

The Guwahati Living Lab for Flood Management

A brief summary of the Zoo Road Living Lab – 29 March 2025



Indian Institute of Technology Guwahati

The Zoo Road Living Lab

Rooted in European contexts, the application of Living Labs in India is quite limited. However, they can still hold great potential in Indian scenarios, particularly while seeking innovative, participatory, and inclusive solutions for disaster risk reduction and climate adaptation. On 29th March, 2025, the city of Guwahati, Assam, witnessed its first living lab where residents and government officials came together to play a *serious game* - “The Flood Dilemma”. The Indian Institute of Technology Guwahati (IITG), under the aegis of project “Lodestar” commenced this lab at a local residence in Zoo Road, to initiate dialogue between different stakeholders and understand the recurring problem of floods in the city. By bringing together residents, academia, civil society organizations, and government, the Guwahati Living Lab (for flood management) (GuLL) hopes to overcome institutional silos and co-develop an Early Warning System for floods in the city. Zoo Road in Guwahati and many of its by lanes is a chronic flood affected area. The GuLL on 29th March saw participation from around 22 residents living in and around the area, including other nearby localities like Nabin Nagar, Chandmari etc. that suffer from chronic water logging and flooding issues during heavy rainfall events. The event was also attended by 8 representatives from key government agencies such as the Assam State Disaster Management Authority (ASDMA), Guwahati Municipal Corporation (GMC), Water Resources Department (WRD), Fire and Emergency Services (F&ES), and Department of Housing and Urban Affairs (DoHUA).



This brings us to the question – What are Living Labs? Also, what is a “serious game”?



Living labs are spaces that ensure a match with the actual needs and aspirations of the users while considering the local and institutional contexts, cultures, and creativity potentials (ENoLL, 2006). Popularized by Professor William J. Mitchell of MIT, the concept of living labs first emerged in the late 1990s, gaining momentum particularly in Europe towards the mid-2000s. The European Network of Living Labs (ENoLL) established in the 2010s formalized and

defined the approach as “user-centred open innovation ecosystems” that integrate research and innovation through co-creation in real-world environments. Collaboration and co-creation (between multiple stakeholders such as researchers, businesses, policymakers, and end-users) lie at the heart of these labs. Moreover, they promote horizontal and iterative learning in an open, inclusive, and power-sensitive environment. Today, Living Labs continue to evolve, blending technology development with participatory design and their social uptake to address modern challenges.

Coming to serious games - What is it exactly?

As the name suggests, a serious game is indeed a game and includes fun and engaging elements like story-telling and rewards, but is designed for purposes beyond pure entertainment. Its primary goal is to educate, train, simulate real-world scenarios, or raise awareness about specific issues in an innovative and interactive manner. Serious games are widely employed in fields such as healthcare, education, urban planning, and sustainability to raise awareness and develop practical solutions for common social and environmental issues. Especially when built on scenarios, in the case of floods and/or drought disasters, they are a creative means to trigger people’s intelligence, knowledge, shared experiences, and pave the path for alternative responses. Through their shared focus on real-world problem-solving, user engagement, and innovation, serious games and living labs are closely linked and may be the future of community engagement in urban disaster risk reduction. The Flood Dilemma serious game played in the 29th March Zoo Road GuLL was designed by a Netherlands based think tank and consultancy specializing in serious games - Meta Meta.



The game simulated a real-world flood scenario in Guwahati and encouraged stakeholders to share perspectives on flood responses – before, during, and after the flood event. Stakeholder

cards like citizens, small business owners, government, academia etc. were distributed amongst the participants to note their responses against a simulated flood scenario of one fateful day when the city woke up to a morning of flooding and inundation following a night of incessant and heavy downpour. To make things worse there is also a power outage. This comprised simulated Event no. 1. The second event tried to invoke responses on a post-flood



scenario, when after the waters recede, a lot of blame game happens and fingers are pointed at the different players. Based on this scenario, the second event aimed to identify what an Early Warning System (EWS) for Guwahati should ideally be like in terms of its warning mechanism. What is it that residents want to be

warned for and in what manner would they want to receive these warnings? Furthermore, what would their response be once they receive such flood early warnings?

Key takeaways from the serious game and overall Living Lab session

As the two simulated events of the flood dilemma played out and the responses received from all stakeholders were summarized, it became quite evident that there exists a clear communication gap between the citizens and the government departments. Residents relied on their own experience and knowledge, family members, and social networks for information and support during flood situations. Depending upon the gravity of the situation, those who could afford would skip going to their workplace for the day and wait for things to get better. Everybody prioritized getting electricity restored in the area, arranging for drinking water, charging their phones, and saving essentials like important documents and belongings of value.

The most common mode of receiving real-time information on flood status was news and social media. Nearly every citizen, academia, and small business owner stakeholder highlighted the absence of a EWS for floods in the city and the lack of a single uniform system



for receiving updates or prior warnings from the government. Some did acknowledge receiving weather forecasts and rainfall probability from agencies like the Indian Meteorological Department. However, they noted that such forecasts do not clarify whether

flooding would occur or identify the areas that might expect inundation and water logging. Everybody, including the government stakeholders, informed that they would like to receive warnings and updates of not only the probable timing and intensity of rainfall, but also the predicted flood areas.

Likewise, all the representing government agencies reached out to each other and stationed field officers for both early warnings and real-time information. Every department has a Standard Operating Procedure (SOP) for responding to flood situations and information collection. For example, the Fire and Emergency Services collect and receive information from the State and District Emergency Operating Centres and size up the scene as per their mandate and SOP. Many a times flood response on part of the concerned line departments take time given the limitations of manpower and other logistics. While intra-department coordination existed to certain extent, there was limited information flow between the public and the government. Representatives of the Guwahati Municipal Cooperation did highlight setting up civil society groups comprising of social workers, residents, and ward representatives such as the Councillor in some localities around Guwahati. They are all connected through Whatsapp groups and members can share photographs of blocked drains and areas requiring desiltation works directly with GMC through these social platforms. However, these initiatives of GMC were yet to be widely known in the public and the officials acknowledged that they would need to create more awareness in this regard.

As the existing gaps in communication came to be realized by all stakeholders, there was mutual agreement that proper channels need to be developed that would reduce this gap and enable the public to reach out to the concerned departments directly. The concerned parties also agreed that the flood issue in Guwahati cannot be managed by institutions and citizens working in silos. Sustainable solutions can be designed only through the collaborative and coordinated efforts of the public and urban line departments.

Some of the suggestions that were put forward included –

1. Setting up of designated helpline numbers for citizens to call in case of flood emergencies and for real-time flood status.
2. The issued warnings would need to go beyond mere weather forecasts and provide predictions of the probable locations of inundation as well. These predictions would also need to be accurate. Information on real-time water logged areas and streets would also need to be provided.

3. Warnings should be disseminated through multiple mediums – Mobile (SMS, Whatsapp etc.), social media platforms, television, radio, sirens and mike announcements. Sirens and Public Announcement Systems that used to be a common alerting system during wars in the past emerged as popular disseminating mediums for the stakeholders in Guwahati.

4. For future Living Labs in Guwahati, more line departments should be invited. Additionally, it would be beneficial to invite the decision-makers in these departments for actual changes to happen.

Overall, despite being the first of its kind in Guwahati, the Living Lab in Zoo Road proved to be a successful event. All participating stakeholders applauded the initiative by IITG and for facilitating the much needed dialogue between citizens, government, and academia with respect to floods in the city. Many expressed willingness to continue the dialogue and participate in subsequent living labs facilitated by IITG.

Following the discussions, participants also engaged in a mapping exercise, where they identified flood affected locations in and around the Zoo Road area on a map developed by the project team. The exercise intended to engage the community and impart a sense of ownership in setting up sensors around the city for developing the flood EWS under project Lodestar.



Given below is a list of the stakeholders who had participated in the GuLL of 29th march, 2025.

List of stakeholders

Sl. No.	Name	Institution/Designation	Locality in Guwahati	Contact info.
1	Biren Baishya	ASDMA, GIS Expert	Bharalumukh	9435746436
2	Syed Sarik Rahman	DoHUA, Project Officer	Zoo Road Tiniali	8638678394
3	Dipima Sharma	WRD , Environmental Officer, EAP Wing,	Jatia, Kahilipara	8402846586
4	Himagshu Baruah	D.O. (T), Fire and Emergency Services, Assam	Panbazar	9706482443
5	Arup Kalita	Sr. S. O. Fire and Emergency Services, Assam	Dispur	9365897216
6	Bhaskar Jyoti Deka	Urban Technical Officer, GMC	Kahilipara	9864852695
7	Jyoti Prakash Mahanta	Junior Engineer, GMC	Japorigog	9435776313
8	Hiranya Kr. Hazarika	Ex. Engineer, GMC	Noonmati	9435300998
9	Binita Debi	Principal, Sudarshan Public School	Beltola	9864277051
10	Jayashree Bora	Former Professor, Dept. of Geography, Cotton University	Dispur	9435112656
11	Sochi Prabha Das	Editor, Pragiyotish Prakashan	Zoo Road	9864022703
12	Robin Kalita	Rtd. Director, IRCTC, Govt. of Assam	Zoo Road	9599698402
13	Pradip Sharma	Rtd. Chief Engineer	Jonali, Zoo Road	9435080070
14	Dwijen Das	Rtd. DTO	Lakshmi Prabha Path, Zoo Road	9435056781
15	Biren Sharma	Senior Citizen	Santi Path, Zoo Road	9864038724
16	Chayashri Basumatary	Youth Member	Milan Path, Zoo Tiniali	9101292559
17	Motiur Rehman	Self-employed	Santi Path, Zoo Road	9577842730
18	Prabhat Goswami	Senior Citizen	Santi Path, Zoo Road	9435149077
19	A. K. Nath	Senior Citizen, PWD	Sreenagar	8134858468
20	Purabi Borah	Reserve Bank of India/Author	Chandmari	9435554171
21	Binod Agarwalla	Senior Citizen	Zoo Road	9954042815
22	Rajesh Sharma	General Secretary, Zoo Road Committee	Zoo Road	9954269860
23	Dwijen Bhattacharyya	President, Zoo Narangi Unnayan Committee	Zoo Road	9577367324
24	H C Sharma	Rtd. Chief	Barnali Path	9707052115
25	Niloy Goswami	Citizen – school	Zoo road	9643686134
26	Dwip Baruah	Social Worker	Nabin Nagar	9864030393
27	Syamanta Phukan	Engineer/Businessman	Santi Path, Zoo Road	9101189554
28	Nirupom Barhya	SRISHTIE Consultancy	Hengerabari	9706496221

29	J. N. Khataniar	SRISHTIE Consultancy	Uzan Bazar	9435047626
30	Bandita Phukan	Rtd. Technical Manager, AIDC	Santi Path, Zoo Road	9864025517