Architecture as Disaster

Designing Cities That Dance with Water

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The Crisis: When Design Fails

Just three days ago, Medan experienced catastrophic flooding. This is not an isolated incident—it's a pattern. Throughout 2025, Indonesia recorded 1,502 flood events. This is no longer an anomaly.

> **This is not a weather event. This is a system failure.**

85K+
People Evacuated
in one night

743+
Deaths
Sumatra floods

514
Flood Points
in Medan

1,502
Flood Events
2025 YTD

Why Cities Flood: The Design Failures

1. **Impermeable Surfaces**
   Concrete and asphalt prevent natural infiltration
2. **Rapid Urbanization**
   Growth without hydrological planning
3. **Centralized Systems**
   Vulnerable to catastrophic failure
4. **Climate Change**
   Intensifying the consequences of poor design

Core Message

Floods Are Design Outcomes, Not Natural Disasters

If we **designed our cities for flooding**, we can **design them differently**.

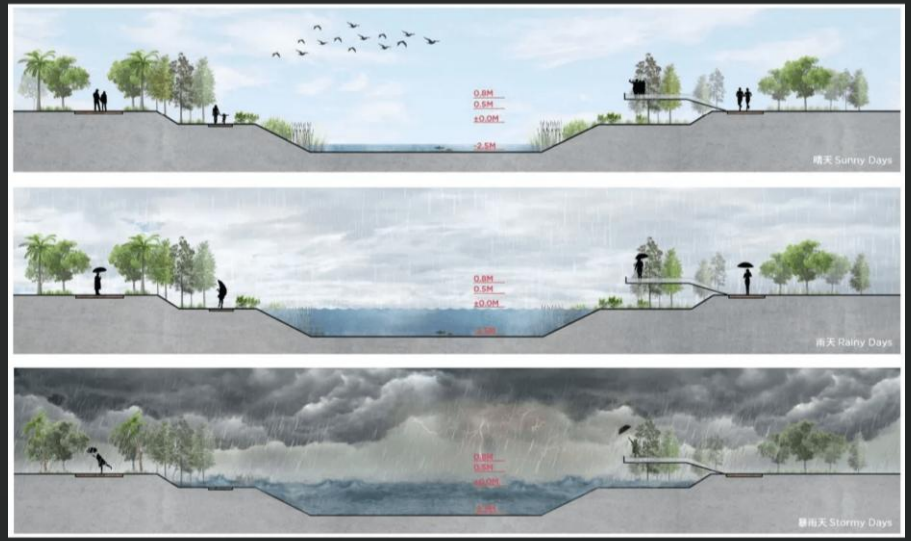
The Shift: From Fighting Water to Living With Water

Resistance (The Old Way)

- Rigid infrastructure (dams, high walls)
- Works until it fails (catastrophic failure)
- Destroys ecosystems and downstream areas

Resilience (The New Way)

- **Tolerate:** Accept water will come
- **Adapt:** Systems remain functional
- **Recover:** Quick return to normal



Resilience: Designed to thrive in all conditions

The Complete Solution: Gray + Green + Policy

Gray Infrastructure

Pumps, traditional drainage for crisis management

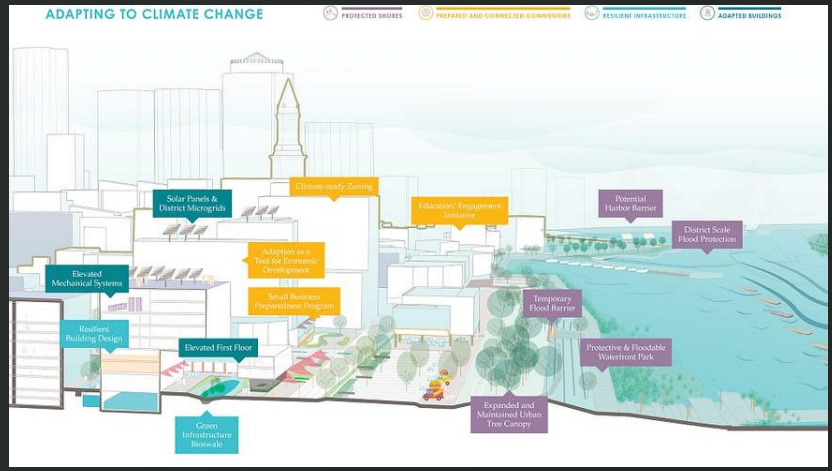
Green Infrastructure

Nature-based solutions for systemic health

Policy Framework

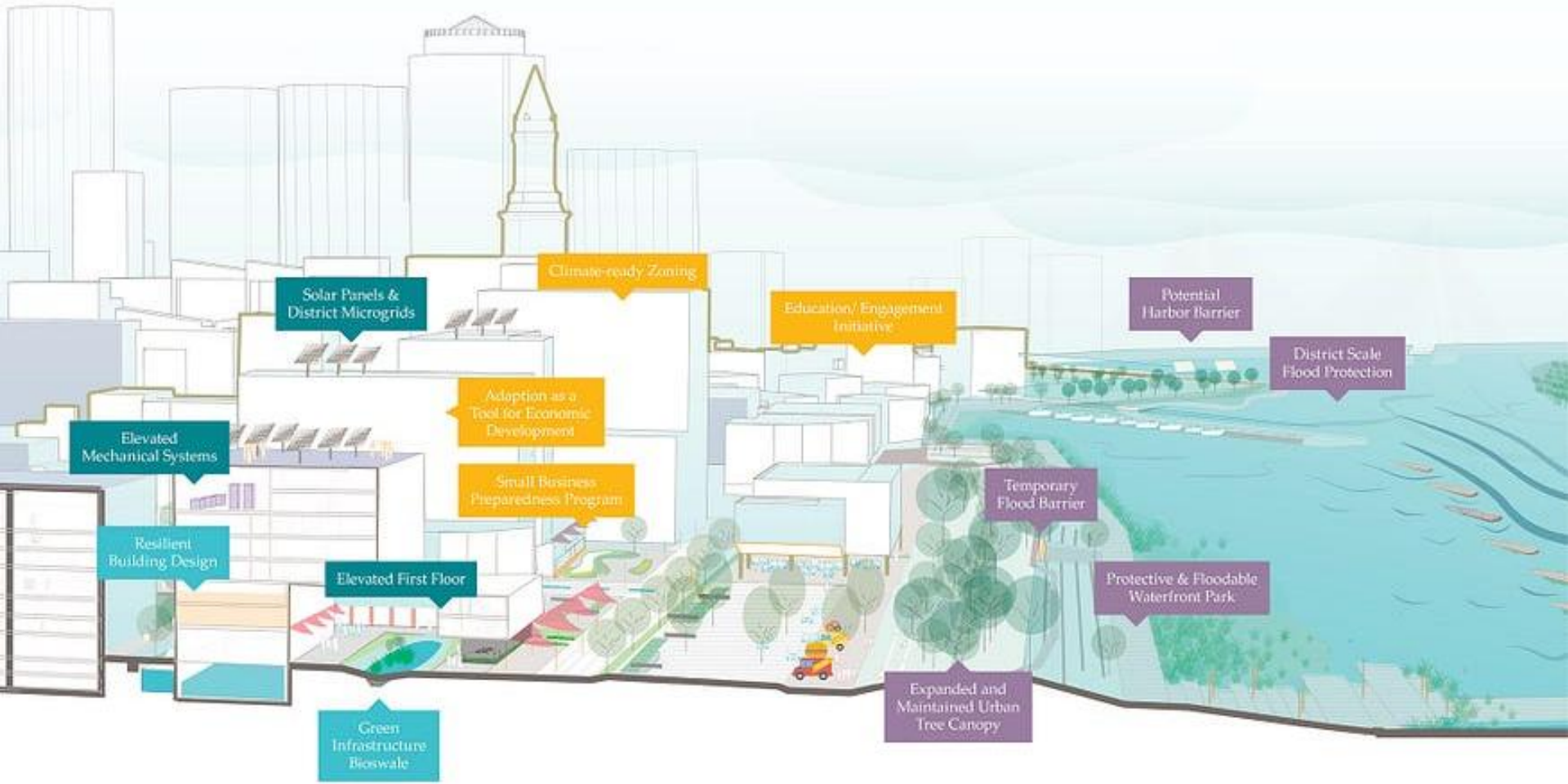
Regulations and incentives for enablement

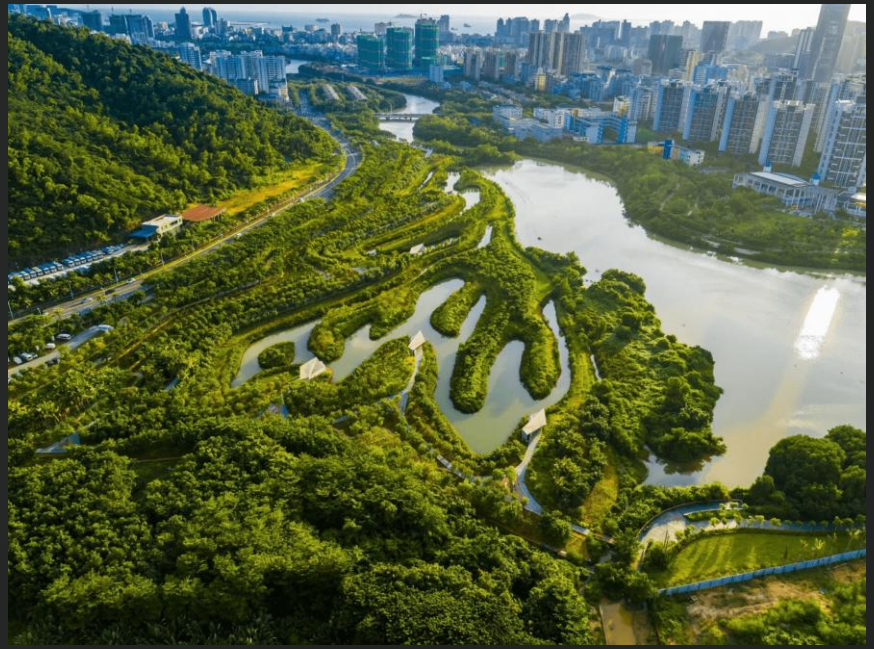
> **A Resilient City is the result of all three working together coherently.**



ADAPTING TO CLIMATE CHANGE

PROTECTED SHORES | PREPARED AND CONNECTED COMMUNITIES | RESILIENT INFRASTRUCTURE | ADAPTED BUILDINGS





Sanya Mangrove Park The waterways on China’s Hainan Island

Designing Like Nature: The Sponge City

1 **Absorb**

Green roofs, permeable pavements, and infiltration systems that allow water to soak into the ground naturally.

2 **Store**

Retention ponds, water squares, and underground storage that hold water temporarily during heavy rainfall.

3 **Purify**

Bioswales and rain gardens that filter and clean water naturally before it returns to the environment.

Transforms flood infrastructure into **beautiful, functional public space** that serves the community year-round.

Every Building is a Micro-Resilience Unit

1. **Elevation**
   Raise the main floor above the flood line
2. **Amphibious Design**
   Buildings that float when water rises
3. **Water-Resistant Materials**
   Use durable materials in flood zones
4. **Deployable Barriers**
   Temporary protection for entrances

> **Accommodate water gracefully, don't pretend it doesn't exist.**

Hotel Parkroyal

Three Cities, One Message: Resilience Works

Proof of Concept from Real Implementation

Semarang

40%

Flood Control Project Completion (Target 2027)

- Green infrastructure integration
- Sustainable drainage systems
- Community participation

Brisbane

91%

Success in Retrofitted Homes

- 70% insurance premium reduction
- Building-level adaptation strategies
- Proven ROI in 10 years

Rotterdam

∞

Water Squares as Public Asset

- Dual-use infrastructure design
- Beautiful public spaces
- Community engagement

Our Collective Responsibility

As architects, planners, and citizens, our focus must shift from merely building structures to building resilient systems. This requires a collective responsibility that transcends disciplinary boundaries.

We are not just educating students; we are designing the future together through the knowledge we generate.

1. **Integrate Hydrology**
   Make water management a shared concern across all sectors
2. **Prioritize Inclusivity**
   Ensure solutions benefit all communities, especially vulnerable areas
3. **Advocate for Policy**
   Use data and research to drive systemic change
4. **Seek Multipurpose Solutions**
   Design infrastructure serving multiple functions
5. **Break the Silos**
   Collaboration between government, private sector, and community

The Reality Check: Navigating Barriers to Resilience

Barriers (The Reality)

⚠️ **Political Will**
Short-term electoral cycles vs. long-term resilience needs

💰 **Cost**
Perceived high initial investment often obscures long-term savings

🔗 **Coordination**
Fragmented agencies and jurisdictions create silos

🧩 **Knowledge**
Lack of local technical expertise and awareness

Solutions (Our Power)

📊 **Economic Analysis**
Use rigorous research to prove long-term ROI and cost-benefit

🏗️ **Demonstration Projects**
Transform our campuses into living laboratories and proof of concept

🎓 **Capacity Building**
Embed resilience across all faculties' curricula, not just architecture

🤝 **Collaboration**
Bridge disciplines and institutions to create systemic change

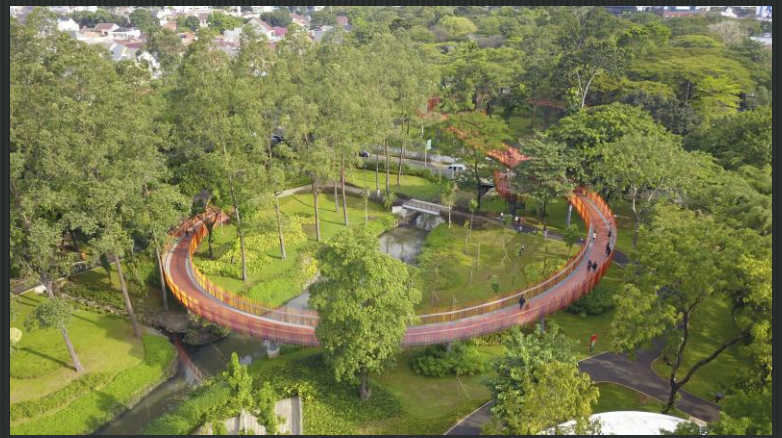
The Vision: A City Anticipated, Not Feared

Imagine cities designed to **thrive with water, not despite it**. Where monsoons are **anticipated, not feared**. Where water management is seamlessly integrated into **beautiful public spaces** that serve the community year-round.

This is not about fancy technology or utopian thinking. This is about a **fundamental shift in how we design**—from fighting nature to dancing with it.

Indonesia's Unique Opportunity

To lead the world in tropical, biodiverse, resilient urbanism. But only if we—academics, planners, and designers—lead with research, collaboration, and courage.



Tebet Eco Park

The Immediate Choice

Every decision we make, every project we approve, is a choice.

Make the Decision. Start Today.

1

Initiate one Project

Start a small-scale, interdisciplinary resilience project in your community or organization

2

Revise one Policy

Identify one regulation that hinders resilience and advocate for its revision

3

Start one Conversation

Begin a public dialogue this week about water management and urban design

Because in the end, this is about more than just floods. It's about the **legacy we leave behind**—a city that is stronger, fairer, and more harmonious with nature.