PHOTO STORIES

Urban Climate *Food-print* in Indonesian Cities.

Jakarta, Solo, Semarang

Summary of Key Findings

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Photo Stories

OCTOBER 2023

Acknowledgement

Summary of Key Findings – Photo Stories – Urban Climate Food-print in Indonesian Cities © 2023

This study was conducted by Kota Kita team as part of the Urban Climate Foodprint research supported by IDRC and Oak Foundation through the Think Climate Indonesia initiative. The authors want to thank to all research respondents and partners who supported the implementation of this research.

The Urban Climate Foodprint research is one of the initiatives undertaken by Kota Kita to explore the interrelations between urban food systems and the climate crisis.

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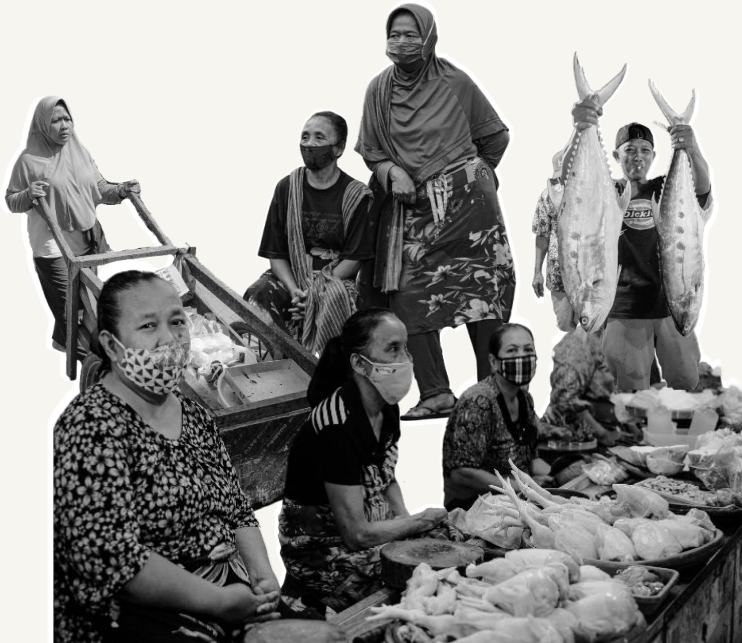
A CITY FOR ALL



About the Research

Urban Climate *Food-print* in Indonesian Cities

Through the support of IDRC and Oak Foundation through Think Climate Indonesia, Kota Kita has implement a research project focuses on urban food systems in Jakarta, Solo, and Semarang. With the urban food system as a center, this research aims to examine the relationship between urban food systems and climate change, in order to formulate recommendations for improving sustainable urban food practices in Indonesian cities. To answer the research question, we break down the research into a modular research activities focuses on different aspects of urban food systems from markets and supply chain, the role of informal food actors, food behavior and consumption patterns, coastal food system, and documentation of existing sustainable urban food practices.

The research focuses on two-cities with different socio-economic characteristics, climate risks and food vulnerability issues — Jakarta, the diverse and expansive capital city on the northern coast of Java, and Solo Raya, a small but growing inland city with a strong cultural identity and heritage—to offer insights into the policies that can help expose climate risks and vulnerabilities while improving urban food system sustainability. During the implementation, this research took an additional location, Semarang, to add perspective on the impact of climate change to coastal communities and food production.

Our research aims to understand how the urban food system (UFS) and climate change (CC) interact and affect each other.

1. What is food system? How does it operate in urban settings?
2. How does the CC affect the UFS and how does the UFS adapt to it?
3. How does the current UFS impact the environment and climate?
4. How can the UFS be improved to be more sustainable and resilient?

Research Sub-theme

Markets and Food Supply Chain

This research looks at market as the main nodes of urban food systems and understand the supply chain of key food commodities.

Coastal food ecosystem

This research seeks to understand the impacts of climate change to the coastal food ecosystem and the cascading impacts to the coastal communities.

Food Accessibility of low-income communities

This modular research aims to improve understanding of how low-income communities access food in Solo, what the barriers are, and what can be done to improve food accessibility.

Digital Ecosystem

This research investigates how digital food platforms transform the urban food system dynamics in diverse ways and promoting a more sustainable food system in Jakarta.

Ramadan Foodscape: Consumption Behaviour

This research tries to understand the complexity of the urban food system within the most festive season in Indonesia.

Role of Informal Actors

The research aims to improve understanding of the role of small-scale and informal food practices that impact food security in Solo.

Why focus on cities?

More than 70% of all food produced in the world are consumed in urban areas.

"**Urbanizing Appetites**: As urban populations surge, the pressures on confronting food waste, fostering healthy diets, ensuring nutritious sustenance, and extending food accessibility to marginalized communities intensify."

1 FAO. 2017. The State of Food and Agriculture. Leveraging Food Systems for Inclusive Rural Transformation. Rome.

Climate Crisis

Feedback

Food System

A **set of dynamic interactions** between and within **bio-geophysical and human environments** that influences both **activities and outcomes all along the food chain**: production, storage and processing, distribution, exchange, preparation and consumption *(FAO, 2007)*

Food Security

A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life *(FAO, 2002)*

Availability **Stability** **Accessibility** **Utilization**

Methodology:

How These Photos and Stories were Gathered

These photos were captured during field surveys and observations conducted in Jakarta, Solo, and Semarang as part of our research. Our focus was on exploring the intricate relationship between urban food systems and climate change, with the ultimate goal of providing recommendations to improve sustainable urban food practices in Indonesian cities. To address our research question, we organized our study into distinct modular activities, each delving into specific aspects of urban food systems. These activities included in-depth examinations of markets and supply chains, the roles of informal food actors, food consumption patterns, coastal food systems, and documentation of existing informal urban food practices.

— I —

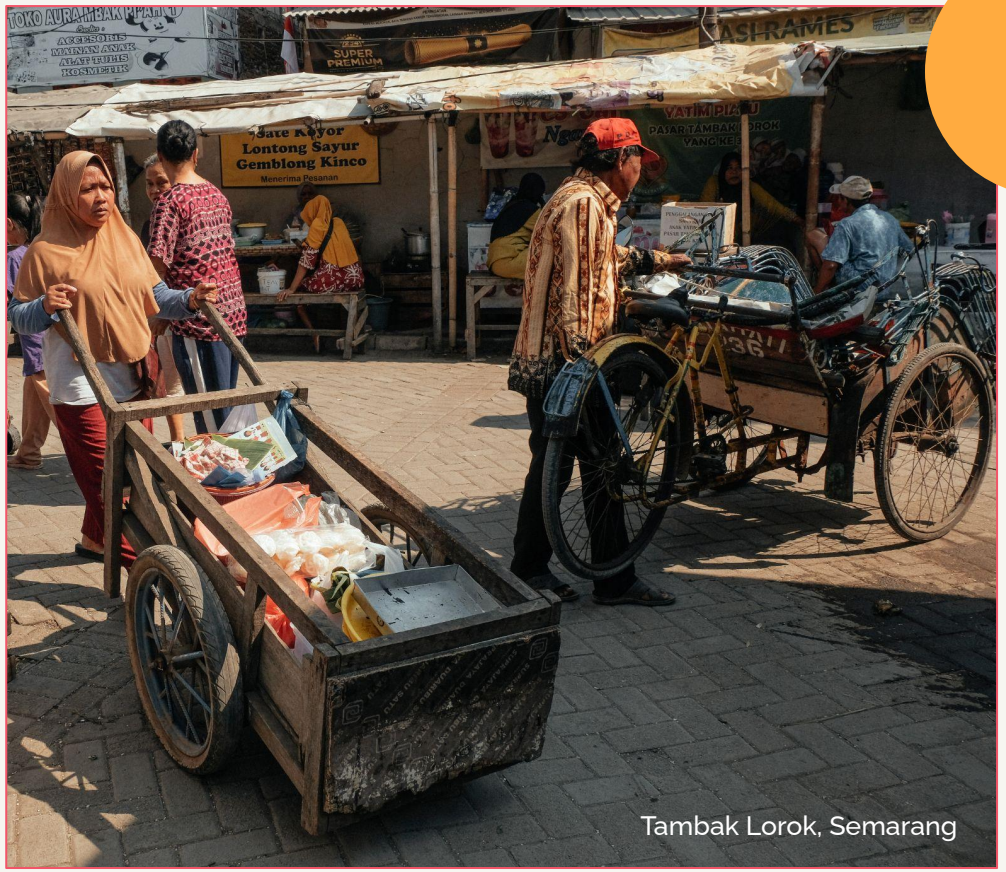
The State of Urban Food System

Rapid urbanization has led to unprecedented challenges and opportunities in ensuring food security, access, and sustainability within cities. Population growth, changing consumption patterns, and climate change effects underscore the need for resilient and adaptable urban food systems. Issues like food deserts, waste management, and economic disparities within urban areas present ongoing challenges that require innovative solutions to create more equitable, sustainable, and nourishing urban environments.

Pasar Gede, Solo

Urban Reliance on Outlying Regions:

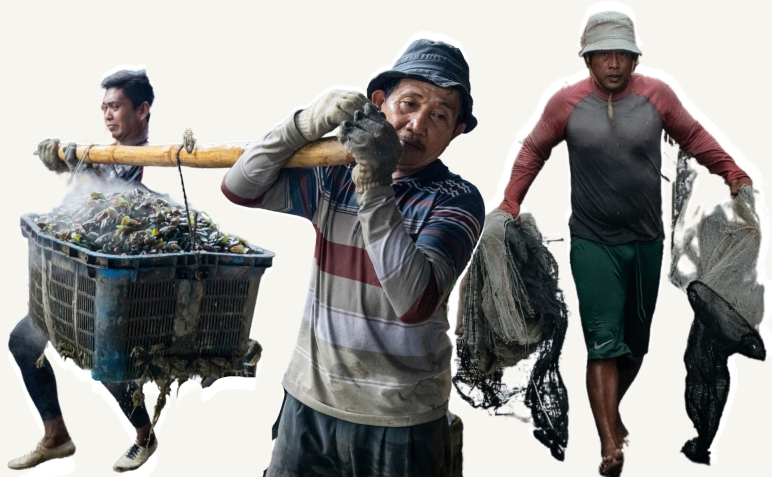
In urban areas, the majority of food is sourced from rural and surrounding areas. In our Solo study, a significant portion of food commodities originates within a 100 km radius, while essential items like garlic, soybean, and wheat are imported from distances exceeding 5,000 km.



Tambak Lorok, Semarang

City's Bounty, Unequal Reach:

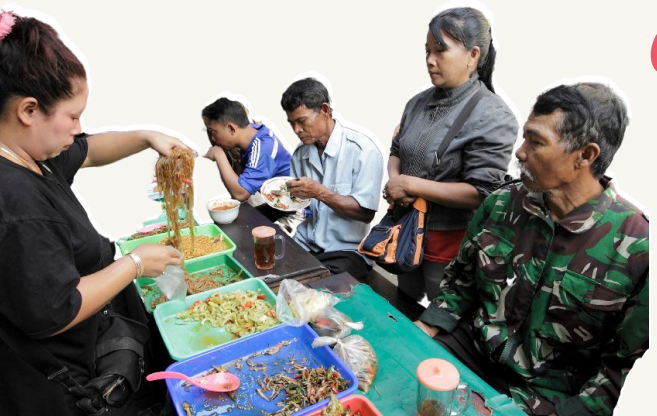
Food accessibility in urban areas hindered by physical, economic, and social barriers, from soaring prices to inadequate infrastructure.



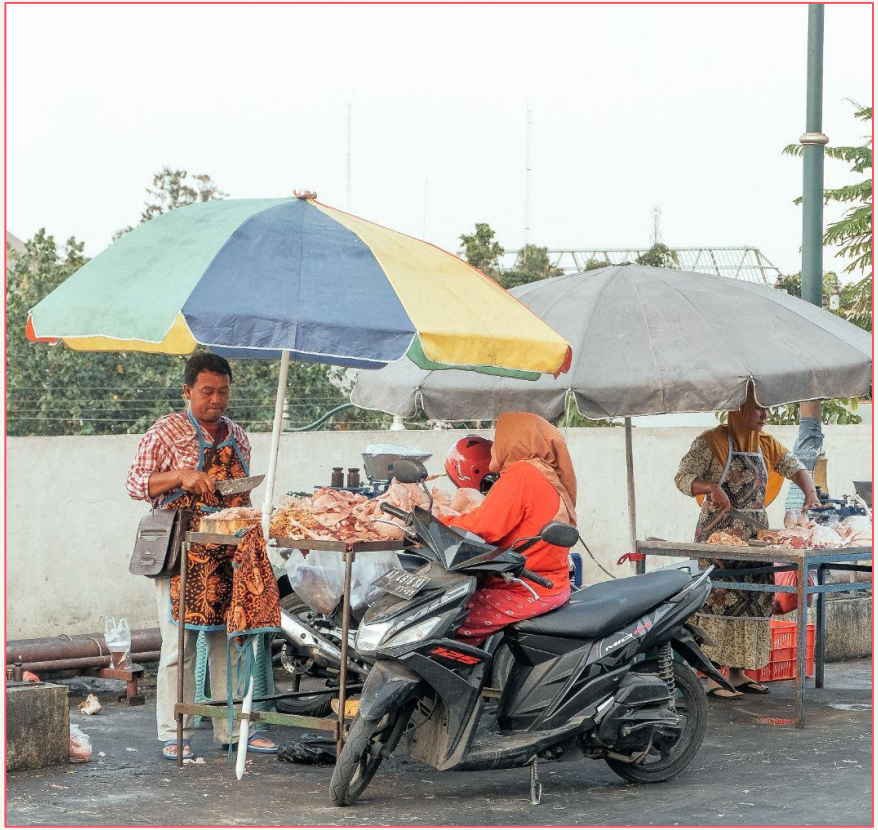
Bearing the Burden:

Low-income communities in Solo allocate **over 60% of their income** to cover food-related costs.

Transaction in Pasar Gede, Solo



> We buy food according to the price, if meat, egg, vegetable is expensive, we replace it with vegetables that have lower price.
>
> **Low Income Communities, Pajang, Solo**

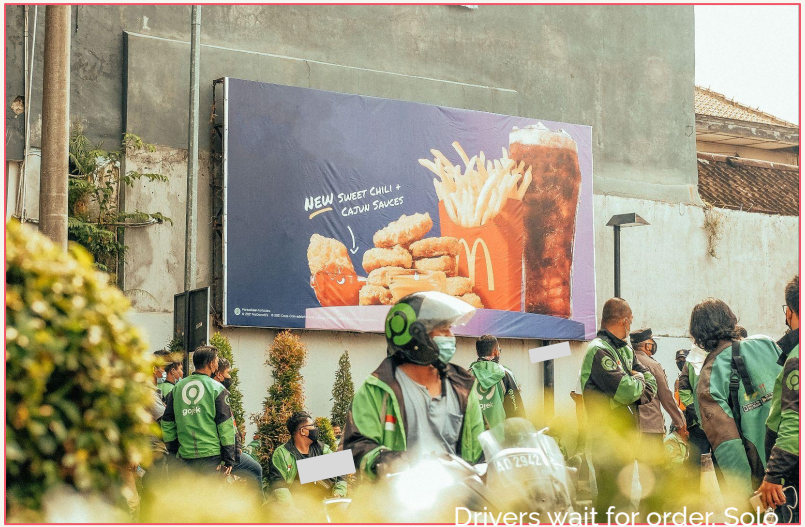


The Power of Informal Actors

Informal food actors are pivotal, seamlessly adapting to market demands, filling the gaps within the urban food system, serving the underserved areas, and demonstrating resilience during challenging times.

One '*Ojol*', 91 Deliveries, 219 km:

One online driver travels more than 219 km, navigating Jakarta's hungry streets in just one week to deliver 91 food orders.



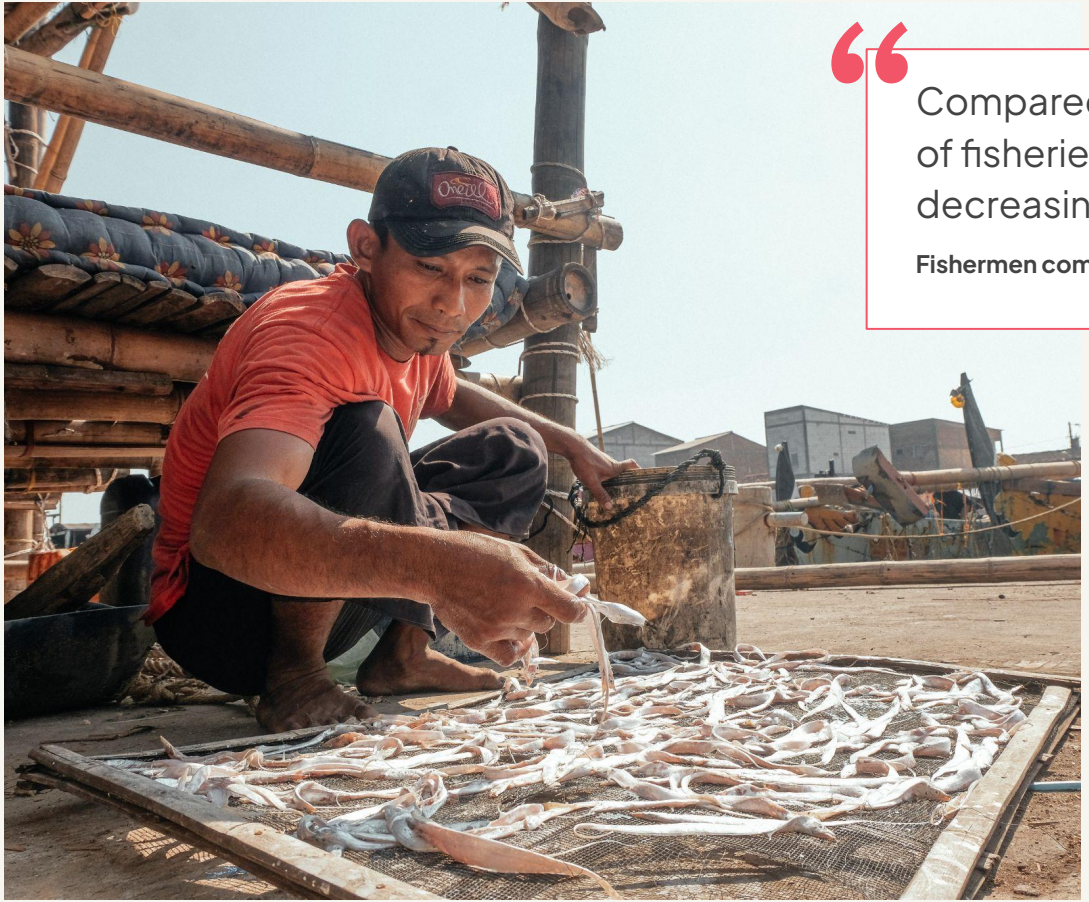
Drivers wait for order, Solo

More than 100 digital platforms are newly emerging, actively contributing to various cycle within the food system of Jabodetabek: from production, distribution to food waste management.

— II —

Climate Crisis → Food System

The climate crisis has a profound negative impact on urban and coastal food systems, with fisheries production declining by 70%, increased spoilage of fruits and vegetables during heavy rains due to poor storage and logistics, and coastal erosion, like in Timbulsloko, forcing a transition away from aquaculture. Rising prices for food and clean water place a significant financial burden on Jakarta's coastal communities, who allocate 25% of their income to water-related expenses. These challenges underscore the urgency of addressing the climate crisis's effect on food security and livelihoods.



> Compared to 20–30 years ago the number of fisheries production (fish and shrimp) is decreasing 70%
>
> **Fishermen communities, Tambaklorok, Semarang**

Reduced Food Production:

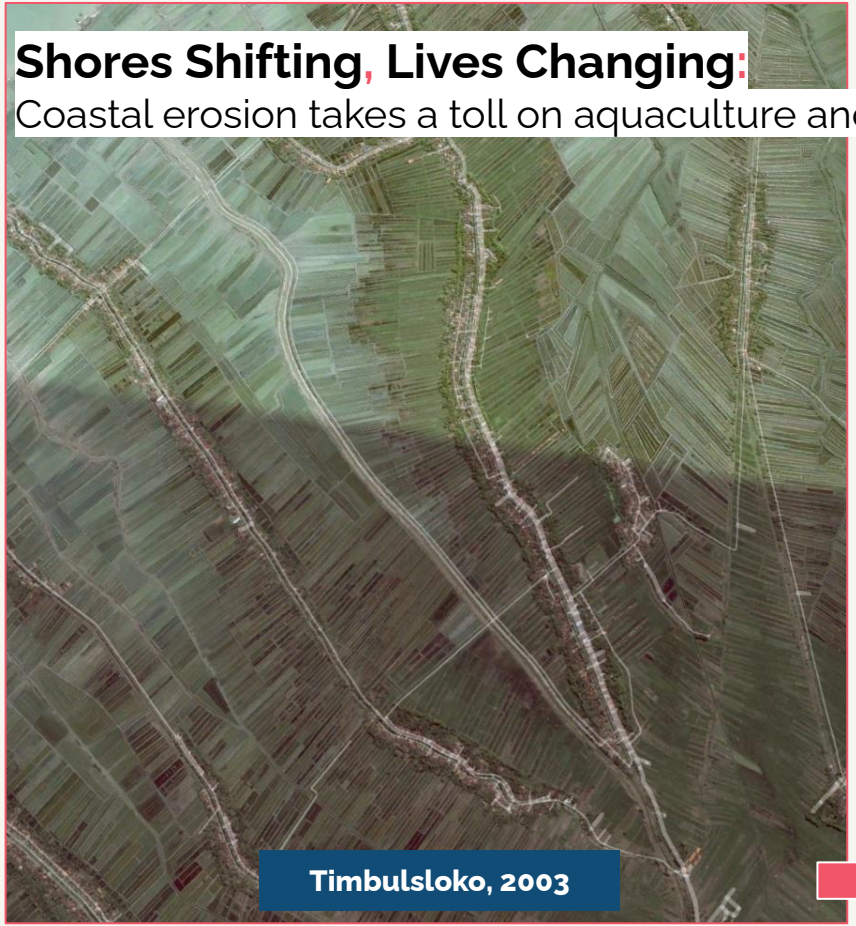
Food is a basic necessity for people. Climate change has been imparting agriculture and fisheries production. The decrease in food commodity diversity increases food insecurity.

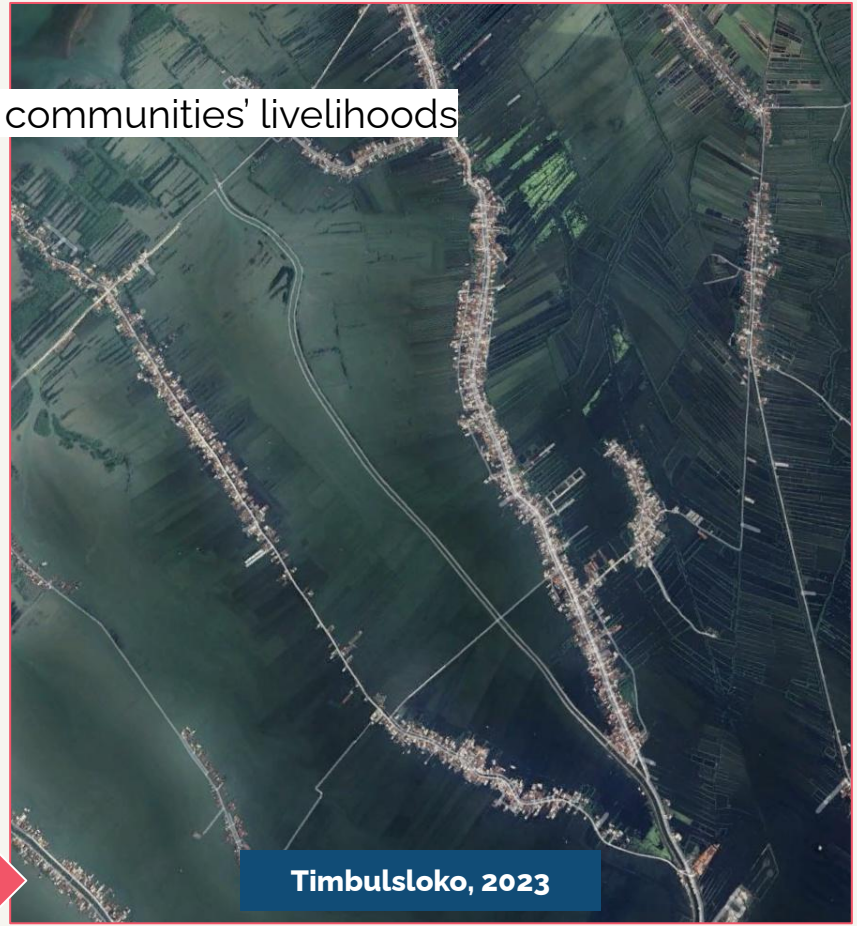
Climate Change's Bite: Impaired Food Quality & Rising Loss Risks

Heavy rains during the wet season result in a surge of spoiled fruits and vegetables. Inadequate storage systems in markets, coupled with logistics issues during heavy rains, take a toll on food quality and contribute to significant food losses.

Shores Shifting, Lives Changing:

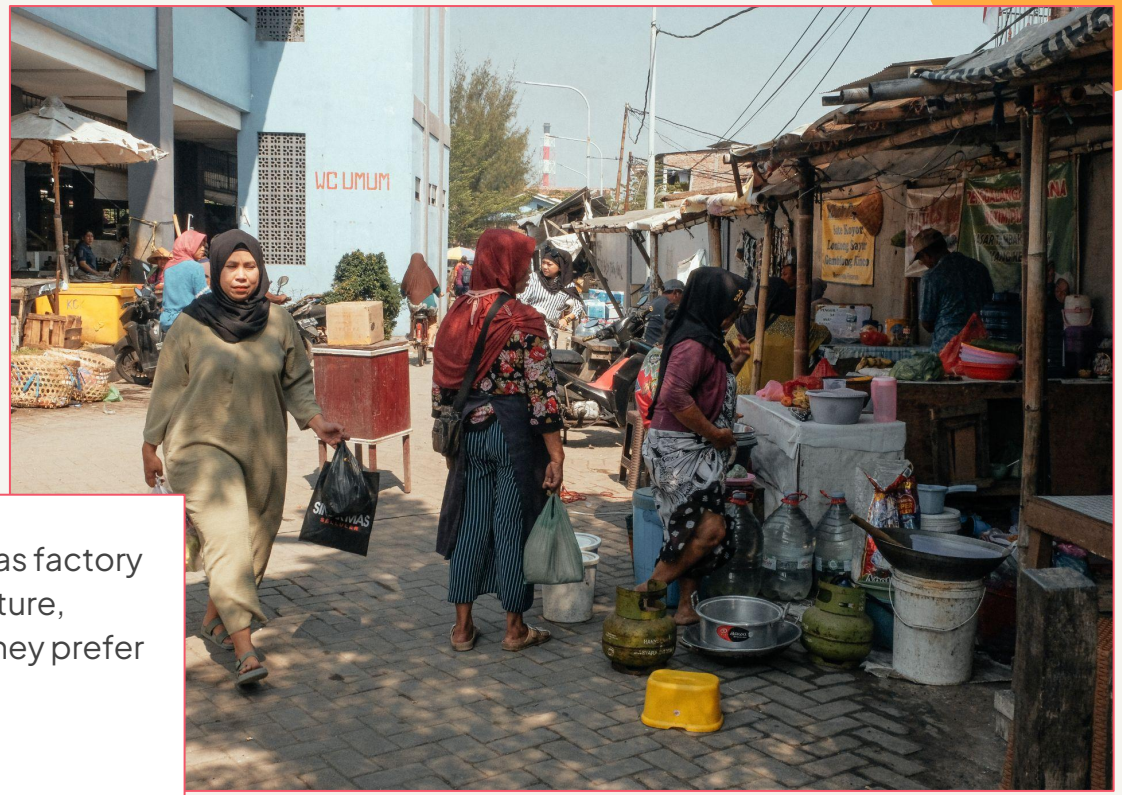
Coastal erosion takes a toll on aquaculture and communities' livelihoods



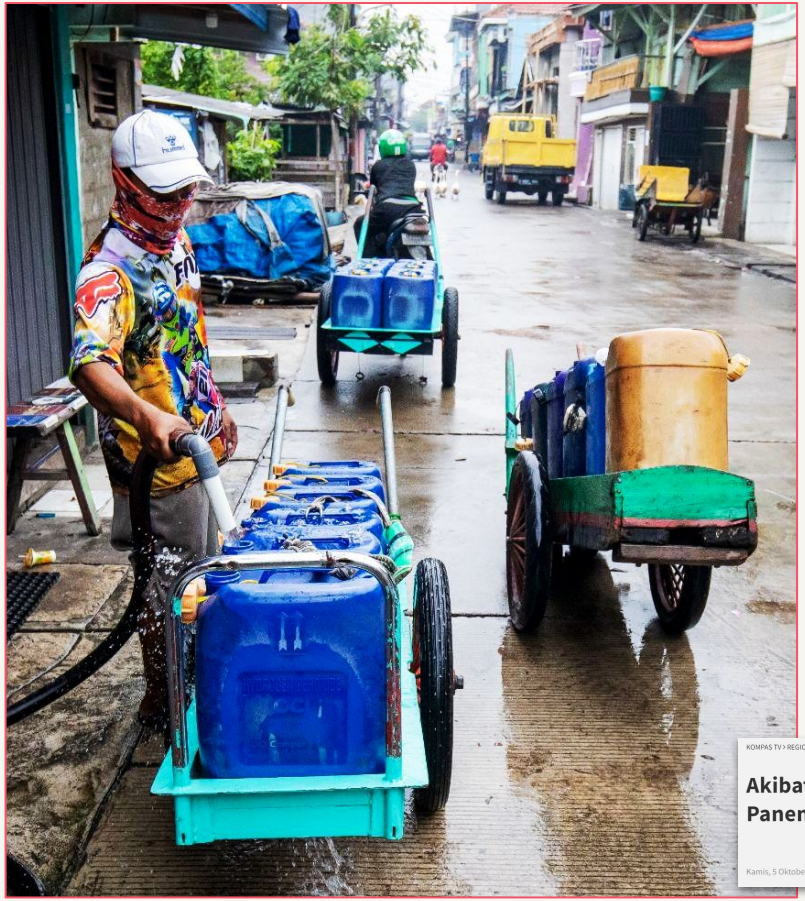


Adapting Livelihoods in Coastal Communities:

Coastal erosion in Timbulsloko drives transition from aquaculture to non-fishery activities.



> Nowadays, people are shifting to work as factory workers because of the loss of aquaculture, especially for the young generations. They prefer factory jobs over fisheries these days.
>
> **Housewife, Timbul Sloko, Demak**



Increased Food-Costs and the Vicious Cycle of Poverty:

The increase in prices of food commodities and clean water due to scarcity has caused a financial burden for low-income families. For example, coastal communities in Jakarta spend around 25% of their income on water-related expenses. This situation trapped them in a vicious cycle of poverty.

Pedagang Resah Harga Cabai Meroket, Musim Kemarau Tak Kunjung Usai

Ria FM Solo - 4 Oktober 2023 17:15 WIB

KOMPAS TV > REGIONAL > JAWA TENGAH DAN DIY

Akibat Kemarau Panjang Petani di Klaten Gagal Panen dan Merugi

Kamis, 5 Oktober 2023 | 13:14 WIB

Share :

Akibat Kemarau, 9.358 Ha Lahan Pertanian Gagal Panen

CNN Indonesia

Senin, 08 Jul 2019 14:12 WIB

— III —

Food System → Climate Crisis

This section highlights the environmental consequences of food systems. The transportation of food over extended distances escalates carbon emissions, a problem further compounded by the convenience of online food delivery services, which contribute to increased plastic waste. Inefficient market storage systems play a part in food loss due to spoilage and disorganization. The image emphasizes the urgency of enhancing storage infrastructure to minimize waste, elevate food quality, and mitigate the food system's impact on carbon emissions.

Navigating the Carbon Footprint Challenge: Local Food Sourcing vs. Long-Distance Imports

In Solo, most of the food in local markets are coming from 100 km radius. However, significant portions of commodities in the market come a long way from more than 5,000 km. The longer the journey and the more frequent the delivery, the higher the carbon emissions.

One '*Ojol*', 91 Deliveries, 219 km:

Online food delivery services make it easier to reach food. However, the blooming practice has significantly increased transportation movements, carbon emissions, and plastic waste from food packaging.

Food Loss and the Lack of Proper Storage Facilities:

The absence of an efficient storage system in markets leads to compromised food quality and increased food loss. Fluctuating conditions and pest exposure cause spoilage, while disorganization can result in the unnecessary discarding of edible items. Improved storage infrastructure is essential to reduce waste and enhance food quality.

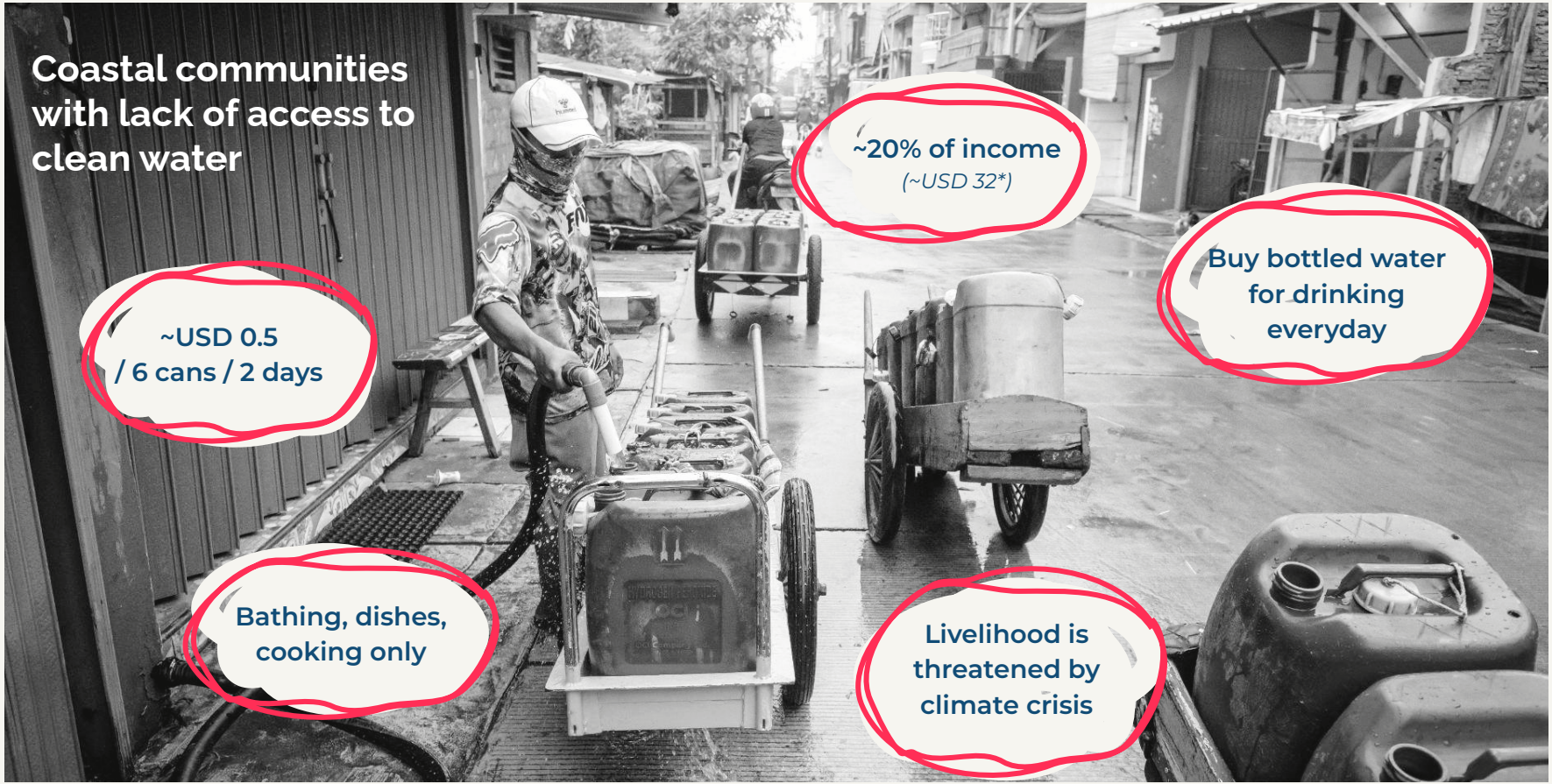
Individuals with lower incomes tend to generate less food waste:

Based on our research in Solo, economic constraints often result in a more cautious approach to food consumption and a greater emphasis on utilizing available resources efficiently, thereby reducing overall food wastage.

— IV —

The Vulnerable Communities

Who are the most vulnerable groups?


Coastal communities with lack of access to clean water
~20% of income
(~USD 32*)
Buy bottled water for drinking everyday
~USD 0.5
/ 6 cans / 2 days
Bathing, dishes, cooking only
Livelihood is threatened by climate crisis

Climate Pressure Impacts on Fishermen and Farmers, Forcing Livelihood Transformation:

Fishermen and farmers are at the highest risk of reduced income due to climate pressure, which leads to livelihood transformation and increasing the risk in the sea.

Gendered Burdens: Women's Roles in Household Recovery Amidst Livelihood Disruptions

Women shoulder increased responsibilities during times of disrupted family livelihoods, particularly in the aftermath of events like flash floods. This includes managing daily life and taking on additional burdens such as house cleaning and recovery efforts. These gender-specific roles add to the challenges they already face, juggling caregiving and household duties while dealing with the flood's impact.

— IV —

Key Recommendations

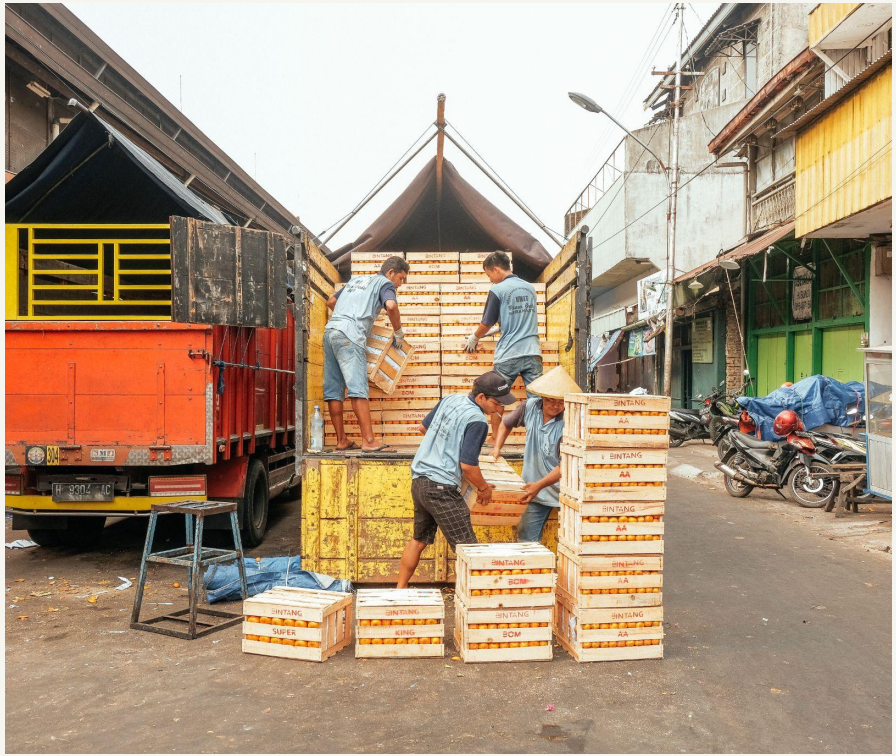
Integrating Food into Local Climate Actions and Planning.

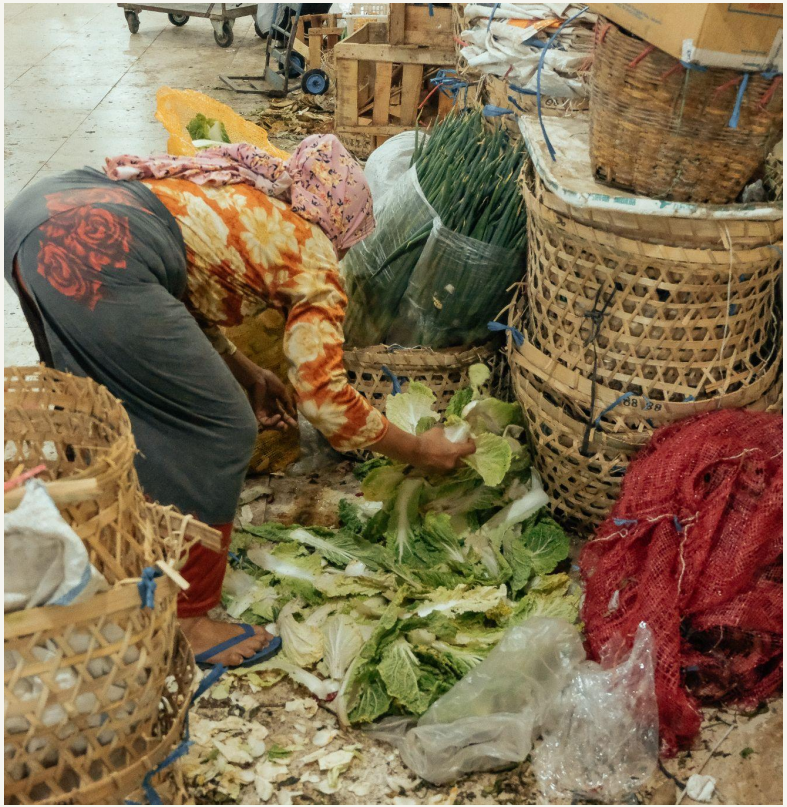
The discourse of food security needs to be integrated into city planning and local climate policies to create a more sustainable food system that supports healthy and sustainable diets, reduces food waste and loss, and transforms and shortens food supply chains.

The local city-level plan should mitigate the impact of the increasing impacts of the climate crisis on food to ensure the availability, stability, and accessibility of food for all communities. Meanwhile, strategies to reduce the emissions produced by the food system need to be implemented and include broader rural-urban collaboration.

Shorten Food Supply Chain: Strengthening Rural-Urban Linkages and Local Food Production

Rural-urban linkages need to be strengthened to advance investment in sustainable agriculture practices to ensure food availability both for rural and urban communities. Promoting local food production within cities, such as urban farming, also needs to be strengthened to serve as an alternative food source in the crisis.





Minimizing food loss and food waste and managing food excess.

Minimizing food loss and waste is one of the key strategies to reduce emission from food systems. This includes several key strategies:

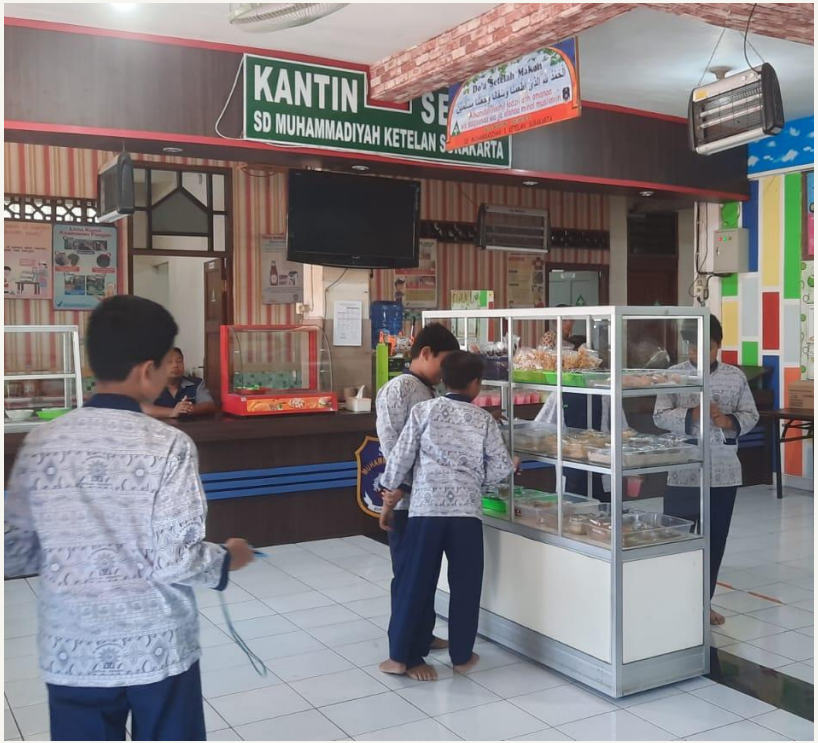
- Improving logistics systems to be more efficient;
- Improving storage system at key urban markets to reduce food loss;
- Promoting behavioral changes at community level to reduce food waste at the household level;
- Promote sustainable practices for key food actors (hotels, restaurants, caterings).
- Promoting integrated food waste management (composting, waste banks) to manage food excess.

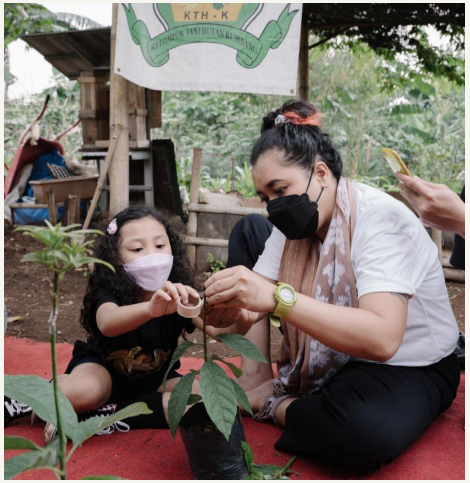
Adopting greener technology

Greener technology such as electric bike for food delivery, IoT-supported aquaculture, alternative material for packaging are needed to promote more sustainable food practices.

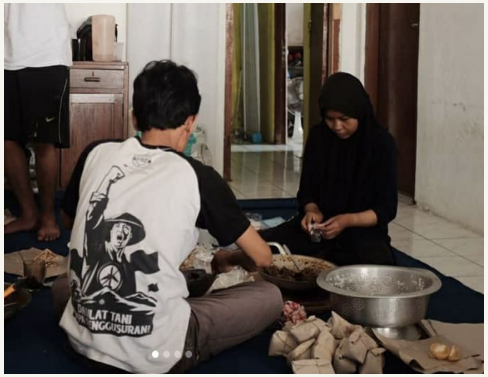
Promoting healthy diets and sustainable consumption

With the rapidly increasing supply of unhealthy and ultra-processed food, there is a need to promote healthier diets and more sustainable and responsible consumption behavior at all levels. Promoting transformative consumption behavior needs to be done at all layers, which should include schools, government, NGOs, and local communities.





Urban Farming: Selarasa Food Lab, JKT



Community Kitchen: Solidaritas Pangan, YK

Healthy School Canteen: SOLO

Food Waste Bank: Garda Pangan,SBY

Fostering local small-scale food initiatives: Incentivizing just and equitable food system

Fostering local-scale scale initiatives provides an opportunity for creating a just and equitable adaptation. Necessary support such as technical assistance to enhance capacity, nurturing room for exchange, and adaptive social protection is needed to help small-scale initiatives sustain their practices to adapt to the changing environment.

About **Kota Kita**

Kota Kita (KK) is a non-profit organization based in the Indonesian city of Surakarta (Solo) with expertise in urban planning and citizen participation in the design and development of cities. We bridge the dialogues between government and their constituencies by facilitating citizen participation and collaboration, influencing urban policies, encouraging open access to information, and providing civic education to empower urban citizens.

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