

# ACTION PLAN

Heat Stress on Industrial Sites of Kampen

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Assigned by the Municipality of Kampen

Conducted by Project Team Rethink



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# Introduction

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The occurrence of extreme climate events such as heat waves has been increasing during the past decade drastically. The influences on the greater environment, especially urban and industrial areas, are becoming increasingly evident. At this point the adaptation to those effects is of high importance and cannot be postponed. Therefore, project team Rethink from Windesheim Honours College created this action plan with the purpose of providing a guide for the municipality to address the issue of heat stress in the industrial site of Haatlanden, in Kampen.

Firstly, the research findings have been summarised, followed by the lessons learned, which point out unexpected findings and facts faced along the project journey. The central content of this plan is the solution mapping, which is divided into stakeholder groups and different recommendations for each level of change facilitators. Last but not least, the research project is compared to the partner research conducted in the region Marslanden, in Zwolle.

## Research Summary

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The global temperature is rising and extreme weather events like droughts, heavy rain falls, and heat stress have become more apparent. Especially, in the summer months extreme heat has become a raising challenge as it implies big impacts on the individual's health and well-being. One major factor contributing to heat stress, particularly in urban and industrial areas, is the Urban Heat Island effect (UHI). This effect is caused by the way urban and industrial areas are build, paved and hardly equipped with green spaces. The way of construction together with a high population density contributes to a large heat storage which is only slowly released and even at night still apparent (Tan et al., 2009). As researchers found out, extreme heat is also closely linked to health implications and a higher mortality risk rate, especially for those with pre-conditions but also the average individual (Tan et al., 2009). Studies have also shown that under extreme temperature conditions productivity levels and concentration spans decrease significantly (Mac & McCauley, 2017). Heat accumulations in the indoor and outdoor working environment thus negatively affect the individuals and business operations. While past events are commonly seen and downgraded as exceptions, a rising number of heat waves describes a scientifically sound future trend.

Consequently, sustainable adaptation methods are needed as linked problems will become more evident in the near future. While developed heat maps reveal that industrial areas are especially exposed to the effects of climate change, targeted actions are needed. Not equipped with a lot of green spaces but large paved surfaces, next to the outdoor environment also the indoor working environment demands adaptation strategies. To uphold the business productivity and support the individual employee, it's in the self-interest of each company and entrepreneur to look further into the challenge of heat stress.



Heat map Kampen: <https://wdodelta.klimaatatlas.net>

1. Bedrijvenpark rijksweg
2. MBI De Steenmeesters
3. Vereniging Parkmanagement Zuiderzeehaven
4. Broshuis
5. VBI-Kampen B.V (productielocatie)
6. Betonson (productielocatie)
7. Other small companies without park management

## Lessons Learned

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In this section, insights of the lessons learned during the project journey are revealed. Reflecting on the assigned project challenge, the research topic is of great interest as the linked effects become increasingly evident. Starting off with desk research, gathering and investigating the existing literature and topical news, a great availability of different information allowed the possibility of framing a better picture of the challenge. With the special focus on heat stress in the Netherlands, more concretely Kampen, research studies of the past and two heat maps were valuable sources.

After a general understanding of the challenge was gaped, the next step was field research. With the attempt of gathering information first-hand, different methods were approached. Next to a quantitative online survey, the team also tried to schedule interviews with the entrepreneurs themselves. However, the idea of reaching out to the businesses located in Kampen faced several unlucky circumstances. Next to a research timing of autumn and winter months, also the present Covid-19 situation didn't facilitate the field research. Given these two factors the research was complicated, and the team didn't gather as many direct information as it liked to. Thus, evaluating on the research journey the present uncertain and ambiguous times of a pandemic shift the focus of attention and priority in several regards.

Collecting lessons learned for future studies, the effectiveness of calling people is higher than sending out an online questionnaire. While only two out of thirty via mail contacted businesses responded, the team additionally used LinkedIn as a communication tool. Interview invitations sent via mail at the beginning of the field research, turned into direct phone calls at the end of the time. To prevent a low responsiveness from the start, next time phone calls and direct meetings, if possible face-to-face, are preferred.

Evaluating the collected research findings shows the need for a better communication and organisation system between the municipality and entrepreneurs in the region. As the topic is currently not discussed and of concern amongst the entrepreneurs, raising awareness and providing the entrepreneurs with key insights is necessary. Since everything starts with awareness, the project team identifies the lack of communication as the missing but essential element to close the gap of an existing problem and solution landscape. As amongst other characteristics the establishment of a strong community is a valuable and benefitting quality, partnerships and cooperations should characterise the relation in the future. This could be accomplished in form of an online and offline network. Given the present and forecasted global situation, the action plan focuses on feasible adaptation and mitigation strategies for the present time.

Reflecting on the overall team performance, the team noticed once more that communication is key. Being in close contact with each other but also the client, regular project updates guarantee that the project is developing in the right direction. Especially when mainly working as a virtual project team, constant exchange, well prepared meetings and honest feedback are important elements for a successful project experience.

# Solution Mapping

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This section will provide information about the proposed solutions from the project team. The issue has been elaborated above, which requires an urgent behavioural adaptation. Heat stress mitigation is a complex matter based on a lot of underlying factors and roles involved, to create an overview the solutions are divided into three main headings represented by different actors. Firstly, the municipality, secondly, the entrepreneurs in the region Kampen and finally, looking at the bigger picture, the residents.

## The Municipality of Kampen

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Recommended solutions for the municipality to tackle heat stress will be described in the following paragraphs. It is of importance that the municipality as a significant stakeholder is included in the process of change. As an authority with the means available and an influential network, the reach and influence will be maximized.

### Awareness and Communication

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Under the following topic, action takings are proposed that help to raise awareness and increase the communication between the several stakeholders involved. Thus, the presented tools are valued by their promising level of outreach to inform, connect and educate the recipients. The content is created independently and needs to be adapted to the chosen communication channel and target group. Some of the ideas put forward can be connected and therefore show an even greater effect on raising awareness and facilitating the communication exchange. An additional recommendation for the content creation is to approach and implement a story telling character, by clearly illustrating the challenge as well as incorporating past success stories for heat stress mitigation and adaptation.



## Social Media

With the usage of social media accounts by the municipality of Kampen, the local government could reach out to its citizens and communicate the challenge using modern communication channels. Popular platforms like Facebook, Instagram and Twitter could here help to connect with the entrepreneurs and residents on a new, and COVID-19 proof level. With regular posts and reposts the municipality could draw attention to the impacts linked to heat stress. Not being limited in the content creation, also other challenges, events and projects could be announced on the large scale.



### *Advantages*

- Using social media platforms allows the municipality to easily connect and stay connected with its residents
- Social media accounts are more likely to be visited than hosted websites
- By creating groups, the municipality can specifically invite and inform the local entrepreneurs to join the online community
- Free in the content creation, the municipality can make use of the online platforms in several ways (e.g. promoting events and future projects etc.)
- Connecting the local community online is a future-oriented approach that shows the digital advances of the region
- Especially, the younger generations would enjoy the connectivity and information exchange with the local community
- The municipality could establish a modern image, while simultaneously benefit from a new reputation
- Next to informative content, the municipality could also advertise their region
- Promoting the social media accounts and groups on the website of the municipality, an omnichannel approach allows awareness for the different networks



### *Disadvantages*

- The establishment of a successful social media account can be challenging and requires different resources (e.g. time, money, human resources etc.)
- A popular social media account is not established within a day, the project slowly grows with time and shared content
- Not everyone uses and has access to social media platforms, therefore not everyone can benefit from the information exchange
- Risks of miscommunication
- Remaining challenge of getting the entrepreneurs to join



## Print Media

Creating a new or making use of existing local press papers, the municipality of Kampen can reach out to its citizens and communicate the challenge making use of traditional communication channels. With a weekly or monthly page in the local print media the topic could be communicated to the entrepreneurs and community. By cooperating with existing magazines and journals the municipality could create targeted content for the addressed target group. Next to articles in news papers, magazines, and journals, the municipality could also create a to-go brochure. Displayed in the municipality and/or mailed to the post box of companies, the municipality could communicate the challenge bringing the content physically to the people.



### *Advantages*

- Using print media, the municipality can reach out to many individuals living in the region
- By cooperating with existing local news papers, magazines and/or journals, the municipality only needs to provide the content which means that time and financial expenses remain low
- The creation of content can be adapted to the medium and purpose chosen which means that the article can be written from a political, scientific, entrepreneurial or personal perspective
- With a to-go brochure for the residents or a specifically addressed letter to the entrepreneurs, content can be specified to the target group
- Next to informing about the challenge, also concrete action takings can be introduced
- The approach is flexible of being a single or continuous project



### *Disadvantages*

- There is no control and quota of how many people have actually seen and read the article
- Part of a local paper, the content often needs to stay superficial in order to be understandable for everyone
- Success is largely determined by the number of articles shared which means that it's questionable whether the subject remains a topic of conversation afterwards
- Brochures are likely to be thrown away after only a quick glance.
- Depending on the (paper) material, the project might not be very sustainable



The following links refer to a media service (Brug media) and example (ondernemen news paper) of how the idea of using print media could be realized.

<https://brugmedia.nl>

[https://issuu.com/brugmedia/docs/oik\\_week\\_39-2020](https://issuu.com/brugmedia/docs/oik_week_39-2020)



## Mailing List

Collecting email addresses from the entrepreneurs and residents in the region would allow the creation of a mailing list that facilitates the connectivity of the community. With an email distributor for the residents and the entrepreneurs important information could directly be communicated via regular email news letters. With the permission of being included in the list, a new communication network could be established that brings the municipality and local government closer together. The newsletters could address forthcoming challenges of the seasons as well as tips and tricks for preparation and mitigation.



### *Advantages*

- With a mailing distributor the municipality can reach out to the entrepreneurs and residents whenever needed
- The approach is not very time and cost intensive
- The content and focus of attention can shift from email to email
- A mailing list of the businesses in the region allows the municipality to explicitly address messages to the entrepreneurs
- The mailing list of the businesses could be shared with the entrepreneurs so that everyone has valid contact details
- Next to informing about the challenge, also concrete action takings can be introduced
- The frequency of sending out newsletters can be adapted to the capacity of the municipality



### *Disadvantages*

- Email newsletters might be overlooked by their multitude
- Not everyone has an email address and is willing to share it
- There is no control of whether the email received the right recipient in charge to communicate the message further, and eventually implement changes
- Communication would mainly stay one-way, and not facilitate the communication exchange from both sides
- The communication channel would mostly focus on improving the communication between the municipality and the entrepreneurs, not between the entrepreneurs themselves
- Collecting consent for sharing contact details might be time-consuming





## App

Developing an app, especially for the entrepreneurs and residents in the region could be used as a communication tool that communicates mitigation and adaptation plans. Via an app the municipality would have its own communication channel that informs the entrepreneurs and community about important announcements and events taking place. With a smart approach, playful, informative and connecting elements could make sure the app is adding value to the everyday life and therefore likely to be used regularly. With different topic fields, amongst others the subject of climate change, future challenges and impacts could be communicated in an engaging and educating way.



### *Advantages*

- The municipality would have its own app to connect the community
- Content can be created flexibly, responding to present topics of relevance
- The app could be a benefitting tool for everyone living in Kampen
- Cooperation and partnerships with local businesses could make the creation of an app a joined project
- Including the topic of climate challenges could provide recommendations for responsive action takings for the local businesses and residents
- The municipality would show a future-oriented approach of connecting and engaging the local residents in a smart way
- Establishing an interactive app that informs and connects the community, would increase the image and reputation of the region
- The app needs to have a benefitting element, so that people actually download and regularly use it



### *Disadvantages*

- Creating an app requires greater financial means
- Not everyone works with digital technologies and has access to downloading an app
- The app might not be attractive for different reasons
- The app might get lost in the multitude of apps developed
- Failing attraction, invested expenses are not generating the wished amount of return



## Creative Projects

With one-time projects like posters, events and a movie clip, the municipality could raise awareness on a public scale. With posters in public spaces the municipality could communicate the challenge to the community. Events, such as online and offline lectures, with following discussion rounds, could be specifically offered to the entrepreneurs. A movie clip or rather documentary, eventually produced in collaboration with another student team, could be a future project that communicates the challenge on a visual level and could be promoted via several communication channels.



### *Advantages*

- The municipality would have the chance to reach out to all age groups
- Posters would help communicating the challenge in a quick manner and could further refer to other sources
- Free informational events for the general public, but especially for the entrepreneurs, would communicate the challenge in a direct one-to-one way
- By coming together off or online, inviting the entrepreneurs to an information evening, a guest lecturer could draw attention to the relevance for climate adaptation
- The entrepreneurs would have the opportunity to ask questions and share their personal experiences with the challenge
- Facilitating this form of knowledge exchange would benefit the connectivity of local businesses
- Filming a short documentary about the challenge would help visualizing and afterwards responding to the challenge
- As pictures often say more than words, the challenge could be communicated on a more sensitive level
- Promoting the documentary online, several institutions and businesses could be addressed and asked to share the link within their organization
- The organization and planning of creative projects could be outsourced



### *Disadvantages*

- Posters could be ignored and not fulfill their purpose in raising awareness and communicating the importance
- A limited attendance at the organized events could be disappointing

## Mitigation and Adaptation

Under the following topic, recommendations are introduced that aim to result in direct action takings for climate mitigation and adaptation strategies. The ideas intent to help the municipality in the process of the decision making on how to support the entrepreneurs to take the right responsive action for their specific business case.

The Municipality of Kampen



### Strategy Plan

Writing a Strategy Plan for the entrepreneurs, with common mitigation and adaptation recommendations, the municipality could develop an online or offline handbook of how to face the challenge of heat stress. Not necessarily company or industry specific, general recommendations from a low cost to a higher cost level could give entrepreneurs a helpful guideline. Next to concrete measurements, the Strategy Plan could also include contact details and references to already established tools (e.g. heat maps) and insightful sources (e.g. projects of the past).



#### *Advantages*

- The municipality could provide the entrepreneurs with a clear measurement plan that raises awareness and drives action
- A handbook would summarise the challenge and provide a great collection of relevant information
- Sending out a compact handbook would also mean that the entrepreneurs wouldn't have to spend extra time on researching the issue by themselves
- Feasible suggestions and success reports would inspire and engage



#### *Disadvantages*

- Creating a handbook requires a greater amount of resources (e.g. time, money, human resources etc.)
- Handbooks could be laid aside and not actually read and studied by the entrepreneurs



## Future Guidelines

By setting special incentives for future projects the municipality could steer future developments. With new guidelines for future projects, stricter requirements would contribute to the mitigation and adaptation for climate change. Following the new policies could be linked to benefitting returns, that make the adaptation of businesses more attractive (e.g. lower tax payments etc.). Thus, sustainable and future-oriented approaches would be supported and rewarded by the local government.



### *Advantages*

- New requirements for expanding or building up a business would set a clear cut to past and future developments
- The municipality would introduce clear conditions that help triggering the right approaches in the business world
- Change would be introduced on the greater scale and therefore show more significant impact
- Businesses would voluntarily change their operations and adapt a more sustainable approach to gain the rewarded benefits
- The newly introduced requirements and standards would help achieving the national goal of a circular dutch economy by 2050
- The region would establish a new image and reputation of being especially goal and future-oriented
- The region would attract new sustainable businesses



### *Disadvantages*

- High effort and expenses are required
- The project idea would need approval from several governmental levels and is therefore especially time and cost intensive



#### **PARTNERSHIPS:**

Climate Campus is a partnership in the Netherlands of over 40 parties that include businesses, institutions, government and more. Their mission is to apply new knowledge and technology to make the city and the Delta resilient to the effects of climate change, this includes heat stress. Therefore they are also involved in the challenge as they are in contact with governmental institutions such as the municipality. This could play a crucial part in finding adaptation measures as the organization also consists of climate experts, who work together in the partnership for sustainable adaptation methods.

Climate Campus. (2017). Partners | climate-campus. Retrieved from <https://climate-campus.nl/partners>

## The Entrepreneurs in the region of Kampen

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The entrepreneurs play one of the most important roles in the adaptation process of heat stress. As the impacts linked to heat waves have several negative influences on their working environment, the challenge has to be well communicated and understood. The following recommendations on awareness and communication as well as mitigation and adaptation are therefore put forward.

### Awareness and Communication

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As long as the entrepreneurs are not aware of the challenge, nothing will change. Being aware is thus the first step to opening up the dialogue and recognising the increasing challenges linked to heat waves. Communication being the key, the matter needs to become a topic of conversation within and outside the organisation. The following recommendations are closely linked to a supportive role from the municipality and can therefore be initiated in cooperation.



## Network Association

By creating a communication network between the businesses in the region, the entrepreneurs could share their experiences and mitigation strategies. Creating an open association with elected board members, also with a representative member from the municipality, a business community for Future Challenges could be created. Connecting online, via social media or an email distributor, as well as offline, with regular informational evenings about climate related challenges, the club of local businesses could exchange experiences and create new partnerships for adaptation strategies. Either initiated by the entrepreneurs themselves or the municipality, support from the local government (in any form) could ensure a successful establishment.



### *Advantages*

- A committed communication network would be created that brings businesses and entrepreneurs for a shared concern together. For future projects, this makes it easier for the municipality to reach out
- The municipality would have the chance to collaborate with the entrepreneurs and support the initiation of the association
- Opportunity for sharing experiences and exchanging strategy plans for mitigation and adaptation
- External information sharing through guest lecturers
- Organised events could take place in public institutions and/or company buildings of joined members
- Not many means would be needed as the community is founded on a voluntary basis (supported by the local government)
- Self-interest would drive the participation
- The association would be flexible in the amount of time and effort invested in organising offline events and facilitating online communication



### *Disadvantages*

- Especially at the beginning, a successful establishment of the network requires time and effort
- Committed members are needed to ensure that the association is not falling apart (board members)
- Not many entrepreneurs might regularly attend the information evenings
- Depending on the overall costs involved and support received, joining the association could require a yearly fee or donation



## Business Analysis

With an external professional business analysis, companies can be assessed regarding their vulnerability of climate change related events. By inviting experts, the company could gain from a professional evaluation of where the company is at risk to facing impacts and where fears can be deemphasized. This way the business would know where it stands in terms of future climate challenges. Gaining this overview, the entrepreneurs could afterwards respond with targeted and concrete measurements accordingly.



### *Advantages*

- The companies would benefit from a professional business analysis, disclosing strengths and weaknesses
- Company specific action takings can follow afterwards
- The entrepreneurs are encouraged to respond to the revealed vulnerabilities with targeted solutions
- The entrepreneurs can ask specific company related questions
- The municipality could provide contact details of the experts and give a discount for making use of the benefitting service
- Not only the impacts of heat stress would be addressed but also other climate change related extreme weather events



### *Disadvantages*

- The entrepreneur needs to be aware of the increasing challenges linked to climate change
- As costs are involved, a barrier is set, and the entrepreneurs have to be willing to pay for the service
- Conducting a business analysis does not mean that actions will follow



#### **EXAMPLE:**

Entrepreneurs have to become aware of the influences their current behavior has on the environment and in return on themselves. Most try to escape the heat through air conditioning inside without knowing the impacts.

While they help cooling down the air temporary inside, they are not the long term solution for adapting to higher temperatures. On the contrary, running air conditioning systems often heat up fast and contribute to a general temperature increase in the outdoor environment. Causing an air circulation, most of the popular air conditioning systems only create a cooling breeze as long as they run on electricity considering. Turning them off the heat experience is even increased, as the body didn't have the chance to adapt to the continuously heated up surrounding. Conclusively, considering the high price of the air conditioning, the costs outweigh the benefits and alternative ventilation systems should be considered.

## Mitigation and Adaptation

Looking at the impacts linked to extreme heat events, the following recommendations are highlighted as a selection of possible responses. Thus, in regard to the promoted solutions on the internet, the team wants to draw attention to the most effective and important ideas.

### *Changes in the indoor environment*

Recommendations for the indoor environment are most of the time very straightforward and follow common responses such as drinking more water, following a light diet, having small breaks in between, closing window shutters and setting up air humidifier. Posters in the office building could here help to remind the employees to follow these simple and effective measurements (*Appendix 1.* and *2.*) Despite their promising effects, the following recommendations are less often taken into consideration and therefore especially highlighted in this report.



The Entrepreneurs in the region of Kampen

### Flexible working hours

- With flexible working hours the entrepreneur can respond to predicted weather forecasts on time.
- With either starting the workday earlier or later, hours of peak temperature can be sidestepped.



The Entrepreneurs in the region of Kampen

### Heat stress trainings

- By organizing heat stress trainings in the company, employees can be taught about tips and tricks of how to mitigate implications and adapt strategically to the situation.
- Scheduling an internal business training before the summer months is therefore a smart way to address the raising challenge and educate about best possible responses to induce personal and professional sustainable behaviours.



## *Changes in the outdoor environment*

Regarding possible changes in the outdoor environment, the most common and straightforward mitigation strategy is widening the area of naturally vegetated green spaces. However, especially in industrial areas paved surfaces are needed for business operations. Thus, more creative ways such as roof greening are considered. Next to green areas, most outdoor changes are cost intensive and therefore not very likely to be taken on by the business owners. Especially, major changes at the building such as thermal insulation and smart ventilation systems often exceed available budgets. Nevertheless, depending on the company's indoor and outdoor environment, they are recommended and should be taken into consideration. The following solutions aim to provide more feasible and practical alternatives. Aside from watering the ground for air humidification reasons, also simple changes and constructions around the buildings can be done.



The Entrepreneurs in the region of Kampen

### White Surfaces

- While dark colours absorb the sunlight and therefore heat up faster, light colours reflect it.
- The painting of roofs and surfaces in light colours is thus seen as a solution for preventing the overall absorption rate.
- Preventing unnecessary heat accumulations, the recommendation promises to decrease the heat build-up in the already dark and paved areas.



The Entrepreneurs in the region of Kampen

### Green and Shadow Areas

- Incorporating green areas on the business property is one of the best long-term responses.
- In case that should not be possible, handcrafted constructions need to replace the effects of trees and create shadow areas.

## The Residents of Kampen

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As global warming and heat stress affects everyone to a certain extent, also the population of Kampen should be addressed to contribute to climate mitigation and adaptation strategies. As research shows a general lack of public awareness, the challenge should be better communicated to the residents. Especially, as the local population makes up part of the workforce in the industrial areas, their awareness is key in limiting the impacts on the indoor working environment. Therefore, in order to raise awareness and communicate the relevance for active responsiveness, the following ideas are proposed.

### Awareness and Communication

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To increase the level of awareness and seriousness for the matter, the residents of Kampen should be actively informed about the challenge. By drawing attention to the relevance of further self-education, a first incentive and trigger must be set by the municipality. The above stated recommendations therefore invite the municipality to make the challenge a common topic of conversation. Once the topic is spread through the word of mouth, everyone turns consciously or unconsciously into a heat stress ambassador. Committed and concerned individuals then help to open up the dialogue and spread the importance of future-oriented actions.

### Mitigation and Adaptation

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Some effortless and simple solutions for actively handling the challenge are closed window shutters, ventilation systems and water bowls as air humidifier. To make sure the body stays hydrated, a controlled water consumption is of course the most essential response. With an ideal daily fluid intake of around 3 liters, an adequate consumption of water is especially of relevance during the summer months. Measurements for the outdoor environment are of course the cultivation and preservation of green areas. Rather than opting for stone beds or completely paved surfaces, the residents should be given the needed insights for seeing the importance of maintaining green areas.

## Research Comparison

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This chapter has the purpose of comparing different industrial areas in their challenge against heat stress in order to find the most effective approaches towards the achievement of the goals. In general, it can be concluded that gaps of awareness and communication are the first barriers to overcome. In the industrial area Marslanden, as well as in Haatlanden, heat maps work as an important tool, as they illustrate the areas most affected and create a connection between the issue and the located company. This establishes a straightforward communication opportunity from the municipality to the businesses. The entrepreneurs of both areas are missing the understanding and causes of the issue. While hot temperatures are being noticed, their main focus lays on the economic well-being of the company. Through a solution-oriented communication about the importance of this matter, awareness, which is necessary, can be raised. Therefore, the entrepreneurs can take action and implement solutions fitting their company's needs. The teams found similar solutions for the mitigation and adaptation process such as the installation of green areas, smart ventilation systems instead of cost-intensive air conditioning, and the consideration of colour choices for the matter of less heat absorption. In conclusion, it can be said that both areas show similar characteristics, and the findings of both projects can be summarized and used in a combined way to solve the increasing climate challenge.

## Project Round Up

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Through research, the project team discovered that heat stress is an issue in the Netherlands that will gain importance in the future and impacts individual's health and well-being. This problem requires an urgent behavioural adaptation. During the project work, it became clear that when it comes to heat stress, there is certainly a lack of knowledge and awareness amongst the entrepreneurs of Haatlanden, Kampen. As awareness is the first step in making changes, communication with and between the entrepreneurs is essential.

As an advise for the municipality it can be recommended to work on the issue of heat stress by first laying the focus on awareness and communication, before going over to more concrete mitigation and adaptation strategies. The recommended tools are meant to get in touch and spread the word for the rising challenge. The entrepreneurs are then in the role of enhancing their knowledge and taking the right steps to implement susatianable changes. This way they don't only protect their employees but prepare for a warmer future with more frequent heat waves.

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## WHAT ARE SYMPTOMES OF HEAT STRESS?



### HEAT CRAMPS

#### SYMPTOMS:

- INTENSE SWEATING
- CRAMPS OR MUSCLE PAIN

#### What to do?

Get rehydrated and restore your electrolytes!  
Take a break in the shade!  
Apply cool compresses!

### HEAT EXHAUSTION

#### SYMPTOMS:

- INTENSE SWEATING
- CRAMPS OR MUSCLE PAIN
- NAUSEA/VOMITTING
- FAINTING



#### What to do?

Drink water or a cool sports drink!  
Apply cool compresses!  
Move to the shade!  
Seek medical help if measures don't help!



### HEAT STROKE

#### SYMPTOMS:

- HOT SKIN/RED FLASHES
- DISORIENTATION
- NAUSEA
- HEADACHE
- HIGH BODY TEMPERATURE

#### What to do?

Get in to a cool place immediately and  
seek medical help and inform your supervisor!.

Appendix 1. Poster example for public spaces and office buildings.

# HEAT STRESS PREVENTION TIPS



## DRINK AT LEAS 2 LITERS WATER A DAY

Being dehydrated makes you more susceptible to the effect of the extreme heat and can lead easier to heat strokes.



## TAKE A 5-10 MIN BREAK EVERY 90MIN

Taking frequent breaks in the shade prevents from being exposed to the sun for too long.

## DON'T FORGET TO PUT SUN-SCREEN ON

This is really important to help your skin to not get damaged from the sun exposure as this can lead to serious skin issues.



## COMMUNICATE WITH YOUR EMPLOYER

If you have any concerns, please, communicate with your employer to find solutions together.

ANY CONCERS OR QUESTIONS? PLEASE APPROACH US!

Appendix 2. Poster example for public spaces and office buildings.