

CLIMATE RESILIENT AND INCLUSIVE CITIES PROJECT

Triangular cooperation between Europe | South Asia | Southeast Asia

POLICY RECOMMENDATIONS

Topic 1: Sustainable Metropolitan Urban Development

- Strengthen climate-dependent measures for the city to adapt to floods.
- Develop patterns for Sustainable urban design to cope with the city's urbanization (including sanitation, slums).
- Strengthen Green spaces/RTH reforestation, adaptive buildings, water catchment areas.

Topic 2: Circular Economy and waste

- Develop a joint program with NGOs, the population and businesses on waste management to avoid illegal dumping and water pollution.
- Increase the collection of waste.
- Increase composting sites and work with fishers to reduce coastal abrasion and the depletion of the ocean.

Topic 3: Early Warning systems

- Improve and renew the early warning systems for disasters (Web Receiver, WebGIS, radio channels).
- Develop smart technologies.

Topic 4: Water and Sanitation

- Find technology solutions for the use of groundwater.
- Develop cooperation to ease investment in sanitation.

Policy Brief based on the Urban Analysis Report for the city of Cirebon

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Key Features

- Cirebon city is a coastal city located in West Java.
- It is faced with sea rise and access to clean water (low groundwater and seawater intrusion).
- The city is developing as a Metropolitan area with related challenges (spatial planning, density, building regulations, but also the conversion of paddy fields into industrial and residential areas).
- The illegal dumping of waste had hampered the success of past restoration programs.
- Cirebon is in a high disasters risk area. The city is working on drainage for floods and is having a disaster management program.
- Smart technologies are potential.

Key Numbers

- Population: 319 312 inhabitants (2019)
- Surface: 37.35 km² divided into 5 district areas
- Density: 8.547 inhabitants per km²
- Population growth: 0.9% in 2019
- Unemployment rate: 9.06 (2018) % (11.02 in 2014)
- Poverty rate: 8.88% in 2018 (10.36 in 2015)
- Life Expectancy: 72,13 years (2019)

Key numbers on the environment:

- Air Quality Index: 68,58 (61 on-air quality-com)
- Waste generated (2019): 900 m³ /day (750 m³ /day transported to the landfill)
- Water Quality Index (IKA) 56,92: moderate pollution index
- 176,844 motorcycles
- 37 558 cars
- 15 530 freight cars (2020)



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Further analysis

The Urban Analysis Report identifies several key problems, challenges, and Opportunities in priority sectors:

1. The development of Cirebon city as a Metropolitan area is leading to concerns in land use (the paddy fields are converted into residential and industrial areas, leading to threats for agriculture and food safety).
2. Although the air quality is considered as acceptable, AQI 68,58 (61 on air quality-com). The health agency describes many cases of diseases caused or aggravated by air pollution (acute respiratory infections, pharyngitis, hypertension), or by water pollution. The coal loading and unloading in the Port of Cirebon are factors increasing air pollution.
3. The urban design in the new metropolitan configuration needs to integrate green spaces, drainage, access to clean water and sanitation.
4. There is a program on the restoration of coastal seas in Cirebon City (Asian Development Bank, the Ministry of Finance, the Ministry of Public Works and the Housing Republic of Indonesia). Coastal communities are faced with the depletion and destruction of marine ecosystems (and need to resettle in informal settlements). The positive results of this initiative could be replicated to other cities.
5. The total area of mangroves is 4.5 ha (in drastic decline since 2016), and the coastal areas are at risk.
6. Cirebon is located in a high disaster risks region (score 172.6 on the Indonesia's Disaster-prone index). The city is faced with floods, fires, extreme weather events, drought, and earthquakes. The city does not have a dedicated disaster early warning system but is working actively on drainage as an adaptation of flood control.
7. There is a potential in reforestation, green and blue economy, smart technologies, and coastal rehabilitation.
8. The data on waste is not yet available.
9. There is an opportunity to improve the smart technologies for the early warning systems, as they currently mainly rely on emergency number 112 and 119.
10. The access to electricity covers 80% of the territory. Further development can occur in biodiesel energy.
11. The use of groundwater as a source of clean water cannot meet the community's needs as it is brackish water, but only 3,84% of households do not have access to clean water.
12. There is a lack of wastewater network infrastructure (sanitation). Waste management is an issue, from the collection to the management.
13. There is a current program to rehabilitate slums.



Policy recommendations

Recommendations on Air Quality – [Pilot4DEV](#)

1. Assess the impact of the coal stockpiling in Cirebon's Port on air quality levels.
2. Strengthen the air quality monitoring schemes (increased number and coverage of AQMS stations).
3. Map the pollutants (by deploying low volume sampling systems measuring PM 10 and PM 2,5).
4. Create a health monitoring system and preventive solutions for the vulnerable population.
5. Develop vehicles emission tests as a future green investment opportunity.
6. Invest in mass transit transportation and in green lanes (for bikes, sidewalks for pedestrians).
7. Develop an Awareness Raising program aimed at the population on the impacts of traffic.
8. Invest in Green plantations able to absorb pollutants and work jointly with the land planners.

Recommendations on Waste Management - [ACR+](#)

1. Raise the awareness and implement educational activities in communities about waste management are crucial, engaging the whole stakeholder ecosystem with special efforts to be given towards reaching women. Special importance to be directed to the city districts producing the highest amount of waste per capita.
2. Intensification of cooperation between relevant actors towards to decrease the amount of marine litter on the seashore.
3. Prioritize the management of the organic fraction, implementing source-separated collection schemes and valorising the treatment output (e.g. compost, digestate, biogas). Local markets and commercial areas should be put in the focus.
4. Providing support to urban farming initiatives and community composting activities.
5. Implement source separated collection schemes for recyclables (e.g. packaging), taking into consideration the role of the informal sector. Explore the possibilities of further enhancing of waste bank and 3R TPS programs to minimize the amount of waste that ends in the landfill. Efforts towards increasing community participation are necessary.
6. Further strengthening of existing waste management policies, especially concerning household waste management. Introducing incentives and rewarding schemes for waste prevention and source separation.
7. Technical guidance and training to improve knowledge and skills of employees in waste management operations.
8. Investments in proper maintaining of the existing landfill and TPS mobile (temporary landfill); modernization of existing truck fleet.
9. Implement the life cycle thinking in waste management, by going beyond the weight-centred approach. This may help to address the priority sectors assessing different impact categories (GHG emissions, land use, water consumption, etc.) and designing specific actions focused on waste prevention and reuse.

Policy recommendations

Recommendations on Governance and Links with Civil Society - [ECOLISE](#)

Continue the work towards more healthy livelihoods, by implementing and strengthening bottom-up approaches (such as the [Musrenbang](#)) and connect these with the local authorities, putting in place a clear and efficient channel of communication between the two. Suggestions and examples of methodologies to achieve this by:

1. Trusting your people and their creative power to solve simple issues and to self-organize in order to co-create with the local authorities.
2. Identifying the local natural leaders of the community (citizens, associations, ...) and assisting them in mobilizing citizens participation in the communitarian planning sessions, paying attention to the importance of diversity (ethnic, ideology, religious, age, gender, disabled).
3. Building trust among neighbors and building their capacity to engage actively in the development planning of their neighborhood by sharing and helping implement organizational and decision making tools such as [Sociocracy 3.0](#) and [Open Space Technology](#).
4. Invite and hire external facilitators to guide these community meetings, especially in the first years. Once the culture of meeting collaboratively is in place the community will take the facilitation in its hands not requiring the external input.
5. Consider the support and implementation of regular [Citizen's Assemblies](#) (3-6 per year).
6. Include children in the planning process partnering with schools, conducting regular gatherings (3-6 per year for example) to discuss their needs and desires for their villages/city. Example of [Children's Parliament](#) in India using Sociocracy.
7. Consider support and creation of regular inquiry and reflection gatherings for women only in order to create a safe space for them to speak freely.
8. Create in the municipality the role of a "Civil servant of the citizens" - Someone whose sole function would be to interact regularly with the citizens, attend and support these meetings and communicate developments to the local government.
9. Identify and invite local NGOs (eg. Wadul Bae, Rumah Zakat Cirebon, KSM Secerah Pagi, KSM Mawar Merah, BPK Orang Indonesia, Forum Peduli LH dan Budaya, Youth Entrepreneur Studio) to work regularly with your municipality using the [Municipalities in Transition system](#) aimed at bringing systemic thinking and better collaboration between the two for sustainable development.
10. In your community involvement for green open space development include the organization of celebration and leisure activities. Designate these public spaces outdoor and others indoor for the formal meeting.
11. Establish good communication channels with neighboring municipalities and territories, so that there is a general overview and understanding of common issues, cooperation in the prevention of disasters and facilitate the replication of good practices. Create or strengthen Intermunicipal Forums or networks that meet bimonthly. [Ecoregions](#) is a good example of a model that tackles local culture, ecology and economic issues around agroecology.

Tool specific proposals

It is proposed to work jointly with the partners to **improve municipal waste management and the circular economy (ACR+)**, but equally to work with the partners on the other priorities (governance and coordination (UCLG ASPAC), drainage and sanitation (ECOLISE), disaster risks and early warnings, smart technologies (UGE), air pollution, coastal areas, civic engagement and sustainable urban design (Pilot4dev), and the funding opportunities (AIIISG).

Areas for further research, indicators and expertise needed

The project could develop capacity building in governance and the coordination of stakeholders (including experience from past NGO programs).

The CRIC partners could investigate further how to develop expertise on urban design adaptive to climate change and especially floods, as an additional activity.

The project could seek additional funds to clean the river water and develop environmental awareness programs with both communities and businesses.

Finally, the partnership could look at the restoration of the coastal areas in cooperation with existing programs.

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