

technical
solutions



Indonesian Red Cross Society (PMI)

Indonesia, 2017

Helping Tugu Utara Village deal with waste

Keywords

Garbage, mitigation,
river conservation.

Introduction

The Flood Resilience Programme (FRP) has applied a 'one river – one management' approach in Indonesia. It addressed impacts in the downstream community of Ciliwung (Jakarta) and also their causes further upstream in Bogor. One of the main issues upstream, based on a detailed assessment, is garbage and waste. To address this problem, the project set up a garbage processing centre in Bogor to reduce the volume of waste downstream, which has blocked water flow and caused flooding in the past.



Figure 1. The garbage processing centre, Tugu Utara.



Muhtadin/PMI Bogor

Figure 2. SIBAT members process waste plastic.

The problem and its context

Both upstream and downstream, the Ciliwung River is in very poor condition, because large volumes of domestic waste are dumped in the river and because land use (urban settlements downstream in Jakarta, and hotels and villas upstream in Bogor) is inadequately regulated. Garbage increasingly causes flooding by blocking sewage and drainage systems (Pojok Jabar, 2016). Garbage piled up in inappropriate places or thrown into the river is also a danger to health: it is an ideal breeding ground for bacteria, causes air pollution and respiratory diseases, and contaminates ecosystems.

A baseline survey by the FRP revealed that Tugu Utara, a village in the Bogor Regency, lacked a sound waste management system. 70 percent of respondents reported that they put their garbage into the river. A solution was urgently needed. The option chosen was to build a community-level garbage processing centre. This has benefitted the village and, by reducing upstream garbage, lowered flood risks downstream. The centre has promoted a cleaner environment, changed public attitudes to garbage, and reduced river pollution.

How

To begin with, the Indonesia Red Cross (Palang Merah Indonesia, PMI) in Bogor met local authorities to identify a suitable site. Local authorities provided the land required, and the centre then took three months to build and equip. In parallel, PMI Bogor established a village-level garbage management group, consisting of Community Based Action Team (SIBAT) members, community representatives, volunteers, and local civil society organisations, including the women’s association. For one month, PMI ran a community information campaign on the correct way to dispose of rubbish.

The centre is equipped with a 3-wheel garbage truck and is managed by local volunteers, SIBAT members, community representatives, and the local government. They have received training, including on how to sort the garbage, operate the machinery and manage the centre’s activities efficiently. PMI Bogor and the local government signed a memorandum of understanding with Majestic, a local plastics company, under which Majestic purchases all the plastics produced by the centre. This revenue helps to cover the cost of operating the centre. Income is also derived from selling organic fertilizer.

The resources needed to replicate this activity are listed below:

1 building for garbage processing
4 compost rooms
3-wheel garbage truck to bring household waste to the centre
1 plastic crusher machine
1 organic crusher machine
1 generator plus gasoline
Storage space for garbage (based on population)
4 staff
1 business plan and marketing training
1 garbage product certification
1 bank account
Garbage scales, gloves, masks

In addition to the income from the side-products of processing, the community sells handicrafts made from the garbage.



Figure 3. Processing organic waste in Tugu Utara.

How the project has promoted resilience: case-study

Tugu Utara is among the villages in Bogor District that are most prone to natural disasters. With an area of 1,700 hectares and a population of 3,220 households (16,100 individuals), it is located on the upper reaches of the Ciliwung River and in 2015 alone was flooded four times and suffered three landslides. People throw garbage into the river or dump it on the riverbank, which has created growing risks as the population has risen. Because its soil is unstable, the area is very prone to landslides after heavy rain. Despite local perceptions, the floods and landslides are principally caused by the narrowing of the river bed as a result both of dumping and encroachments on the river area.

To address the lack of a refuse disposal system in Tugu Utara, the FRP built a community-based garbage processing centre. This cut the volume of garbage that entered the Ciliwung river, reducing the risk of floods downstream, and promoted environmental and river conservation.



Figure 4. Handicrafts.

Cost

Based on the case study, the cost was approximately IDR 219.402.500 (USD 17,000). The FRP Field Coordinator mobilized 30 volunteers who monitored the centre's construction, supervised by PMI Bogor, local authorities, and representatives from the village government. The farmers' association, youth organisation, and women's association also participated. Approximately 17 people were involved in constructing and monitoring the development process of the garbage processing centre. 1,218 households benefit from it.

References

Rianawati, E. and Sagala, S., *Communal Based Flood Mitigation Measures in Bandung City* (2014, Bandung, Resilience Development Initiative).

Pojok Jabar (2016). At: <http://jabar.pojoksatu.id/bogor/2016/10/03/yah-tumpukan-sampah-masih-kepong-hulu-ciliwung/>.



Figure 5. Garbage thrown into the Ciliwung River, Tugu Utara.

How we work

Strategy 2020 voices the collective determination of the International Federation of Red Cross and Red Crescent Societies (IFRC) to move forward in tackling the major challenges that confront humanity in the next decade. Informed by the needs and vulnerabilities of the diverse communities with whom we work, as well as the basic rights and freedoms to which all are entitled, this strategy seeks to benefit all who look to Red Cross Red Crescent to help to build a more humane, dignified, and peaceful world.

Over the next ten years, the collective focus of the IFRC will be on achieving the following strategic aims:

1. Save lives, protect livelihoods, and strengthen recovery from disasters and crises.
2. Enable healthy and safe living.
3. Promote social inclusion and a culture of non-violence and peace.

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