Case studies

Tatabánya, Hungary, addressing the impacts of urban heat waves and forest fires with alert measures (2014)

The City of Tatabánya has an approved comprehensive adaptation strategy, the Local Climate Change Action Plan, that is in its implementation stage. This Plan is based upon a comprehensive approach taking into consideration both mitigation and adaptation, incorporating climate considerations into decision-making, and including adaptation concerns in municipal processes. At this time, three measures have been implemented: (1) a local heat alert system; (2) the Smart Sun Educational Programme; and (3) building capacity of the fire brigade.

Case Study Description

Challenges

Tatabánya has and will continue to face two major climate-related risks for which adaptation measures are required: heat waves (urban heat island effect in Tatabánya) and wild fires threatening the surrounding region and the health of the population (air pollution) caused by extreme temperatures and droughts.

Objectives

A local heat alert system and the Smart Sun Educational Programme are designed to protect the public from the harmful impacts of high temperatures and UV radiations. They seek to:

- Increase public awareness about heat waves impacts on health and on efficient measures for self-protection against unfavourably high temperatures;
- Reduce the number of people exposed to the harmful effects of high temperature conditions and provide information that can reduce harmful effects on human health; and
- Save resources through focusing on prevention measures rather than measures that address the consequences.

The measures directed at building the capacity of the fire brigade are designed to protect the public and forests from wild fires, and prevent biodiversity loss; They seek to:

- Prevent damage from the wild fires and health impacts due to the smoke and biodiversity loss; and
- Prevent casualties among the fire-fighters due to the lack of training and capacity.

Adaptation Options Implemented In This Case

Awareness campaigns for behavioural change Monitoring, modelling and forecasting systems Establishment of early warning systems Adaptation of fire management plans

Solutions

Tatabánya established a mix of soft measures to deal with the impacts of heat waves as well as wild fires.

Tatabánya has a heat and UV alert system in place: when extremely hot weather is predicted a heat wave and UV protocol is set in motion. The prediction is produced using high-tech weather prediction methodologies. The protocol consists of a series of activities that provide advice to citizens on how to prepare for the predicted heat wave. A key aspect is that information reaches citizens rapidly and though different channels. As soon as an impending heat wave is forecast the National Medical Officer of Hungary is informed. Instructions for citizens, institutions, health care organisations and media, updated every 30 minutes, are distributed through various media channels: the local and regional media are alerted. Information is also distributed through other channels: the city homepage, mail delivery and faxes to all authorities, institutions, public companies and employers. The heat alert system has been activated several times already: three times in 2009 and 2010, twice in 2011 and also three times in 2012. The UV alert system was activated once every year, except in 2012 when it was activated twice.

According to the Mayor's Office, an increasing number of inhabitants are now aware of what they should do during an alert. The institutions of the city, about 150, reply to alerts sent out by the Mayor's Office and during an emergency act according to the plan.

Under the Smart Sun Educational Programme the different vulnerable groups (e.g., infants and their parents, youngsters, old people and ill people) are made aware of the harmful effects of heat waves and high solar activity on the human body, as well as of the simple and effective measures on how to protect themselves and take care of other people (e.g., drinking 2-3 litres of still water per day, staying indoors or in shady places, wearing light hats, sun glasses, etc.). Adults are also made aware of their rights concerning the working environment, especially if their work includes outdoor activities. For example, employers should supply employees working outside with drinking water, proper clothing, and should take care of the work regime (1 hour of working outdoors in the heat wave should be followed by 30 minutes of rest).

Higher temperatures during longer periods, reduced precipitation, and changing wind patterns increase the risk of forest fires in many European regions. The city of Tatabánya in Hungary has enhanced the capability of fire brigades to fight forest fires by providing specialist training and equipment; improving the road network in forest areas thereby enhancing accessibility during a fire for the emergency services; providing watchtowers or camera systems that can help to detect fires early; and offering well-managed emergency response systems. The use of a fire weather index system helps the fire brigade to prepare for and respond to such events. A strengthening of local and regional disaster management has led to a reduction in damage from forest fires and the number of casualties among fire fighters. An additional side benefit is that these measures have also helped with managing other natural hazards, such as storm events and floods, which are projected to occur more frequently as a result of projected climate change.

Relevance

Case developed and implemented as a CCA (Climate Change Adaptation) Measure.

Additional Details

Stakeholder Participation

The Tatabánya Plan is the result of the integration of top-down and bottom-up approaches. The plan was prepared with the assistance of the Sociological Research Institute of the Hungarian Academy of Sciences. The City of Tatabanya has been supporting the initiatives proposed by the Academy and, by using the support of civil society, the problems of environmental protection and specifically those associated with climate change risks were addressed.
During the preparation of the Plan extensive stakeholder consultations took place. All relevant municipal bodies were involved: the department of education within the Municipality of Tatabánya, the National Public Health Institute, schools (teachers and students), nursery homes, local hospitals, engineers, utility providers (electric company, industrial enterprises, the transport managing company, waste managing companies etc.).

Moreover the heat and UV warning system is based on close cooperation and participation of 22 different organizations, such as local police, local ambulance service, local civil defence, local fire department, local disaster recovery, hospitals, water utilities and schools. The residents of Tatabanya, in fact, formed three groups, each involved in promoting local sustainability. Among their many accomplishments, they have implemented a heat and UV alert program, organized teams to assist in the development of a local climate strategy, initiated a call for tenders to achieve more energy efficient housing, established emissions reduction targets, and implemented educational and information programmes (the city has an annual budget for its housing program, which includes energy saving). The three groups and their goals are as follows:

- The focus of the Inhabitants Group is to develop a new vision for the future of the city: they serve in a representative capacity in public decision making and through their efforts have helped to promote communication between residents and public officials by ensuring that local interests are known;
- The second group is the Local Council of Pupils: this is comprised of student representatives who engage in a variety of tasks, including participating in local decision making; and
- The third group is the Local Climate Group that is comprised of individuals from all walks of life including students, pensioners, doctors, nurses, teachers, engineers, scientists, public officials, heads of companies, and inhabitants.

Success and Limiting Factors

The alert starts from the Mayor's Office that then informs about 150 institutions, who then send the alert forward to their workers, and to their contacts. Every institution thus informed know what their responsibilities are during an alert. Through this, and the media (local radio stations, and television), almost the entire population of the city learns about the alert. The Mayor's Communication Office also informs the politicians. The Sociological Research Institute helped the City design the alert plan. Now the Institute has the professional knowledge, and they can also help other Hungarian municipalities and members of the Climate-Friendly Cities Association.

Costs and Benefits

Development of the Strategy and Action Plan was made possible by utilising the budget for Environmental Education and Climate Change at the municipal level; staff was assigned from the Municipality of Tatabánya and from the Sociological Research Institute of the Hungarian Academy of Sciences.

For 2009 the implementation budget from the Environmental Education and Climate Change Department, was HUF 4.000.000 (app. EUR 15.000) and a full time climate manager was assigned. The future aim is to establish a separate climate budget line. There is another budget source for implementation from the local Environmental Education Programme, approximately HUF 4.000.000 (app. EUR 15.000) per year.

Tatabánya's approach to capacity building amongst fire-fighters is comprised of straightforward yet effective communication-focused measures designed to help avoid losses in forestry and green space and protect the population. The benefits are very likely to outweigh the costs because capacity building is an order of magnitude cheaper than the average costs of fire damage and lost ecosystem services.

Legal Aspects

The Tatabánya Plan is encouraged under the National Climate Change Strategy of Hungary adopted in 2008. The Department for Strategy and Control of Tatabánya has been the lead governmental body during the preparation, and it will be the leading implementing agency.

Implementation Time

Approximately 1.5 years were needed to develop the strategy.

Life Time

2008-2025. The implementation of the measures started in 2008 and is on-going, management of the municipality is regularly informed about its state of progress and its elements will be considered during the revision of long-term spatial plans.

Reference Information

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http://www.tatabanya.hu

http://www.noco2.hu/kornyezetunk

Source

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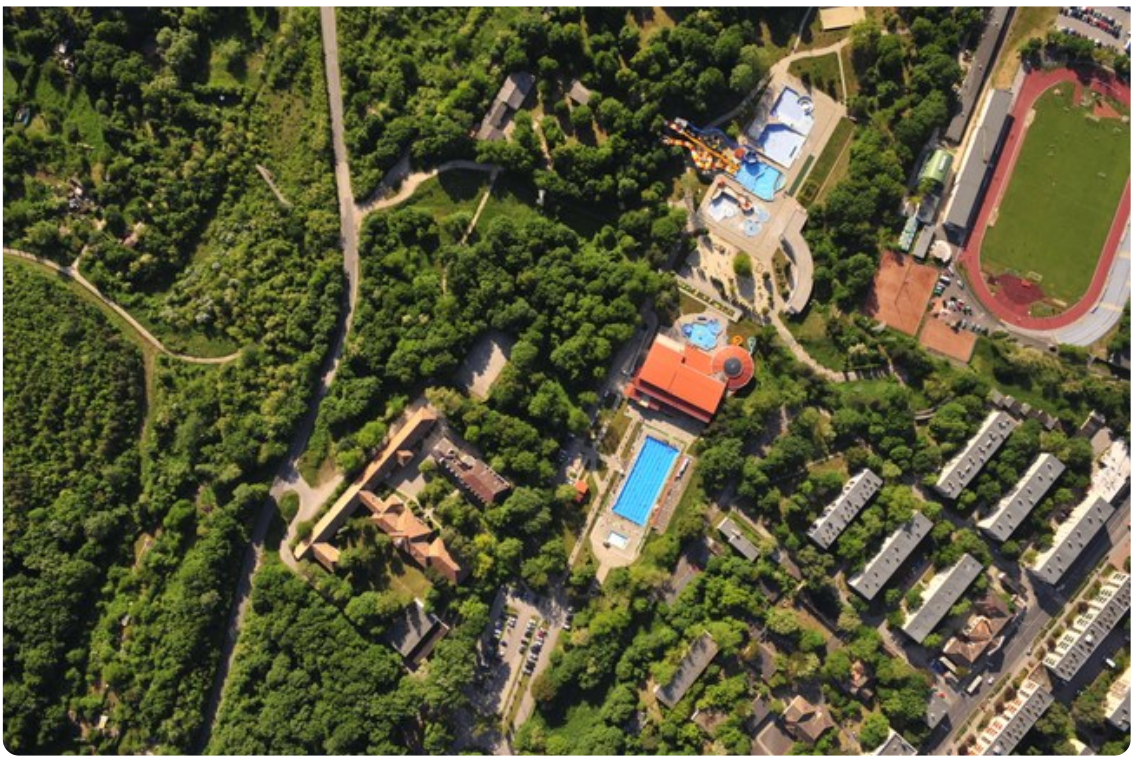
Share your information

Case Study Illustrations (2)



Keywords

Capacity building, UV alert system, forest fires, heat alert system, information dissemination, participation, prevention

Sectors

Biodiversity, Disaster Risk Reduction, Forestry, Health, Urban

Climate impacts

Droughts, Extreme Temperatures

Governance level

Local (e.g. city or municipal level)

Geographic characterization

Europe

Macro-Transnational region:

Central Europe, South West Europe

Biographical regions:

Pannonian

Countries:

Hungary

Sub Nationals:

Közép-Dunántúl (HU)

City:

Tatabánya