SOUTHEAST ASIA-EUROPE JOINT FUNDING SCHEME FOR RESEARCH AND INNOVATION

PRINCE OF SONGKLA UNIVERSITY

PMU-B

BRIN BADAN RISET DAN INOVASI NASIONAL

AI Flood Forecasting and Resilient Treatment for Water Management

Integrating Flood Prediction, Membrane Treatment & Resource Recovery

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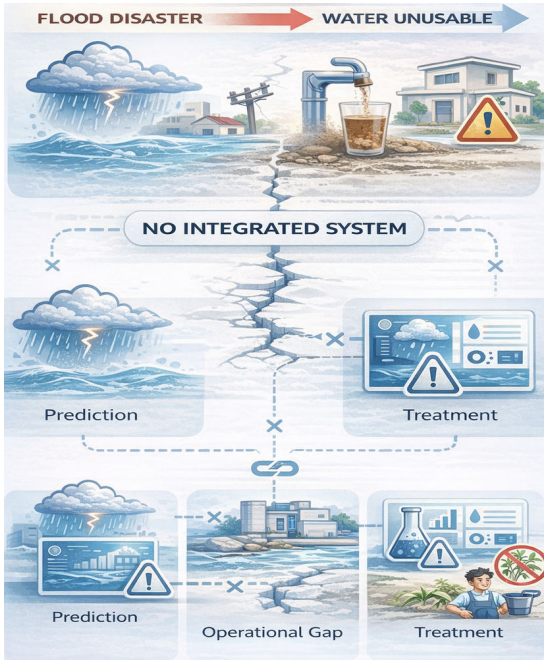
Mission

"Our mission is to integrate flood prediction, water-quality monitoring, and adaptive treatment into one operational system that keeps safe water flowing through climate disruptions."

Vision

"We ensure water continuity under climate extremes by forecasting disruptions, activating adaptive treatment, and rapidly recovering supply at the local level."

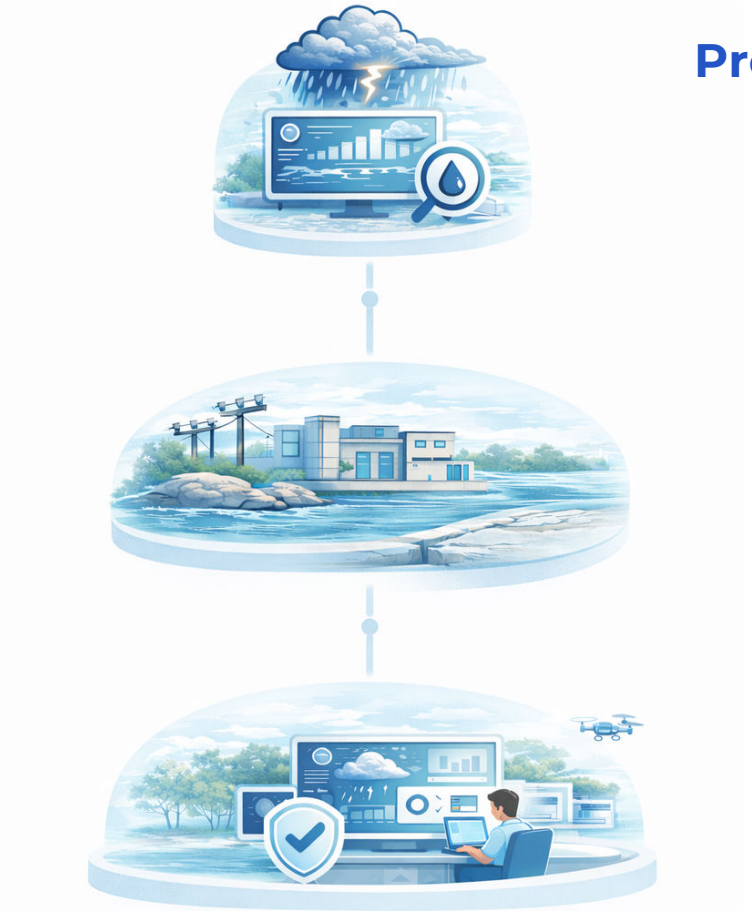
Problem



Climate extremes are breaking water systems

- Increasing frequency of extreme rainfall and flash floods due to climate change
- Flood warning systems are reactive, fragmented, and not AI-integrated
- Water quantity + water quality risks are not managed as one integrated system
- Emergency response and floodway planning tools are still fragmented/limited

Solution



Predict → **Protect** → **Recover (Integrated resilience water management)**

1. AI-based flood and water quality prediction
2. Floodway planning under current & future climate scenarios to reduce damage
3. Completed with smart water management platform to monitor performance remotely

Market Opportunity

High-Set Assumptions

- SEA share = 8% of TAM
- TH+ID = 51% of SEA population

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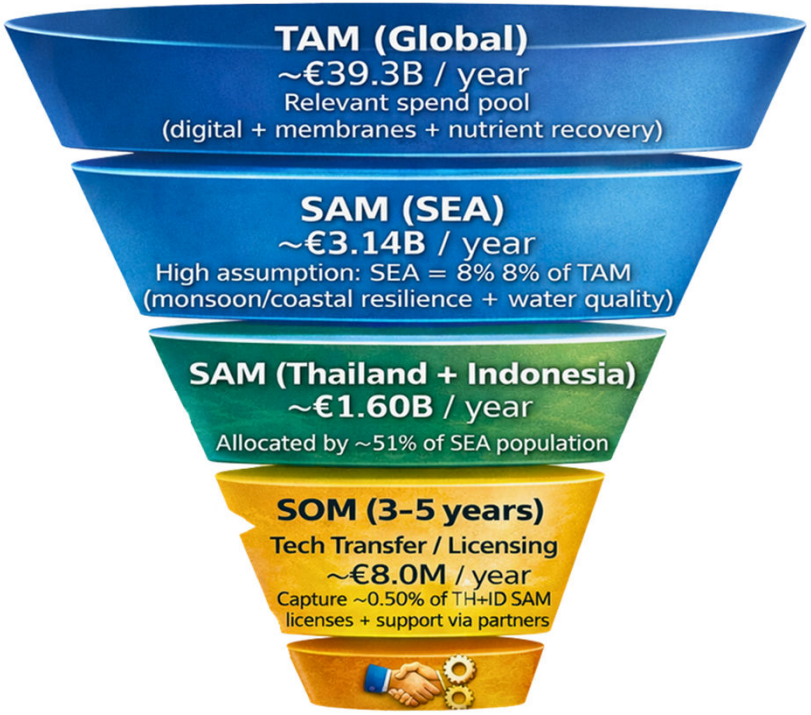


1. High flood risk in Southeast Asia
2. Urban, agricultural, and industrial relevance
3. Strong alignment with climate adaptation priorities

Tech Transfer / Licensing — High Case || Thailand + Indonesia | FX: €1 = 1.1767(*ECBReference*); 1 = €0.8498

Large, growing need for climate-resilient water infrastructure

Technology/Product

1. Real-time sensors and monitoring
2. AI and hybrid flood models
3. Data integration platform (hydrology + hydraulics + water quality + climate)
4. Integrated membrane treatment systems

Business Model

1. **Funded R&D + demonstration pilots with agencies/utilities + industrial partners**
2. **Revenue Streams**
   licensing decision-support tools, engineering design packages, services
3. **PPP (Public–Private Partnership) option**
4. **Expansion**
   validated Thailand case studies → repeatable model for SEA markets

Partnership-driven pilots → **Scalable deployments**

Traction

Strong technical credibility
+
Collaboration signals

1. Strong interdisciplinary research team in national & international
2. Leadership and professional networks (water/disaster research/membrane)
3. Access to real hydrological and meteorological datasets
4. Pilot basin identified (U-Tapao Basin, Songkhla)
5. Institutional support
6. Alignment with national strategy and SDGs
7. SROI

Competition

Point solutions exist—integrated resilience is the gap

Existing Alternatives

- Traditional physical hydrological models

Our Advantage

- Hybrid AI + Physical integration
- Real-time operational capability
- Localized for Thailand climate and infrastructure
- Strong cooperation with related agencies

Differentiator: end-to-end system (risk → decision → treatment/recovery)

Our Team

- Civil and Environmental engineering & Membrane Technology
- AI and system modeling
- Socioeconomic and public policy

Thailand

PSU & PMU-B
(Flood modelling& Water treatment Membrane Technology)

Indonesia

ITB & BRIN
(Membrane Technology)

EU

System design/optimization, sensors/architecture, socioeconomic analysis

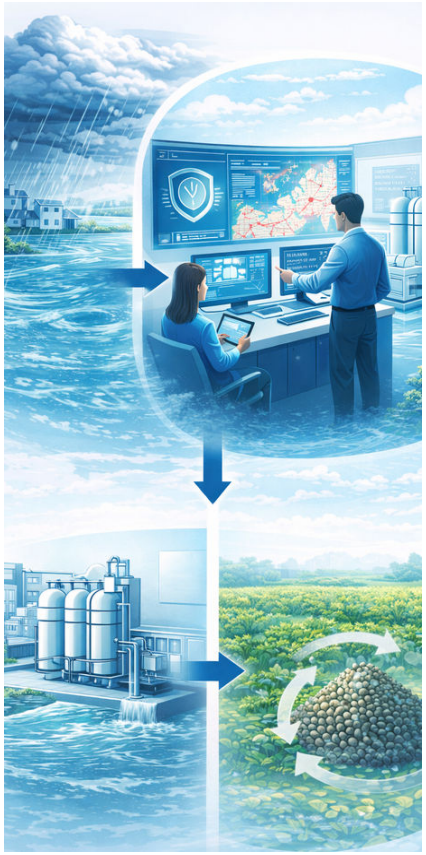
Funding Ask

Ask	**520000 Euro (co-defined with partners)**
Build	**Operational models + resilient treatment pilots + nutrient recovery demo**
Outcomes	**Deployable decision-support + validated tech packages for replication**

Seeking ASEAN–EU funding to deliver pilots + scale blueprint

Conclusion & Contact

- We connect flood prediction directly to actionable water quality protection
- We add circular value—turning risk into resources
- Call: EU partner to co-build, pilot, and scale across tropical regions



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