

I. Case Study - Sunshine City

Sunshine City is the capital of Heatlandia. The city is located by the river. Summer has always been very sunny, hot and humid there, but recent summer heat waves became more severe with daytime temperatures over 40 degrees Celsius lasting over a couple of weeks and significantly increased temperatures at night. Climate scientists predict with high confidence that this trend is going to continue due to climate change.

Long-lasting heat waves amplify drought and water supply problems in the city. They also increase the frequency of severe summer storms that often harm city infrastructure and cause economic loss. In addition to that, private sector experiences losses due to decreased productivity and performance of employees during long-lasting heat waves. Tourist sector seems to ignore the problem and keeps on advertising lovely sunny holidays (some travel agencies provide even happy holidays “rain-insurance” guaranteeing proportional cost reimbursement in case of rainy days).

The heat is particularly unpleasant in the historic city center made out of stone and bricks, but also in the surrounding areas made mostly out of concrete (incl. pavements). Some greenery (e.g. public parks) is available, but rather scarce and located mostly outside the city center. Thus both direct city center and surrounding inhabitant areas tend to create the Urban Heat Island (UHI) effect. The historic city center has been to some extent renovated, but due to cultural heritage the original structure and style had to be preserved. The infrastructure in the surrounding inhabitant area has not been renovated since many years due to other “*more urgent priorities*”, as explained by the city treasurer.

Prosperous people and businesses installed air conditioning that, on the one hand provides some relief, but on the other hand contributes to the pollution and pumps out heat outside exacerbating the UHI effect (as a consequence the air does not cool down at night). People complain about the unbearable heat, lack of shade and sleepless “tropical nights”, but forget it quickly once the heat wave is over. Also people tend to pay increased attention to the heat risk at the very beginning (abrupt change), with time they tend to mentally adapt and start to discard heat risk communication of the Public Health Department.

Since a few years Sunshine City experiences a baby boom, also due to migration. There is also a significant amount of elderly living close to the historic center. Recent heat waves hit these vulnerable groups heavily. During last years, the number of hospital respiratory and cardiovascular admissions after a couple of days of unbearable heat increased when compared with an average over the last 20 years, but *direct and unambiguous* attribution to the more severe heat waves is difficult and costly. A much better case can be made with UV radiation and increased number of reported skin cancer cases, cataracts (eye disease due to UV radiation). However, those diseases do not occur immediately, but need longer period of time to develop. Thus, the direct link to current extreme heat event is not always straightforward to establish.

Luckily, the Sunshine City has a concerned mayor who sees urgent need to act upon extreme heat. But his political will is not sufficient to win the fight against heat waves due to several obstacles across different scales (e.g. restricted funds, inertia and resistance to change in some City Hall departments, lacking cooperation between City Hall, local emergency services and Public Health Department, insufficient citizen awareness of the problem and its possible health & economic consequences).



Photo credit: Arti Marttinen on Unsplash

Case study: Gabriela Michalek, UFZ Leipzig – work accomplished as a part of the H2020 project PLACARD: PLATform for Climate Adaptation and Risk reDuction.

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II. Group work: developing strategic narratives with a specific purpose in mind

(1) Evoke local community prevention and preparedness with art

- How to develop narratives for community preparedness with arts-based methods?

Language – something to think about: How can art make scientific vocabulary more accessible to the local community? Which terms are of utter importance with regard to prevention and preparedness?

(2) Ease access to funding to counteract urban heat island effect and prevent heat-related issues

Long-lasting heat waves exacerbated by the Urban Heat Island (UHI) effect negatively influence the quality of life in the Sunshine City during the summer period. Average hospital admissions in the summer period increased, schools and kindergartens remained closed for several days when the temperature exceeded 40C. Many companies shortened their business hours due to unbearable temperatures. Heat and drought made also critical infrastructure vulnerable, in particular water was in short supply, electricity generation experienced peak loads more often than in the past due to an increased usage of air conditioning (also at night) which caused blackouts (and thus direct economic loss).

Although the above described problems are serious, they last as long as the heat waves. Thus, they are often not perceived as the highest priority as opposed to counteracting other extreme events (e.g. flood destroying buildings, grounds) or constant (not seasonal) issues (e.g. creation of new kindergartens, road renovation etc.). Thus, the City Council assigned only a limited amount of money to heat-counteracting measures. You, as a concerned city officer, understand the urgent need to act and decide to acquire additional resources for this purpose from the private sector.

- Which compelling message or story could make private sector (businesses, investment banks) financially support implementation of heat countervailing measures in the Sunshine City?
- How do you communicate this message? Who is best suited to be a narrator (Public Health Department/ fire brigade or local rescue teams/ community/ local NGOs)?

Language – something to think about: in this narrative, what are the key terms that we use and why can these be problematic (e.g. confusing)?

How would narrative/terminology change for different audiences (business vs. investment bank)?

(3) Induce collaboration of local government agencies (Climate Adaptation/Mitigation, Urban Spatial Planning, Public Health, and Emergency Management Departments) and NGO on a joint heat and health action plan.

The Public Health Department announced to launch a new heat action plan for urban citizens in your city. It will focus on heat warning communication (leaflets, radio announcements and SMS messages for registered users) and dissemination of information on prevention of heat-related diseases. You, as an employee of the Public Health Department, recognize that the scope of the heat action plan must be broader to be effective: it must involve collaboration and cooperation of several city departments (e.g. spatial planning, emergency management, environment and climate protection etc.), rescue forces working on the ground, NGOs and local community.

Creating green spaces and wind channels in the city center can effectively help to protect citizens during heat waves. Acknowledging UHI in urban climate change adaptation plans can assure long-term systemic solutions. Extreme temperature, although not as disastrous as flood or fire, do also harm to people and infrastructure, thus heat emergency plans must effectively coordinate needed actions and communication between emergency services, involved City Hall departments and citizens. NGOs do not have legislative power, but can mobilize urban citizens and help to disseminate heat & health information/ recommendations.

- Which compelling message or story could serve as a common thread to induce involvement in and collaboration between local government agencies and NGOs on health and health action plan? Which convincing arguments are you going to use?
- Who should lead and how make other actors follow the coordinator?
- How do you communicate this message? Who is best suited to be a narrator (which city department/ city mayor/ community representative/ local NGOs) to induce joint action?

Language – something to think about: How would narrative/terminology change for different audiences?

(4) Fostering the implementation of the green spaces to counteract Urban Heat Island (UHI) effect in urban areas

One way to make living in a hot city acceptable is by developing parks, plant trees in the street for shadow and trees and grass in gardens. You, as a conscious local citizen understand this common truth and struggle for more green interventions in the Sunshine City together with other advocates of a greener city in your and other neighbourhoods. Knowing that green areas require maintenance (and money), you have to come up with a good argumentation to

convince the city administration, in particular officers from the urban planning department, to integrate more green (“nature-based” or “ecosystem-based” solutions) in their spatial plans. You know that many of the opportunities for greening the city do not only involve public spaces, but also other relevant areas that are privately owned like paved gardens and “black” roofs and industrial grounds that represent very scarce and thus valuable urban space. It is important to take the interests of these owners into account, with associated financial aspects.

Which compelling message or story could convince urban planning officers to much more integrate green spaces in their plans?

Which compelling message or story could convince other Sunshine City citizens and local companies to implement green spaces on their private grounds to improve the living conditions for the citizens, where relevant, in collaboration with the city administration in greening the city as a whole?

How do you communicate this message? Who is best suited to be a narrator (e.g., a community representative, a local NGO, a local celebrity, a combination of these) and which communication means would be attractive?

Language – something to think about: where we need to use a technical term, how do we communicate its meaning to avoid confusion and how it relates to other terms/topics, e.g. NBS and EbA, biodiversity conservation, ecosystems?