Urban Action Kit

Urban Action Kit

TABLE OF CONTENTS

Foreword

For most of humanity the future involves living in cities. Approximately five and a half billion people will live in cities by 2035, with almost all the urban growth occurring in East and South Asia and Africa. This presents both opportunities and challenges. Rapid growth, if unplanned, will increase the number of people exposed to disasters, diseases, the impacts of climate change, and other hazards. The urban poor will bear the brunt since they tend to live in high-risk areas with limited resources to protect themselves.

In parallel, other regions such as Latin America and the Caribbean, Europe and North America – already highly urbanized – face the day-to-day realities of disasters such as floods, droughts and extreme heat. The need for sustainable measures to build resilience is growing due to climate change.

Cities are centers of opportunity, culture, innovation and resources. Local government, communities, the Red Cross Red Crescent, the private sector, and academia can together foster sustainable, green and inclusive urban development.

This *Urban Action Kit* is intended to help civil society, especially Red Cross Red Crescent branches and their volunteers in urban areas, to strengthen resilience in their communities with simple, low-cost, do-it-yourself activities. Volunteers can champion these activities through existing resources, networks and community organizing.

In its seven modules the kit provides ideas for nature-based solutions, creative communications, urban agriculture, early warning early action, and more.

Urbanization is transformative. It catalyzes sharing of social, cultural and natural capital. And the path to sustainable urbanization starts with inclusive and scalable local action.

Jagan Chapagain
Secretary General,
International Federation of Red Cross and Red Crescent Societies

Introduction to the Urban Action Kit

The Urban Action Kit is a quick-start, low-cost, do-it-yourself guide to urban resilience activities that will increase a community-based organization's visibility and engagement on urban issues. Activities in the Kit require little to no funding; are short-term engagements; and use existing networks and skills.

The main audience for the guide are Red Cross and Red Crescent National Society branches and local community-based organizations (CBOs) based in urban areas. The user is interested in expanding their organization's presence in the city and is looking for ideas of simple, low-cost urban resilience activities that they can implement within existing, often limited, resources. We assume that they have access to volunteers, a basic knowledge of their city and familiarity with key concepts such as: community engagement approaches, disaster management, first aid and community health.

The Kit contains a light introduction to urban concepts, followed by a series of six modules on: Creative Communications, Nature-based Solutions, Water Sanitation and Hygiene (WASH), Urban Agriculture, Health & Wellbeing, Early Warning Early Action, and Liveable Cities. Each module contains a short concept overview, a series of activities, brief case studies and a global link. Activities can be implemented together or alone.

This Kit aims to increase the breadth of urban resilience activities that the National Society branches and CBOs are implementing by using existing resources and capacities. It can also serve as a foundation to building partnerships with other urban actors and organizations; and, in some cases, may provide the basis of future funding for urban resilience projects.


BAKERY

Urban issues

Urban spaces are unique because of their high density as well as the existence of a set of complex and interconnected systems within them. It's therefore important to understand the urban system and how it functions.

The population living in cities – high-density places of at least 50,000 inhabitants – has more than doubled over the last 40 years, reaching 3.5 billion people in 2015. Together with another 2.1 billion people living in towns and semi-dense areas, the world's urban population will be around 5.6 billion people (62 per cent) by 2050. The United Nations estimates that 90 per cent of urban population growth will be in the small- and medium-size cities of developing countries in Asia and Africa. Cities are seen as centres of opportunity and engines of growth by many people, who move to live there despite the risks.

Rapid and unplanned urban growth increases the number of people exposed to the negative impacts of climate change and natural disasters.

Many of the world's largest cities are in deltas and highly prone to floods and other hazards due to the widespread use of impermeable surfaces, increased groundwater extraction and destruction of the natural environment. Climate change impacts such as increased rainfall, storm surges, floods, heatwaves and urban heat island effects are predicted to intensify over the coming decades. Longer term impacts, such as sea-level rises, are also projected.

In this module, we learn how to identify climate-related risks in cities and to map urban systems. It's designed to help identify how climate change and other shocks impact the resilience of city systems and the communities that depend on them.

Global link

Globally, city governments/municipalities are taking the initiative and collaborating as multi-city networks – such as C40 Cities and Local Governments for Sustainability (ICLEI) – to create carbon-free, sustainable cities.

The National Societies can leverage their auxiliary roles; and, working with local governments, contribute to city-level efforts by identifying and implementing community-based solutions to climate change.

Identifying climate-related risks in my city

Understanding the climate-related risks in your city is the first step towards managing those risks. This activity aims to encourage staff and volunteers to identify climate-related risks and barriers to community resilience in their city/district or neighbourhood (depending on the size of the city).

Steps

1. Form groups of 4–6 people and provide a printed map of the city for each group. Hand out 10–15 sticky notes to each participant.
2. Ask each group to discuss and write on sticky notes the risks faced by communities in different parts of the city. Then add the sticky notes to the map of the city (15 minutes). Note where the same risk affects people across the city – this is a city-level threat.
3. Ask each group to identify the top three risks related to climate change; to discuss whether these are city-level threats or specific to a geographical location; and to record this on their sticky notes. It may be helpful to think about the surrounding landscape of the city (i.e. delta, mountain watershed, floodplain, river basin etc.) in relation to climate risk. (15 minutes).
4. Ask the groups to consolidate the risks identified onto a single map. Consider combining the risks according to their scale (e.g. household, neighbourhood, community, etc.).
5. Identify areas where risks are concentrated by circling them and ask participants to reflect on whether and why the risks may be interconnected. (5 minutes).
6. Describe the results of the activity in a 1–2 page report which can be the starting point of a more detailed climate risk analysis aimed at improving the resilience of urban communities in a changing climate.

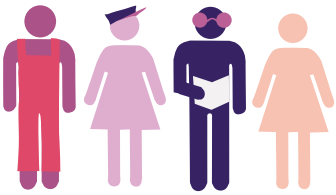
TIME
- 40 minutes

DIFFICULTY
- Low

RESOURCES
- Maps of the city
- Sticky notes
- Different coloured markers

PARTICIPANTS
- Staff and volunteers living in the city

NUMBER OF PARTICIPANTS
- At least 8 people



Identifying vulnerable communities

Identifying vulnerable communities is critical to understanding your city and the residents who may need the most help during a crisis.

This activity helps to identify communities in the city that are most vulnerable to different types of shocks. The activity focuses on affinity groups (groups of people with shared interests/experiences); for example, teachers, train drivers, people with disabilities, people who live in informal settlements, people who commute to work by car etc. An individual can belong to many affinity groups, whether formally or informally.

Steps

1. Bring together a team for conceptualizing. This could be your project team, representatives of key partners or a community focus group.
2. Ask each person to individually make a list of all of the affinity groups they can think of in your city. To help, think about people's occupations, daily activities, mobility and interests, for instance.
3. Ask participants to form groups of three to share and combine the affinity groups they have listed. Ask teams to consider if any affinity groups are missing, particularly those that are highly vulnerable to climate shocks, and add them to the list.
4. Ask the teams to assess whether each affinity group has a 'high', 'medium', or 'low' vulnerability to a particular risk e.g. flooding or extreme temperatures.
5. Ask the teams to share in plenary how they have ranked the different affinity groups. Have a discussion on:
   a. the differences between the teams' findings
   b. affinity groups that were only mentioned once.
6. In plenary, decide which affinity groups are the most vulnerable and therefore the highest priority for preparedness activities.

TIME
- 50 minutes

DIFFICULTY
- Low

RESOURCES
- Paper, pens

PARTICIPANTS
- Volunteers and staff

NUMBER OF PARTICIPANTS
- At least 6 people

Mapping urban systems

Cities are composed of highly complex systems such as markets, social networks and the built environment, including houses, buildings, roads and other infrastructure.
Urban infrastructure is closely connected to all of a city's systems. When infrastructure fails, it undermines businesses, local markets and services such as transportation, electricity provision and education.

In this activity we learn how to map urban infrastructure and systems. We also discuss how climate change and other shocks impact the resilience of these systems and the communities that depend on them. And we explore how you can use this analysis to plan actions that increase the resilience of urban infrastructure and systems to climate change and other shocks.

Steps

1. Form groups of 4–6 people. Each group either sketches a map of the city or works from an existing map.

2. Ask each group to identify the services they use in their daily lives, such as electricity/gas, water, public transport, health care, education etc. and add them to the map. Think about how each of these services relates to a system in the city; for example, electricity/gas and water are part of the utilities system; trains and buses are part of the transport system.

3. Ask participants to draw each system on the map in a different colour.

4. Bring participants together as a large group and discuss:
   a. What are the similarities and differences between each group's maps?
   b. How do the different systems interconnect?
   c. Did they overlook any services (e.g. ports, airports, road networks, bridges, food supply chains, public wifi and banks all count too)?

5. Working in the same small groups, ask participants to describe a past shock (e.g. civil unrest or an earthquake) or a climate change-related event that resulted in the failure of a city system.

6. Ask the groups to discuss actions that would reduce the impacts of shocks and climate change-related events on the infrastructure and services, such as:
   a. introducing local sanitation and water facilities. especially in informal settlements
   b. implementing re-greening projects to expand/restore green spaces
   c. organizing local environmental awareness/clean-up activities.

TIME
- 40 minutes

DIFFICULTY
- Low

RESOURCES
- Large pieces of paper
- Markers in different colours

PARTICIPANTS
- Staff and volunteers

NUMBER OF PARTICIPANTS
- At least 6 people

Partnership building

Partnership building is an excellent way to expand an initiative's impact by leveraging in-kind support from people and institutions with complementary skills and resources.

Use this activity to guide you towards a vision and potential partners for your initiative. It will also help you to start the recruitment process.

Steps

1. Identify the initiative. Draft a brief vision of what it will achieve. Think big – specific, bold and realistic visions are the most inspiring.
2. Identify all the resources needed to achieve your vision. List them in specific terms such as skills, people's time, products, media coverage etc. rather than funds.
3. Identify which resources you can bring to the partnership. Be strategic – focus on your greatest added value.
4. Identify the highest priority resources that you need from partners to get started. Think creatively – partners you've never worked with before may be able to contribute the most important missing resource(s) to your initiative.
5. Identify why prospective partners might be interested in your initiative. This could be in direct alignment with your vision or indirect overlaps. Use this to form a persuasive pitch to each potential partner.
6. Meet each potential partner individually, starting with those most likely to join. Share your vision; why they are a crucial potential partner; how the initiative contributes to their goals; the unique contribution you hope they can bring and the partners and resources already confirmed, including your own resources.
7. Get started. Bring confirmed partners together for introductions; outline ways of working as a partnership; agree communication and decision-making methods and frequency; ensure a shared understanding of each other's role in the initiative; invite partners to shape the initiative's details and first steps. You can also use this time to identify additional partners that your new team may be able to bring onboard as you scale-up your initiative around the city.

TIME
- 60 minutes for initial meeting

DIFFICULTY
- Medium

RESOURCES
- Pen and paper

PARTICIPANTS
- Core team

NUMBER OF PARTICIPANTS
- 1–6 people

CASE STUDY

Luganville City Systems Mapping, Vanuatu

Vanuatu Red Cross Society (VRCS) carried out a city-wide risk assessment and action planning exercise in the capital city, Luganville. Many different stakeholders were involved including the municipality, local government agencies, civil society organizations and local/national businesses. The system mapping was supported by secondary data analysis which increased stakeholders' awareness of urban vulnerabilities and strengthened the confidence of the branch to engage in urban issues.

The city-wide assessment helped the VRCS to achieve the following:

- increased awareness within local government, government agencies and non-governmental organizations of urban vulnerability as well as the ability to see the city from a systems perspective.
- improved capacity of VRCS at the local branch and national levels, including better skills and confidence to engage with external partners; increased visibility; and a strong and well-trained volunteer base.
- Replicated risk assessment toolkit, sections of which have been used and adapted by other organizations to help in planning.
- Supported local government in creating Standard Operating Procedures for disaster response.
- Reduced vulnerabilities – e.g. action taken in disaster preparedness planning, clearing drains.

VANUATU RED CROSS VOLUNTEER WITH THE WATER TANK SET UP TO IMPROVE WATER AND SANITATION IN LUGANVILLE (Photo: American Red Cross)

CASE STUDY

FLOODING AT JANGWANI BRIDGE ON 26 OCTOBER 2017
(Photo: Daudi Fufuji/World Bank)

Building partnerships in the Zuia Mafuriko/Ramani Huria flood resilience project, Tanzania

Dar Es Salaam is prone to regular flooding and has experienced various catastrophic flood events in the past 10 years. The project established local Disaster Preparedness and Response Teams who lead the prioritization of flood resilience actions in coordination with municipal authorities. In order to do this, it required building partnerships at the institutional and community levels, which is the focus of this case study. The project was a partnership between over 10 institutional partners ranging from the Red Cross, World Bank, universities, Meteorological Service, the City of Dar Es Salaam and others. Each partner played a unique role that was important to implement the project.

Even more important, the project partnered with the community in various ways so that the community embraced the project as their own. The project raised awareness of the flooding disaster amongst the communities affected and engaged local students in mapping their own community. The project taught the students how to use data collection tools and feed the data into the Open Street Map which would help inform flood preparedness. By undertaking this process, they produced more realistic solutions that were accepted by the community.

Urban agriculture

This module presents simple and practical ways to promote agriculture and nature-based solutions through urban gardens, which transform dense and rigid urban areas into multi-functional green spaces.

Urban gardens are beneficial environmentally, socially and economically. In schools, they promote learning about the environment, climate, agriculture, food and nutrition. In neighbourhoods, they increase access to locally grown and affordable fruit and vegetables, while reducing waste through composting. In parks and other shared green spaces, they serve as places for recreation and socialization to promote health and well-being; they also increase civic engagement and social cohesion within the community.

Gardens can transform urban spaces and help to improve air and soil quality and the urban microclimate. They help to regulate water runoff, and serve as cooling spaces in which people and wildlife can escape the heat. They promote creative ways of transforming urban spaces from grey to green (e.g. rooftop or vertical gardens); and find alternative uses for vacant or abandoned lots. Urban gardens are multi-functional and sustainable, given the right attention and care. Anyone can get involved in simple urban gardening activities.

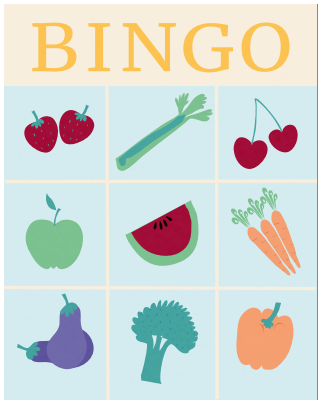
The module contains strategies and activities that increase awareness and support the development of different types of urban gardens, depending on the local context and available resources.

Global link

Urban gardens promote volunteerism and collaborative action, and harness environmental, social and economic benefits.

They are a great way to improve food security by increasing access to nutritious food at home and in schools in line with Sustainable Development Goal 2: 'End hunger, achieve food security and improved nutrition and promote sustainable agriculture'; and, in particular, Target 2.1: 'By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round'.

Urban gardens bring nature closer to people, and promote nature-based solutions in line with Sustainable Development Goal 13: 'Take urgent action to combat climate change and its impacts'; and, in particular, Target 13.1 'Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries'.



Garden bingo

The game is designed for children and youth to encourage them to eat better and make healthy food choices, while teaching them about agriculture and food systems.

Garden bingo is based on the classic game of Bingo in which each player crosses off numbers on his/her scorecard when they are randomly picked and called out by a game host. In garden bingo, the numbers on the 'player cards' are replaced with images of fruit and vegetables. The caller reads out descriptions of these garden products from 'trivia cards' and each player crosses them off his/her list. The way to win is to cross off all your fruit and vegetables before anyone else. The game is aimed at children and young people and can incorporate as much information as needed. It can be a fun alternative to classroom learning about food security, nutrition and agriculture.

TIME
- 10 minutes (actual game)
  1 day (preparation and coordination)

DIFFICULTY
- Medium

RESOURCES
- Player cards (designed and printed before the game)
- Trivia cards (folded and put in a basket/bowl)

PARTICIPANTS
- Schoolchildren
- After-school and youth clubs
- Community members
- Volunteers

NUMBER OF PARTICIPANTS
- 10 or more

Steps

1. Arrange a date and time to play. This could involve after-school or youth clubs in your community. There is no prescribed age range but make sure to design the player and trivia cards according to the age or school year of the group of participants.
2. Design and print out player cards with different images of fruit and vegetables on them.
3. Write descriptions of the fruit and vegetables for the trivia cards. Use a separate piece of paper for each fruit or vegetable so you can draw them from a basket or bowl, one by one. Incorporate as much information as possible to increase players' awareness of agriculture, food security and nutrition.
4. Hand out the player cards and agree the pattern to complete the game (i.e. by crossing off the fruit and vegetables in a vertical, horizontal or diagonal row, or by finding all of the items on the player card).
5. Draw the trivia cards one by one. Participants then find and mark the matching image on their player card. The first person to correctly mark the images in the right pattern wins the game.

Get digging

This community project turns vacant or disused spaces into a source of food or income (or both); increases awareness of gardening and agriculture; and strengthens ties within the community.

Get digging encourages communities to design and build urban gardens in community green spaces, backyard farms or school grounds. Getting involved provides schools, after-school and youth clubs, volunteers and other groups with an opportunity to work together on a garden project that will benefit the community by serving as a source of nutritious food and/or additional income. It also enhances participants' gardening skills and improves their knowledge of urban agriculture, climate change and the environment, food security and nutrition.

Steps

1. Coordinate with local authorities to identify a space suitable for an urban garden (e.g. a vacant public lot, a private lot, a backyard farm or the grounds of a school). Seek authorization to convert the space into a garden. Make sure that the area is accessible and safe, close to a water source and gets enough sunlight.

2. Involve members of the community in designing the garden (e.g. leaders, businesses, teachers, parents, children). Choose plants based on the type of soil and time of year, or even on the children's favourite storybook or recipe(s). Consult experienced gardeners if necessary.

3. Having purchased seeds, plants, materials and tools, arrange a day for preparing the land and planting the garden. Involve the whole community. Facilitate the transfer of gardening knowledge between the generations by encouraging older and younger people to work together.

4. Create a garden maintenance plan, scheduling in watering of the plants, weeding, tidying and upkeep. Again, involve the whole community.

5. Encourage community members to use the garden as a source of food. Arrange a day for harvesting and sharing the produce. Sell any surplus yield to generate income to maintain / expand the garden.

TIME
- 1–2 weeks (initial planting)

DIFFICULTY
- Medium

RESOURCES
- Gardening tools (shovel, rake, hoe, shears, etc.)
- Peat moss or compost
- Seeds for planting

PARTICIPANTS
- Schoolchildren
- After-school and youth clubs
- Community members
- Volunteers

NUMBER OF PARTICIPANTS
- 10 or more

Urban jenga

This activity promotes urban gardening where space is limited. Urban jenga transforms underused or hidden spaces around a house or building into an innovative green space.

The garden takes the form of a tower, similar to the structure of stacked blocks in the Jenga game. Vertical gardens are easy to build and practical to maintain. They use wooden trellises, stone columns or sturdy walls, and plants are arranged so that they grow upwards instead of outwards, therefore using less space than a traditional garden.

The activity involves working in partnership with building owners and/or local authorities in creating vertical gardens; transforming urban places into green spaces, helping to improve air and soil quality and the urban microclimate.

TIME
- 1–2 weeks (initial planting)

DIFFICULTY
- Medium

RESOURCES
- Tin cans, clay pots or wooden planters
- Trellis (or any other vertical frame) or recycled sacks or biodegradable cement bags
- Gardening tools (shovel, rake, hoe, shears, etc.)
- Compost or potting soil
- Seeds for planting

PARTICIPANTS
- Schoolchildren
- After-school and youth clubs
- Community members
- Volunteers

NUMBER OF PARTICIPANTS
- 10 or more

Steps

1. Coordinate with building owners and local authorities to identify a space suitable for a vertical garden (e.g. a rooftop, vacant or unused lot, backyard, alley or another space adjacent to houses or buildings). Make sure that the area is accessible and safe, close to a water source, gets enough sunlight and can accommodate a vertical structure with cans, pots or planters. Seek permission to build the vertical garden.

2. Design and plan the vertical garden with the building's owners and residents who live where you are planning to build. Choose plants that grow vertically. Consider how much soil, water and sunlight they need. Consult experienced gardeners if necessary.

3. Having purchased seeds, plants, materials and tools, arrange a day for building the vertical structure and planting the garden. Involve residents from the entire building and, if appropriate, the wider community in creating the vertical garden.

4. Create a garden maintenance plan, scheduling in watering of the plants, weeding, tidying and upkeep. Again, involve residents from the entire building and, if appropriate, the wider community by assigning tasks to them.

5. Encourage those involved to use the vertical garden as a source of food. Arrange a day for harvesting and sharing the produce.

Garden hunt

This fun activity increases participants' knowledge of food security and nutrition, locally grown plants and agriculture, and the benefits of urban gardens and other green spaces.

Garden hunt is a game that involves wandering in an urban garden or public park to identify plants based on descriptions of their characteristics and places of origin. This simple game is designed for schoolchildren as well as after-school and youth clubs and volunteers. By playing garden hunt, young people learn more about their food culture and the importance of green spaces to their health and well-being. The game can be designed to involve older people and/or gardening experts in the community to share their knowledge with young people.

TIME
- 30 minutes (actual game with debrief)
- 1 day (preparation and coordination)

DIFFICULTY
- Medium

RESOURCES
- Clue cards
- Answer sheets

PARTICIPANTS
- Schoolchildren
- After-school and youth clubs
- Volunteers

NUMBER OF PARTICIPANTS
- 10 or more

Steps

1. Create clue cards with a description of each plant's characteristics and place of origin. Insert the cards in the corresponding plant boxes and remove the plant labels. Consult experienced gardeners if necessary.
2. If the group is large, pair up players or arrange them in small teams. Provide each player, pair or team with an answer sheet containing the plant descriptions and, next to each one, a blank space where the players can write down the corresponding plant names.
3. Ask players to go around the garden or park and identify the plants based on the clues they have been given.
4. After 15 minutes, gather the players, pairs or teams together and check their answers. Whoever has the most correct answers wins.
5. Ask the players what new things they have learned along with their ideas to help sustain the garden.

CASE STUDY

FRED ONSERIO, HEADMASTER OF STARA RESCUE CENTRE AND SCHOOL, WATERS VEGETABLES IN THE SACK GARDENS IN THE SCHOOL GROUND
(Photo: Patrick Mayoyo/Africa Eco News)

The urban sack gardens of Kibera

In the informal settlement of Kibera, Nairobi – where food insecurity is prevalent and space is limited – residents have found a resourceful way to do urban farming: vertical sack gardens using recycled sacks or biodegradable cement bags. Over 1,000 farmers – mostly women – are using this technique to grow vegetables such as kale, spinach, onions and tomatoes to feed their families and enhance their incomes.
The project provides the residents of Kibera with a source of nutritious food without having to buy from the market, and maximizes the use of roofs and other underused spaces to serve as small-scale farms. The project was initiated by the French NGO, Solidarités International, which provided the farmers with seedlings and training. The IFRC also supported this initiative by supplying vegetable seeds to use in the farms.

Vertical basket gardening was already a widespread local practice; but, by combining it with new techniques and technologies, it was made more sustainable – e.g. using recycled sacks or biodegradable cement bags; adding a central column of stones before filling the sack/bag with soil (to allow plants to grow on the top and from the sides); making compost from kitchen waste and other organic materials; and intercropping seasonal vegetables with leguminous crops. Water is sourced from hand-dug wells or domestic wastewater.

The project has helped to strengthen social bonds within the community, especially among young people, women and the elderly – the main participants. These farmers share skills and produce as well as the opportunity to support their families and enhance their incomes.

SOURCES:

STATE OF THE WORLD 2011: INNOVATIONS THAT NOURISH THE PLANET, THE WORLDWATCH INSTITUTE.
"HOW TO GROW FOOD IN A SLUM: LESSONS FROM THE SACK FARMERS OF KIBERA," THE GUARDIAN, MAY 18, 2015.
"GARDEN-IN-A-SACK FOR URBAN POOR," THE NEW AGRICULTURIST.

CASE STUDY

Upcycling: from waste to compost to community garden

In Jakarta, Indonesia, the Indonesian Red Cross Society (Palang Merah Indonesia or PMI) worked with the local government, United States Agency for International Development/Office of US Foreign Disaster Assistance and the American Red Cross on a multifaceted project.

As a priority, the initiative addressed recurring flooding in the city by cleaning blocked rivers, canals and drains. It also introduced recycling and composting facilities, reducing waste. And it set up vertical and organic household gardens, increasing residents' access to nutritious food as well as enhancing their incomes by selling surplus garden produce and compost at new markets.

For the duration of the project, the local agriculture office was on hand to provide technical assistance in setting up the vertical and organic household gardens. It also collaborated with public parks and private sector businesses to find new opportunities to sell the compost and surplus fruit and vegetables.

STUDENTS FROM SON 1 AMPENAN SCHOOL COMPOST LEAVES AND TWIGS AFTER CLASS ON THE ISLAND OF LOMBOK, INDONESIA. THE KIDS MAKE COMPOST, GROW MUSHROOMS, TEND AN HERB GARDEN, AND PARTICIPATE IN OTHER ACTIVITIES THAT PROMOTE HEALTHY LIVING AND ENVIRONMENTAL PROTECTION. IN AN EFFORT TO PROMOTE ENVIRONMENTAL LEARNING AND THE RESTORATION OF ECOSYSTEMS ALONG INDONESIA'S COASTLINES, THE AMERICAN RED CROSS IS REPLICATING THE SCHOOL'S COMPOSTING PROGRAM IN RURAL AND URBAN CLASSROOMS.
(Photo: Jenelle Eli/American Red Cross)

SOURCE:

UPS Factsheet: Minimizing Flood and Environmental Health Risk Through Community Solid Waste Management: Recycling and Composting Center, American Red Cross.

Urban Water, Sanitation and Hygiene

Water and sanitation are essential to life and are fundamental human rights. Effective WASH practices can transform a city into a more sustainable, liveable, healthy, child-friendly and resilient place to be.

Water, Sanitation and Hygiene are collectively known as WASH; with each of the three disciplines dependent on the others. Without adequate WASH facilities, water-borne diseases can thrive (e.g. diarrhoea, cholera and typhoid), vector-borne diseases can flourish (e.g. malaria, dengue fever and yellow fever) and basic health services can be overwhelmed. Increasing climate variability is causing outbreaks of water- and vector-borne diseases, leading to public health concerns. It is critical to prioritize people's access to clean water, safe sanitation and the ability to practice safe hygiene.

WASH is often considered to be the provision of infrastructural facilities and technologies, especially in urban areas. However, without also raising people's awareness of good hygiene and changing their behaviour (e.g. hands can transport viruses, bacteria, parasites and other pathogens into the body, so thorough hand-washing is a vital precaution), the provision of WASH facilities alone cannot reduce the rate of morbidity and mortality.

The urban poor and populations of informal settlements are often the most vulnerable to diseases due to inadequate or absent WASH facilities. It is, therefore, critical to give special consideration to these areas.

Global link

The activities in this module link to various global principles and processes. For instance, the separation of waste at source promotes recycling and contributes to cities' circular economies, which seek to maximize the use of resources through the 3R principles – Reduce, Reuse and Recycle.

Action on the health, safety and hygiene of urban sanitation workers ensures their basic rights in terms of occupational health and safety. Thorough and regular handwashing with soap and water is a simple action that everyone can take to protect themselves from bacterial and viral infections, such as COVID-19. And rainwater harvesting can supplement existing water resources as a component of Integrated and Decentralized Water Resource Management.

The actions under WASH also directly contribute to the following Sustainable Development Goals: SDG 11 sustainable cities and communities; SDG 6 clean water and sanitation; SDG 13 climate action; SDG 3 good health and well-being; SDG 12 responsible consumption and production; SDG 1 end poverty in all its forms everywhere; and SDG 8 decent work and economic growth.

TIME
- Depends on the scale of the initiative: a neighbourhood pilot might take 3–6 months, while a citywide scheme could take 2–3 years or more.

DIFFICULTY
- Medium

RESOURCES
- Information, education, communication materials (such as posters, leaflets etc.)
- Awards (medals, certificates or something that is symbolic in the local context)

PARTICIPANTS
- City officials and/or private-sector providers/ contractors responsible for solid-waste management in the city
- Residential or neighbourhood association(s)
- Households
- Volunteers
- Youth and women's groups
- Community representative/ leader
- Business associations
- Schools
- Media

NUMBER OF PARTICIPANTS
- Approximately 4–5 volunteers (depending on the scale) and other stakeholders

Household waste separation competition

Separating waste at its source is a simple recycling action, but an important part of any solid-waste management system. Waste can be separated into at least two categories – biodegradable (e.g. kitchen waste) and nonbiodegradable (e.g. plastic). Awards can be an effective way to motivate households to separate waste and to share best practice.

Steps

1. Form a partnership between local government, private-sector waste collectors and other key stakeholders.

2. Set a goal for the segregation of households' waste at source / level of recycling / reduction in the amount of solid waste that is thrown away.

3. Plan:

Decide the area where the initiative will take place.

Define roles for each of the stakeholders.

Identify the waste collectors in the targeted area.

Develop information, education, communication materials to raise households' awareness of the issue and change their behaviour when it comes to the separation of waste and recycling.

Select the prizes that will be awarded to the best performing households.

4. Launch the initiative at an event attended by local leaders, other dignitaries and the media. Reiterate the initiative's messages on Reduce, Reuse and Recycle as well as the urgent need to reduce the amount of waste that is thrown away. Announce the award, any other incentives and the timescale.

5. Monitor households' progress every 8–10 weeks. Identify the household that is the best at recycling, based on their separation of waste when it is collected and, therefore, the lower amount of mixed waste arriving at the waste disposal site.

6. Organize an award ceremony in week 12–14 in the presence of local leaders and dignitaries.

7. Scale-up the initiative to other parts of the city.

Behavioural change for sanitation workers

This activity is designed to empower sanitation workers by reiterating the importance of using protective clothing and other safety equipment; explaining the importance of thorough and regular handwashing; and encouraging them to take out health insurance cover.

Sanitation workers deal with public toilets, sewerage, sewers and maintaining drain covers as well as solid-waste management. Working in these hazardous environments can result in acute health issues and sometimes death. The following activity is designed to help sanitation workers recognize the importance of wearing protective clothing and washing / sanitizing their hands thoroughly and regularly. National Societies will need to seek the commitment and necessary permissions from local government early in the process.

TIME
- At least 4–6 months

DIFFICULTY
- High

RESOURCES
- Information, education, communication materials (such as posters, leaflets etc.)
- Volunteers experienced in coordinating the production of awareness-raising and behavioural change materials and/or devising a communication strategy

PARTICIPANTS
- Sanitation workers
- Local government
- Volunteers
- Private operators / contractors (if the sanitation service is outsourced to them)
- Civil society organizations
- Media,
- Manufacturers of protective clothing and other safety equipment

NUMBER OF PARTICIPANTS
- 14–16 volunteers

Steps

1. Collaborate with local NGOs, workers' associations and unions to develop a project. Activities could include raising awareness among sanitation workers of the importance of handwashing and/or distributing protective clothing and other safety equipment.

2. Conduct a situation analysis to identify gaps in sanitation workers' knowledge and kit. Set an overall objective and interim targets for the awareness-raising and behavioural change activities.

3. Get service providers, local government and even national ministries involved to endorse, formalize and potentially fund the initiative.

4. Launch the initiative and organize the first meeting of sanitation workers to explain the importance of thorough and regular handwashing and, if necessary, supply them with protective clothing and other safety equipment. Perhaps show a short film demonstrating the impacts of improper health, safety and hygiene practices. Encourage participants to share their experiences as part of the training. Close the meeting by asking them to describe how their thoughts and behaviour might change as a result of the event.

5. Handover the initiative to local government for future planning, implementation and monitoring.

Rooftop rainwater harvesting systems

The combined effects of ongoing urbanization and climate change are causing water crises in cities. Installing rainwater harvesting systems can supplement existing water resources during periods of drought and slow runoff during wet periods.

Residents can use the rainwater for cleaning, washing and gardening (but not for drinking). Rainwater harvesting helps to decentralize the water system, while reducing the demand for water from utilities companies. Finding shared space within the community, such as a rooftop, for the rainwater harvesting system will encourage ownership and upkeep and help to foster community cohesion.

The four key components of a rainwater harvesting system are catchment, conveyance, filtration and storage. The catchment is where rainwater is collected; the water can then be conveyed through a gutter; filtration will remove some of the dirt from the rainwater; which can then be kept in an underground storage tank or prefabricated water tank – depending upon the feasibility of the site.

TIME

- At least 4–6 months

DIFFICULTY

- High

RESOURCES

- Coarse mesh to prevent the passage of debris.

- Gutters – plain galvanised iron sheet, or polyvinyl chloride (PVC) pipes cut into two semi-circular channels, or bamboo or betel trunks cut vertically in half.

- Pipes – PVC or galvanized iron pipes for transporting the water to the storage tanks.
- Plug or valve to flush out the first spell of rain.

Steps

1. Form a partnership with the local authority; arrange to visit an existing rainwater harvesting system and/or describe how the initiative helps to decentralize the water system and reduce the demand for water from utilities companies.

2. Collect information on the catchment site. For instance: total volume of harvested water = area x runoff coefficient x rainfall. The runoff coefficient factor depends upon the catchment surface (e.g. for roofs it is 0.75–0.95).

- Filtration – a container covered by a net and filled with sand and gravel to filter the rainwater.


- Outlet or valve that is fixed to the bottom of the filtration container.
- Storage tank – made of reinforced cement concrete, ferrocement, masonry, polyethylene or galvanized iron sheets.

PARTICIPANTS

- City officials
- Residential or neighbourhood association(s)
- Households
- Youth and women's groups
- Community representative/ leader
- Schools
- Business associations
- Mansions and plumbers
- Media

NUMBER OF PARTICIPANTS

- 20–25 (including volunteers, stakeholders, technicians etc.)

3. Select the catchment site where the rainwater will be collected: the larger the catchment area, the bigger the volume of rainwater collected. Community spaces can be schools, government buildings and places of worship. Involve community members in finding the right location.

4. Also consult community members on the design of the system; for example, whether there should be an underground storage tank or a prefabricated steel water tank, depending on the feasibility of the site. As a rule of thumb, 5 per cent of the available annual rainfall is a good starting point for calculating the size of storage tank needed.

5. Construct the rainwater harvesting system using local techniques and materials. Keep costs to a minimum by involving community members with appropriate skills in sourcing and assembling the components.

6. Agree and assign operation and maintenance activities among members of the community. For example, if the gutters are not cleaned regularly and the storage tank is not covered properly, mosquitoes will be encouraged to breed.

Handwashing workshops in schools

Hands can transport viruses, bacteria, parasites and other pathogens into the body, leading to diseases such as cholera, dysentery, hepatitis A and typhoid. The first defence is thorough and regular handwashing using soap and water for at least 20 seconds.

Effective WASH practices in schools result in healthier, better performing schoolchildren. The practice of handwashing using soap and water – before eating food or after using the toilet – is a very simple prevention measure that schools can adopt easily to create a healthier environment. Schools are the perfect place for children to learn new patterns of behaviour alongside their formal education. Schoolchildren are also important messengers who take the learning home to their parents.

TIME
- 20–30 minutes per session

DIFFICULTY
- Low

RESOURCES
- Information, education, communication materials (such as posters, leaflets, cartoons, videos etc.)
- Soap
- Water and wash basins

PARTICIPANTS
- Schoolchildren, teachers and non-teaching staff
- Volunteers
- Media
- City officials
- Utility providers
- Soap brands or manufacturers

NUMBER OF PARTICIPANTS
- Maximum 20–25 per session (depending on the washing facilities at the school)

Steps

1. Identify the school where the workshop will take place. Seek permission from the local education authority, school and headteacher. Together, agree the schedule of workshops.

2. Decide what messages to communicate through the workshops, such as how and when to wash hands with soap and water, and ways that the schoolchildren can involve their parents at home. Design educational posters and put them up near the school washbasins and in other strategic positions around the school.

3. Organize the first workshop; plan a presentation and any activities for the children.

4. Train at least two teachers or the school health club to facilitate future workshops. Show them the handwashing technique and how to convey these important messages via the children to their parents. Hand over responsibility for organizing and delivering the workshops to the teachers / health club.

5. Consider involving soap brands, water utility companies, local authorities and the media. This can help to replicate the workshop in other schools so that it becomes an ongoing process.

CASE STUDY

SUNYA (Towards Zero Waste in South Asia) project in Ward No. 23, Coimbatore, India

In 2011, the Coimbatore City Municipal Corporation (CCMC) – located in southern India – participated in the SUNYA (Towards Zero Waste in South Asia) project, supported by the European Union. The project's aim was to promote the 3R principles (reduce, reuse and recycle) within the municipal solid-waste management system.

Working with ICLEI: Local Governments for Sustainability, South Asia – one of the leading implementation partners – along with local NGOs, CCMC introduced the separation of solid waste at source in Ward No. 23 as a pilot project. Waste collectors transported the wet waste to a vermicomposting plant set up by CCMC (vermicomposting is a decomposition process that produces organic manure using worms). At the same time, the collectors handed over recyclable waste to a private recycling firm that paid the collectors the value of the recyclable material.

In tandem, CCMC ran an awareness-raising and behavioural change campaign promoting the separation of solid waste at source. It also imposed penalties on households that did not separate their waste. To encourage and motivate residents, the Mayor and Commissioner of the CCMC awarded certificates and shawls to the best performing households (sixty in total). They also awarded a one-gram gold coin to the best performing waste collectors, based on the quantity of recyclable material handed over to the private firm and the smaller volume of mixed waste delivered to the vermicomposting plant.

The initiative is currently being replicated in more wards of Coimbatore and in other Indian cities such as Udaipur, Siliguri, Jaisalmer and Kishangarh. The initiative has also been integrated into the Clean India Programme – a flagship programme of the Government of India.

SEGREGATED SOLID WASTE BEING COLLECTED FROM DOORSTEPS IN WARD NO. 23 UNDER THE SUNYA PROJECT IN COIMBATORE, INDIA

(Photo: ICLEI - Local Governments for Sustainability, South Asia)

CASE STUDY

Improving health and safety measures for sanitation workers in Ouagadougou, Burkina Faso

In Ouagadougou, Burkina Faso, pit latrines and septic tanks are generally emptied manually. There are a few mechanized vacuum trucks to do the work, but these are often more than 20 years old and ineffective. While the trucks are able to remove liquid waste, a thick sludge remains which needs to be removed manually. It is an informal occupation, mainly employing men over the age of 40 and unemployed youths.

The Manual Emptier Association (ABASE), in partnership with local government, NGOs and the Ministry for Water and Sanitation in Burkina Faso, launched an initiative to improve sanitation workers' health and well-being through an awareness-raising programme. They achieved this by identifying 25 manual emptiers in the city who were trained in improved health, hygiene and safety measures. ABASE also vaccinated the manual emptiers and provided them with up to date protective clothing and modern equipment for emptying pit latrines and septic tanks. ABASE continues to lobby city officials in Ouagadougou for further betterment of the system to improve the occupational health and safety measures of these essential workers.

In 2017, ABASE was officially recognised by the Ministry of Water and Sanitation for its proactive and successful work in Ouagadougou (Réseau de professionnels juniors 2017).

THREE SANITATION WORKERS FROM OUAGADOUGOU, BURKINA FASO RESTING
(Photo: WaterAid/Basile Ouedraogo)

CASE STUDY

HANDWASHING PROGRAMME WITH THE CHILDREN OF BARANGAY 101, TONDO BY PHILIPPINE RED CROSS STAFF AND VOLUNTEERS.
(Photo: Philippine Red Cross)

Improving WASH practices in the informal settlement of Tondo in Manila, Philippines

The Philippine Red Cross in collaboration with The Netherlands Red Cross introduced improved WASH practices and facilities in the informal settlement of Barangay 101, Tondo in Manila, Philippines. Two neighbouring schools that, together, cater for around 5,000 children within the community were also involved. The area covered Manila's most acute cases of diarrhoea, cholera and typhoid, and had limited access to sanitation for its 10,500 residents. The initiative aimed to increase the resilience and health of the people by improving their access to safe water and basic sanitation.

Innovative communication methods included mural painting, songwriting and recycling contests. For schools, the team developed information, education and communication materials, and used role play to raise awareness of the importance of good hygiene and encourage changes in behaviour among schoolchildren. Other activities included an oral health campaign and a dengue fever awareness campaign. Global Handwashing Day and World Toilet Day were also celebrated in the schools and community. In addition, the team also set up a communal water station with a local water company for access to safe drinking water. School toilets were refurbished and the water supply to schools improved.

The Barangay Water and Sanitation Association was set up to maintain the WASH facilities and train volunteers. Critically, the initiative was also supported by Barangay leaders; while Community Health Volunteers played an important role in the project's success. Better sanitation and hygiene practices continue in the informal settlement, which now also receives capacity-building and start-up support through a livelihood programme.

Nature-based solutions

Nature-based solutions are central to creating more liveable, climate-resilient, healthy and biodiverse cities. They provide multiple benefits, including reducing city dwellers' exposure to climate hazards, while enhancing a city's beauty and providing a range of ecosystem services.

Nature-based solutions (NbS) are actions that work with, and enhance, nature to help address societal challenges. They can be ecosystems or designed and engineered spaces that make use of natural processes to support human well-being. They can range from wetlands and forests (ecosystems) to engineered rainwater gardens and blue and green roofs or walls.

Putting any space to good use should aim to deliver multiple services and benefits – especially when it comes to the limited space in a city. NbS achieve this in different ways, for example, by protecting against flooding and drought, reducing the urban heat island effect, improving air quality and reducing healthcare expenditure. At the same time, they enhance a city's beauty, improve social cohesion and promote zero-carbon mobility, such as introducing walking and cycling paths through public parks. NbS can even increase the value of surrounding properties and related (local) government tax income.

From citywide to street and household levels, NbS can create safe, healthy and enjoyable living conditions for people and nature.

Global link

Urban NbS can be part of (local and national) planning as well as reporting to international conventions on:

- sustainable development – Sustainable Development Goals 11 & 13
- climate change: Paris Agreement 2015; Talanoa Dialogue – helping countries to implement and enhance their Nationally Determined Contributions by 2020, mandated by the United Nations Framework Convention for Climate Change
- Compact of Mayors – pledging to reduce greenhouse gas emissions, track progress and prepare for the impacts of climate change
- biodiversity – AIchi Biodiversity Targets from the Convention on Biological Diversity
- wetlands – Ramsar Convention (on Wetlands of International Importance); Wetland City Accreditation
- disaster risk reduction – Sendai Framework

- Paris Agreement 2015; Talanoa Dialogue – helping countries to implement and enhance their Nationally Determined Contributions by 2020, mandated by the United Nations Framework Convention for Climate Change; and membership of city networks, such as ICLEI – Local Governments for Sustainability; C40 Cities – an international climate leadership group; and the Global Resilient Cities Network – protecting vulnerable communities from climate change and other physical, social and economic urban adversities and challenges.

Local government and national ministries may be able to fund NbS initiatives from local and national budgets. Alternatively, (international) non-governmental organizations (NGOs) may be able to assist in the search for non-institutional donors. Larger project proposals could be channeled through national ministries to the UN system (e.g. United Nations Environment Programme; United Nations Development Programme) and related financial institutions such as the Green Climate Fund, World Bank or regional development banks.

Operation stonebreaker

Breaking up cities' paved surfaces and planting biodiverse and fruit or herb species can reverse the negative impacts of urbanization on people's health, biodiversity and water security, and reduce the urban heat island effect.

Operation stonebreaker is a campaign you can organize in your neighbourhood or city. It focuses on replacing unnecessary paving slabs, concrete tiles or asphalt surfaces with patches of lush green vegetation and trees. This can reduce stormwater runoff, extreme heat and air pollution, while increasing space for biodiversity mini-habitats, shade, (medicinal) herbs or mini-crops.

Before you start, it is critical to obtain the necessary permissions and permits; to agree in advance the removal of these impermeable surfaces; and to ensure that doing so will not cause unexpected problems in your city (e.g. inundated drainage systems).

TIME
- At least one week

DIFFICULTY
- High

RESOURCES
- Locations: gardens, pavements, school grounds, parking lots, streets, squares
- Shovels, sledge hammers
- Compost or top soil
- Seed, saplings of native and fruit trees, bushes, herbs or flowers
- Watering can, hose or sprinkler
- Mobile phones with photo/video cameras
- Social media accounts (create a hashtag)
- Letters to officials, United Nations agencies, non-governmental organizations

PARTICIPANTS
- Homeowners
- Community leaders
- Youth
- Schools
- Local government: mayor, local authority representatives
- Sponsors: garden centres, wholesalers
- Ambassadors for the campaign
- Media
- UN agencies and NGOs

NUMBER OF PARTICIPANTS
- From two upwards

Steps

1. Start a social media campaign for schools and the wider community to find champions – especially young people – to take part in the operation.

2. Identify the first lot(s) and obtain the necessary permissions, before extracting the paving slabs, concrete tiles or asphalt surfaces and replacing them with native tree, flower and herb species. Promote on social media – hash-tag possible interested parties.

3. Roll out the campaign by supporting local families in 'stone-breaking' around their houses. Encourage schools and public buildings to 'green' parts of their parking lots or playgrounds. Engage local government, too, in identifying community spaces and streets to convert.

4. Inspire wider action through events and sponsorship. For example, by asking a company to provide plants to local schools; or celebrating the first 100 metres of paving slabs, concrete tiles or asphalt removed or trees planted.

5. Work with universities to document reductions in heat and rainwater runoff as well as improvements in biodiversity and air quality as a result of the campaign. Invite local leaders, international NGOs and United Nations agencies to visit the site(s).

Community conservation mobilization

Urban nature suffers from the encroachment of the built environment; lack of maintenance; and the accumulation of waste and other pollution. If degraded, urban nature cannot provide critical ecosystem services to the inhabitants of a city, so its people and wildlife lose.

Mobilizing communities to take part in one-day nature conservation activities is a great way to make a positive impact in the city. Activities include clearing litter from parks or around lakes; planting trees; reopening blocked water channels; or demonstrating to demand protection for urban nature under threat of development.

TIME
- Two to five days: 1–4 days to prepare, 1 day for action

DIFFICULTY
- Medium

RESOURCES

Depending on the activity:
- Gardening gloves, rubber boots, garbage bags, shovels, rakes and wheelbarrows for clean-up activities
- Tree seedlings, shovels, compost / top soil, gardening gloves and wheelbarrows for tree planting
- Megaphone, banners and placards for demonstrations
- Mobile phones with photo/ video camaras and social media accounts for mobilizing others in the conservation

PARTICIPANTS
- Community members
- Schools
- Staff from NGOs and civil society organizations
- Other volunteers

NUMBER OF PARTICIPANTS
- From 10 upwards

Steps

1. Meet with representatives from the community to find out where nature is under threat. Involve local environmental and social development NGOs as well as community-based organizations that may wish to lend their support. Agree a shared objective and assign coordinator(s) for (social) media, materials and mobilization.

2. Pick a strategic date when participants are available, that will generate media attention and does not conflict with other large-scale local events. List the required inputs and divide tasks among the joint team. Distribute flyers around the community and online.

3. Plan the day of the activity, beginning with a visit to the location with members of the joint team. With their help, think through possible issues that could affect the event (e.g. weather, traffic jam, transport strikes). Take mitigating action.

4. Implement the activity and post updates to social media. If the activity is to be repeated, agree who will take the lead and keep/supply the materials etc.

Rainwater garden

Water-logging can be a problem for property owners. It can also lead to urban flooding due to overwhelmed drainage systems. Rainwater gardens can aid rainwater infiltration, relieve pressure on drainage systems, beautify your garden and support biodiversity.

A rainwater garden is a garden of native shrubs, perennials and flowers planted in a small depression, which is generally formed on a natural slope. Rainwater gardens are designed to collect, soak and filter rainwater runoff and can be installed in households or commercial / industrial units. Rainwater gardens help to prevent floods and droughts as they relieve pressure on the urban drainage system and recharge the aquifer. They can also serve as a small habitat for biodiversity and beautify the built environment.

TIME
- Two days

DIFFICULTY
- Medium

RESOURCES
- Depending on the activity:
- House or commercial / industrial unit with a garden or green space
- Shovels
- Wheelbarrow
- Rainwater pipe
- Rocks, stones, pebbles, gravel
- Compost, sand
- Shredded hardwood mulch
- Native perennials, flowers and shrubs

PARTICIPANTS
- Home / business owners
- Schools
- Public buildings with gardens
- Commercial / industrial units with green spaces
- Hospitals

NUMBER OF PARTICIPANTS
- From three upwards

Steps

1. A rainwater garden should be delineated at the lowest point of a property; at least 2.5 metres (m) from the building's foundations; and avoid all public utility lines. To look natural, rainwater gardens are typically round or curved and measure at least 2–3m^2. Ideally, a rainwater garden covers 20 per cent of the total area that will drain into it.

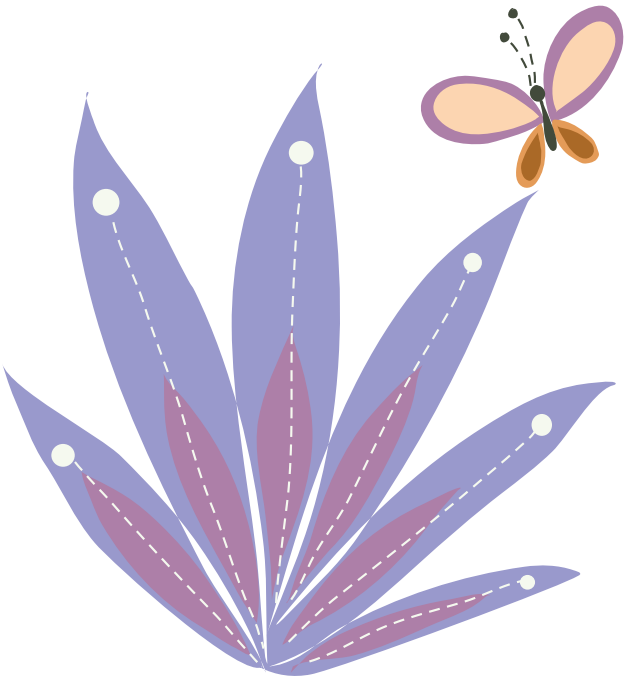
2. Remove any paving slabs, concrete tiles or asphalt surfaces and weeds. Then dig a depression of 15–30 centimetres (cm) into the soil following the line of the rainwater garden. Pile up the dug-out soil, making sure it has sloped and rounded edges.

3. Redirect the downpipe of the property into the rainwater garden, making sure there is an outlet for any overflow of rainwater into the main drain. Place stones at the point where rainwater enters the garden to reduce the flow. Fill the excavated hole, where the downpipe enters the rainwater garden, with compost and sand to increase infiltration. Use pebbles, stones or gravel as the top layer of the rainwater garden for filtration.

› Rainwater garden

4. Plant native perennial plants, flowers and shrubs in the rainwater garden. Select species that attract pollinators (bees, butterflies) and mosquito predators (dragonflies). Consult an expert on the right type of plants to use in your rainwater garden. Consider the size of mature plants as well as their location – for example, place water-tolerant plants in the centre.

5. Maintain the rainwater garden frequently by removing weeds or clogging. To discourage weeds and reduce evaporation, place stones, pebbles or gravel in the centre and add a 5-10cm layer of shredded hardwood mulch. As young plants are fragile in the first year, ensure lower water levels in the garden to begin with.



Blue and green corridors

In cities, many green and blue (public) spaces are disconnected from each other. Connecting them and setting up corridors between them multiplies the benefits for people and biodiversity for a more liveable city.

Blue and green corridors combine different nature-based solutions, such as bioswales (vegetated drainage systems), streams, parks, tree-lined streets and rainwater gardens as well as blue and green walls, roofs and pavements. Together, these measures form a network along which excess water can flow, biodiversity can thrive and people can relax, walk or cycle. These networks have been shown to increase a city's liveability along with its climate resilience.

TIME
- 1+ weeks

DIFFICULTY
- High

RESOURCES
- Maps of the city
- Reports on current biodiversity in the city
- shovels, tree seedlings, seeds, compost / soil, plant pots / containers (resources will depend on the chosen NbS measure(s))
- Permits from local government

PARTICIPANTS
- Volunteers and representatives from community-based organizations
- NGOs / civil society organizations
- Local government (environment or parks department(s), urban planning department)
- Ministry of Environment
- Botanical garden(s)
- Garden centres, wholesalers or other sponsors

NUMBER OF PARTICIPANTS
- From five upwards

Steps

1. Assess the state of existing nature-based solutions such as parks, urban wetlands, green roofs and tree-lined streets. Mark them on a map and add important context such as areas of flooding, urban heat islands and biodiversity.

2. Analyze the map to identify missing connections that would help excess water to flow, biodiversity to thrive and people to relax, walk or cycle. Visit these locations with key partners to visualize the measures needed to establish the connections.

3. Design a well-connected network. Then, for each nature-based solution, decide the inputs and outline the benefits. Prioritize the projects and seek the necessary permissions.

4. Start with low-cost measures that establish connections quickly and are easy to implement, e.g. covering walls with hanging plants; installing a green roof on a bus stop.

5. Encourage local residents to get involved and take on more ambitious projects. Update your plan with achievements and share it with local authorities, national ministries and international organizations for support, approval and permissions. Consider installing an information board or plaque at each location so that visitors can learn more about the corridor initiative.

Neighbourhood wadis

Building a wadi in your neighbourhood can transform a disused public space; converting it from a problem area (e.g. water logging, waste accumulation and mosquito infestation) into a solution for flood safety, groundwater recharge and social use.

A wadi is a seasonal wetland that fills up with rainwater during the monsoon or rainy season. While their origin is rural (wadis were originally located in the deserts of Africa and Arabia), wadis have been adopted as nature-based solutions in cities to divert and delay stormwater from entering and overwhelming the urb an drainage system. These small-scale ecosystems provide flood protection, serve as recreational facilities (e.g. they can feature playgrounds for children, paths for walking, running or cycling, benches for sitting and streetlights for safety), and support urban agriculture (e.g. crops can be irrigated with the rainwater captured in the wadi).

TIME
- At least two weeks

DIFFICULTY
- Medium

RESOURCES
- Information on local meteorology and hydrology
- Land tenure check
- Permit, if needed
- Digger / excavator
- Wheelbarrow
- Sketch of the wadi design
- Playground equipment
- Tubing
- Paving for walking, running, cycling path
- Bench
- Streetlight
- Drain covers
- Plant and grass seeds

PARTICIPANTS
- Community leaders and members
- Staff from civil society organizations
- Engineer
- Landscaper
- Other volunteers

NUMBER OF PARTICIPANTS
- Five or more

Steps

1. Select a place in your neighbourhood that experiences frequent water-logging. Find out who owns the plot and about local planning regulations. Explore whether local / national government funding is available for your project as part of disaster risk reduction planning.

2. Identify community members with experience in design, biodiversity and recreation. Government agencies or company pro bono support may fill any skills gaps. Involve municipal planners to determine the size, shape and storage capacity of the wadi. Design the wadi including any structures such as paths, benches, bins and playground equipment.

3. Mobilize the community to dig out the pavement and soil to create the wadi. Use the dug-up soil to elevate the playground. Make sure there is an outlet for any overflow of rainwater into the main drain. Place boulders at the water's entrance and exit, to reduce its speed and prevent it from washing plants away. Fill the wadi with infiltration material such as sand, soil, gravel, pebbles and stones.

4. Plant a variety of local water-resistant and well-rooted species around the wadi. Install the other features (e.g. paths, benches, bins, playground equipment, solar-powered streetlights and a board or plague listing sponsors).

5. Organize an opening ceremony, inviting community leaders and local media. Agree which group or organization will be responsible for the wadi's maintenance.

CASE STUDY

RESIDENTS WORKING TO MAKE THE FRONT GARDEN 'STONE-FREE'
(Photo: Wendy Bakker)

Operatie Steenbreek, the Netherlands

Operatie Steenbreek is a campaign to 'green' urban spaces in the Netherlands. Over 150 partners are involved including provinces, municipalities, water boards, housing corporations, NGOs and companies. The campaign works to replace unnecessary pavements in private and public spaces with a diversity of greenery, with the help of local residents and businesses. This helps cities adapt to climate change, reduce extreme heat, improve biodiversity and enhance city dwellers' well-being.

The idea behind the initiative is to encourage local residents to remove paving slabs, concrete tiles or asphalt surfaces from their gardens / backyards and replace these impermeable surfaces with grass, plants and trees for improved drainage and increased biodiversity.

Through a mobile phone app, residents are offered advice and the opportunity to exchange plants with neighbours.

Focus groups bring residents together to meet each other and measure the success of their new gardens / green spaces as a kind of citizen science. The initiative calls this form of science BIMBY (Biodiversity In My Backyard), following Beumer and Martens *Biodiversity in my (back)yard: towards a framework for citizen engagement in exploring biodiversity and ecosystem services in residential gardens*).

Key to the success of Operatie Steenbreek is a strong and well organized network of volunteers, ambassadors, social media postings and local government support. The campaign appointed 'NBS ambassadors' to share knowledge with residents and encourage their participation. Many municipalities signed up to the campaign and financed local activities that were match-funded by residents. The majority of the measures introduced were low budget.

FOR MORE INFORMATION VISIT WWW.STEENBREEK.NL

CASE STUDY

SINCE 2016, MEDELLÍN HAS CREATED 30 'CORREDORES VERDES,' AN INTERCONNECTED NETWORK OF GREENERY ACROSS THE CITY, WHICH WAS AWARDED THE 2019 ASHDEN AWARD FOR COOLING BY NATURE
(Photo: ACI Medellín)

Green corridors of Medellín, Colombia

Medellín's 30 corredores verdes (green corridors) – set up in 2016 – are an interconnected network of greenery across Colombia's second-largest city. This ambitious initiative connects the city's green spaces, improves urban biodiversity, reduces the urban heat island effect, soaks up pollution and sequesters a significant amount of carbon dioxide. The corredores verdes project demonstrates how integrated, nature-based solutions – such as widespread urban tree planting – can have far-reaching impacts on the local and global environment, as well as significantly improving city-dwellers' lives and well-being.

After 50 years of rapid urban development, Medellín began to experience a severe urban heat island effect. To rectify it, the city implemented a three-year 'Greener Medellín for You' programme – significantly changing its approach to urban design. As part of the 16.3 million Colombian Peso initiative, residents from disadvantaged areas of the city were trained by the Botanical Garden of Medellín to become city gardeners and expert planters. These volunteers then helped to plant 8,800 trees and palms in the 30 corridors that now cover 65 hectares. In one of the city's busier thoroughfares, 596 palms and trees were planted, as well as more than 90,000 species of smaller vegetation.

The corredores verdes provide Medellín with a host of ecosystem services: reducing the average city temperature by 2°C; enabling the uptake of carbon by growing plants; capturing particulate matter (PM2.5) to improve air quality; and increasing urban biodiversity via more wildlife-friendly habitats. These results demonstrate why nature-based solutions are rapidly increasing in popularity in the field of sustainable urban design.

Colombian legislation states that part of every city's budget must be invested in projects chosen by the public through a democratic vote. The corredores verdes initiative was voted in by the residents of Medellín; which, in 2019, won the prestigious Ashden Award for Cooling by Nature.

FOR MORE INFORMATION VISIT HTTPS://WWW.C40KNOWLEDGEHUB.ORG/S/ARTICLE/CITIES100-MEDELLIN-S-INTERCONNECTED-GREEN-CORRIDORS?LANGUAGE=EN_US

Liveable cities

Rapid urbanization can cause environmental stresses with negative impacts on human health and well-being. Assessing and improving a city's liveability is an important way to enhance people's quality of life.

Liveability has emerged as an important component of urban planning, development and policy-making. The concept of liveability can be integrated within urban systems and buildings to enhance the well-being of city dwellers, while reducing the environmental impacts of the city. A coordinated and multi-stakeholder approach is needed to create a liveable city.

There is no single definition of 'liveable' cities. However, some of the common principles include:

- Clean air
- Access to green spaces and urban nature
- Safe for those walking, cycling or using public transport
- Affordable housing
- Litter-free public spaces
- Adequate public spaces and play areas for children
- Safe for residents, including the better prevention of crime
- Sense of community and social cohesion in neighbourhoods
- Affordable and high-quality healthcare and educational facilities
- Cultural activities

The principles of a liveable city are highly context dependent – what constitutes a liveable city will therefore vary from city to city, depending on the priorities of its leaders and residents.

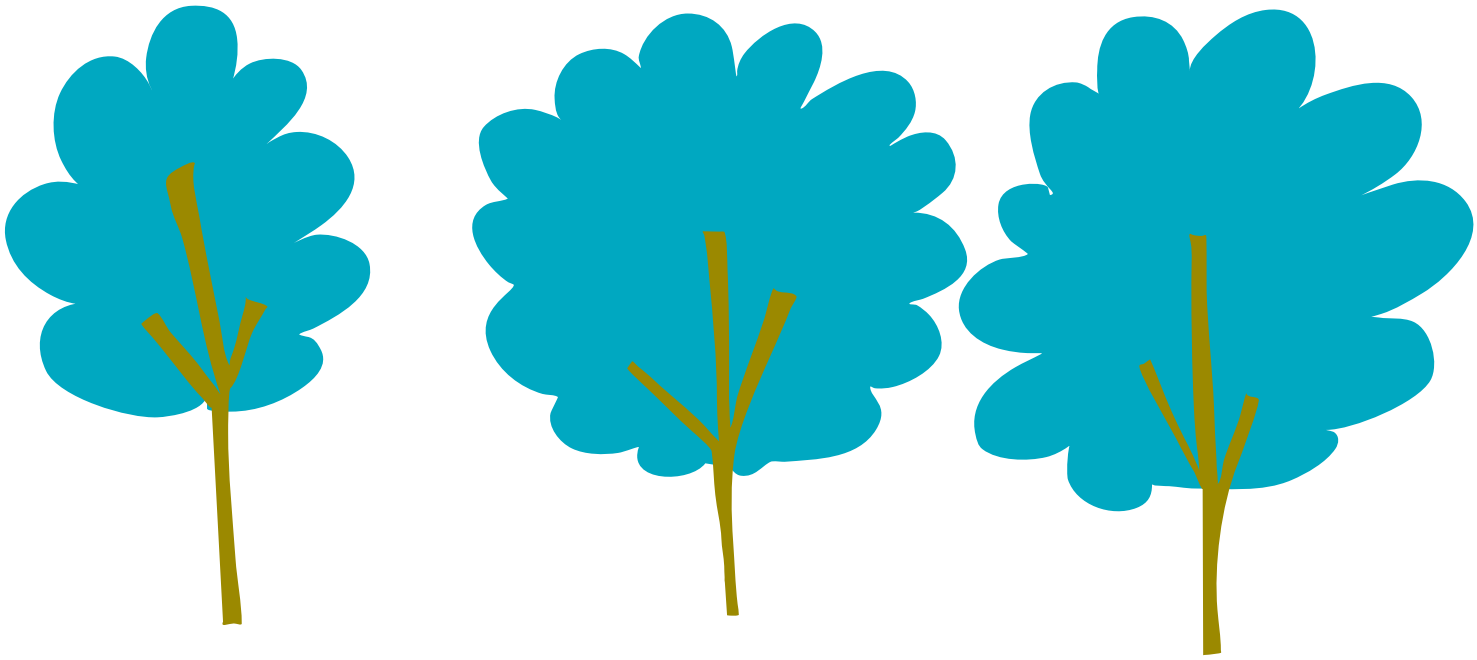
Global link

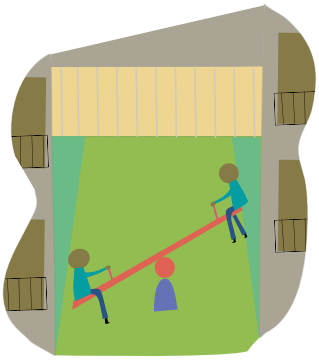
The concept of liveable cities links directly to many global principles of urban development, such as sustainable cities, happy and healthy cities and resilient cities. Specific aspects of liveable cities also link to wider global processes. Many of the activities in this Module support climate change adaptation and mitigation, for instance: car-free days cut carbon dioxide and other emissions; painting lanes for pedestrians and other users promotes walking and forms of non-motorized transport; placemaking encourages the upcycling of waste materials and contributes to the circular economy aimed at eliminating waste and the continual use of resources.

Behind all these measures are the people who take action and others whose lives are improved as a result. For example, neighbourhood festivals bring different groups

of people together through recreational activities and cultural exchange, contributing to happy and healthy communities – a principal indicator of a liveable city.

Liveable cities are also relevant to many cross-cutting issues on a global scale, such as the New Urban Agenda and the Sustainable Development Goals (SDGs). For example, these activities map directly to SDG 11: "make cities and human settlements inclusive, safe, resilient and sustainable". They are particularly relevant to Target 11.3: "enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries"; Target 11.6: "reduce the adverse per capita environmental impact of cities, including by paying special attention to air pollution"; and Target 11.7: "provide access to safe and inclusive green and public spaces". They also contribute to SDG 3: "ensure healthy lives and promote well-being for all at all ages"; particularly, Target 3.6: "halve the number of global deaths and injuries from road traffic accidents". In addition, these activities contribute to a country's commitments to the 2015 Paris Agreement.





Placemaking in urban spaces

Placemaking can transform an overlooked urban space into an attractive public place – a key component in making a city sustainable and which also contributes to the happiness and well-being of local residents.

"Placemaking inspires people to collectively reimagine and reinvent public spaces as the heart of every community"[1]. Through the placemaking process, an unused urban space can be used by local residents for meeting and relaxing along with recreational and cultural activities. Examples range from the simple act of installing a bench on the corner of a busy street to transforming a large empty lot into a children's playground. It also helps to enhance social cohesion and reinforce the aesthetic value of the area. It is important that the process is community-driven, participatory, inclusive, creative, flexible, dynamic and transdisciplinary.

A place can be transformed using locally available, low-cost resources along with local skills and technologies; for instance, by making a bench out of surplus wood.

TIME
- Weeks to months, depending on the scale.

DIFFICULTY
- High

RESOURCES
- Depends upon the resources available locally; the contribution of stakeholders; and the design that is being implemented.

PARTICIPANTS
- Enthusiastic city officials
- Residents – children, youth, parents, women, elderly people
- Volunteers
- Community representative/ leader
- Local businesses
- Schools
- Civil society organizations
- Local artisans
- Local technicians (masons, plumbers, electricians)
- Religious leaders
- Media

NUMBER OF PARTICIPANTS
- Approximately 4–5 volunteers and stakeholders (depending on the scale of the project).

Steps

1. Select the site – consider any unused public places or empty buildings in the neighbourhood for your placemaking project.
2. Obtain the necessary commitment and permissions from the local authority. Convey your message clearly, including the placemaking project's objective and milestones as well as the time, help and other resources required. This will help to get buy-in from the local authority.
3. Identify other key stakeholders, such as local businesses and building owners; enthuse and mobilize them in your project.
4. Visit the site as a project team. You could even organize a workshop at the site to develop initial ideas and designs.
5. Conduct a resource mapping exercise – who is available to help, what can they contribute, where and when? For example, some stakeholders may prefer to offer you in-kind support, while others may want to make a financial donation. Revise the concept accordingly and devise an implementation plan.

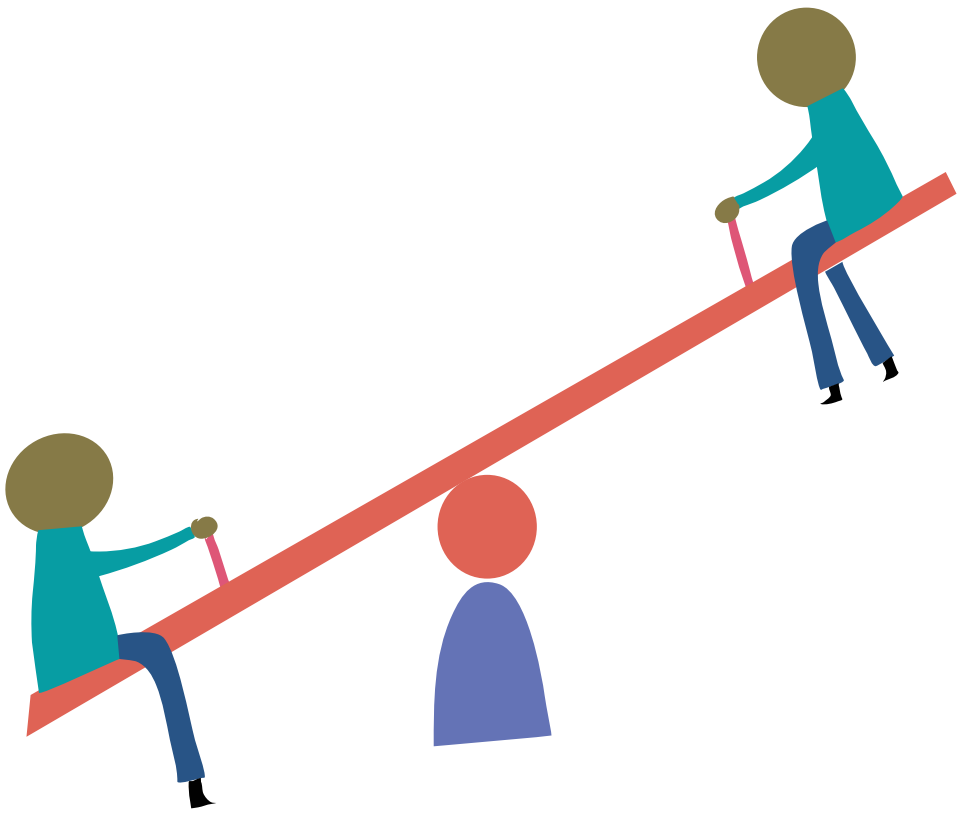
[1] https://www.pps.org/category/placemaking

› Placemaking in urban spaces

6. Make a start on your placemaking project – the weekend is a good time to begin as more people should be available.

7. Formally assess your progress after 2–3 weeks; adjust the implementation plan if necessary.

8. Once complete, hand over the placemaking project to the local authority for ongoing operation and maintenance, or form a community group to take over.



Neighbourhood festivals

Festivals give local residents the opportunity to know and value each other, creating harmony and social cohesion. They also facilitate recreational activities, cultural exchange and, ultimately, a sense of community.

One of the principal indicators of a liveable city is happy and healthy communities. And one of the key elements of a happy and healthy community is social and cultural cohesion.

The size and scale of the festival should be determined by the resources available locally. Festivals can include flea markets, family activities, live music and food and beverage stalls, for example. This will make the festival vibrant and also create livelihood opportunities for stallholders. When considering the location of the festival, it is important to ensure equitable access across different cultures and ethnicities as well as socio-economic groups and to those with disabilities.

TIME
- all-day event, once a year

DIFFICULTY
- Medium

RESOURCES
- Depends upon the size and scale of the festival.

PARTICIPANTS
- Enthusiastic city officials
- Residents – children, youth, parents, women, elderly people
- Volunteers
- Community representative/ leader,
- Civil society organizations
- Media

NUMBER OF PARTICIPANTS
- At least 10–15 volunteers for a festival with 80–100 people (depends upon the size and scale)

Steps

1. Identify the neighbourhood where you plan to hold the festival. Share the idea among the local community; encourage everyone's enthusiasm and involvement.
2. Together, make an outline plan of the festival so that it ensures the participation of all social groups; decide if it will have a theme and any key messages.
3. Submit the outline plan to the local authority and seek its permission. Also involve any neighbourhood associations.
4. Once permission has been granted, form an organizing committee and make a detailed plan of action. Incorporate different activities and partners, such as the media, to promote the festival.

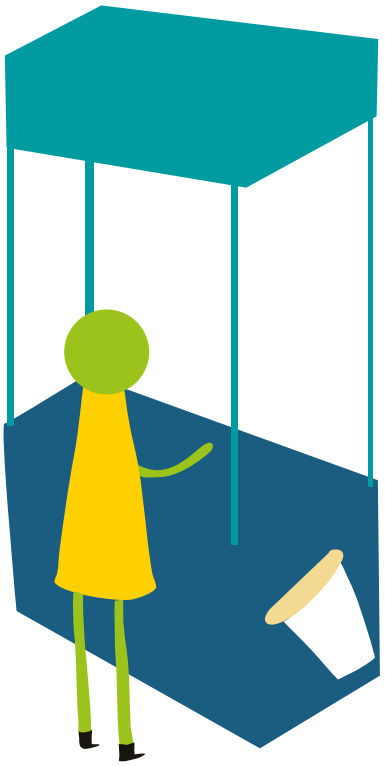
› Neighbourhood festivals

5. Delegate responsibilities to members of the organizing committee; meet regularly to report progress and update the action plan; begin reaching out to prospective stallholders and volunteers.

6. Develop the festival's message(s) on social harmony and cohesion. Promote the festival via social/local media.

7. Open the festival with a welcoming speech by a high-profile local resident.

8. After the event, seek feedback from members of the organizing committee, local residents, stallholders and festival goers to inform future events.



Car-free days

Car-free days are a creative way to increase the amount of usable public space, engender a sense of community and promote healthy living.

Car-free days are the practice of closing particular streets in a city on one day per week, for example, so that people can use them for cycling, running, walking, relaxing and socializing etc. Car-free days encourage healthy and active lifestyles, reduce air pollution and increase community cohesion. The scale of the street closures varies from city to city. Bogota, Colombia, for example, closes 120 kilometres of the city's streets every Sunday and on all public holidays; while Jakarta, Indonesia, holds a car-free day every Sunday from 6am to 11am on several primary roads in the city.

Steps

TIME
- Weekly or monthly

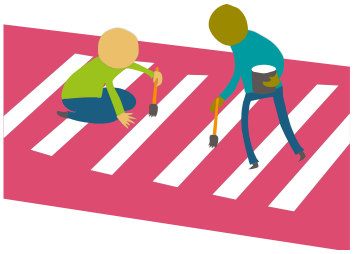
DIFFICULTY
- High

RESOURCES
- Signage for street closures

PARTICIPANTS
- Volunteers
- City residents
- Media
- Mayor
- Civil society organizations
- Business partners
- Fitness instructors

NUMBER OF PARTICIPANTS
- 10+ volunteers, depending on scale

1. Identify the key partners needed to create a car-free day, including local government officials who have the authority to close streets in the city.
2. Select the streets, taking into account local residents' access and keeping major routes open for the emergency services.
3. Plan to open the car-free day to cyclists, skaters and runners by cordoning off a long thoroughfare for these fast-moving users. Establish separate zones for other activities such as free fitness classes, temporary cafe seating and children's play areas (e.g. a sandpit or paddling pool).
4. Advertise the car-free day through local media so that city residents can plan to take part and motorists can plan alternative routes.
5. Ensure adequate signage on the day so that pedestrians don't stray into the cycle lane or vice versa; recruit volunteer stewards to direct people and answer their questions; share photos and videos of people enjoying the car-free day; conduct a survey of users' satisfaction and use the results to decide if this should become a regular feature in the city.



Painting lanes for pedestrians and other users

Painting lanes for pedestrians and other users creates clear demarcations that allow them to cross streets safely and to occupy spaces that would otherwise be encroached upon by cars and other vehicles.

In many cities it is becoming increasingly dangerous for pedestrians, cyclists and users of other non-motorized transport to cross busy road junctions. Clearly indicating lanes for pedestrians etc. can help to keep everyone safe and improve mobility around the city. The lanes' markings also bring colour and interest to the city's streets.

Steps

1. Identify where it would increase safety to create lanes for pedestrians/ users of non-motorized vehicles by keeping them away from cars and other traffic.
2. Seek the local authority's permission for the project before involving local community groups, artists, schools and others. Hold a community consultation on where the lanes should be painted; solicit design ideas.
3. Based on the feedback, finalize the design and find volunteers to help with the painting.
4. Organize a time to paint the lanes. For the busiest streets, this may need to be very late at night or early in the morning when there is less traffic. Consider pairing this activity with a car-free day.
5. Buy all of the materials and create teams to do the painting.
6. Ask the police or a local community group to help in blocking off the area while you are painting. Ensure there is at least one person looking out for oncoming traffic.
7. Appoint a lead artist to sketch out the design on the pavement and to direct others on what to do. It may take several days to complete the painting.

TIME
- 3–5 days

DIFFICULTY
- Medium

RESOURCES
- Cans of paint
- Paint brushes
- Rags for cleaning
- Brooms

PARTICIPANTS
- Volunteers
- Community leaders
- Artists
- School groups

NUMBER OF PARTICIPANTS
- At least 10 people

CASE STUDY

A DISABILITY SUPPORT GROUP HOLDS AN OUTDOOR EXERCISE CLASS FOR PARENTS AT MMOFRA PLACE PARK
(Photo: Mmofra Foundation)

Mmofra Place in Accra, Ghana

Mmofra Place is a 1.5 acre plot in the Dzorwulu neighbourhood of Accra, Ghana, which is being transformed for children and young people as a safe place to play and learn. Mmofra means "children" in Akan; and the initiative is being championed by the Mmofra Foundation – a Ghana-based NGO which seeks to enrich the lives of children through creative interaction with their cultural and physical environments.

Accra is urbanizing rapidly and has a young population, yet there are few easily accessible and safe public spaces. Recognizing this, Mmofra Foundation organized a conference in 2012 which sensitized local architects, engineers, artists and educators as well as youth and community leaders to reassess and revitalize child-friendly urban parks in Accra. The concept of Mmofra Place was developed at this time.

Universal access, repurposing of local materials and a 'lighter, quicker, cheaper' approach are principles that are applied in the park by Mmofra Foundation and local stakeholders. Described as a 'green lab' by the Foundation, Mmofra Place also hosts educational and behavioural change events for children on climate change, WASH practices, gardening, exercise and more. The space also accommodates STEM (Science, Technology, Engineering and Maths) exhibitions, and environmental educational programmes with vital messages such as the importance of trees for dealing with air pollution, reducing air temperature, and for mental health. The focus on public wellbeing is one of the critical factors that encouraged local residents to participate in this process, transforming an underused site into a lively and attractive public space.

Still a work-in-progress, the park has become a unique testing ground for learning through sensory, social and physical play. Mmofra Place upholds Ghana's cultural and natural heritage and also demonstrates practical solutions towards urban resilience. The Mmofra Place model is being replicated in other public spaces in the city, including marketplaces, school yards and neighbourhood parks.

The work of Mmofra Foundation and other like-minded organizations is even more critical today. The worldwide COVID-19 pandemic has highlighted the importance of maintaining outdoor spaces for healthy social interaction, especially in cities. Mmofra Foundation enjoys the support of, among others, UN-Habitat; HealthBridge – Canada's liveable cities programme; Project for Public Spaces – a New York-based non-profit organization; and the Bernard van Leer Foundation – experts in early childhood development based in the Netherlands.

Early Warning Early Action

Translating early warnings into anticipatory actions is helpful in determining the likelihood and severity of risk. Early warnings also provide sufficient lead time to take action to save lives, assets and the livelihoods of communities.

This module suggests a range of activities that help vulnerable communities to understand and use weather information more effectively, enabling them to take early action to reduce risks and maximize opportunities. Together, these activities form an Early Warning Early Action approach.

The activity 'Understanding weather information' is about helping people to understand weather and its impacts in their community and connecting to the national meteorological service to obtain forecasts.

The activity 'Mapping community communication networks' is an easy way to map the flow of communication within a community, which can support the development of appropriate communication systems at community level.

The activity 'Design a communication system' focuses on the dissemination of information. It is a step-by-step guide on implementing communication system(s) to quickly cascade essential messages within a community.

The activity on 'Cooling Centres' provides guidance on how to use equipment that is readily available to support community members in days of extreme heat.

Global link

The activities in this module help communities and vulnerable groups to access, understand and act upon weather information by making it easier to understand and more locally relevant. The module includes a series of activities designed to improve the communication of important information to residents, using channels and actors that already exist within the community. Collectively, these activities relate to Sustainable Development Goal 13: "Take urgent action to combat climate change and its impacts"; and, in particular, Target 13.1: "Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries" along with Target 13.3: "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning".

By making weather information easier to access, understand and use, these activities also directly support Target G-5 of the Sendai Framework for Disaster Risk Reduction that calls for an increase in the "number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels".

Understanding weather information

Understanding how people perceive the weather and its impacts leads to better awareness of, and preparedness for, the effects of the weather on the day-to-day life of communities.

People who are vulnerable to high-impact weather – such as extreme rainfall, tropical storms or drought – need to know when it will occur and how it will affect them. Locals can describe the scale of any damage, disruption or other impacts that may result from the conditions forecast, especially for recurring weather. Sharing forecasts can help community members to take appropriate action.

TIME
- About 6 hours

DIFFICULTY
- Medium

RESOURCES
- Venue
- Smartphone, laptop, radio, television or any other device(s) for finding online daily or weekly weather forecasts
- Paper and pens / pencils or audio / audiovisual recording devices (if available and agreeable to participants) to record discussions
- Crayons, chalks or coloured pens/pencils

PARTICIPANTS
- Community leaders
- Local residents
- Other members of the community
- Representatives from the local government authority
- Representatives from the national meteorological service

NUMBER OF PARTICIPANTS
- 10–30

Steps

1. Ask local leaders and residents what kind of weather affects their community most seriously. Recruit a group of people who have a vested interest in how the weather affects their livelihoods (e.g. farmers, fishers, business people etc.)

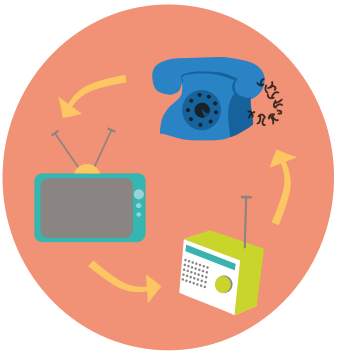
2. As a group, identify the main weather hazards affecting the community, e.g. heavy rainfall, high temperatures, strong winds. Start by discussing impactful weather that has occurred recently as well as in the past, before asking participants to vote on the hazards that were the most impactful. (min. 30 minutes)

3. Then list the impacts that resulted from these hazards, which can vary from event to event, e.g. heavy rainfall can result in minor flooding on one occasion; but, next time, can lead to major flooding that carries away livestock and even homes. Order the list from ‘minor’ to ‘major’ impacts.

4. Find a daily or weekly online forecast that provides local weather information that includes your community. This may be published by the national meteorological service or a private-sector weather company. (min. 1 hour)

5. Discuss the actions that community members might take for different types of forecast. For example, if a dry spell is forecast this could be a good time for planting crops or constructing buildings.

6. Monitor the forecast regularly and stay alert for possible high-impact weather that may affect the community. Share the weather information with community members so everyone can make timely decisions to suit their needs.



Mapping community communication networks

Understanding the way that information flows within a community is crucial for planning the future dissemination of important information. However, detailed intelligence on communication channels, key influencers and blockers is rarely mapped.

Mapping information flows provides a basis for understanding the wider information ecosystem of a city. It captures the way information flows among community members, through various channels and formats. This exercise can also identify blockages in the flow of information; fixing these can improve climate resilience at local level. It can also help to identify individuals or groups who are highly influential within a community as well as those who can bridge communication boundaries to improve the community's access to important information.

TIME
- 10–15 days

DIFFICULTY
- Medium

RESOURCES
- Venue
- Paper and pens / pencils or audio / audiovisual recording devices (if available and agreeable to participants) to record discussions
- Large pieces of paper to draw the actors and connections
- Coloured pens and / or paper to colour-code different actors
- Survey tools

PARTICIPANTS
- Community leaders
- Residents
- Other members of the community
- Intermediaries supporting the community e.g. non-governmental organizations and community-based organizations
- City-wide and local media
- Urban decision-makers e.g. city hall
- Providers of services to the community, e.g. water and sanitation department(s)
- Information service providers

NUMBER OF PARTICIPANTS
- Core team of up to 3 people familiar with the community to lead the activity
- 3–5 enumerators to conduct 70–100 household surveys
- Groups of up to 10 people for the discussions

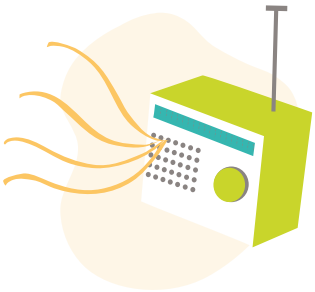
Steps

1. Form a group of community members to discuss how they access general and weather-related information as well as their preferred media, formats and any challenges to receiving information. Also discuss the type of action(s) they take having received the information and how long it takes to complete each action.

2. Observe the local area to identify its communication infrastructure (e.g. community radio) and understand the role that local services or public buildings may play in information sharing.

3. Conduct informal interviews with local media, decision-makers and data providers to gather in-depth knowledge of their information needs and preferences. This will also indicate how information is communicated as well as how and when it is shared, along with the different formats used and perceptions of key challenges.

4. Using all the information gathered, map the local information ecosystem. In particular, identify weather information actors and channels. It may be helpful to colour-code the different types of actors (e.g. information providers, intermediaries, information receivers). In your drawing of the network, consider ways to emphasize the most popular and effective channels, and ways to identify actors who add value to the information that they share.



Designing a communication system

An effective communication system uses channels and tools that enable important information to be cascaded quickly within a community. These systems can be implemented at minimal cost using pre-existing resources.

Design a multi-channel communication system to help communities share important messages quickly. This should be based on the ways local residents already share information in the community. These methods may include cascading – where one group of recipients passes the message on to another; training – where key people learn how to relay messages through the channels selected; and feedback – where all users of the communication system report what's working well and where improvements are needed.

Steps

1. Identify the most effective channels for communication. Convene a meeting of local representatives to find out how people share trusted information and gather feedback (positive or negative) on the communication channels they currently use. Some channels may reach particular sectors of the population more effectively than others i.e. older people may use SMS; younger people may prefer social messaging apps such as WhatsApp.

2. Identify the gatekeepers for each channel. If you decide to use schools to communicate with children and their parents, you will need to win the collaboration of headteachers. If you want to circulate messages through a school's Facebook page or a WhatsApp group, for example, you will also need to contact the administrator.

3. Win the collaboration of other gatekeepers of local communication channels. Explain what you want to achieve. Ask them to pass on important weather messages and provide feedback from the recipients.

4. Test and review. Disseminate a test message to see how well the communication system works. Make any necessary adjustments.

5. Monitor feedback from recipients and gatekeepers to adjust and improve your messaging. Actively seek feedback on all aspects of the message, including content, format, language, timeliness etc. Discuss the feedback with local leaders / community representatives, information providers and channel gatekeepers and agree clear actions to address any negative feedback received.

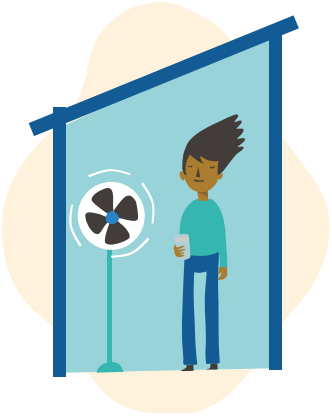
TIME
- 2 weeks

DIFFICULTY
- Medium

RESOURCES
- Venue
- Paper and pens / pencils or audio / audiovisual recording devices (if available and agreeable to participants) to record discussions

PARTICIPANTS
- Community leaders
- Communication channel gatekeepers – social media, local radio, headteachers etc.
- Other stakeholders – those who receive the message, or relay the message, or use the information

NUMBER OF PARTICIPANTS
- 30



Cooling centres

Cooling centres are places where people can rest and cool down during periods of extreme heat. They are also places where people can learn about the dangers of heat and recognize the signs and symptoms of heat stress in themselves and others. Cooling centres are a livesaving measure in communities experiencing a heatwave.

Heat can be dangerous and anyone can be affected. Cooling centres are a good way to avoid the heat and are used by commuters, outdoor workers and older people – anyone exposed to very high temperatures and at risk of heat stress. As an early action, cooling centres are easy to implement and low budget.

Steps

1. Check the weather forecast and especially any weather warnings regularly to prepare for periods of extreme heat.
2. Identify a suitable location that is accessible and convenient for community members who may be experiencing heat stress e.g. Red Cross offices, public buildings or spaces provided by the private sector. You could also consider going mobile to reach more people with cooling buses or tents. Working with local government and other partners can reduce the costs of setting up a cooling centre.
3. Equip the centre with cooling devices such as shades, fans, cold water sprays or air conditioning units. Make sure you have good air circulation.
4. Prepare refreshments for the visitors – cold water, herbal tea or fruit juice, for example. Providing wet towels is also a good way to provide some relief from the heat.
5. Prepare signs or flyers on the dangers of heat. Use graphics to help accessibility and understanding of the message. Explain the dangers to visitors.
6. Share your experiences with volunteers and community members who visited the cooling centre to make any adjustments / improvements the next time you set up when very hot weather is forecast.

TIME
- 5 hours

DIFFICULTY
- Medium

RESOURCES
- Venue – building, bus, tent or even a shady tree
- Large pieces of paper and pens – to create posters
- Refreshments – water, herbal tea, fruit juice
- Small towels
- Fans, sprinklers or air conditioning unit, if available

PARTICIPANTS
- Volunteers
- Community members
- Schoolchildren

CASE STUDY

WORKSHOP CONVENED WITH LOCAL STAKEHOLDERS IN KIGOGO INFORMAL SETTLEMENT

(Photo: Centre for Community Initiatives (CCI))

Developing locally relevant weather impact statements and actionable advice in Dar es Salaam, Tanzania

People who are vulnerable to high-impact weather need to know when it will occur. But forecasters often use technical jargon that is difficult to understand. As a result, people are not able to use forecasts to take preventative action(s). Additionally, people want to know how the weather will impact their area specifically, so they can take the most effective action given their local context.

A way to resolve this is to make weather forecasts more relevant locally – in terminology, language and descriptions of localized impact(s).

Workshops were convened with local stakeholders of Kigogo informal settlement in Dar es Salaam, Tanzania, to develop a series of weather impact statements and advisory messages for local residents in the form of a reference guide. The guide – written in Swahili – lists all the weather conditions that the Tanzania Meteorological Authority uses in its forecasts, alongside a locally relevant description of each weather condition.

Weather impact statements translate the forecasts of 'what the weather will be' into locally relevant information about 'what the weather will do'. They describe the possible damage, disruption and other impacts that may result from the conditions forecast. Advisory messages – developed by communities on the basis of the weather impact statements – can help people respond more effectively to the local weather conditions.

Community leaders and others use the guide to interpret the weather forecasts they receive in terms of how the weather will impact their area and what preventative actions should be taken, given the geography of the area. For example, houses built by the side of a river may experience the same weather condition differently to houses built on the side of a hill. As the weather forecasts are disseminated throughout the community, the added weather impact statements and advisories help the residents of Kigogo to understand how the weather is likely to affect them and what actions they should take.

CASE STUDY

LEADERS RECRUITMENT MEETING
(Photo: Kounkuey Design Initiative (KDI))

DARAJA (Developing Risk Awareness through Joint Action) designing a community weather communication system in Nairobi, Kenya

To build an effective weather communication system for a community in Nairobi, Kenya, a thorough mapping of the existing information ecosystem was completed first of all. The mapping showed which channels were currently being used by the residents for various communication needs, specifically weather information.

Next, local stakeholders – including the Kenya Meteorological Department and local residents – worked together to design a locally relevant weather communication system. Rather than introducing completely new channels, those that were currently being used – such as community radio; the Facebook page of a local community group; WhatsApp groups of various local stakeholders; and a phone tree system using SMS – became the communication system for disseminating locally relevant weather forecasts. The advantage was that people were already familiar and comfortable with these technologies, making the uptake of weather information easier; and, in doing so, creating an inclusive community communication system that reaches approximately 500,000 residents.

Importantly, the communication system is two-way: information is disseminated to residents and feedback from residents is communicated to the Kenya Meteorological Department. Weather information from the Kenya Meteorological Department is contextualized with local impact statements, which adds value and makes the forecast locally relevant and actionable.

For example, the phone tree system disseminates weather information quickly and easily within the community through SMS. This starts with one group of recipients who have been trained to then pass the message on to another group etc. Key people have been trained to understand, interpret and relay messages through all the channels used.

Creative communications

Creative communications can help to get your message across in urban settings, where people are frequently exposed to professional communication strategies such as advertising campaigns. In such settings, creative or unexpected ways of communicating will help your message to stand out.

This module describes some of the ways you can use creative communication to raise awareness of urban issues. Urban spaces are filled with creative inspiration; here, we share some creative ideas that make use of these spaces.

Creative communication is not just about conveying important messages to a wider audience. It can also help to engender a sense of belonging and shared purpose in your group of volunteers and partners engaged in urban work.

In addition, it can make use of a range of skills across a diversity of communities; and provide an entry point for local groups to actively engage and participate in urban messaging.

This module shares four creative ways to communicate: urban art and flashmobs – to promote important messages; tactical urbanism – to demonstrate what is possible; and cartoon-a-thons – to dig deeper into important topics.

Global link

Creative communications are a great tool for connecting with, and influencing, global policy processes. If local actions are documented effectively through video, photographs and case studies, they can serve as powerful and engaging examples of urban activism to advance the Sustainable Development Goals, New Urban Agenda or Paris Agreement 2015.

Coordinated action across multiple cities within your country or across borders can have an even greater impact by attracting a large, and potentially global, audience.

Urban art

Urban art is a creative and inspiring way to communicate key messages and/or revitalize an area within a community.

Urban art brings people together to create installations such as murals, mosaics and sculptures. By designing and crafting the piece of art, people can share new visions of the city, revamp its spaces with vibrant colours and communicate key messages on topics such as culture, health or even climate change or natural disasters. Urban art can inspire people, brighten city-dwellers' lives and promote equality and inclusion.

This activity outlines the key steps to take in an urban art project in your community.

Steps

1. Local authorities, community groups, neighbourhood associations, schools and artists can help to shape ideas for the installation and identify resources, including volunteers and materials. To keep costs to a minimum, consider asking local suppliers if they can provide the materials in-kind.

2. Think of spaces in the city that are underused, yet frequently seen. Consider static spaces such as government buildings and mobile spaces such as city buses. Identify the space(s), seek the necessary permissions, and agree the theme or message.

3. Sketch a design of the art installation and show how it will transform the space. Share the design and concept with everyone involved. Public art can transform spaces that are underused, perhaps due to aesthetics, function or crime. If you are taking this approach, you may want to consider combining your urban art project with a placemaking activity, see page 50.

4. Recruit volunteers and plan how to create the piece of art – it could take a few days or a couple of weeks to finish the work, depending on the size of the project, the weather and the number of people involved.

5. Get creative! Consider the volunteers' safety if they're working outdoors, at height, using sharp tools, or working in an unsafe/unlit area of the city. Post progress on social media and get local media involved.
If you have a larger budget you could also arrange for prints of the urban artwork to be displayed on advertising hoardings along public transport routes (such as major road junctions and central train stations) or in other highly visible locations.

TIME
- 1–2 weeks

DIFFICULTY
- Low–medium

RESOURCES
- Volunteers
- Paint
- Paint brushes

PARTICIPANTS
- Artists
- Volunteers
- Media

NUMBER OF PARTICIPANTS
- 5–15

Tactical urbanism

City residents around the world are using short-term, adaptable projects to advance long-term goals related to street safety, the use of public spaces, and more.

'Tactical urbanism', as it is known, is all about action. It refers to a city-, organization- and/or citizen-led approach to a challenge in the built environment, using short-term, low-cost and scalable interventions to catalyze long-term change. Examples include temporarily turning an abandoned parking lot into a café; painting pedestrian crosswalks in an area with heavy traffic; adding potted plants to 'green' a pavement; and opening pop-up shops in an underserved area – and many more.

Steps

1. Explore the challenges of your city's built environment and shortlist those you'd like to address. Select one and think of creative ideas that show how the challenge can be overcome with temporary changes. For example, a neighbourhood in need of economic revival might choose to demonstrate its potential vibrancy with temporary shops and cafes; or an underused park could be transformed with life-size games, such as chess, checkers/draughts or Jenga, for families to play. The options are endless.

2. Recruit appropriate partners to support your activism. These could include local authorities, civil society organizations and/or community groups. To keep costs down, it's always worth considering how to bring in partners who can offer in-kind contributions.

3. Plan the event with partners. Identify a city block, square, parking lot, pavement or other area where these temporary changes can be implemented. Seek the necessary permissions. Decide how long the changes will be in place (typically 1–7 days); list the tasks that need to be completed and allocate them to the team.

4. Take action and document progress. Share photos and videos of people interacting in the new-look space. Invite local officials to see it for themselves.

5. Reflect with partners on the outcome. Consider how to work with the community and local authorities to make more permanent changes that overcome the challenges you identified.

TIME
- Varies

DIFFICULTY
- Low–medium

RESOURCES
- Depends on the activity

PARTICIPANTS
- Volunteers
- Business partners
- Civil society organizations
- Media

NUMBER OF PARTICIPANTS
- 10–30

Flashmobs

Flashmobs can be used as an awareness-raising tool on issues such as staying safe in a heatwave or the importance of regular hand washing.

A flashmob is a seemingly random coordinated action of a large group of people, in a public space, in which they perform for a short period of time and then disperse. A flashmob is intended to grab the attention of the public in an entertaining way and relay a message, such as how to stay safe in the heat.

Steps

1. Form a group of volunteers from a local performing arts school, school or community group. Decide where to perform the flashmob based on who needs to hear your message, and where these people are typically found in the city. For example, if roadside vendors are vulnerable to the heat, you might choose to do your flashmob in a busy market area. You can decide on multiple locations if you have time and enough volunteers.

2. Discuss the top three key messages that you want to communicate. For example, important points on heatwaves could include: risk (e.g. heatwaves are deadly); self-protection measures (e.g. protect yourself by staying indoors during the hottest time of day); and inform the public about an imminent threat (e.g. a heatwave will start on Saturday).

3. Use the creative strengths of the group to develop a way to deliver these messages and connect with the local audience. For example, is one of the volunteers good at planning choreography? Is one of the group a talented singer? Or is anyone good at composing poetry? Other ideas include taking the music from a popular song and replacing the lyrics with your key messages; or you could associate certain phrases with a particular dance move. Be creative! Gather any materials or props that you may need in your performance.

4. Practice, practice, practice!

5. Arrive at the location at least 15 minutes before your performance and plan how to disperse discreetly afterwards. Remember to bring water, sunhats and any other essentials with you to ensure volunteer safety.

6. Perform! Now is your time to shine. A successful flashmob will attract a large crowd and coverage on social/local media.

7. Reflect on the experience. Think about ways to improve or scale-up future flashmob performances.

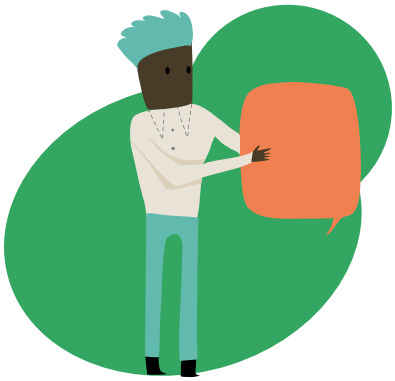
TIME
- 2–3 days

DIFFICULTY
- Medium

RESOURCES
- Transport to the flashmob location
- Props used in the flashmob performance
- Cameras/mobile phones to take photos and videos

PARTICIPANTS
- Volunteers
- School groups
- Community groups

NUMBER OF PARTICIPANTS
- At least 15 people



Host a cartoon-a-thon

Cartoon-a-thons are a light-hearted way to explore tough topics, revealing underlying realities and sensitivities.

In this activity we learn how to run a cartoon-a-thon to delve below the surface of an important topic. Cartoon-a-thons involve developing and refining cartoons in real-time with the help of a cartoonist and using feedback from an audience to capture ideas and insights. Cartoons can get to the heart of a matter in a simple and eye-catching way.

TIME
- 90 minutes

DIFFICULTY
- High

RESOURCES
- Video conferencing software (if virtual)
- Formal recognition/ recompense for cartoonist(s)
- Paper
- Markers
- Sticky notes
- Pens

PARTICIPANTS
- Cartoonist(s)
- Community members with interest in the topic
- Staff

NUMBER OF PARTICIPANTS
- Ideally 10–30

Steps

1. Select a theme that is important to your urban community. It can be about any urban topic, such as creating a healthy and liveable city, or staying safe in the city.
2. Offer a local cartoonist the opportunity to get involved. Ask the cartoonist to create initial drafts focusing on the challenges and opportunities of the topic.
3. Find and book the venue; invite a limited number of people to join the cartoon-a-thon; equip the event with the necessary materials.
4. Introduce the topic to open the cartoon-a-thon and get people thinking. Compere the event, perhaps by inviting speakers to share their experiences on the topic and/or asking everyone in the audience to contribute one idea.
5. Display the initial drafts of the cartoons before encouraging participants to look at them and share with others their experiences or insights relating to the cartoons.
6. Then invite the participants to join a plenary and share their reflections on the cartoons. Simultaneously, ask the cartoonist to revise the initial drafts in real-time based on the audience's feedback.
7. Share the final cartoons with the audience. Invite people to reflect briefly on what they have learned. Formally thank the cartoonist and participants before closing the event.
8. Display the cartoons in an public place, such as the foyer/reception of a government building or community centre, and invite people to share their view(s).

CASE STUDY

COMMUNITY MEMBERS GATHER AROUND POP-UP COOLING STATIONS IN LUSAKA, ZAMBIA
(Photo: Bettina Koelle)

Tactical urbanism on heatwaves in Lusaka, Zambia

A tactical urbanism project was planned and implemented in Lusaka, Zambia with a number of partners: People's Process for Housing and Poverty in Zambia; University of Zambia; FRACTAL – an international research programme to increase the climate resilience of southern African cities; Zambia Red Cross Society; Zambia Youth Federation; and Lusaka City Council.

Using the *Heatwave Guide for Cities* and campaign materials developed by the Red Cross Red Crescent Climate Centre and partners, the aim of the tactical urbanism was to raise awareness of the risks of extreme heat in Lusaka as well as the critical actions needed to reduce the impacts on human health.

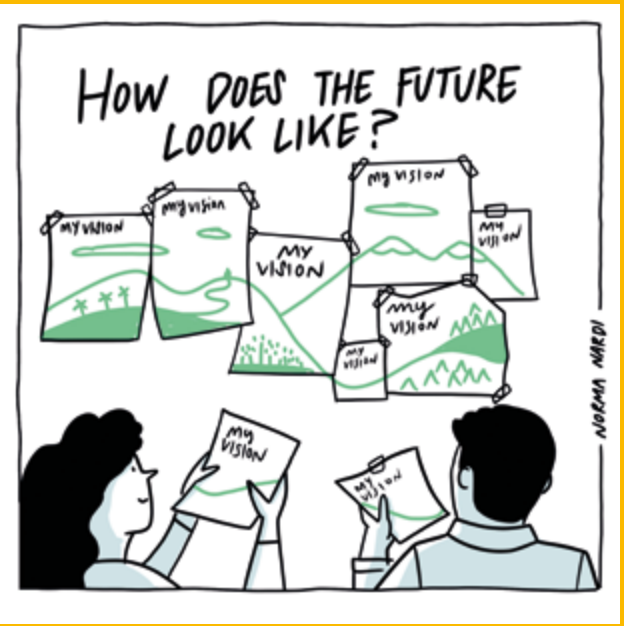
The tactical urbanism included: setting up chairs, beach umbrellas and cold foot-baths for passersby, including key information on heatwaves and how to stay safe during periods of extreme heat; a performance of traditional drumming and dance to draw a crowd and provide a festival atmosphere; an open-air theatre production on the risks of heatwaves in cities and why it is important to be prepared and to take action during such an event; slam poetry by the Zambia Youth Federation, highlighting the key messages of the *Heatwave Guide for Cities*; and security to make sure that all those taking part were safe at all times.

The action

The action took place on 28 November 2019 in the market area of George Compound – an informal settlement in Lusaka. The traditional drumming and dance performed by the Zambia Youth Federation drew a large crowd; and the open-air theatre and slam poetry performances were well received. Many people gathered around the chairs and foot-baths while volunteers explained what actions they should take during a heatwave in the city.

FOLLOW THIS LINK FOR A VIDEO: HTTPS://VIMEO.COM/386715673

CASE STUDY



Cartoon-a-thons to explore complex urban issues and transformation

Cartoons can be funny, and they can make us pause and think critically. As such, they can help to simplify complex issues and bring challenges into sharp focus.

A project team focusing on transformative adaptation and resilience arranged a cartoon-a-thon in July 2020 to explore the following questions:

- What is system-scale intervention?
- How do we centre community in our climate resilience efforts?
- How do we help transition away from short-term thinking and mindsets?

A group of regional representatives was invited to take part from Spain's Andalucia region, France's Nouvelle-Aquitaine region, the Italian Dolomites and Scotland's Glasgow region.

Questions around where to draw the boundaries of a system; how to act on something as elusive as 'transformation'; and how to create long-term, lasting change despite the limitations of shorter-term, election-cycle policies and planning arose as issues in the discussion.

Three cartoonists took part, pulling out the essence of the discussion and reflecting the main threads of the arguments back to the participants in their cartoons. The participants then had an opportunity to suggest changes while the cartoonists simultaneously modified their drawings. This resulted in a co-created articulation of the core challenges that could now be used for reference, sharing and making the case for radical changes towards meaningful transformation.

Cartoon on the left: Norma Mardi
Cartoon on the right: Irene Coletto

Acknowledgments

The Urban Action Kit was developed by a team from the International Federation of Red Cross Red Crescent Societies, the Red Cross Red Crescent Climate Centre, the Global Disaster Preparedness Center, Wetlands International, Resurgence and the German Red Cross.

Editors: Roop Singh[1], Julie Arrighi[1,2]

Authors, by module, are:
Urban Issues: Aynur Kadihasanoglu[2,3], Julie Arrighi[1,2], Roop Singh[1]
Urban Agriculture: Elaine Angeles[3]
Urban Water, Sanitation and Hygiene: Ramiz Khan[1]
Nature-based Solutions: Sander Carpaij[4], Eddie Jjemba[1]
Liveable Cities: Ramiz Khan[1], Julie Arrighi[1,2], Roop Singh[1]
Early Warning Early Action: Jennifer Joy Chua[5], Becky Venton[5], Robert Powell[5], Sunayana Sen[5], Thomas Smarczyk[6]
Creative Communications: Bettina Koelle[1], Roop Singh[1], Julie Arrighi[1,2], Hannah Sizelove[1]

[1]Red Cross Red Crescent Climate Centre
[2]Global Disaster Preparedness Center
[3]International Federation of Red Cross Red Crescent Societies
[4]Wetlands International
[5]Resurgence
[6]German Red Cross

The authors would like to thank the following people (in alphabetical order) for their generous time in shaping the direction of this guide and/or reviewing its contents:

Omar Abou-Samra, Global Disaster Preparedness Center; Jennifer Akumu, Uganda Red Cross Society; Fernel Campher, South African Red Cross Society; Nancy Claxton, International Federation of Red Cross Red Crescent Societies; Raimond Duijsens, The Netherlands Red Cross Society; Colin Fernandes, American Red Cross; Brenda Avila Flores, Mexican Red Cross; Wolfgang Friedrich, German Red Cross; Bonnie Haskell, Global Disaster Preparedness Center; Nyambiri Kimacha, World Bank; Irene Lui, Hong Kong Red Cross; Grace Mawalla, Tanzania Red Cross Society; Dushyant Mohil, SEEDS India; Ian O'Donnell, International Federation of Red Cross Red Crescent Societies; Sirak Temesgen, The Netherlands Red Cross; Ayub Twaha, Uganda Red Cross Society; Gavin White, American Red Cross; Amy Willox, Resurgence.

This guide was copyedited by Sarah Tempest, with support from Alex Wynter.
It was designed by Eszter Sarody.
Illustrations were developed by Annie Wilkinson.
Translation services were provided by American Language Services.
The development of this guide was funded by Climate-KIC and has received funding from the European Institute of Innovation and Technology, a body of the European Union, under Horizon 2020, the EU Framework Programme for Research and Innovation. Additional funding for this guide, in-cash and in-kind, was provided by The Netherlands Red Cross, the German Red Cross, the Global Disaster Preparedness Center and Partners for Resilience.

This kit was developed by:

Climate Centre

Global Disaster Preparedness Center

IFRC

RESURGENCE

Wetlands International

With funding from:

Climate-KIC

The Netherlands Red Cross

German Red Cross

PARTNERS FOR RESILIENCE