



सत्यमेव जयते  
Office of Principal Scientific Adviser  
to the  
Government of India

# AquaMAP

**Centre for Water Management and Policy**



AquaMAP

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**INDIAN INSTITUTE OF TECHNOLOGY MADRAS**

**[www.aquamap.iitm.ac.in](http://www.aquamap.iitm.ac.in)**



# AquaMAP: Centre for Water Management and Policy

## Background

Problems related to water availability and water excess cannot be over emphasized. There is a significant gap between the water demand and water supplied. Per capita availability of good quality water is decreasing continuously. Drivers for these problems are: population growth; industrial development; lifestyle changes; encroachment of water bodies such as lakes, ponds, inadequate management of wastewater & solid waste, unsound management practices and inappropriate policies. Problems are complex, interconnected and can get worse in future due to climate change.

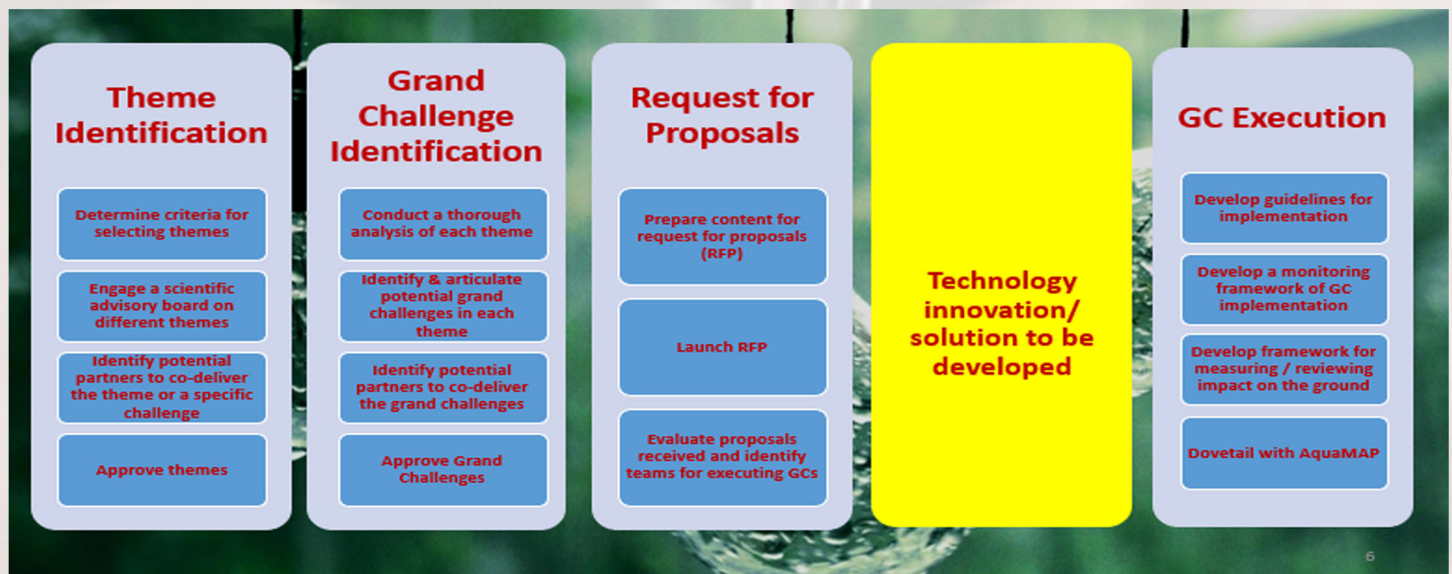
In the above context, IIT Madras Alumni wish to do their best to solve the pressing and impending water crises in our country. IITM already has several research centers such as ICCW, CTaP, IGCS, SUTRAM, PCoE on Water & Sustainability etc. which are addressing various water related issues from a fundamental and applied research perspective. IITM Alumni wish to actively work with IITM Faculty to facilitate the translation of already developed technologies and best management practices for adaptation and scaled application to suit different field conditions in India, by leveraging their own experience and wide network with industry, governmental and non-governmental agencies. It is with this aim, they have provided the seed funding for setting up the AquaMAP: Centre for Water Management and Policy at IIT Madras.

## Mission

*"Identify and build win-win solutions for complex and challenging water problems of our nation by developing & evolving smart and wise water management practices and implementing them in the field, by leveraging innovative technologies/solutions, while balancing conflicting objectives of stakeholders and working with the society and government to formulate just policies"*

## AquaMAP closely works with the Office of the Principal Scientific Adviser to the Government of India

### 1. Grand Challenges



- Identify grand challenges in water / wastewater management for focused attention
- Invite solutions for these challenging problems from faculty and students of IITM, and other participants from India and globally.
- Provide seed funding for preliminary work and formulate proposals
- Facilitate third party funding and other support needed to work on these grand challenges.



- Identify pressing water related problems faced in various parts of the country
- Implement astute management practices and solutions leveraging existing / new technologies, for water conservation and water rejuvenation in villages / towns/industries/agriculture areas, as relevant
- Monitor the performance over a period of time under different stress conditions for sustainability under existing policy framework
- Extract knowledge from gathered information on the technology-society-governance nexus and suggest changes in the policy framework, if needed

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graph TD; ES[Ecological Services]; WS[Water Sources]; WQ[Water Quality]; WT[Water Treatment Technologies]; WSUP[Water Supply Networks-IoT]; AI[Industry / Domestic]; RR[Recycling & Reuse Circular Economy]; WWT[Wastewater Treatment Technologies]; WWC[Wastewater Collection Sewerage Systems]; PLFMA[Policy, Legal, Financial and Managerial Aspects of Water Management]; WS --> ES; WS --> AI; AI --> WS; WS --> WQ; WQ --> WT; WT --> WSUP; WSUP --> WWC; WWC --> WWT; WWT --> RR; RR --> WQ; RR --> ES; ES --> WS; PLFMA --> AI; PLFMA --> RR; PLFMA --> WWT; PLFMA --> WWC;
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**Ecological Services**

**Water Sources**

**Water Quality**

**Water Treatment (Technologies)**

**Water Supply (Networks-IoT)**

**Agriculture / Industry / Domestic**

**Recycling & Reuse (Circular Economy)**

**Wastewater Treatment (Technologies)**

**Wastewater Collection (Sewerage Systems)**

**Policy, Legal, Financial and Managerial Aspects of Water Management**

## Expected Outcomes

- Demonstrated model of success through collaborative working of community, industry, academia and technology professionals
- Ready reckoner and tool kit for management practices + technologies that can be deployed in other parts of the country
- Referral sites that are global benchmarks in water security, water quality and sustainable water management
- Potential for increasing economic activity, employment generation in other areas
- Related benefits in health, education, poverty alleviation with commensurate economic gains
- Helps India attain its UN Sustainable Development Goals - Water and Sanitation (Goal 6)

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graph TD; GB["Governing Board"] <--> AB["Advisory Board"]; GB <--> IITMAA["IITMAA"]; GB <--> SGA["Stakeholders Government Funding Agencies"]; GB <--> RGS["Research groups and students from IIT Madras"]; GB <--> SCIP["Steering Committees for Individual projects"]; GB <--> AquaMAP["Aqua MAP"]; AquaMAP <--> SCIP; AquaMAP <--> RGS; AquaMAP <--> IITMAA; AquaMAP <--> SGA; AquaMAP <--> Panchayat["Panchayat Official/Government official from the project area<br/>• One alumni representative<br/>• One people representative<br/>• One Faculty from IITM"]; Panchayat <--> SCIP;
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The diagram illustrates the organizational structure of the Aqua MAP project. At the top is the **Governing Board**, which has bidirectional communication with the **Advisory Board**, **IITMAA**, **Stakeholders Government Funding Agencies**, **Research groups and students from IIT Madras**, **Steering Committees for Individual projects**, and the central **Aqua MAP** box. The **Aqua MAP** box contains a list of roles: Principal Investigator (Faculty), Co-PIs (Faculty), CTO (Identified with help of alumni), Project Manager : Pilot implementation, Social scientist, Data Analyst- Hydro-Informatics Laboratory, Accountant, and Secretary. It also has bidirectional communication with **IITMAA**, **Stakeholders Government Funding Agencies**, **Research groups and students from IIT Madras**, **Steering Committees for Individual projects**, and a box on the left. This left box lists: Panchayat Official/Government official from the project area, One alumni representative, One people representative, and One Faculty from IITM. This box has bidirectional communication with the **Steering Committees for Individual projects**.

## Governing Body Members



**Prof. V. Kamakoti,**  
Chairman, GB  
Director, IIT Madras



**Dr. P. Balasubramanian,**  
Donor Alumni



**Mr. Krishnan Narayanan,**  
Donor Alumni &  
President, IITMAA



**Mr. T. M. Vijay Bhaskar,**  
Former Chief Secretary,  
Karnataka



**Prof. Mahesh Panchagnula,**  
Dean ACR, IIT Madras



**Mr. Laxmiprasad Putta,**  
Founder, Vassar Labs



**Prof. M. S. Mohan Kumar,**  
Retired, I.I.Sc



**Prof. Sanjeev Chaudhari,**  
IIT Bombay

## Advisory Board Members



**Dr. Nimish Shah,**  
Managing Director  
IAPMO, India



**Mrs. Vanitha Mohan,**  
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**Mr. M. S. Unnikrishnan,**  
CEO, IIT Bombay Monash  
Research Academy



**Prof. V. Kalyanaraman,**  
Retired, IIT Madras



**Prof. L. Elango,**  
Anna University



**Prof. Ravindra Gettu,**  
Dean ICSR, IIT Madras

## Lead Investigator



**Prof. Ligy Philip,** Convener  
Coordinator of AquaMAP

## Co-Investigators



**Prof. T. Pradeep,**  
Dept. of Chemistry,  
(SUTRAM & ICCW)



**Prof. V. R. Muraleedharan,**  
Dept. of Humanities &  
Social Sciences (CTaP)



**Prof. B. S. Murty,**  
Dept. of Civil Engineering,  
(Hydraulics) (SUTRAM)



**Prof. Balaji Narasimhan,**  
Dept. of Civil Engineering,  
(Agriculture and hydro-  
informatics) (SUTRAM)



**Prof. Sridharakumar N,**  
Dept. of Chemical  
Engineering,  
(Hydraulics) (SUTRAM)



**Prof. Indumathi Nambi,**  
Dept. of Civil Engineering,  
(Environmental) (PCoE)

## Faculty Members Associates

1.	Prof. Bobby George	Electrical (Sensors and IoT)	8.	Prof. K. S. Reddy	Mechanical (Energy)
2.	Prof. Shankar Narasimhan	Chemical (Control and data science)	9.	Prof. Prema Rajagopalan	Humanities (Sociology)
3.	Prof. K. P. Sudheer	Civil (Agriculture and Water Resources)	10.	Prof. R. Sarathi	Electrical (Machinery)
4.	Prof. S. N. Kuiry	Civil (Hydraulics)	11.	Prof. Dhiman Chatterjee	Mechanical (Pumps)
5.	Prof. S. Mathavakumar	Civil (Environmental)	12.	Prof. Krishna Malakar	HSS
6.	Prof. Venu Chandra	Civil (Hydraulics)	13.	Prof. Abhijit Chaudhuri	Applied Mechanics (Groundwater)
7.	Prof. Venkatraman Srinivasan	Civil (Water Resources)	14.	Prof. Sudhir Chella Rajan	HSS (Sustainability and Climate change)