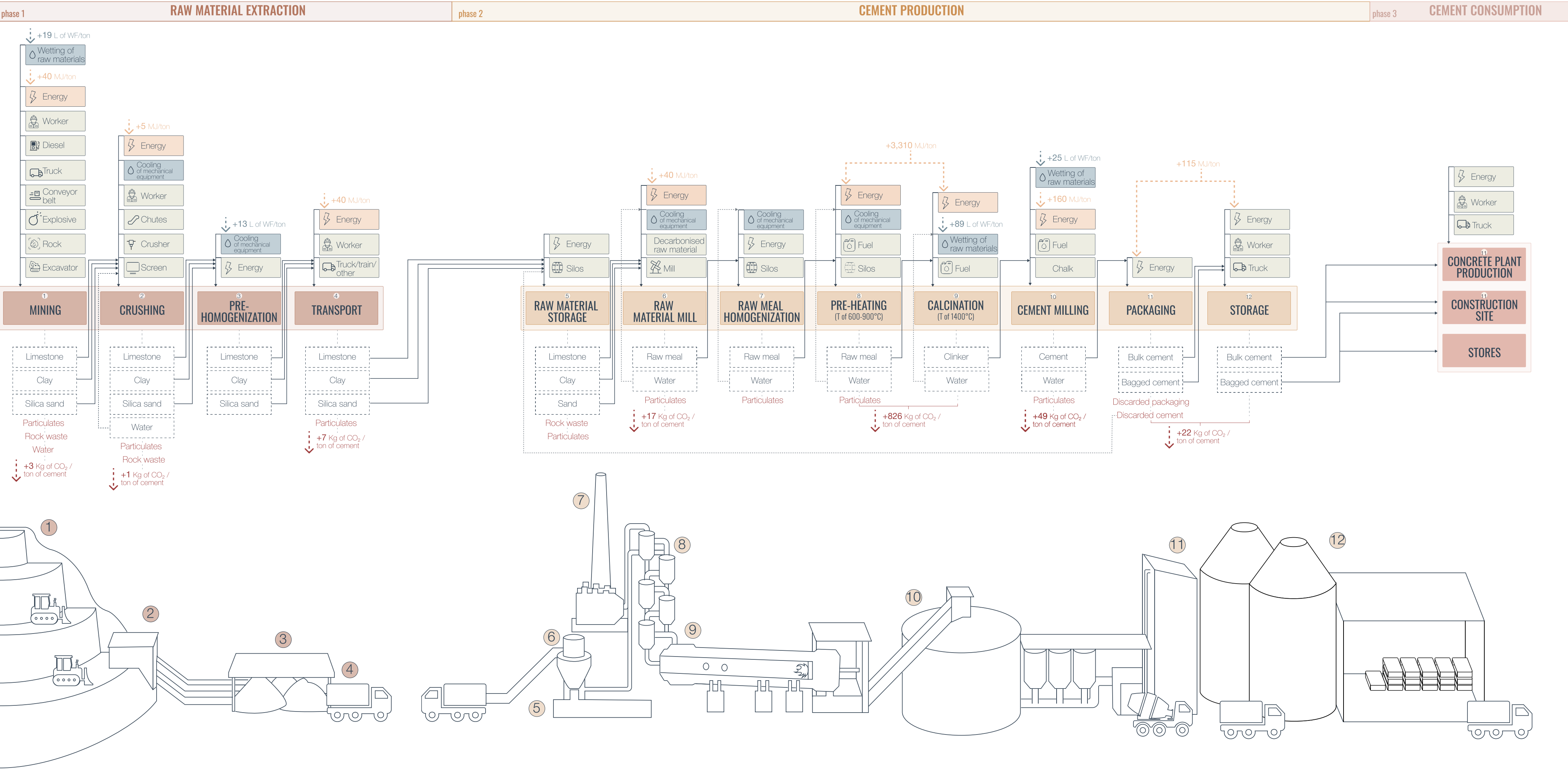
Sectors of economic activity



CDMX's largest industries



Holistic diagnosis of cement production



Materials and emissions for 1 ton of Portland cement with a density of 1,550kg/m³

Limestone 696 - 929 kg

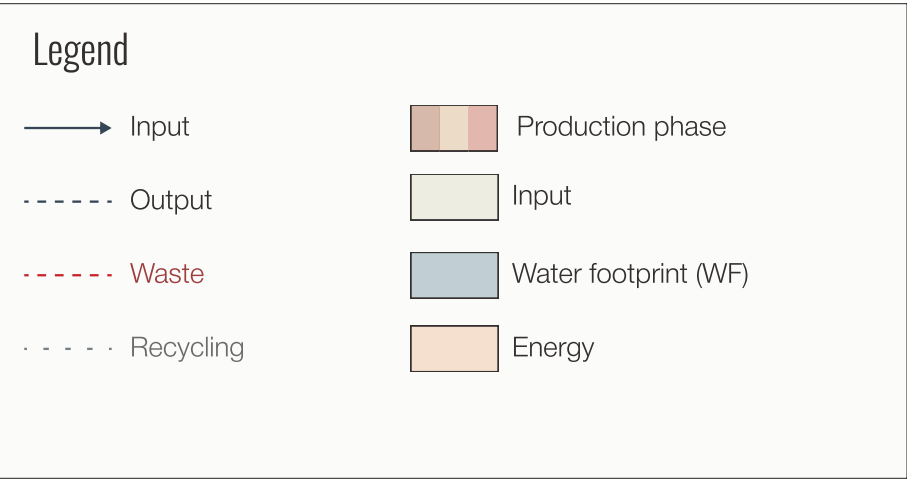
Clay 310 - 433 kg

Gypsum 26 - 45 kg

Water footprint 196 L

Energy 3,710 MJ

CO₂ emissions 600 - 925 kg



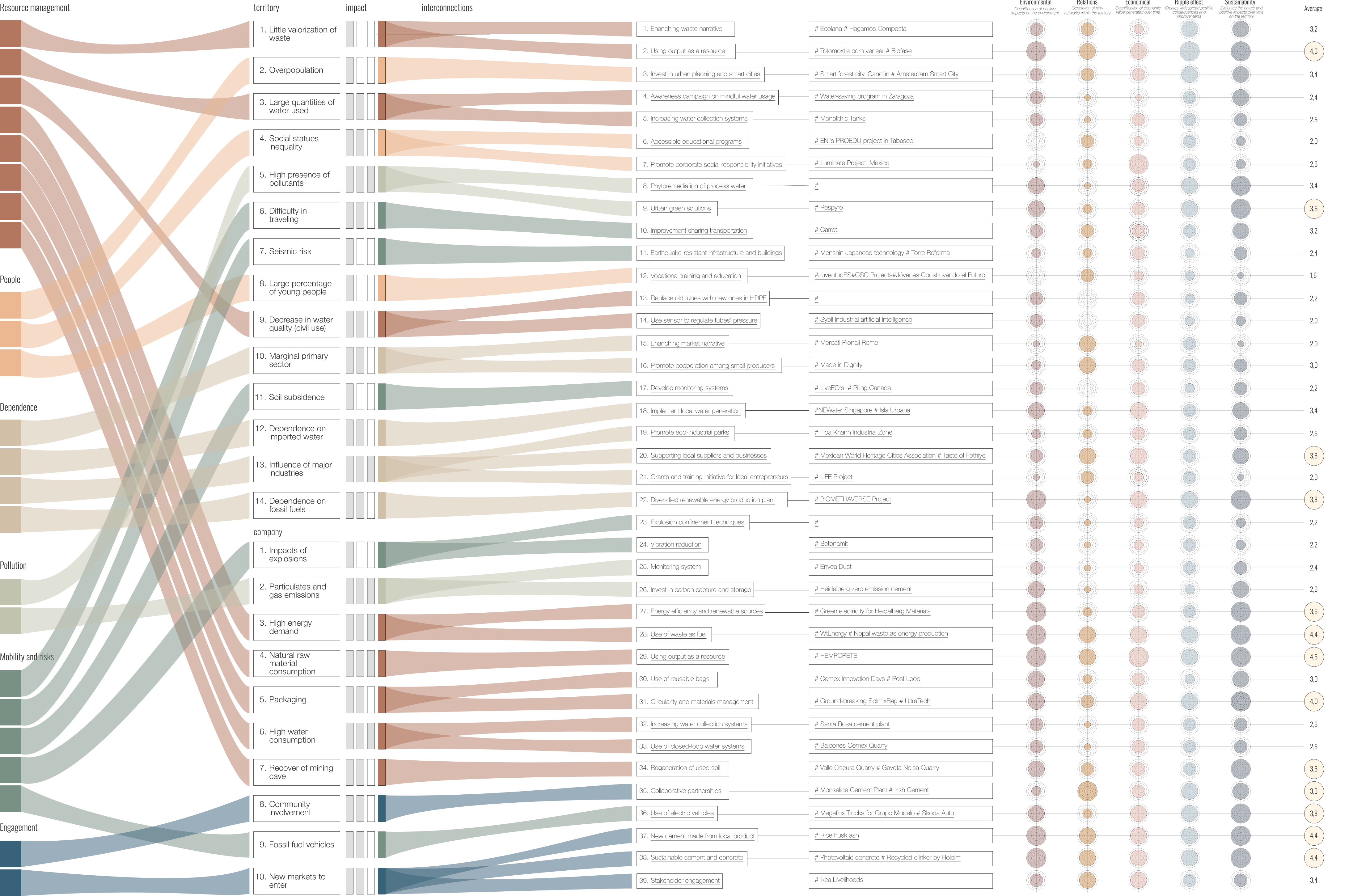
Challenges and opportunities map

Categories

Challenges

Opportunities (case studies)

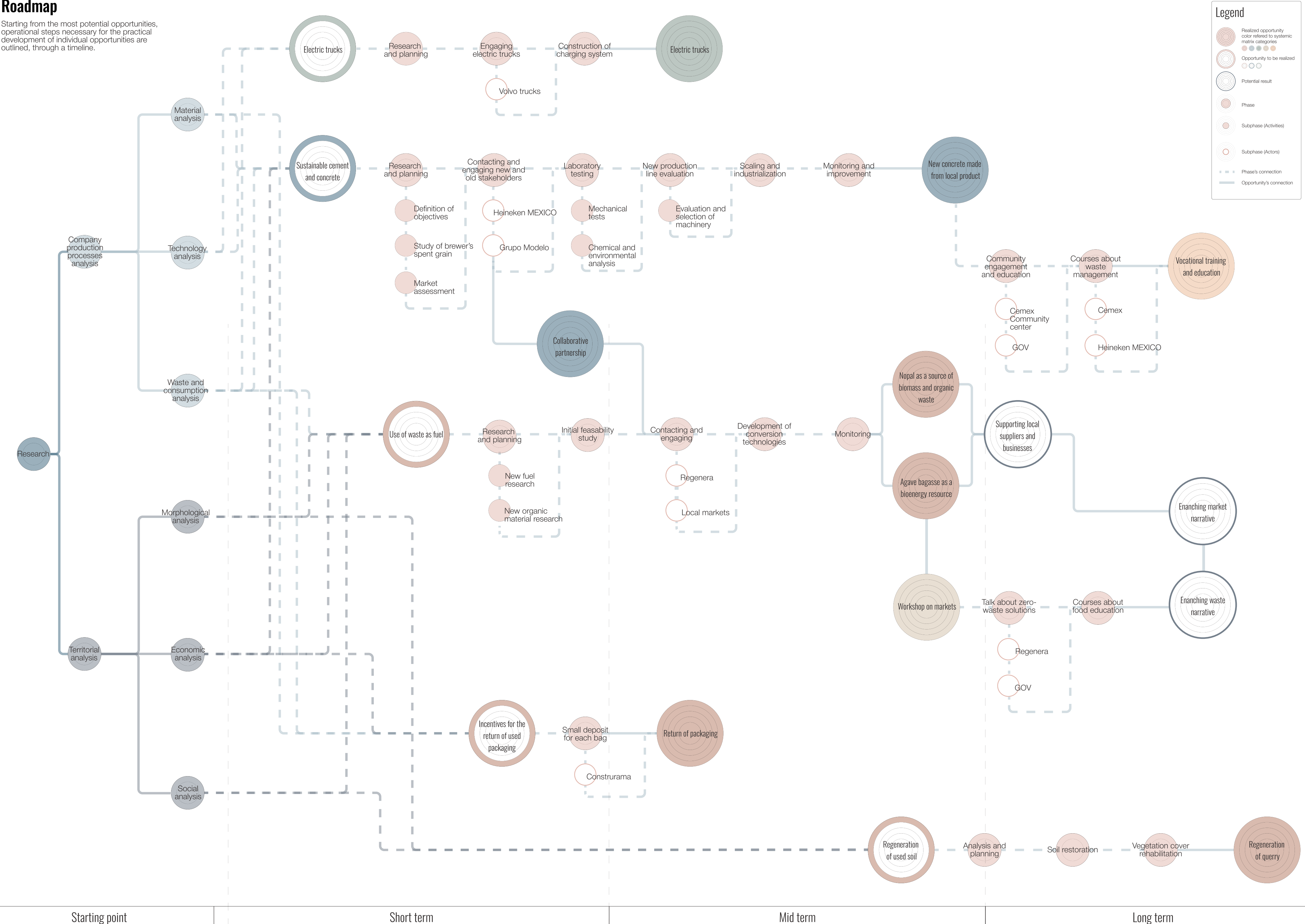
Selection matrix



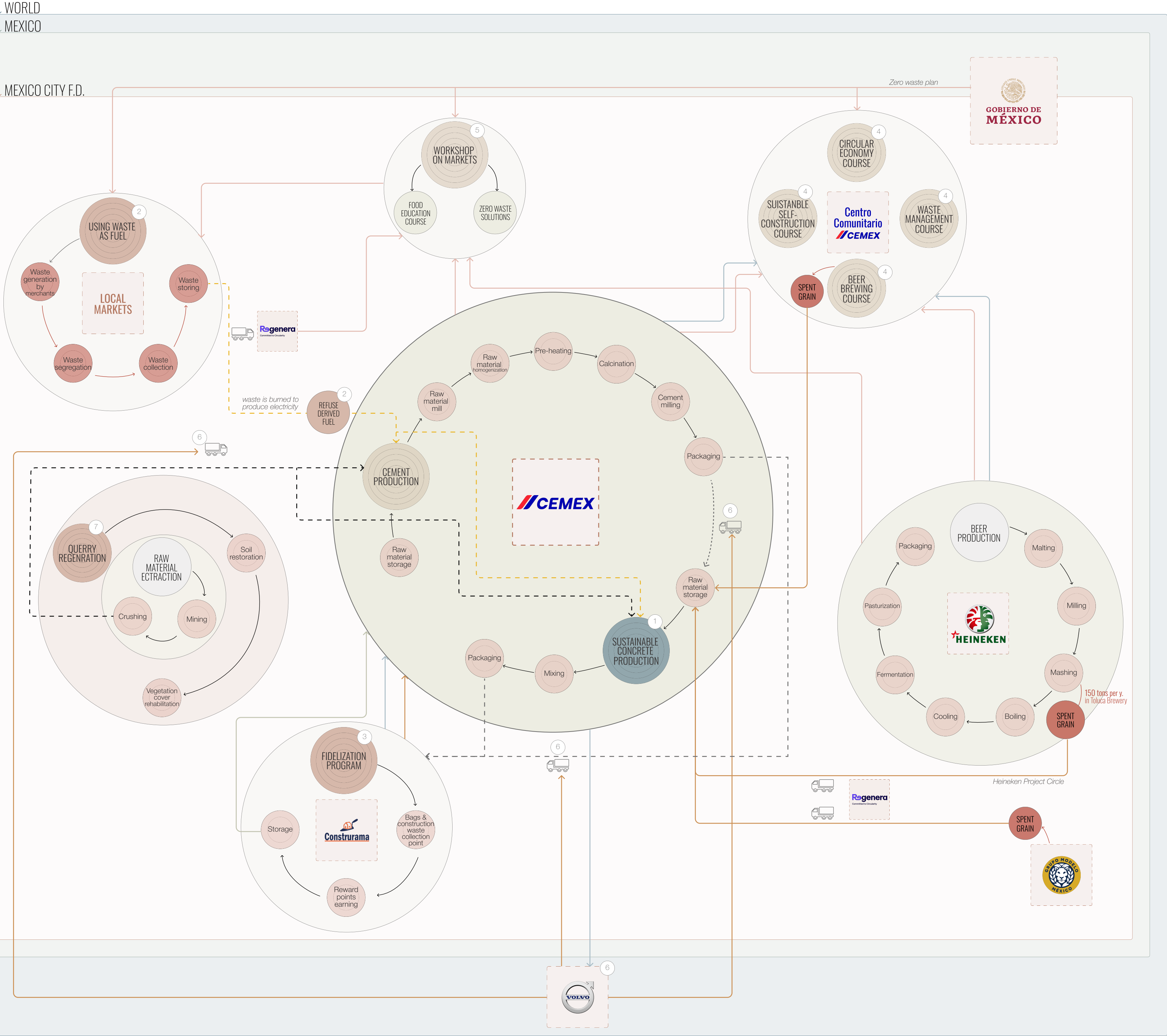
Scale: 1. Very low 2. Low 3. Moderate 4. High 5. Very high

Roadmap

Starting from the most potential opportunities, operational steps necessary for the practical development of individual opportunities are outlined, through a timeline.



System Map



System map's insights

- Light concrete production**

Cemex collaborates with Heineken, leveraging the **brewer's spent grain** from the *Heineken Project Circle* to produce lightweight concrete. This sustainable innovation **replaces 15% of traditional aggregates with recycled grain residues, reducing the environmental impact of concrete production while promoting industrial symbiosis**. In this way Heineken avoids disposal costs, Cemex gains access to cheaper raw materials, and both companies improve their brand image through sustainability initiatives.
- Refuse-Derived Fuel**

Organic waste from Mexico City's local markets, such as nopal and agave residues, is **collected and converted into Refuse-Derived Fuel (RDF)** by Regenera for Cemex's energy needs. This initiative addresses the city's waste management challenges while reducing reliance on fossil fuels and creating a cleaner urban environment. Waste pickers and market workers can be paid for waste collection, creating employment.
- Fidelization program for Construrama Stores**

This loyalty program encourages customers to **return empty cement and concrete bags, as well as small-scale construction waste from home renovations, to Construrama stores**. Recycled materials are fed back into production, reducing raw material costs and promoting sustainability. Returned empty cement bags and construction waste are sent to Cemex facilities for recycling or reuse in new materials. **Customers earn points redeemable for rewards, fostering sustainability through recycling** while promoting customer engagement and retention.
- Cemex Community Centers courses**

CIRCULAR ECONOMY COURSE
In **partnership with Heineken, Cemex, and the Mexican Government's** with the Zero Waste Plan, community members learn about the principles of the circular economy. These courses and workshops, hosted in Cemex Community Centers and local markets, focus on **rethinking waste**, using industrial by-products like spent grain, and promoting sustainable practices. These workshops reinforce brand loyalty and increase the efficiency of waste collection from markets and communities.

WASTE MANAGEMENT COURSE AND WORKSHOP
Workshops and courses on waste management **teach local communities about segregation, recycling, and the environmental impact of improper disposal**. Conducted in Cemex Community Centers and local markets, these workshops are a **collaboration with Heineken, Cemex and the Mexican government**, supporting the Zero Waste Plan.

BEER BREWING COURSE
Cemex partners with Heineken to offer beer brewing courses in its community centers. These classes teach participants the craft of beer making, highlighting the use of **sustainable practices, while providing skills that could support local microbreweries, start small business and entrepreneurship**.

SUSTAINABLE SELF-CONSTRUCTION COURSE
This course, offered in Cemex Community Centers, **teaches local residents how to build and renovate homes sustainably**. The curriculum focuses on self-construction techniques using environmentally friendly materials and practices, **empowering communities to improve their living conditions**.
- Workshop on markets**

Cemex and Heineken México, together with the government and Regenera, organize **workshops in local markets in Mexico City to raise awareness** among citizens and merchants about sustainable practices, **waste management, and food waste reduction** through interactive activities and practical demonstrations.
- Volvo Electric Trucks for Cemex supply chain**

Cemex partners with Volvo Trucks to **introduce electric trucks into its supply chain**. These vehicles, including heavy-duty electric concrete mixers, significantly **reduce emissions** and align with Cemex's commitment to sustainability. The trucks' efficiency and ability to recharge during breaks make them ideal for operations in Mexico.
- Regeneration of quarry**

The sustainable management and regeneration of exhausted quarries are essential for **reducing environmental degradation and protecting biodiversity**. Restoration efforts, including reforestation and habitat recovery, help reintegrate these areas into the natural ecosystem, promoting long-term ecological balance and sustainable resource management.