CLIMATE RESILIENT AND INCLUSIVE CITIES PROJECT

Triangular cooperation between Europe | South Asia | Southeast Asia

POLICY RECOMMENDATIONS

Topic 1: Sustainable Urban Design
- Invest in measures to counter the heat island effect (green roofs, construction material absorbing heat and resilient to floods).
- Develop patterns for Sustainable urban design to cope with the city's growing urbanization.
- Strengthen Green spaces/RTH and green lanes as well as mass transit transportation.

Topic 2: Waste management
- Develop a program to stop illegal waste dumping from businesses and population.
- Increase the share of recycling.
- Increase composting sites and work with local markets.

Topic 3: Early Warning systems
- Develop early warning systems for forest fires.
- Develop early warning systems for floods.
- Increase the coordination work between agencies.

Topic 4: Water sanitation
- Develop infrastructure in access to clean piped water.
- Develop programs to clean the water rivers.
- Awareness raising on the environment to counter water pollution.

Co-Funded by the European Union

CLIMATE RESILIENT AND INCLUSIVE CITIES

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

Pekanbaru

Coordinated by: PILOT4DEV
Contributors: Dr. Pascaline Gaborit, Danko Aleksic, Paolo Marengo, Sara Silva, Kamlesh Kumar Pathak
Reviewers: Asih Budiati, Putra Dwitama and Herdianti Thamrin
Emmanuel Rivéra, Prof. Youssef Diab, Abhishek Mishra
Date: 23 November 2020

Key Features

- With a population of over 1 million, Pekanbaru is a large economic center in the center of Sumatra.
- The city faces disaster risks from floods, forest fires and haze.
- Air pollution, but also waste management, sustainable urbanization and prevention from disasters can be considered as priorities.

Key Numbers

- Population 1,212.727 inhabitants (2019)
- 632 km² comprising 12 sub districts and 83 villages
- Density: 1.808 inhabitants per km²
- Population growth: 1.9% per year
- Economic growth + 6.01% (2019)
- Unemployment rate: 8.42%
- Human Development Index: 81.36 (high)
- Life Expectancy: 72.22 years
- Poverty rate: 2,52%
- 113,56 ha of slum settlements
- Waste generated (2018): was 403,757 tons/year (27% is not managed)

Key numbers on the Environment:
- Number of vehicles using fuel/gasoline: 1 504 769 units
- Number of vehicles using diesel fuel: 31 163 units
- Length of existing roads: 3 079 61 km
- A coal plant in under construction
- Forest fires in 2015 with reduction of forest territories from 230.25 ha to 49.78 ha

Further analysis

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

1. Climate adaptation and Disaster risk reduction: Pekanbaru is vulnerable to flooding and forest fires (haze, reduction of ha of forests). An improvement of early warning systems could be developed, including with GIS technologies (while the evaluation and response are already implemented).

2. The Air Quality Monitoring system is not sufficient, and adequate responses should be sought.

3. Development of a program to stimulate environmental and climate awareness is also considered important.

4. Access to drinking water is a problem (7% access to pipe water, leakages, quality control). There is a need to repair networks, and to develop a customer complaint system, to improve the pricing and the capacity building of the locally owned water company).

5. The pollution of water is caused by a discharge of waste from both the inhabitants and the industry.

6. The air pollution is caused by forest fires (hazes) but also transportation (increase in road numbers and individual vehicles).

7. Develop capacity building in clean energy could have very strong potential.

8. Develop capacity for sustainable use of resources (involvement of communities in waste management) would equally be an interesting opportunity.

9. Another asset would be to work with the communities on waste management (e.g. Create a women group on waste management).

Recommendations on Air Quality - Pilot4DEV and AIILSG

1. Strengthen the air quality monitoring schemes (Deployment and increased coverage of AQMS stations. Cities like Pekanbaru could deploy more diverse and effective measuring and monitoring system with sensor technologies[1].
2. Map the pollutants (by deploying low volume sampling systems measuring pollutants as well as particle matters PM 10, PM 2,5).
3. Prevent forest fires with early warning systems, and create a health monitoring system and contingencies for the vulnerable population before and after the forest fires. The CRIC project will encourage local governments and cities on the enormity and risk profile of air pollution, because of the forest fire-induced air pollution. Studies could be commissioned, and programmes can be formulated
4. Re-start the moto vehicles emission tests (seed funding). Vehicles, being a major contributor to the air pollution-induced deaths, the recent adoption of vehicle emission and fuel quality standards needs to be enforced, and regular inspection shall be done for the adulteration.
5. Work with the Energy production companies, including the coal energy plant under construction.
6. Invest in mass transit transportation and in green lanes (for bikes, sidewalks for pedestrians).
7. Develop an Awareness Raising program with the population on the impacts of traffic.
8. Develop an Awareness Raising program with the industry and with the businesses.
9. Invest in Green plantations able to absorb pollutants and work with the land planners and designers.
10. Distribute of masks during the pollution peaks, and early warning to the population (to avoid violent physical exercise).
11. In view of the expansion of cities and continual construction activity, city government and authorities need to enforce more strict measure to reduce dust pollution.

Recommendations on Waste Management - ACR+ and AIILSG

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.

2. Community composting is a promising action to be further developed. Resident and community-based associations shall be encouraged to plan " decentralized waste management". Waste Pickers need to be encouraged to work with citizens and local government to create a more formal and structured economy.

3. Prioritize the management of the organic fraction, implementing source-separated collection schemes and valorizing the treatment output (e.g. compost, digestate, biogas). Local markets and commercial areas should be put in the focus. Solutions which could completely eliminate waste and turn it into safer products could be encouraged. Generating local supply of heat, power and cooling by introducing innovative technologies could be promoted.

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[1] . Indonesia being 4th largest country affected by air pollution mortality.

4. Implement source separated collection schemes for recyclables (e.g. packaging), taking into consideration the role of the informal sector. Integration of technologies and best practice could be piloted to measure the effectiveness of innovation and promote technology and knowledge transfer among European and Indonesian stakeholder and companies.

5. Engage local communities in understanding the benefits of the source separation, in order to raise acceptance about the collection points that have to be kept cleaned and well maintained. In some areas, door to door collection schemes could be implemented. These aspects may be integrated into the Clean City Program (ADIPURA) and the city 2018-2025 Waste Management Strategy.

6. Include specific resilience requirements in the technical specifications and selection criteria of the tenders to procure waste collection services.

7. Revise the local taxation on waste management, introducing incentives and rewarding schemes for waste prevention and source separation. More robust strategies and the diverse economic instrument could be suggested to encourage the waste-based circular economy.

8. 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.

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 neighbours and building their capacity to engage actively in the development planning of their neighbourhood by sharing and helping implement organizational and decision-making tools such as Sociocracy 3.0 and Open Space Technology (Community and Village empowerment).

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 the 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 regularly interact with the citizens, attend and support these meetings and communicate developments to the local government.

9. Identify and invite local NGOs to work regularly with your municipality (eg. Wahana Lingkungan Hidup Indonesia or Jikalahari) using the Municipalities in Transition system aimed at bringing systemic thinking and better collaboration between the two for sustainable development.

10. Create or designate public spaces outdoor and indoor for these formal meetings and for leisure activities.

11. Establish good communication channels with neighbouring municipalities and territories, so that there are 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. These can follow, for example, the model of the Eco District or Green City program but including cultural and economic issues. Ecoregions are a good example of a model that tackles local culture, ecology and economic issues around agroecology.
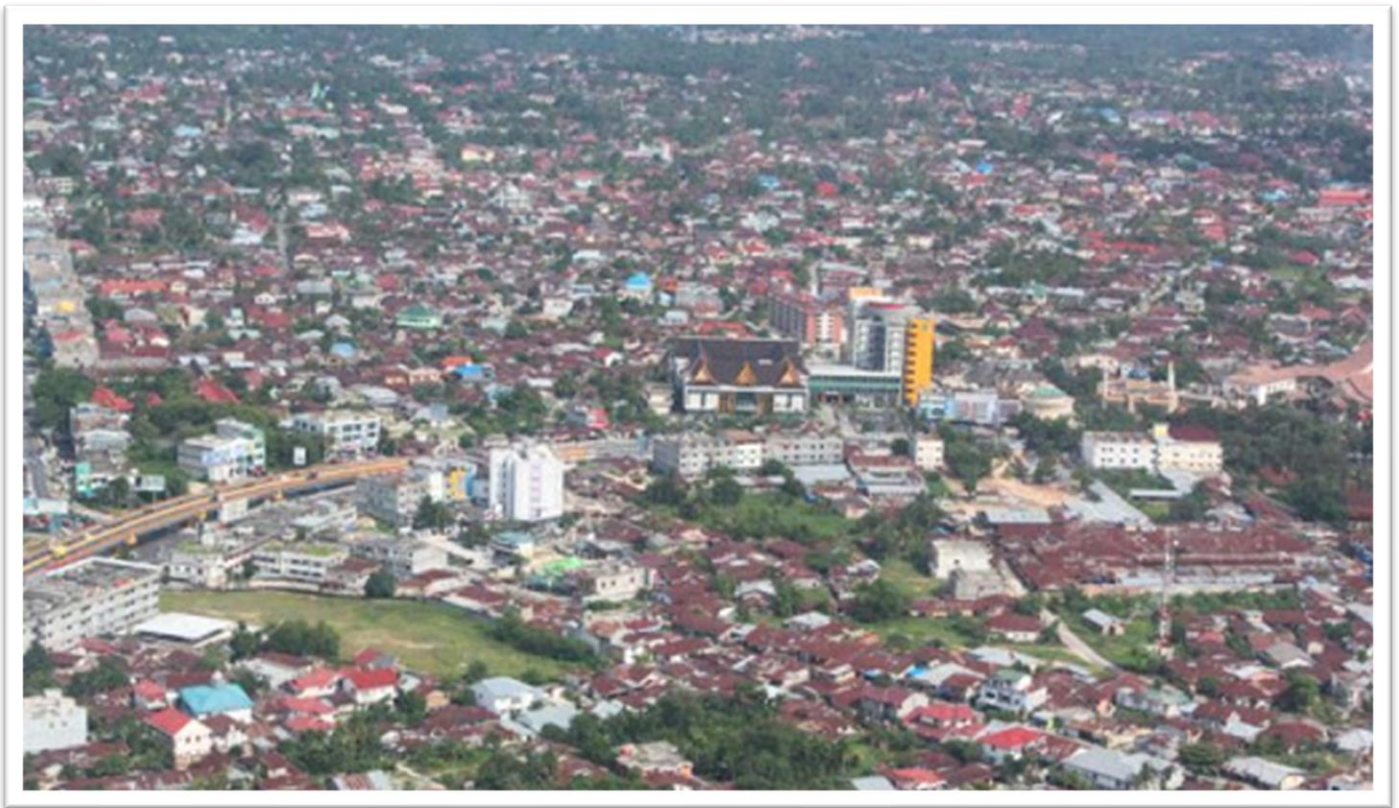
Tool specific proposals

The city will be working **on municipal waste**. It can benefit from the expertise of ACR+ in this field, as well as from the complementary expertise of the other partners, on early warning systems (UGE), air pollution and sustainable urban design (Pilot4dev), Funding seeds (AIILSG) water and sanitation (ECOLISE) and the engagement with all the stakeholders (all the partners).

Areas for further research, indicators and expertise needed

The CRIC partnership could:

- Develop capacity building in clean energy schemes, and in water management.
- Develop expertise in sustainable urban design.
- Develop GHG inventories, including the emissions from industry.

- Seek additional funds to clean the river water and develop environmental awareness programs. A more ambitious programme can be designed based on the learnings from other Asian countries ex: India, Clean Ganaga Fund (https://nmcg.nic.in/CleanGangaFund/index.html)
- Make a market analysis in the development of green jobs.