Surabaya, Indonesia

Mangrove conservation through partnership for multiple co-benefits

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Surabaya Municipality initiated a mangrove planting program to stop environmental degradation in the eastern coast area. Through a multi-stakeholder approach, a Mangrove Conservation Area has been created that is accessible to the public for education, research and development, and eco-tourism.

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Abstract

Being Indonesia's second largest city, Surabaya faces many urbanization challenges typical to large and growing cities around the world, such as land-use conversion, pollution management, and deforestation. Ongoing development activities in Surabaya have led to the gradual decline of open green space and a reduction of the ecosystem quality in its coastal areas. This partnership approach to mangrove conservation illustrates how the conservation concept can be applied to Pamurbaya (Pantai Timur Surabaya or The Eastern Coast of Surabaya). It acts as a learning model for the local education curriculum to further educate school children about the importance of biodiversity and ecosystem services. The general public can benefit from the recreational area and appreciate the nature with its aesthetic values. The Partnership Based Mangrove Conservation Area is about multi-party efforts to conserve mangrove ecosystem in the Eastern coast of Surabaya. It included the Surabaya city government, the private sector, the communities in four villages in the area, NGOs, and local universities.

Population / Land area
~ 2.9 million (2008) / 374 km^2

Municipal budget
Approx. IDR 4,185 billion (2010)
(US$ 400 million)

Surabaya joined ICLEI in June 2004

Addressing the challenges of urbanization

Big cities like Surabaya in Indonesia face many challenges associated with urbanization including land-use conversion, water and waste pollution, and deforestation. In Surabaya, situated along the coast, the decline of the quality of the ecosystems has affected the surrounding fish habitats and fisheries. Without preventive measures, this will have a negative impact on the livelihoods of the coastal communities. Also the risks from natural disasters such as tropical storms, floods and tsunamis can increase.

The area is an estuary of six rivers that pass through Surabaya city. The meeting point of these rivers and the sea, the brackish water, is a resourceful habitat for mangrove forests. It is estimated that there are a total of 15 species of mangrove in Pamurbaya. Mangrove trees, being the native plant, play a key role for the sustainability of the ecosystem and its services, while stabilizing sand and mud in brackish waters.

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Case Study

City context

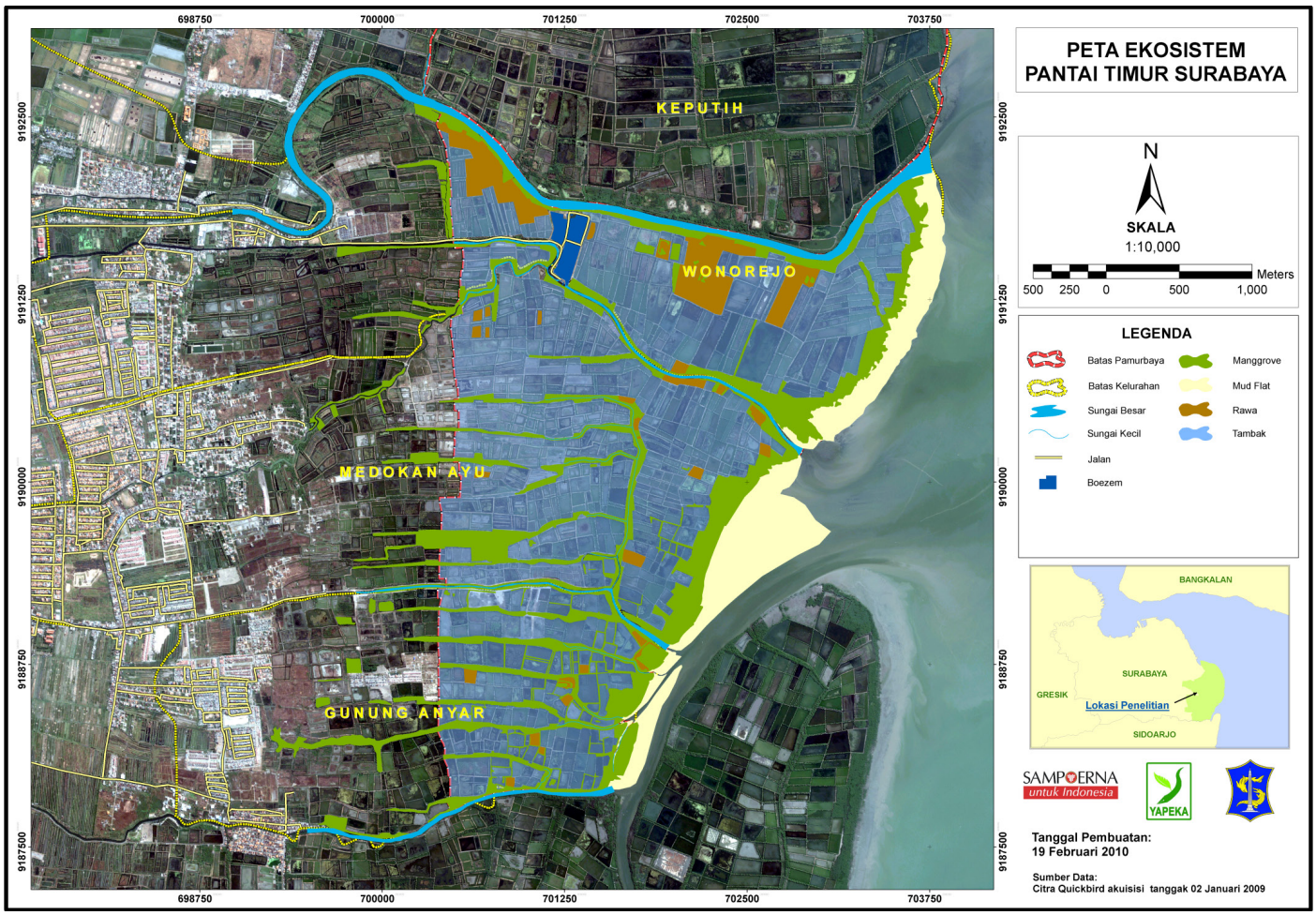
Surabaya is the capital city of East Java Province and is situated along the coast in the center of Indonesia. The population was about 2.8 million in 2008. The major ethnic groups include the Javanese (84 percent), the Maduranese (7 percent), Chinese (7 percent), Arab (2 percent). Surabaya city consists of 31 sub-districts and further divided into 163 villages.

Surabaya prides itself as a center of trading with one of the busiest ports in Indonesia. Surabaya's economy is also growing as result of the completion of the Suramadu Bridge in June 2009 which connects Java and Madura Island.

Pamurbaya (Pantai Timur Surabaya or The Eastern Coast of Surabaya) is situated on the eastern side of the coastal area with a land area of 2,500 hectares. Pamurbaya is an estuary of six rivers (Kebon Agung, Medayu, Jagir, Kalimas, Bokor, and Dami) that go through the city and that constitute an extended area of brackish water.

Surabaya City government started mangrove tree planting in 2004 and in late 2008 it adopted concrete measures as a conservation initiative. The Mangrove Conservation Area is part of the city's ambition to allocate 30 percent of their area to open green space, in accordance with the national Act no. 26/2007 on spatial planning.

Photo: Courtesy of Agriculture Unit, Surabaya city government



Map of Pamurbaya area in Surabaya.

Surabaya's Spatial Plan Regulation aims to protect the status of Pamurbaya as a

Mangrove Conservation Area. 871 hectares or one third of the area is allocated specifically to the Mangrove Information Centre for Research and Development (R&D).

Framework, conditions and mobilizing support

In the absence of coherent planning and development goals for this land area of 2,500 hectares, a collective multi-stakeholder approach was necessary to bring affected and interested parties to develop a common and holistic approach to mangrove conservation.

Making the case for conservation. To undertake initial assessment of the potential of Pamurbaya, the city government engaged the private sector, PT. Sampoerna Tbk, which shared a similar concern. The work was outsourced to a local conservation NGO, The Nature Conservation Learning Foundation (YAPEKA), to carry out a feasibility study in March 2009. Based on YAPEKA research findings and recommendations, the government agreed to assign 871 hectares of the whole area to be the Mangrove Information Centre (MIC). Considering the rich biodiversity of its flora and fauna, Pamurbaya is currently developed also to include a place for a biological laboratory for research and development, as well as education and recreation.

Multi-stakeholder consultation. Through close consultation with various stakeholders, YAPEKA brought together local officials, universities, schools and diverse community groups from the four villages to jointly undertake the design and planning of Pamurbaya since early 2010. This includes the identification of an institutional arrangement that fits with Pamurbaya's specific context. The community-based participation in the development of Pamurbaya is the innovative part which signifies the ownership and accountability of its management. The Mangrove Conservation Area's specific mission and institutional model are expected to be finalized by the end of 2010.

Strengthening the supporting regulations. To strengthen the conservation area, the local government is currently revising its Spatial Planning Regulation to clearly outline zoning for rehabilitation and conservation purposes, including Pamurbaya. In a parallel effort, the city government is advocating a change of Pamurbaya status to protected forest area by the Ministry of Forestry since May 2009. Once approved, the area will have a stronger legal basis for its existence, both at the local and national level.

Building collaboration. In good collaboration the involved parties have jointly built simple infrastructures such as monitoring towers, food stalls, traveling boats and road access to Pamurbaya. The public can now access Pamurbaya for bird watching, cruising around the river with boats, take pictures, or even just enjoy the sunset at the monitoring tower for IDR 50,000 (or approximately US$ 6) only. It is expected that while having leisure time, the public can also learn about the importance of conservation and appreciate what nature offers.

Empowering. The provision of an empowerment program for the villagers who have been living in Pamurbaya for decades and the designation of Pamurbaya as a protected area will enable them to keep their income and secure their livelihood. Part of YAPEKA program will also provide technical support and/or training to the local people. Interested farmers will receive silvo-fishery training, a friendly fishing method which will enable them to attain maximum output without destroying the natural habitat and ecosystem.

Local livelihoods

The majority of the villagers live as fishermen, fish/prawn farmers and some are construction workers. Only a few people own the lands and build their own traditional aquaculture ponds to breed fish, prawns and crabs. Many local people make their living from cultivating private lands and ponds. The total area of Pamurbaya has grown from 1,398 hectares in 1972 to a total area of 2,534 hectares in 2009.

Survey results

Based on the latest survey in 2009, it is estimated that there are 15 mangrove types, 137 types of birds, 7 mammal species, and 53 insect groups in Pamurbaya. Common animals that can be easily seen include: long-tail-monkeys and their colonies (*Macaca Fascicularis*), phyton snakes (*Phyton Reticulatus*), a range of birds (*Cyornis Rufigastra, Centropus Nigrorufous*, etc). Pamurbaya even hosts several migrant birds from the Pacific area during summer and autumn.

Photo: Courtesy of Agriculture Unit, Surabaya city

Mangrove forest area in Pamurbaya.

Results and impacts of the project

The multi-stakeholders partnership of the mangrove conservation area in Pamurbaya has had positive impacts beyond just conserving biodiversity and the ecosystem.

Building community trust. The government's openness and commitment to further pursue the protection of Pamurbaya has earned community trust, which is an important element in embracing good governance in the area. The political will of Surabaya city government will be further strengthened once the local regulation is formalized.

Increasing awareness and understanding. To date, Pamurbaya receives regular visitors to the mangrove planting programs carried out by schools and universities, government officials, state owned enterprises, private sectors, among other. An increase in public awareness on the importance of the conservation efforts has been achieved.

Restoration of mangrove and forest areas. A restoration of mangrove and its forest areas is anticipated. Although there are now recent data available on the development of identified species in the Pamurbaya, general observation confirm that it is very likely that the number of species present will grow over time.

Lessons learned

Need for a comprehensive spatial and land use plan. Multi-stakeholder cooperation and strong political support by the local authorities were key to achieving a regulatory framework that protects the designated conservation area. A comprehensive spatial and land use plan which is integrated into the city's long term vision is an important point of reference. The spatial and land use planning regulation (PERDA RTRW) for the years 2009 to 2029 is expected to be completed by end of 2010. Once formalized, each stakeholder has a clear framework and can work in a more coherent manner.

Close coordination for stronger synergies. The promotion of an open green space and a conservation program despite the fact that Pamurbaya covers only seven percent of the total Surabaya area requires close coordination between relevant local government units (LGUs) to minimize overlapping programs and strengthen synergies within the Surabaya municipality.

Partnership and stakeholder based planning, implementation and monitoring. Institutional arrangements that support cooperation and partnerships are important to facilitate various interests towards sustainability. An assessment helped to determine which institutional model fits best into the context of Pamurbaya and what roles and contributions the individual stakeholder can assume.

Taking interest seriously. Interest of local communities needs to be taken seriously. Their livelihoods must be protected and they need to be capacitated to

improve their welfare in a sustainable way. Another important point is related to land entitlement of private developers who currently own 70 percent of the land. As changes to the land status put an end to land development in these areas, multi-stakeholders' dialogues were required to facilitate the process of developing a common understanding among all parties.

Monitoring. Continuous monitoring of Pamurbaya's water quality is an important factor. The pollution level of water in Pamurbaya is a good indicator to measure the success of the overall conservation efforts. The 2009 report prepared by YAPEKA suggested that Pamurbaya's water quality is currently categorized as averagely polluted.

Continuous public awareness raising, education and environment focused advocacy. Part of YAPEKA facilitation program, with the funding agency Sampoerna, is also to engage the local education unit in Surabaya city to introduce environmental programs to school children. It is a strategic move to integrate conservation efforts into schools' curricula so young people can learn to appreciate and understand the importance of their environment and species living in those habitats. Changing peoples' perspective and introducing a 'new' culture of responsibility for the environment is a long term effort that requires joint efforts by all stakeholders. People need to change their behavior in order to contribute to a healthy ecosystem. Media involvement and capacity building for journalists are further measures that guarantee the overall success of the conservation program.

Replication

Development of a comprehensive spatial and land use planning which indicates potential rehabilitation or conservation sites. A clear concept supported by a cost-benefit analysis can be an effective tool for the government in the decision-making process. The analysis will lay out a strong justification for the resources and support required from various stakeholders.

Consultation with multi-stakeholders in designing the concept, strategic planning, roles and responsibilities ensures that responsibilities are shared and developed in a transparent and accountable manner. Joint partnership approaches generally attain a higher success rate if the various interests that are involved are carefully facilitated and integrated.

Paying attention to the uniqueness of conservation areas. Each context requires a specific strategy and approach. It is therefore important that a team of technical experts undertakes a feasibility study for the area. A study could provide the stakeholders for instance with an overview over the native species to avoid that new ones do not necessarily fit into the area are being introduced. Based on the analysis and recommendations provided, the required resources can be assessed accordingly. The availability of funds may determine the scope and output, in different stages when required.

Budget and finances

Pamurbaya is funded by a number of sources. Surabaya city contributed a big share to the infrastructure such as walking treks, entrance road and welcome area. The community and police partnership forum (FKPM) provided a small port, basic food stall around the port, and three monitoring towers as part of the public facility. Villagers obtain extra income from running small group tours with their own simple cruising boats. Sampoerna, a private company, sponsored a

feasibility study, concept design and the institutional model that was undertaken by YAPEKA. The total initial investment is estimated to be less than IDR 3 billion (approximately US$ 275,000).

Local Action for Biodiversity

The Local Action for Biodiversity (LAB) program is a global urban biodiversity program coordinated by ICLEI - Local Governments for Sustainability´s Global Biodiversity Centre, in partnership with the International Union for Conservation of Nature (IUCN). The LAB Pioneer program began in 2006 with a selected group of local and regional authorities from around the world, representing over 54 million citizens. The program provides an accessible and enabling platform for committed, leading local governments from around the world. This is achieved by profiling and promoting the importance of urban biodiversity and the role of local governments in its management, as well as by sharing the experiences, successes and challenges of urban biodiversity management in the participating cities and local authorities.

ICLEI provides guidance in assessment, planning and implementation; strategic networking opportunities; profiling opportunities for the participating local authorities at global and regional events; and creates a platform for local authorities to contribute to global advocacy on biodiversity issues.

www.iclei.org/biodiversity

Sources

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