

# EMPOWERING VULNERABLE GROUPS THROUGH NBS



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Expert Workshop: Building Inclusive Urban Resilience  
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adelphi   
RESEARCH



FUNDED BY



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# AGENDA

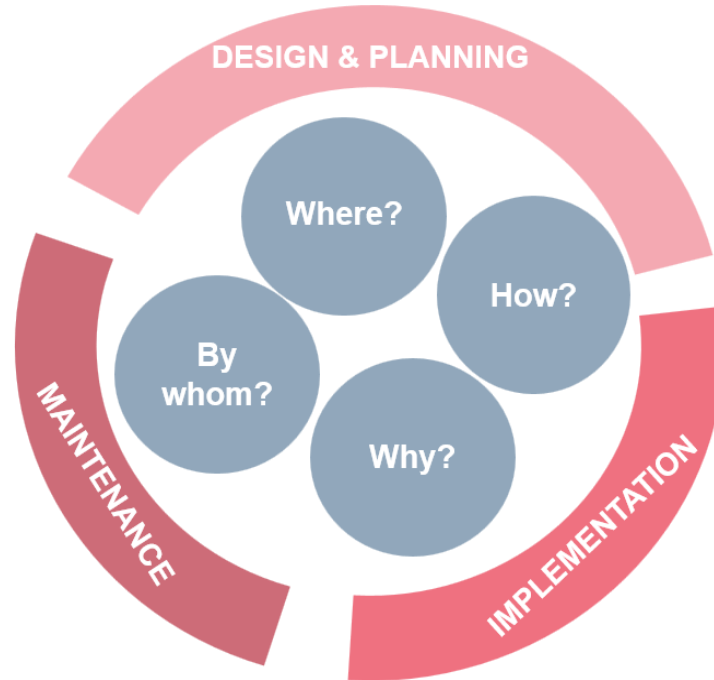
1. Inclusive NbS projects: theoretical foundations

2. Case study: Nature-based climate adaptation program for the urban areas of Penang Island, Malaysia



# 1 INCLUSIVE NBS PROJECTS: THEORETICAL FOUNDATION

# CONSIDERATIONS IN NBS PROJECTS TO EMPOWER VULNERABLE GROUPS



# STRENGTHENING PARTICIPATION & OWNERSHIP



- **Participation and active decision-making** of vulnerable communities in concept, design, planning and implementation
- Include **knowledge** of the community and **indigenous groups**
- Include local community in **maintenance concept**
- Ensure an **alignment of interests**

# INCLUSIVE NBS CONCEPT AND DESIGN



- **Accessibility and social infrastructure**
  - Accessibility for those who face physical mobility challenges
  - Seating, accessible toilets, shaded and weather-protected areas, drinking fountains
  - Spaces for children
- **Addressing safety concerns**
- **Location**

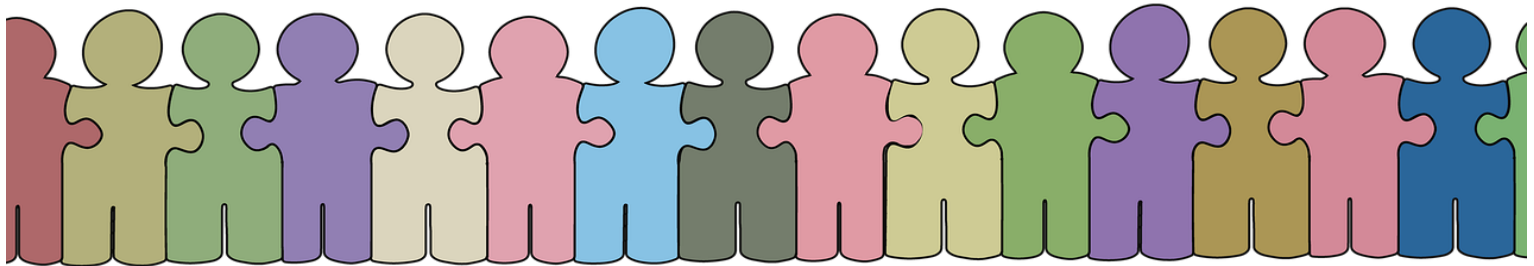
# INCOME GENERATING ACTIVITIES AND CAPACITY BUILDING



- Consider creation of **job opportunities** in project design
- Ensure just and **decent work conditions**
- **Couple with other initiatives** to ensure opportunities for low-income and vulnerable groups:
  - Micro-credit schemes
  - Collaboration with cooperatives
  - Capacity building programmes

# PARTICIPATORY APPROACHES HELP BALANCE POTENTIAL CHALLENGES

- Competing land uses, re-settlements and gentrification concerns
- Ensuring continuity of projects
- Cross-sectoral collaboration and interdisciplinary approaches







# 2

## **CASE STUDY**

### **THE NATURE-BASED CLIMATE ADAPTATION PROGRAM FOR THE URBAN AREAS OF PENANG ISLAND, MALAYSIA**

# CONTRIBUTIONS OF VULNERABLE GROUPS CAN BE KEY FOR THE SUCCESS OF NBS PROJECTS

**VULNERABLE  
GROUPS**

**SUCCESSFUL  
NBS**





# VALUE OF VULNERABLE GROUPS PARTICIPATION IN NBS PROJECTS

## For the vulnerable groups

Promotes social cohesion

Reduces pollution

Promotes physical activity and recreation

Linked to mental health benefits

Increased revenue streams

Promotes the development of skills



# VALUE OF VULNERABLE GROUPS PARTICIPATION IN NBS PROJECTS

## For the project and government

Access to valuable information

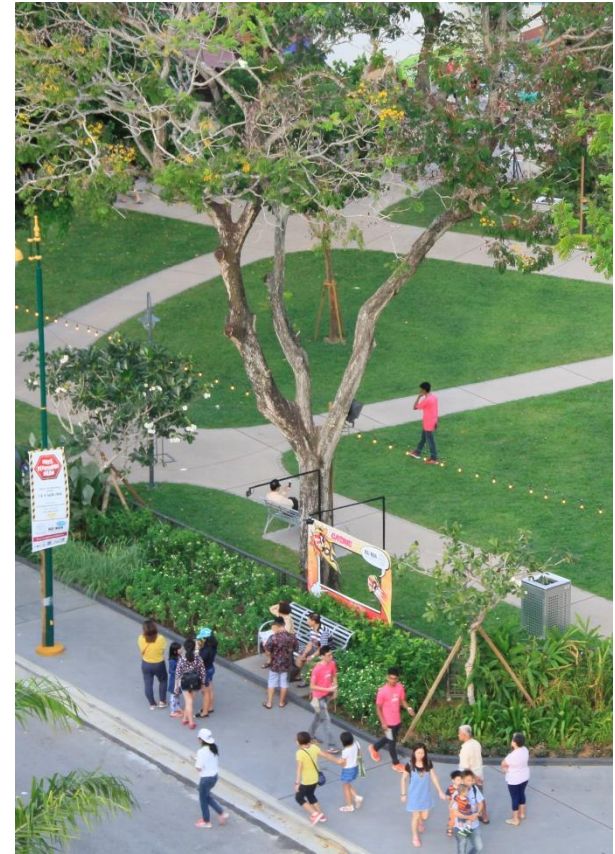
Gaining support from the community

Linked to success rates

Greatly facilitates implementation

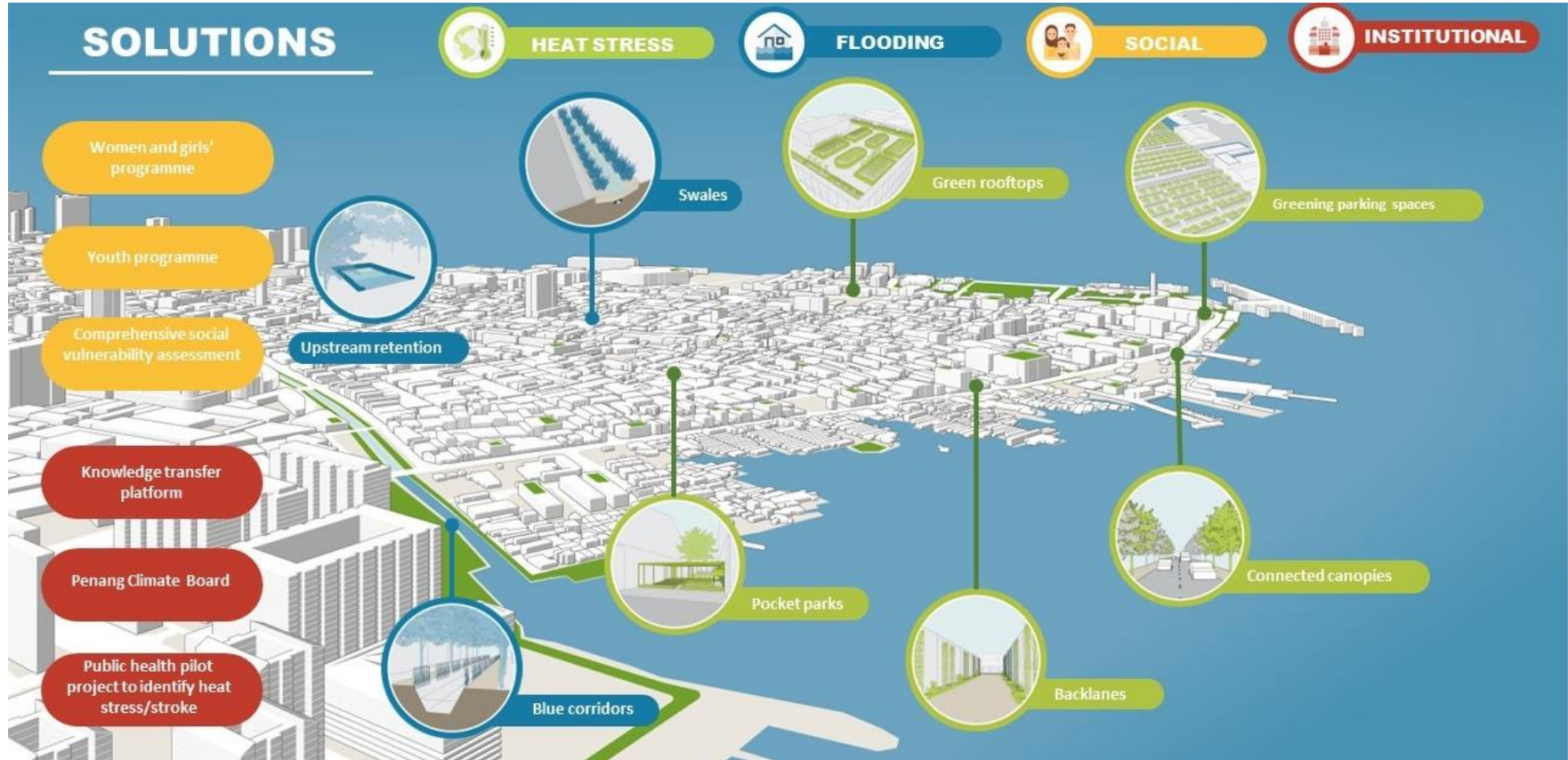
Reduced public health costs

Improved overall resilience



Initiated by Think City in 2019

The first urban climate adaptation program developed for Malaysia





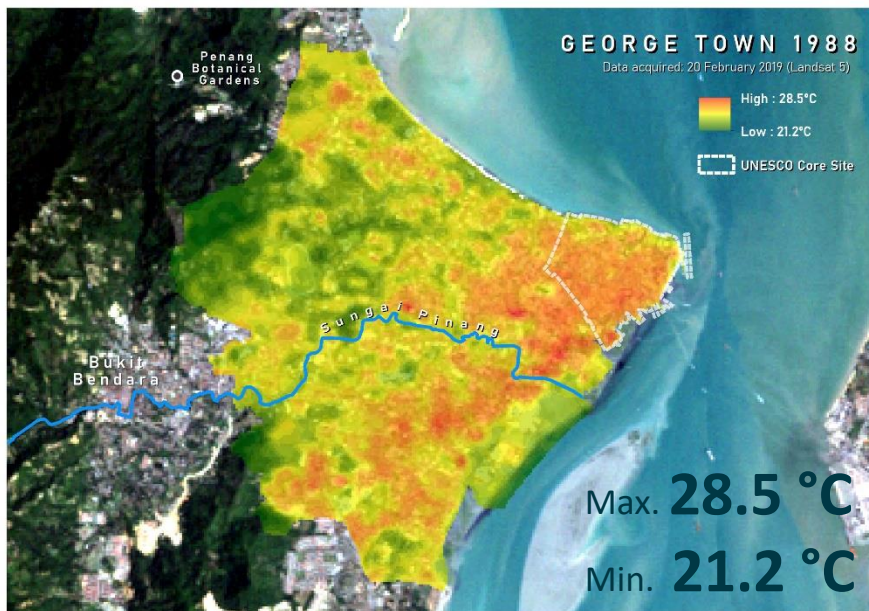
## GEORGE TOWN

Increase of temperature in the last 32 years  
(remote sensing data on surface temperatures - Landsat 8)

↑↑ Max. 8.7°C

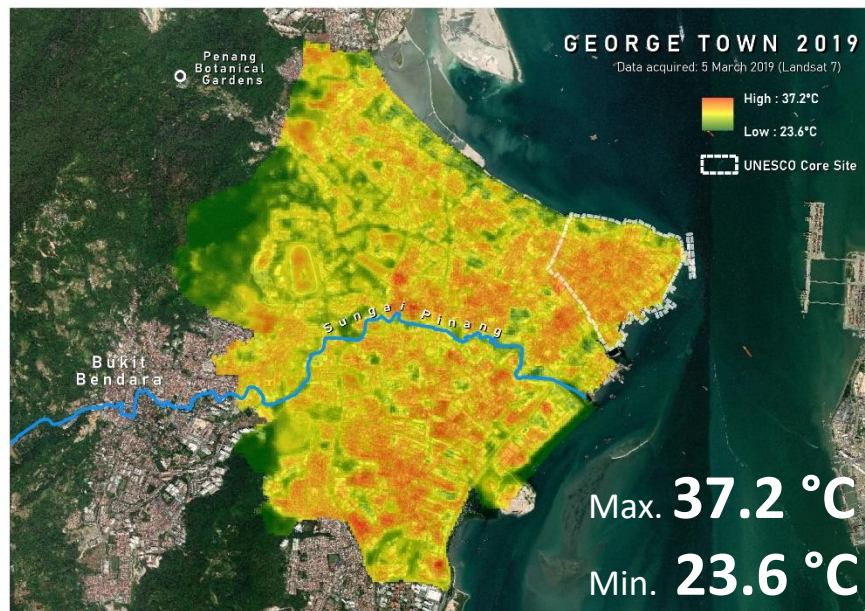
↑↑ Min. 2.4°C

1988

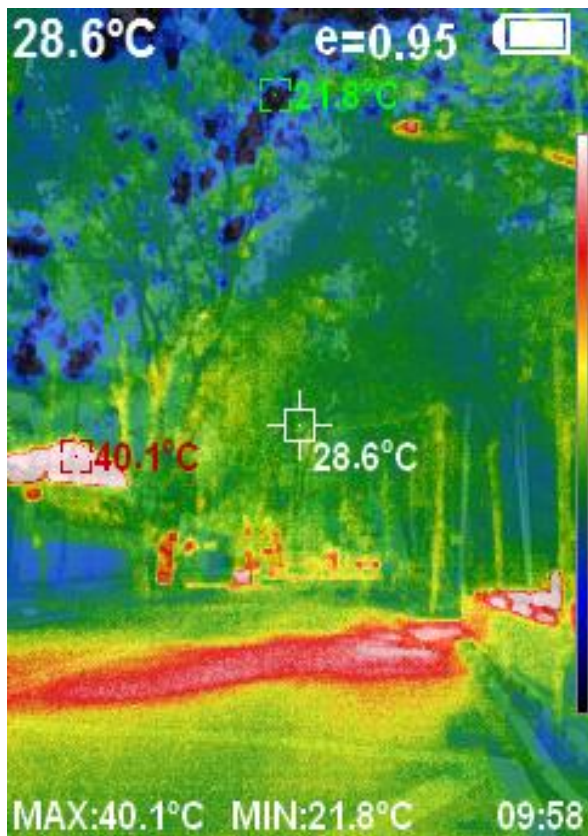


George Town - Land Surface Temperature, 1988

2019



George Town - Land Surface Temperature, 2019



Thermal images reveal surface temperatures: the shade of trees substantially reduces temperatures, improving microclimate comfort

JALAN BROWN

12<sup>th</sup> July 2019

9.58 am

Source: Produced by Think City with Perfect Prime IR0006 Thermal Imager Camera.





The urban heat island (UHI) effect: the more densely built areas show an increase of almost 30°C in surface temperatures

LEBUH GEREJA

12<sup>th</sup> July 2019

10.59 am

Source: Produced by Think City with Perfect Prime IR0006 Thermal Imager Camera.



# Flooding

Irregular rainfall patterns, an increase in 15% in volume of rainfall.



*In 2017, Penang experienced its 'worst' flood*

**7,142**

*People displaced*

**159**

*Areas affected*

**7**

*Lives lost*

**RM 200 mil.**

*losses in manufacturing*

**RM 57.5 mil.**

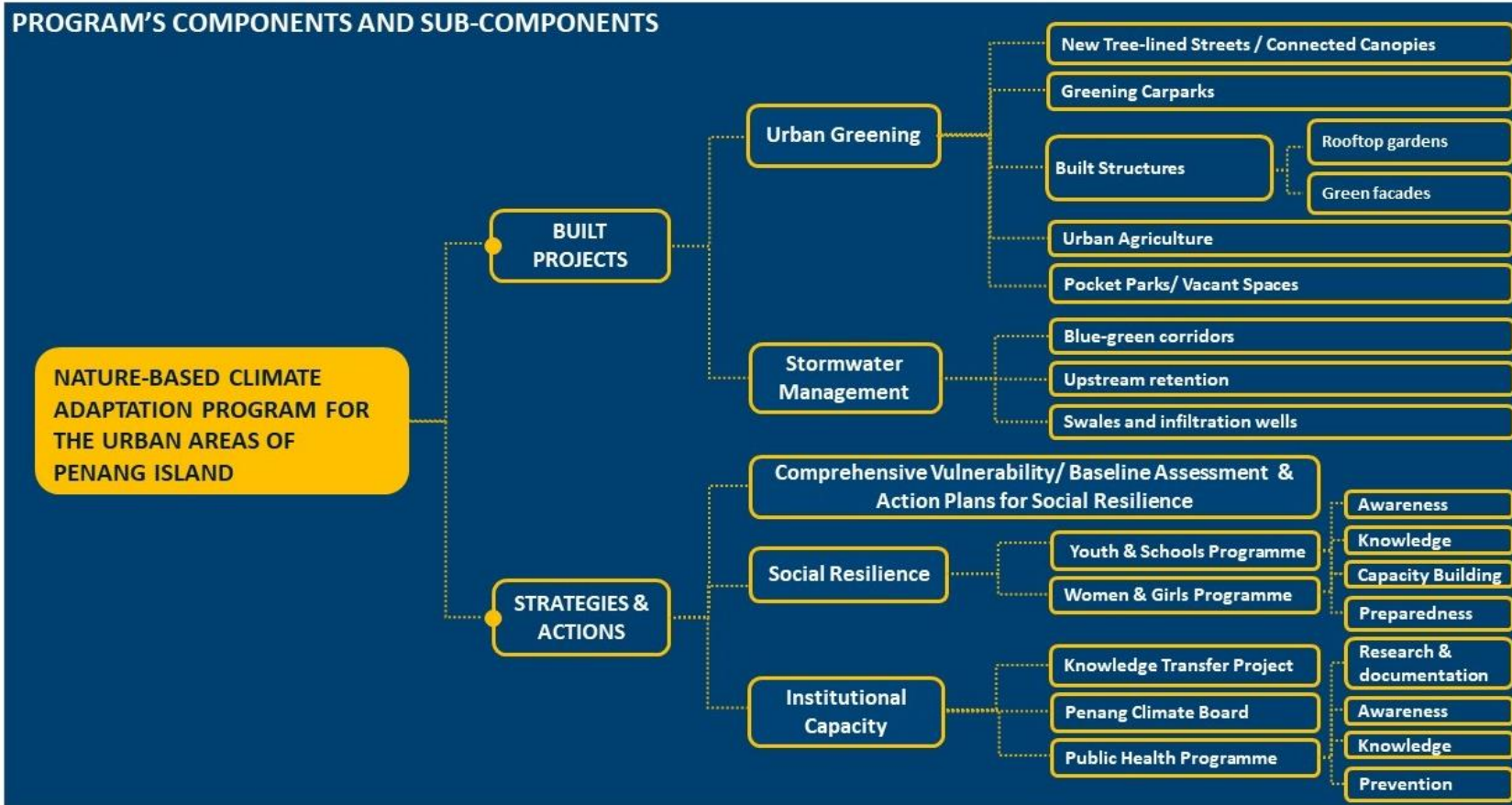
*losses in fisheries sector*

**RM 5.7 mil.**

*losses in agriculture*

**Goal:** to improve urban resilience by using nature-based solutions

PROGRAM'S COMPONENTS AND SUB-COMPONENTS



HOME / MALAYSIA

## Penang's nature-based approach to tackling climate change wins Climathon Global Awards

Monday, 03 Feb 2020 02:20 PM MYT  
BY OPALYN MOK



A view of one of the decorated balconies located at Lebuhraya Pantai in George Town, Penang, Malaysia, on February 3, 2020. — Picture by Sayuti Zainudin

GEORGE TOWN, Feb 3 — Penang's climate adaptation programme centred on nature-based solutions has been named the winner of the inaugural Climathon Global Awards under the Cities category.

It was selected for the honour from a pool of more than 100 applications.

Penang state exco Jagdeep Singh Deo, who announced the achievement, said Penang topped the list out of five city finalists with its programme that is a multi-agency collaborative effort.



Climate-KIC

Climate-KIC is supported by the  
EIT, a body of the European Union





## COMPONENT 3



**Strengthen social resilience among vulnerable communities, youth and women and girls. Reduced vulnerability asymmetries.**



# COMMUNITY ENGAGEMENTS

PHASE I 2019

One-on-one interviews

41 interviews

Two workshops

77 participants

Six focus groups

53 participants

Survey

324 respondents

Communities	UNESCO World Heritage Site	Communit
	Sungai Pinang	Lim Jetty
	Air Itam	Achah Mosque
		People's Court
		Hatim Yahya Mosque
		Taman Free School
		Jalan Perak
		Kampung Melayu
		Kampung Pising
		Taman Lumba Kuda
		Masjid Negeri
CSOs	Penang Youth Development Corporation	
	Youth Parliament of Malaysia	
	Penang Women's Development Corporation	
	Women and Family Development Committee	
	Penang Deaf Association	
	Penang Forum	
	Water Watch Penang	
	Persatuan Ilmu Murni Pulau Pinang	
	Malaysian Nature Society	
	Penang Skills Development Centre	
	Penang Development Corporation	
	Arkitek LLA	
	Perunding YAA	
	PAM (Malaysian Institute of Architects)	
	CREST	
	ILAM (Institute of Landscape Architects Malaysia)	
	REDHA (Real Estate & Housing Developers' Association Malaysia)	
	Construction Industry Development Board	
	Perbadanan Bekalan Air Pulau Pinang	
	Penang Hill Corporation	
	Master Builders Association Malaysia	
	Majlis Bandaraya Pulau Pinang - Urban Services Department	
	Jabatan Kerja Raya (Public Works Department)	
	YB Phee Boon Poh (Penang State Exco for Environment & Welfare)	
	YB Zaili Khir Johari (Penang State Exco for Public Works, Utilities and Flood Mitigation)	
	Penang Green Council	
	Jabatan Pengairan Dan Saliran (Department of Irrigation and Drainage)	
	Chief Minister Incorporated	
	BPEN (State Economic Planning Unit)	
	PLAN Malaysia	
	Jabatan Kerja Raya (Public Works Department)	
	PAIS (Penang Geographic Information System Centre)	
	Majlis Bandaraya Seberang Perai	
	Bahagian Kejuruteraan Tempatan	
	Malaysia Green Building Council	
	Implementation Coordination Unit	
	Jabatan Alam Sekitar	
	Penang 2030	
	Penang Institute	
	The Habitat Foundation	
	Penang Botanic Gardens	
	Universiti Sains Malaysia	
Institutions		

# KEY FINDINGS

1

Low-income communities consistently prioritized heat as their primary concern, in contrast to non-vulnerable groups, which identified flooding as the top priority.

2

Vulnerable communities identified an increase in heat-related disease particularly associated with children and elderly people.

3

Vulnerable communities also noted the mental health effects of heat, including heightened irritability and emotional stress related to storms.

4

Non-commercial areas lacked community organization, making it challenging to respond to crises.

5

Some, though not all, stakeholders were able to link climate change impacts to their socio-economic well-being.

# COMMUNITY ENGAGEMENTS

PHASE II 2020

## Six vulnerable community consultations

1. B40 (low-income communities)
2. Elderly
3. Migrants and Refugees
4. Persons with Disabilities
5. Women and Girls
6. Youth

Community	Method of consultation	Numbers
B40	Survey	290
Elderly	One-on-one interview (individual)	11
	One-on-one interview (institution)	2
	Group interview	5
Migrants and Refugees	One-on-one interview (institution)	1
	Group interview	24
Persons with Disabilities	One-on-one interview (institution)	3
	Focus Group Discussion	15
Women and Girls	One-on-one interview (individual/institution)	9
	Focus Group Discussion	21
Youth	Group Interview	37
<b>Total</b>		<b>418</b>

EXHIBITION, OCTOBER 2020





COMMUNITY OUTREACH, JUNE - AUGUST 2020



# KEY FINDINGS

1

Climate change awareness is essential for the entire population, with youth groups being notably uninformed about climate change risks.

2

Challenges associated with implementing NbS often stem from technical limitations or ill-informed decisions regarding urban planting.

3

The increase in heat-related illnesses among the elderly and children may place a burden on women due to their predominant caregiving roles.

4

Health concerns are more frequently associated with heat stress than flooding, even though the 2017 floods resulted in seven casualties.

5

While support for NbS implementation exists in Penang, some individuals mentioned that construction associated with it can disrupt urban life.

# LESSONS LEARNED

- I. Vulnerable communities have a better insight into local challenges.
- II. We must involve vulnerable communities early on in the design of the project.



**NATURE-BASED SOLUTIONS SHOULD  
BE DESIGNED WITH VULNERABLE  
COMMUNITIES AT ITS CORE**

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