

# KERALA FLOODS, 2018 - A STUDY ON EMERGENCY SUPPLY CHAIN LOGISTICS IN KUTTANAD, ALAPUZZHA

VOLUME II

BOOK OF MAPS



Tata Institute of Social Sciences

V.N. Purav Marg, Deonar, Mumbai - 400088.



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## EXECUTIVE SUMMARY

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TISS being a leading institution with a capacity in the social science domain of Disaster Risk Reduction worked on mapping gruel centers, animal camps, culverts and public distribution points in Kuttanad Taluka in Alapuzha. This was on account of the state government's recommendation and JTSDS, TISS expertise in field action research, specific to this case with the purpose of assessing the supply-chain mechanisms of delivery of relief materials to the gruel centres and animal camps. Volume I of the Report presents the background of the task undertaken by the TISS Team in Kuttanad as a part of their initiative in the Kerala Floods. The field work required the physical mapping of the required points by using smartphone devices on Google Maps. The points received were tabulated employing ArcGIS and is compiled in Volume II of the report. Volume I of the report documents the nuances of the Public Distribution System and the Integrated Child Development Scheme as key initiatives by the government to supply food material. Inputs from the District Administration provided the frame for government's role in supplying food material. The report documents the pivotal role played by Supply Co. and Horti Corp in Kerala to ensure 'the last mile' delivery of necessary goods. The report analyses and documents data collected on the management of gruel centers in the region by mapping the flow of produce and the availability of food, water and fuel during the floods while incorporating data on the storage and transportation of the necessary material. Based on the data collected, Volume I comments on the challenges faced in management of the gruel centers and the sustenance provided by different agencies, like the cooperative agencies which can be considered as the possible solution to the market failure due to the disaster. The report documents people's participation in the rescue and relief operation, in a way, reaffirming the agency of the people who are affected by a disaster. The report presents the importance of the network of gruel centers as the source of support during disasters for people at the margin due to their social, economic, and geographic vulnerabilities. The insights that the TISS team has gained from the field engagement with various actors such as people affected by the flood, the functionaries of local self-governance, and government officials engaged in the disaster management operation are key points of consideration for disaster mitigation efforts. This proves as an initial understanding of an amalgamation of state's intervention and field knowledge within the context of supply chain in particular and disasters in general and paves the way for future research undertakings within a similar framework.

## ACKNOWLEDGEMENT

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The Team from Tata Institute of Social Sciences consisting of faculty members and students of Social Work and Disaster Management were given a unique opportunity to work in the flood affected region of Kuttanad Taluk in Alapuzzha. The Team is extremely grateful to the Government of Kerala for appreciating our academic endeavor and providing support. The tasks were identified under the able guidance of Dr. Shekhar Kuriokose, Member Secretary, KSDMA. We are grateful for his encouragement as he helped the Team to understand the intricacies of the tasks assigned and carry it forward. Mr. Suhas S, District Collector, Alapuzzha and the entire district administration at Alapuzzha was extremely supportive of the work undertaken by the Team and we are grateful to them for their involvement.

The Team is extremely grateful to Mr. Premji for his unconditional support, encouragement and immense patience with us. The District Disaster Management Authority, Alapuzzha anchored by Ms. Cinthu supported the Team in coordinating interviews and providing relevant data to the Team. Mr. Sarath and Ms. Parvathy from the Collectorate and students from the SD College were of great help on the field to the Team for translation and conducting interviews. The Team is thankful to the Karmasadhan Pastoral Center for extending a warm welcome to us in their premise. The cheerful women from Kudumshree kept the Team well-nourished with food and were very accommodating of our hectic schedule.

The Team is grateful to United Way for their financial support and the Steering Committee, TISS for facilitating the process and giving us an opportunity to work in Kerala and gain experience from the on-field learnings. We are thankful to Dr. Ambekar for her watchful care and the administrative staff of TISS for supporting us.

TISS Team for Kerala

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## BACKGROUND

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Immediately after the floods in Kerala, a Steering Committee<sup>1</sup> was constituted under the Director at Tata Institute of Social Sciences to decide on the course of action for TISS disaster response in Kerala. Prof. Janki Andharia, Dean, School of Disaster Studies and Prof. Asha Bano Soletti, Dean, Student Affairs volunteered to make a pilot visit in the last week of August. It was decided that they would go to Trivandrum and then to Mapuzha and Wayanad as the most severely affected districts. Funds also needed to be raised and Prof. Andharia wrote several proposals and had meetings with some donors.

During their visit Prof. Soletti and Prof. Andharia met, the Finance Minister, Dr. Thomas Isaac, Collector, Alappuzha, Mr. Suhas and other officials from Kerala State Disaster Management Authority and the several others at the district administration. Through a fairly elaborate process of engagement on ground with worst affected communities and with NGOs, it was decided that the volunteers would go between 15th and 30th October after the semester exams and they would be working in Alappuzha at the invitation of the government. At the Institute Prof. Nasreen Rustomfram organized vaccinations through the health centre at TISS and also a two-day orientation workshop for volunteers, with several faculty and colleagues contributing.

Prof. Janki Andharia made another visit from 9<sup>th</sup> to 15<sup>th</sup> October to organize the logistics and also ensure that formal communication was received from the government about the tasks that students were to perform. Dr. Sekhar Kuriakose, Member Secretary, KSDMA in a letter dated October 11, 2018, stated that TISS being a leading institution with capacity in social science domain of Disaster Risk Reduction will work on supporting the supply-chain TISS team:

1. Mapping of the gruel centres in select, highly flood affected panchayats
2. Mapping of all culverts and bridges in the panchayat with photographs

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<sup>1</sup> TISS Steering Committee – Dr. Shalini Bharat, Mr. CP Mohan Kumar, Ms. Indira Pasupathy, Dr. Janki Andharia, Dr. Nasreen Rustomfram, Dr. Asha Banu Soletti, Dr. Anil Kumar K, Dr. Bino Paul, Dr. Ramakumar R, Dr. PK Shajahan, Dr. Bipin Jojo, Dr. Smitha Nair, Dr. Sheela Rajendra, Dr. Shubhada Maitra, Dr. Rajani Konantambigi and Dr. Sheela Rajendra.

3. Mapping of all animal camps in the panchayat
4. Mapping of all public distribution system offices in the panchayat
5. Assessment of supply-chain mechanisms of delivery of relief materials to the gruel centres and animal camps

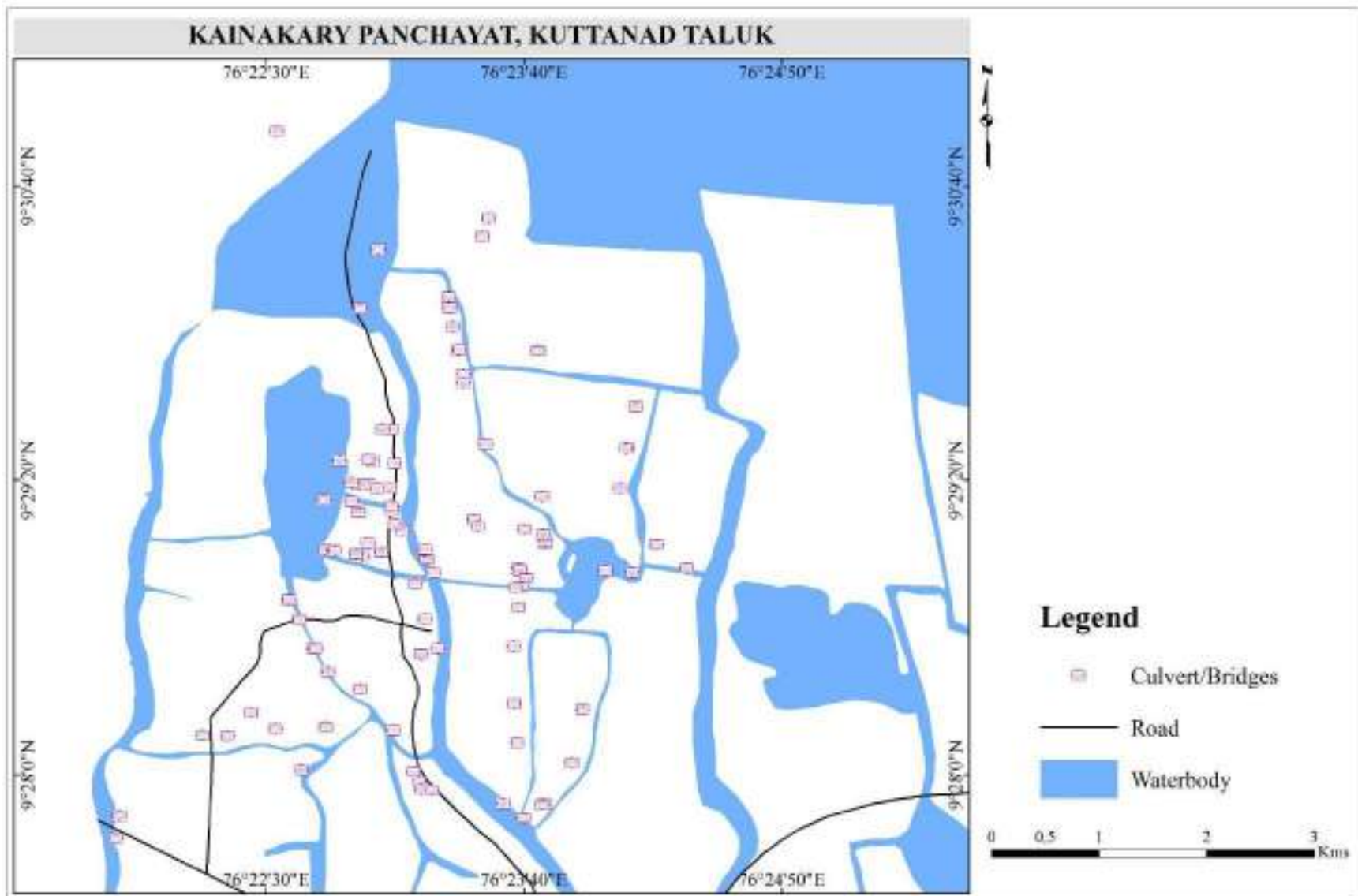
A Team of 33 students, along with 6 faculty members – Dr. Bipin Jojo, Dr. Manoj Joseph, Dr. V. Ramesh Veerappan, Ms. Saumya Kumar and Dr. Abhishek Banerjee worked with the students on the field in the Kuttanad area on the identified tasks from October 15, 2018 onwards.

On the first day, the Team interacted with Mr. Suhas S, District Collector, Alappuzha, who made a detailed presentation about the various initiatives undertaken by the Collectorate in the district in the post disaster context. A report on cluster housing was submitted to the Collector and the Disaster Management Cell in the Collectorate by the TISS team at the request of the district administration. The Tehsildar, Mr. Premji and the DM Cell at the Collectorate were extremely supportive of the TISS team and were able to provide considerable background data required to carry out the tasks. The team was residing in Karamsadan Pastoral Center in Alappuzha and the data collection process in the field was undertaken over 11 days, while 2 days were spent on cleaning and systematizing the data collected. Simultaneously, interviews were being conducted on the field and also at the Collectorate.

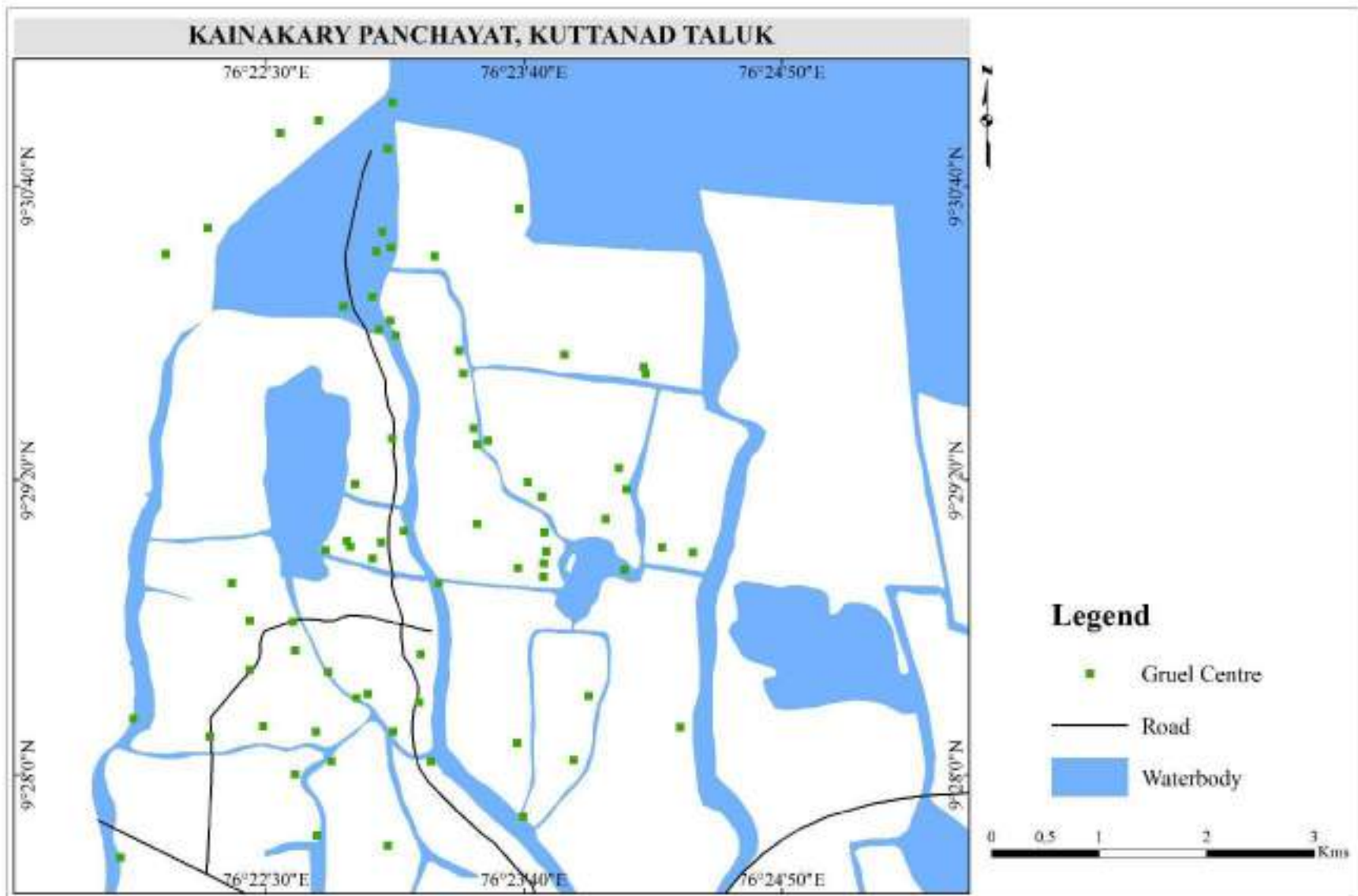
This report provides an overview of the process employed to collect data and the expected outcomes. It also includes key learnings of the students from the field work which concluded on October 31, 2018, with a short report and a presentation to the collectors.

Back in TISS, a research officer was appointed for generating various maps under the supervision of Dr. V. Ramesh while other faculty colleagues supported the data analysis and report writing. Besides Dr. V. Ramesh, Ms. Saumya Kumar, Dr. Bipin Jojo, Dr. Manoj Joseph and Prof. Janki Andharia have authored this report.

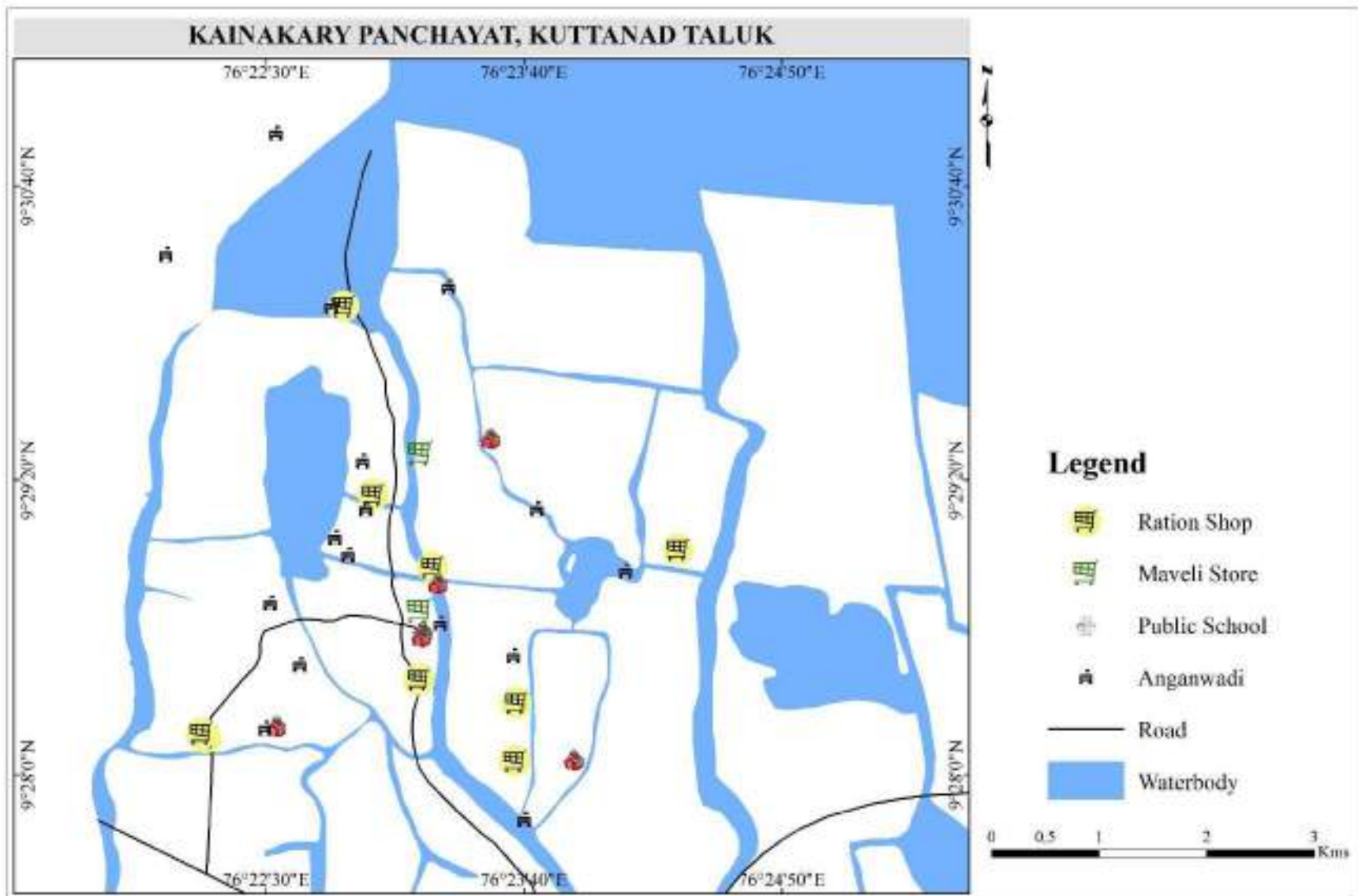
**KAINAKARY PANCHAYAT**  
**KUTTANAD**



**Figure 1 Location of Culverts/Bridges in Kainakary Panchayat, Kuttanad Taluk**



**Figure 2 Location of Gruel Centres in Kainakary Panchayat, Kuttanad Taluk**



**Figure 3 Location of Public Distribution Systems (PDS) in Kainakary Panchayat, Kuttanad Taluk**

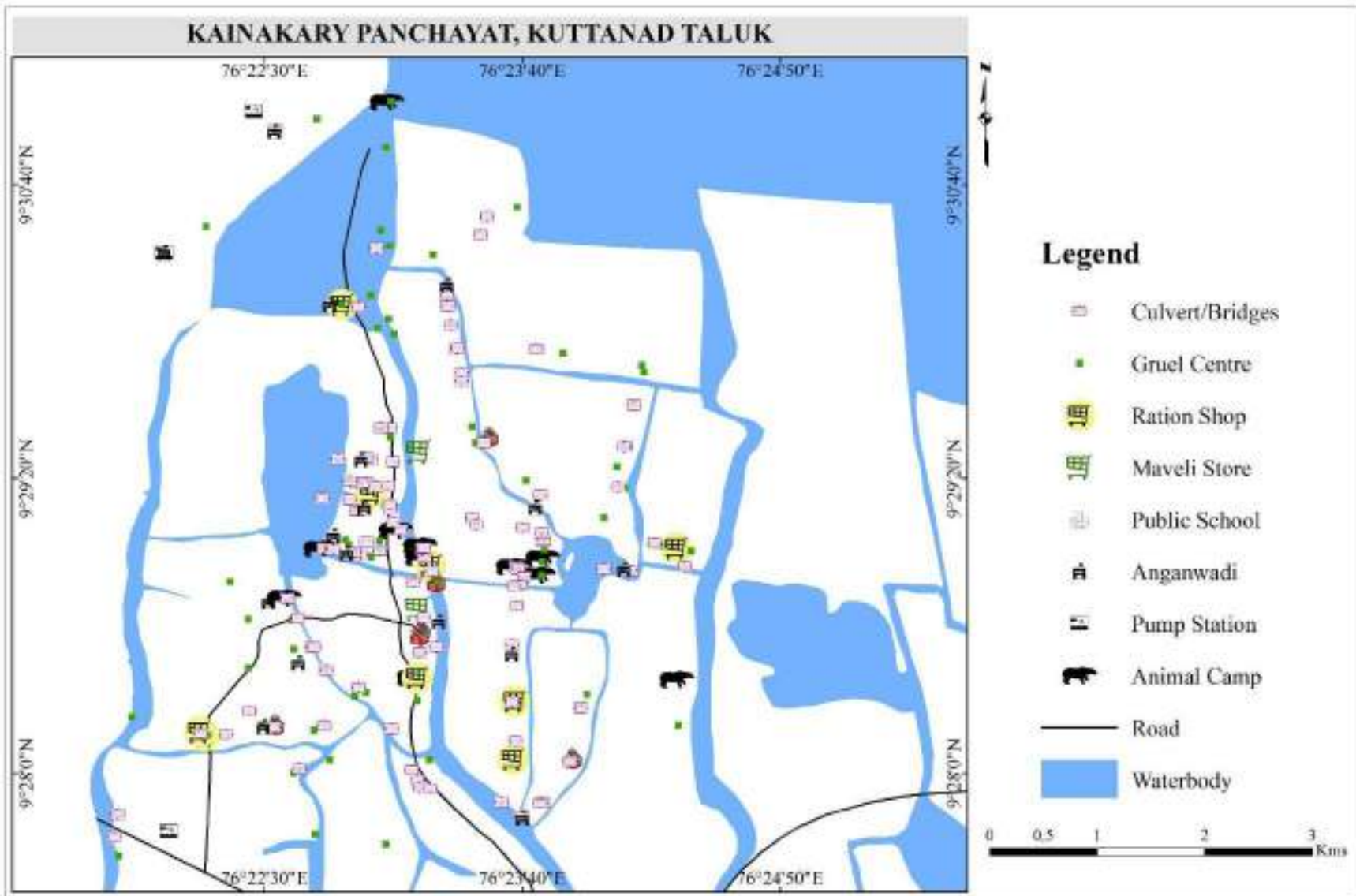
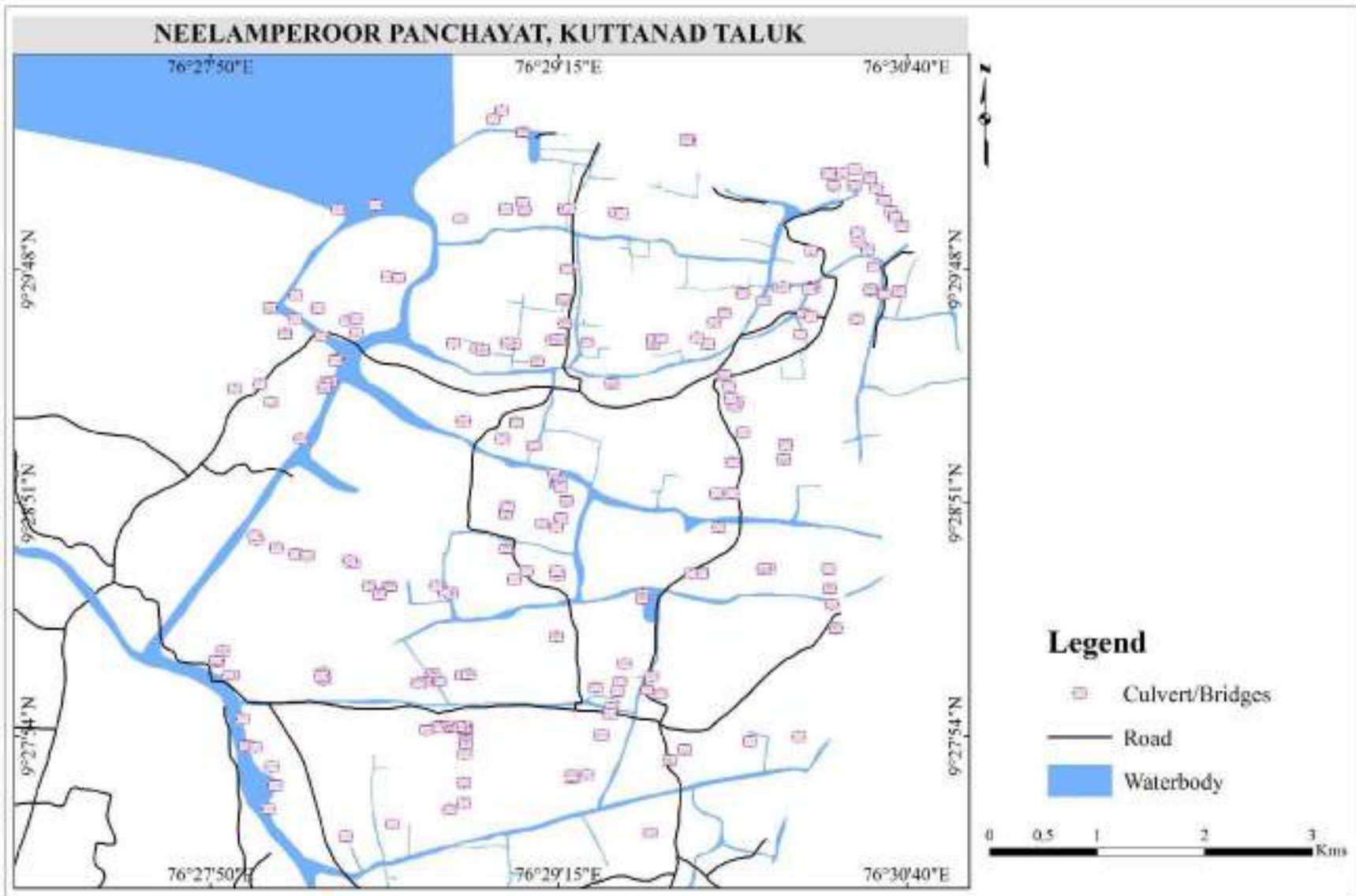


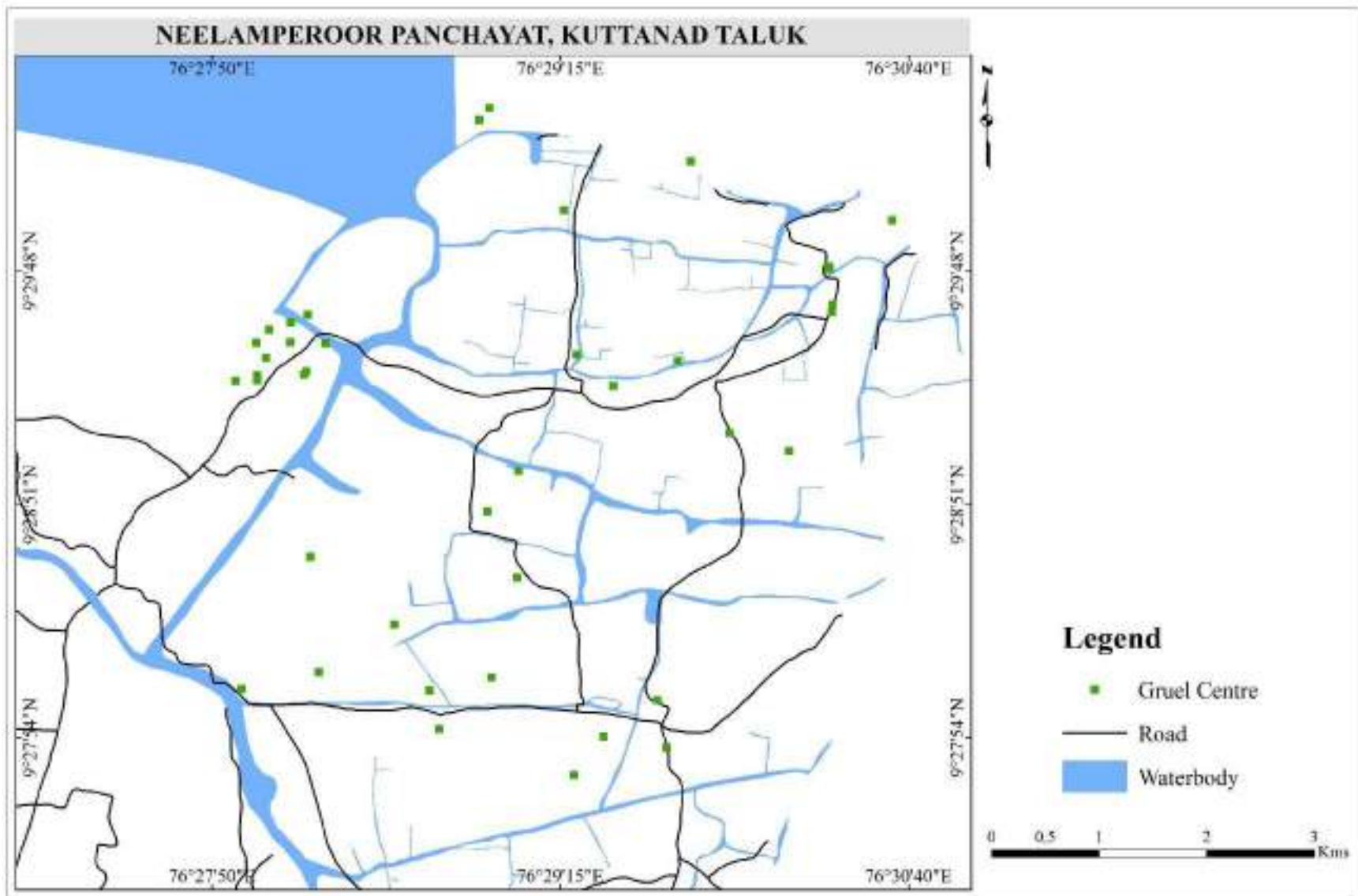
Figure 4 Integrated map show all features in Kainakary Panchayat, Kuttanad Taluk



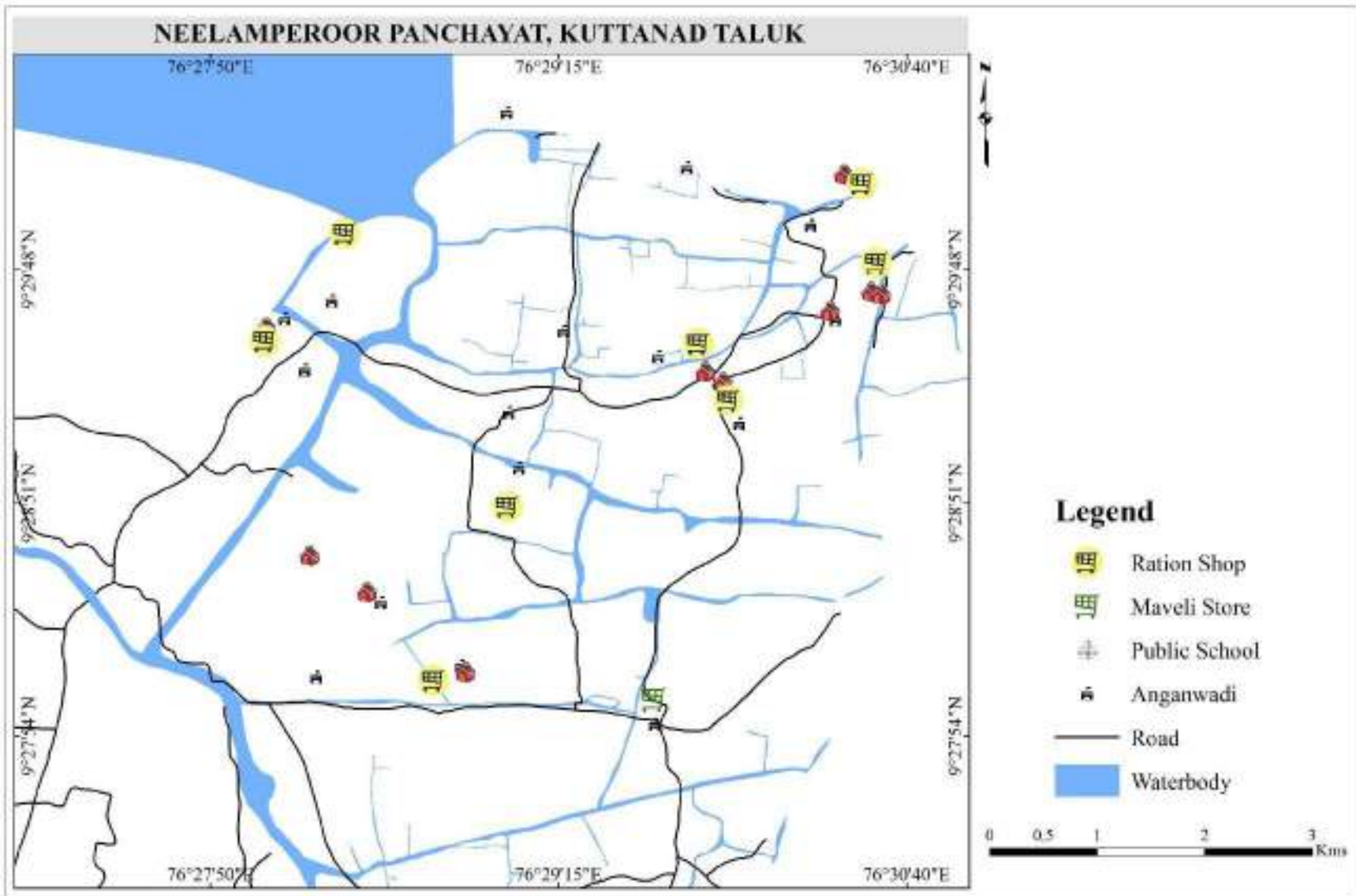
**NEELAMPEROOR PANCHAYAT  
KUTTANAD**



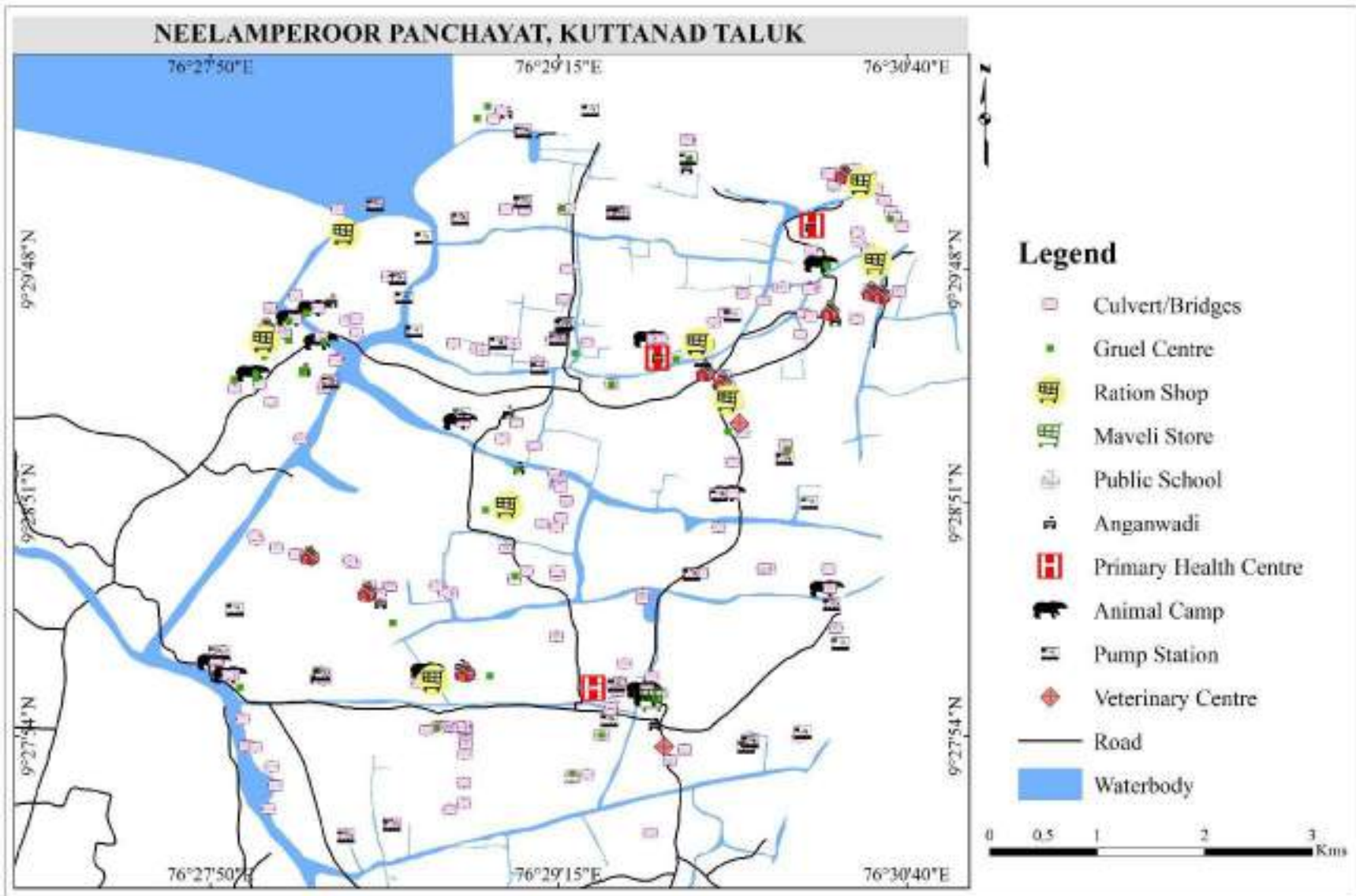
**Figure 5 Location of Culverts/Bridges in Neelamperoor Panchayat, Kuttanad Taluk**



**Figure 6 Location of Gruel Centres in Neelamperoor Panchayat, Kuttanad Taluk**

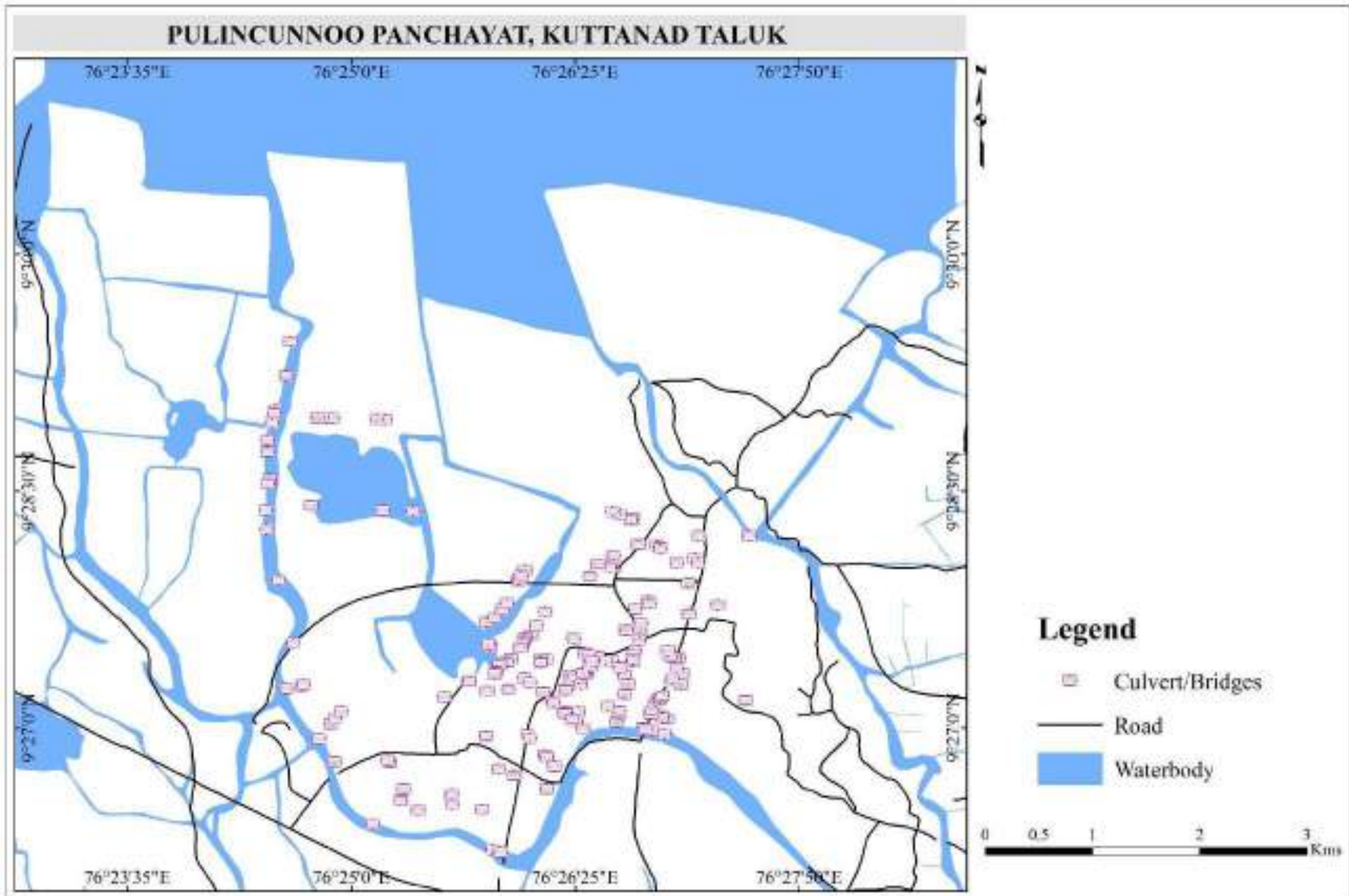


**Figure 7 Location of Public Distribution Systems (PDS) in Neelamperoor Panchayat, Kuttanad Taluk**

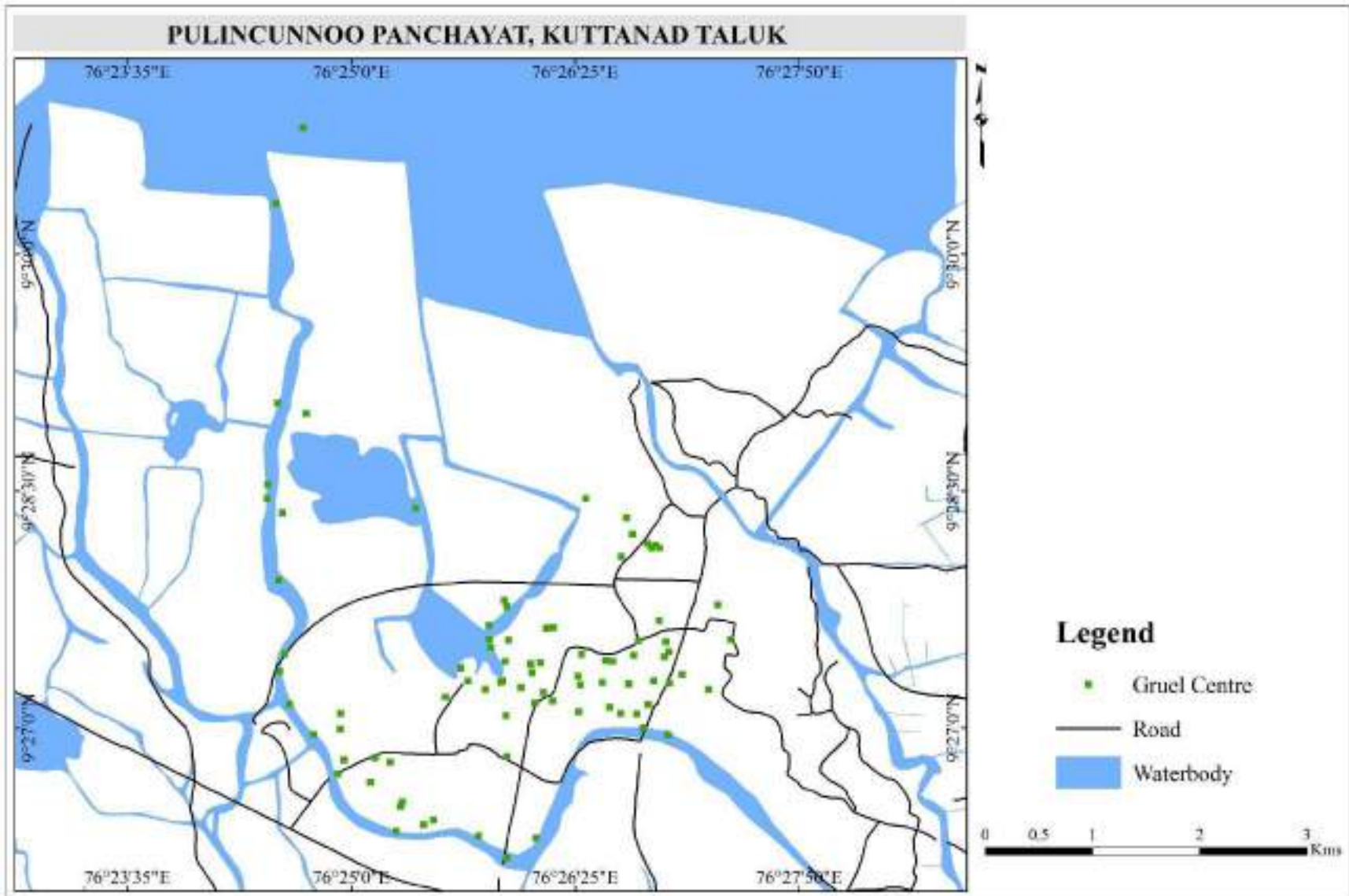


**Figure 8 Integrated map show all features in Neelamperoor Panchayat, Kuttanad Taluk**

**PULINCUNNOO PANCHAYAT**  
**KUTTANAD**

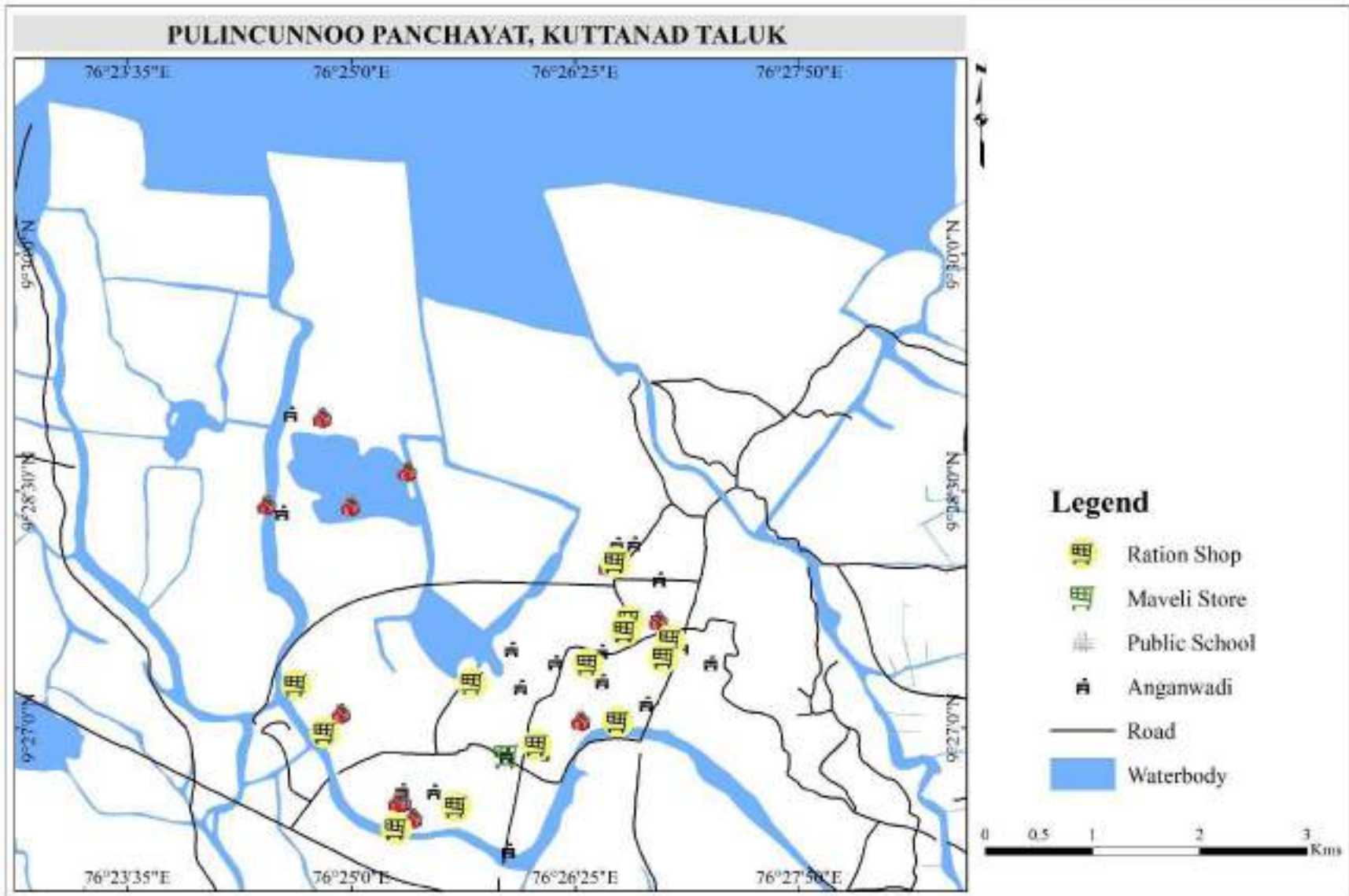


**Figure 9 Location of Culverts/Bridges in Pulincunnoo Panchayat, Kuttanad Taluk**



**Figure 10 Location of Gruel Centres in Pulincunnoo Panchayat, Kuttanad Taluk**





**Figure 11 Location of Public Distribution Systems (PDS) in Pulincunnoo Panchayat, Kuttanad Taluk**

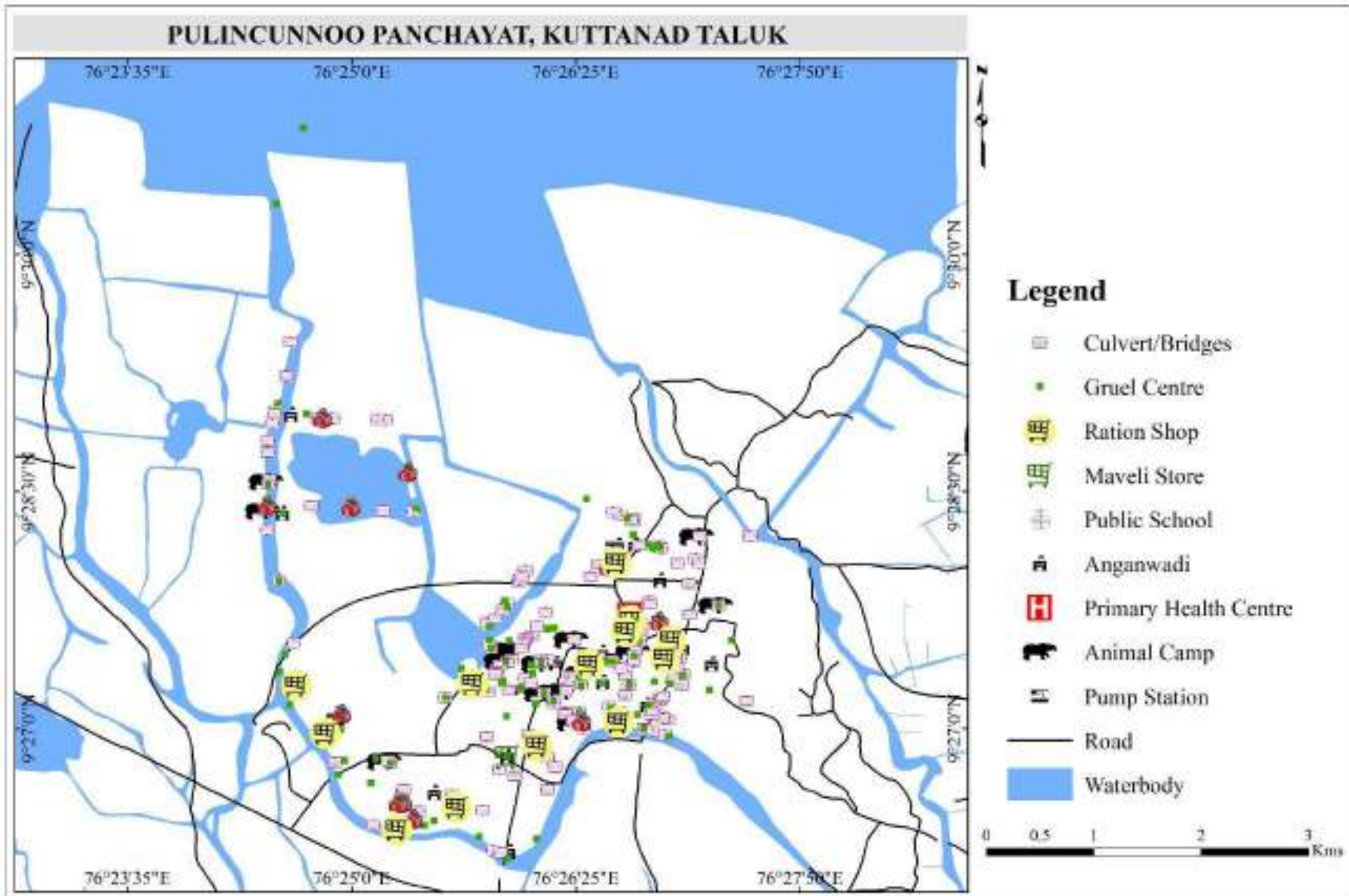
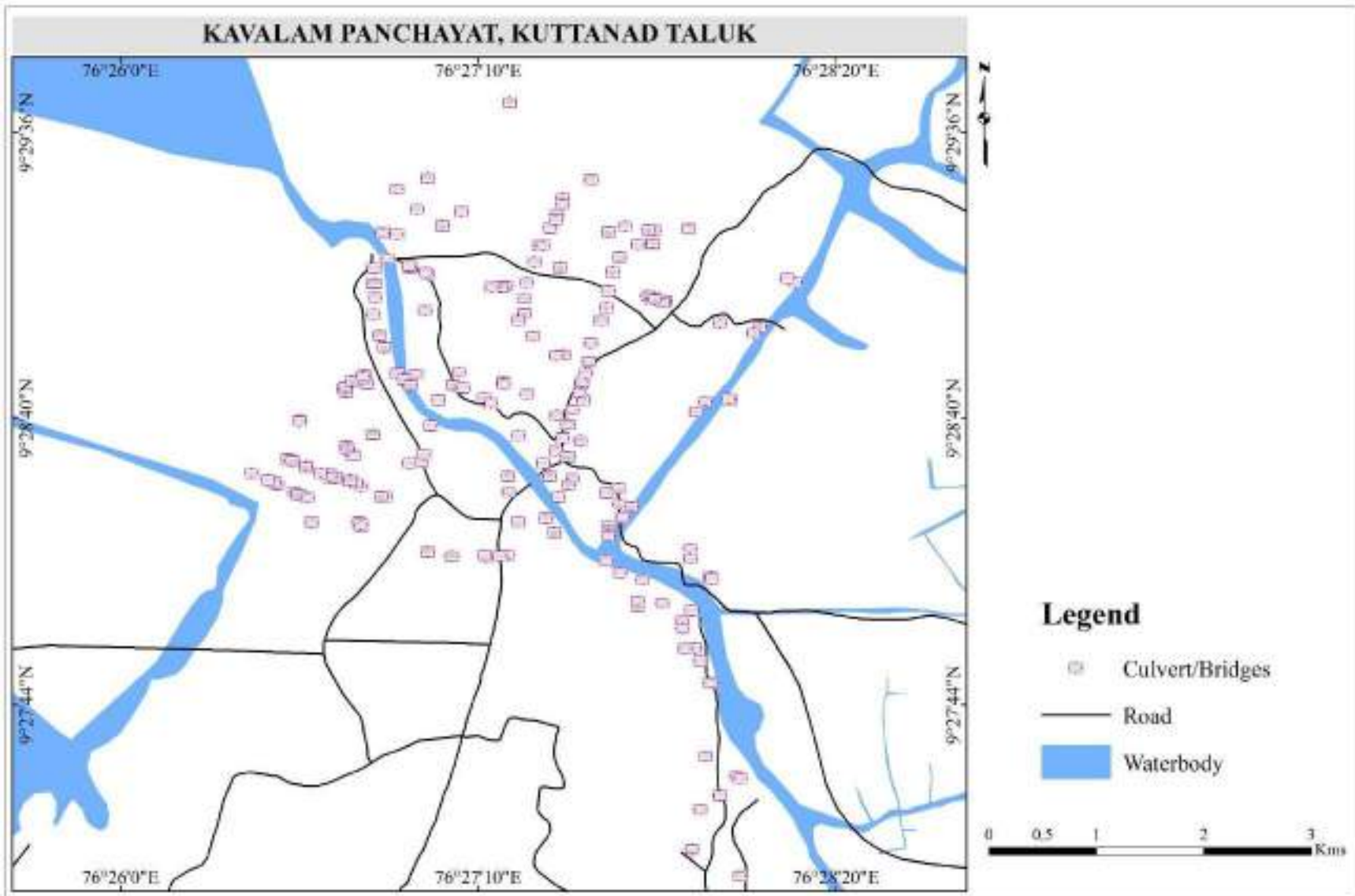
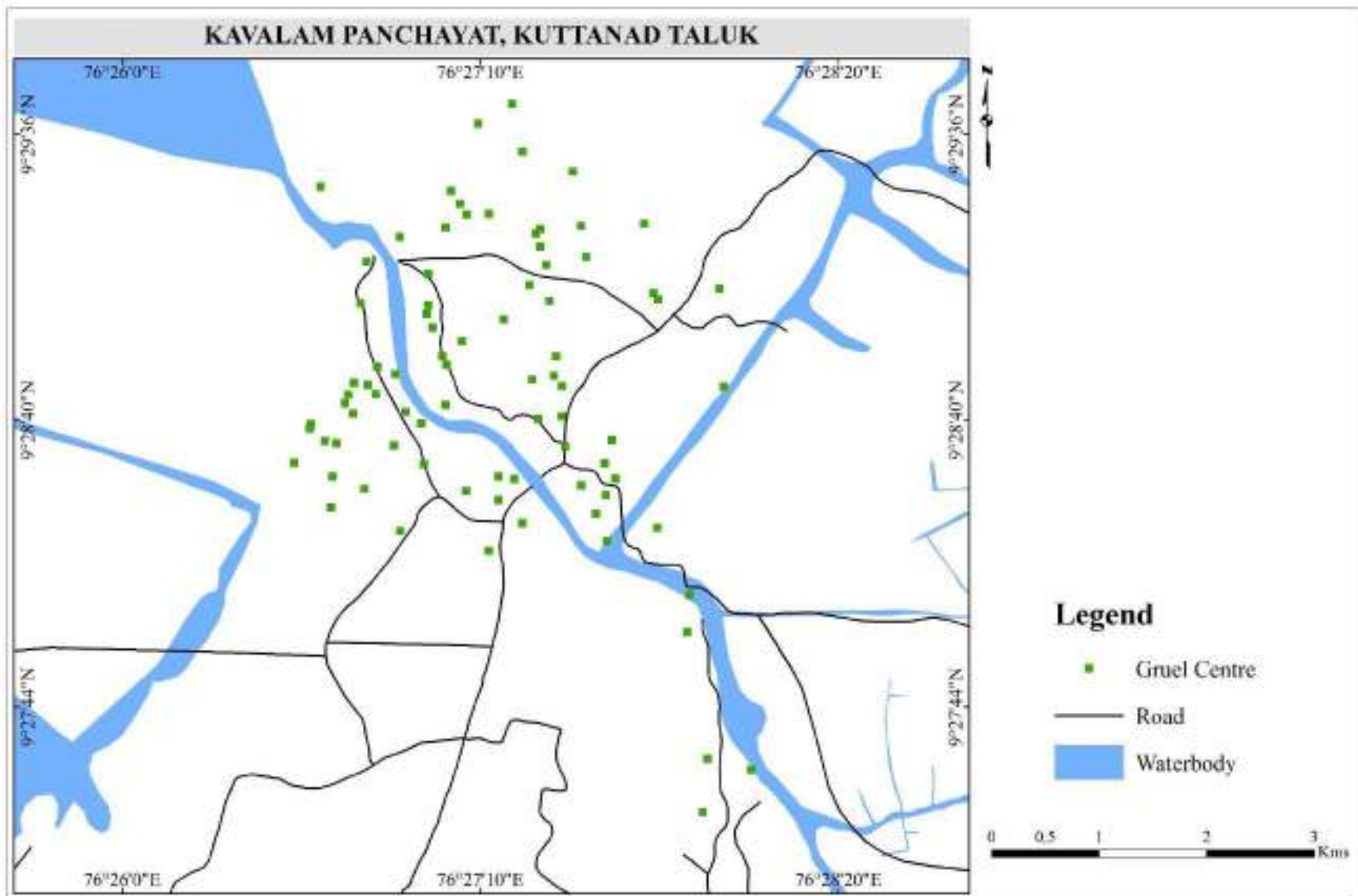


Figure 12 Integrated map show all features in Pulincunnoo Panchayat, Kuttanad Taluk

**KAVALAM PANCHAYAT**  
**KUTTANAD**



**Figure 13 Location of Culverts/Bridges in Kavalam Panchayat, Kuttanad Taluk**



**Figure 14 Location of Gruel Centres in Kavalam Panchayat, Kuttanad Taluk**

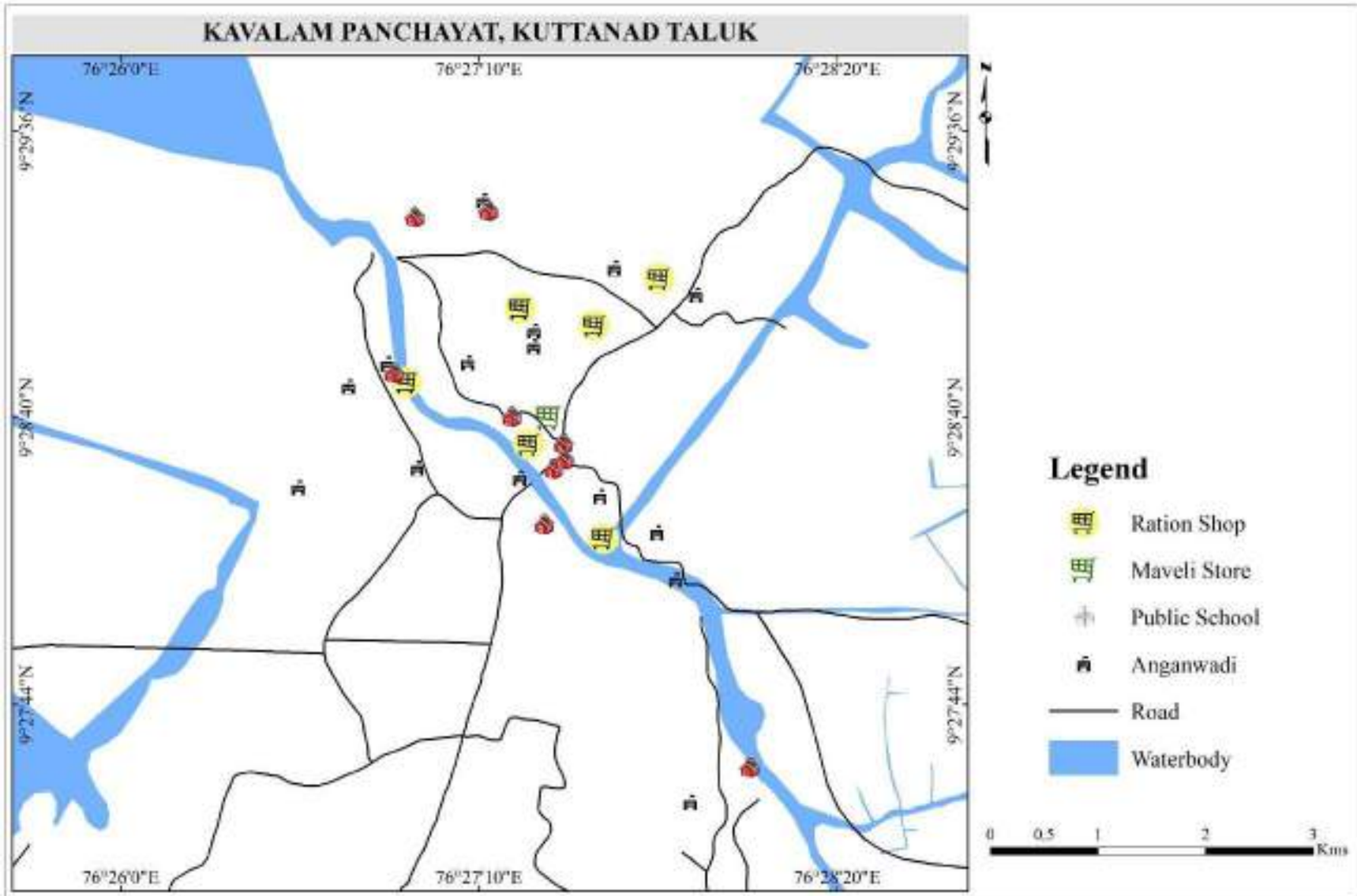


Figure 15 Location of Public Distribution Systems (PDS) in Kavalam Panchayat, Kuttanad Taluk

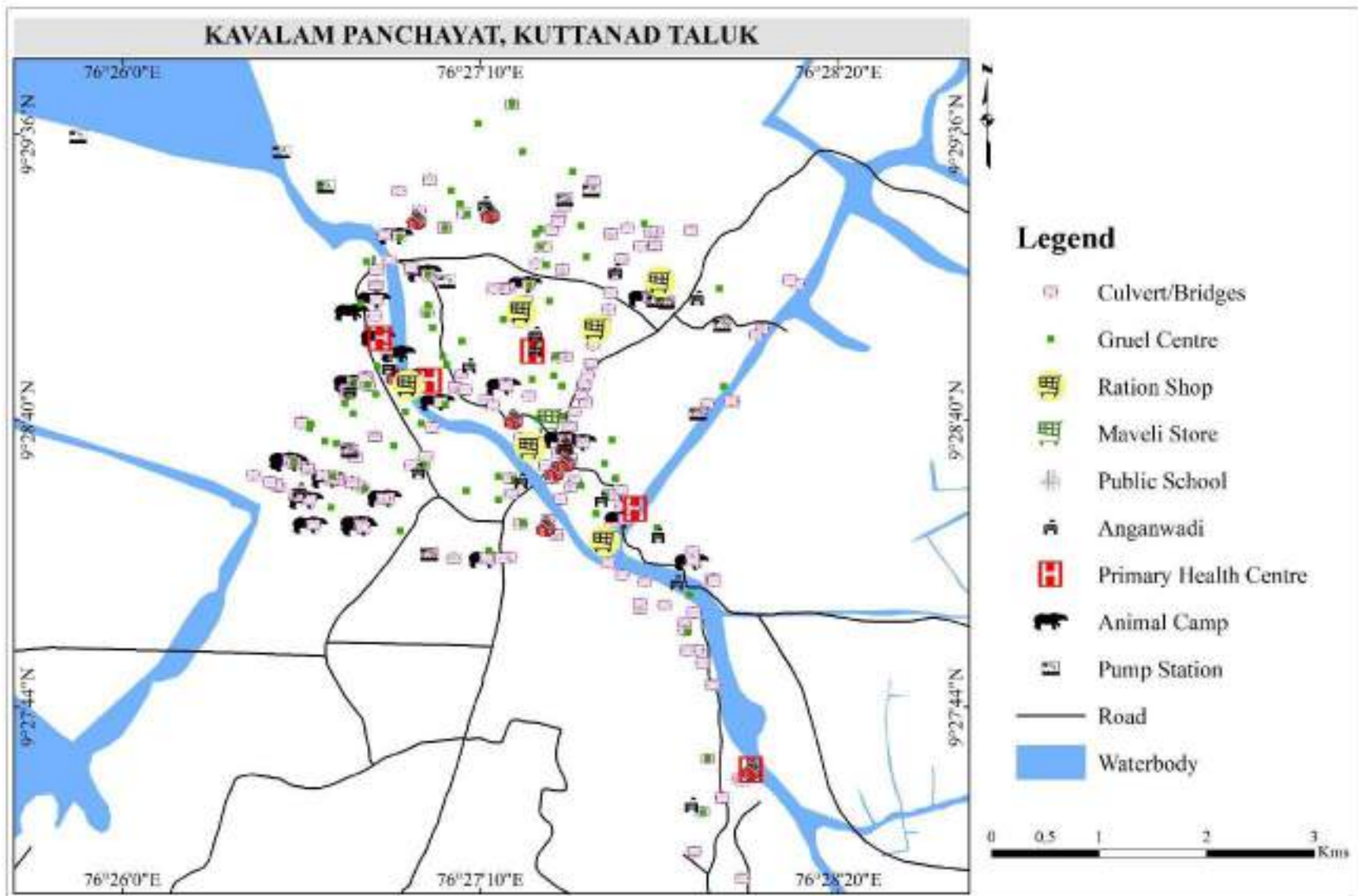
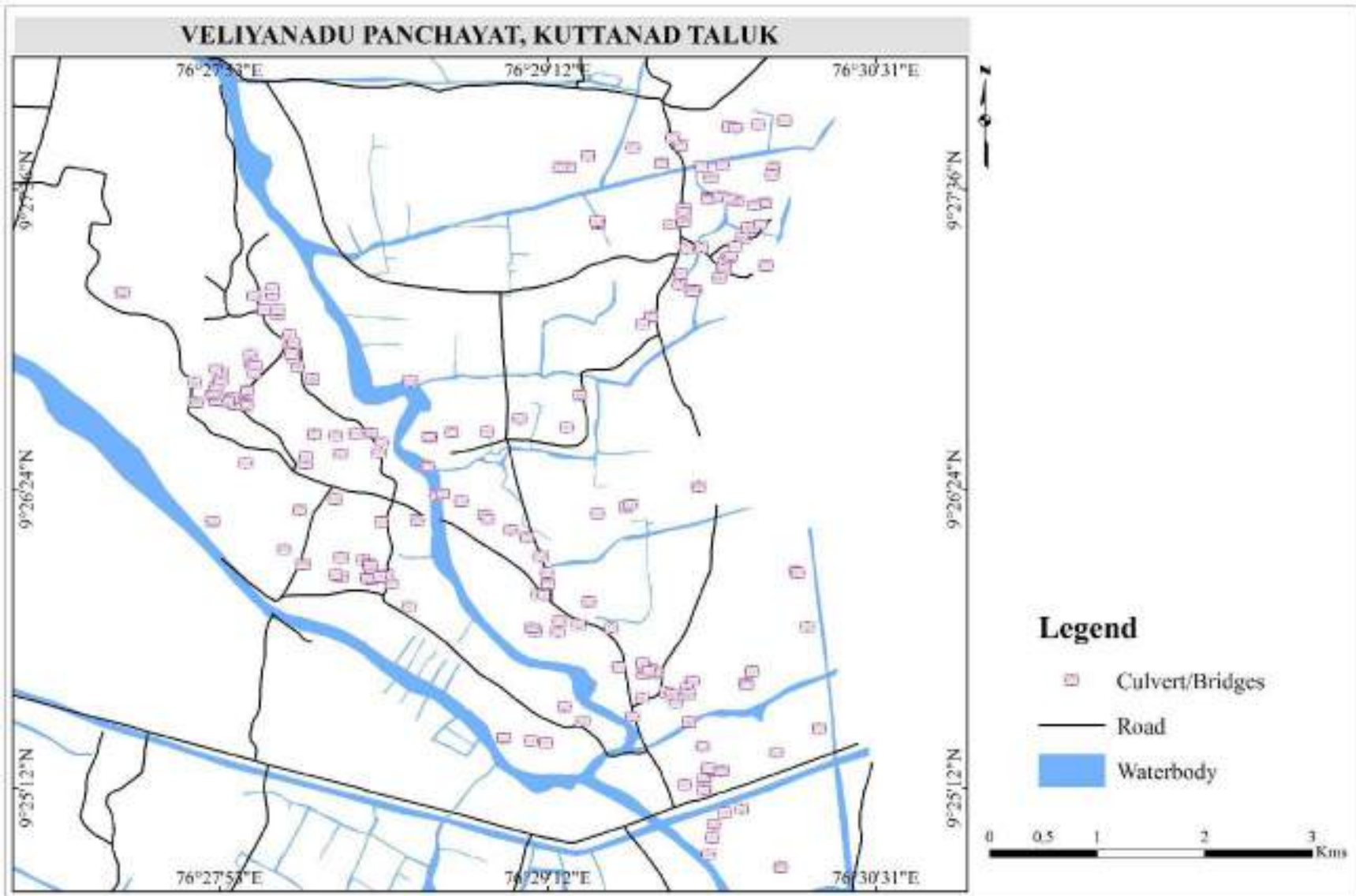


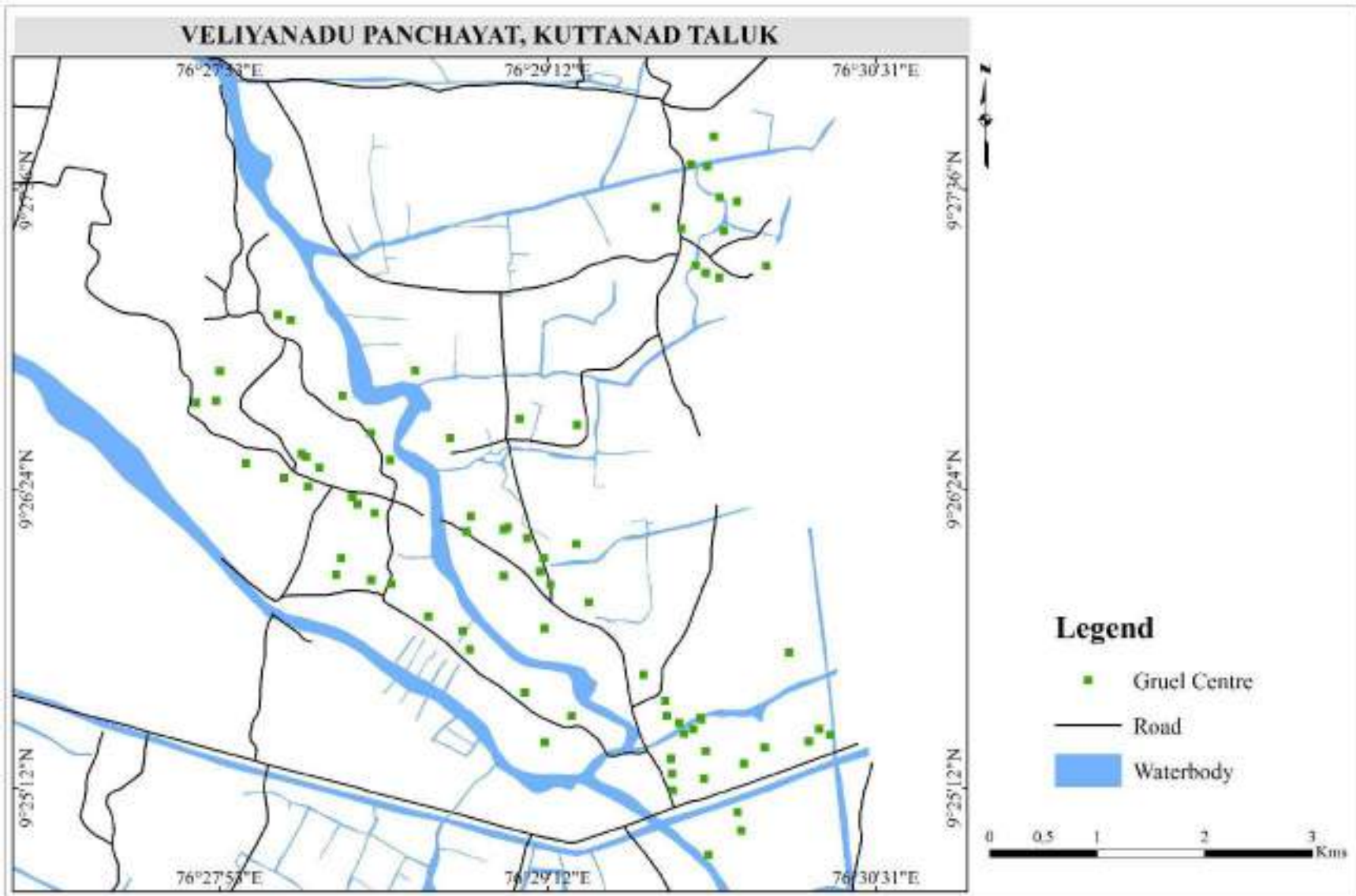
Figure 16 Integrated map show all features in Kavalam Panchayat, Kuttanad Taluk

**VELIYANADU PANCHAYAT**  
**KUTTANAD**





**Figure 17 Location of Culverts/Bridges in Veliyanadu Panchayat, Kuttanad Taluk**



**Figure 18 Location of Gruel Centres in Velianadu Panchayat, Kuttanad Taluk**

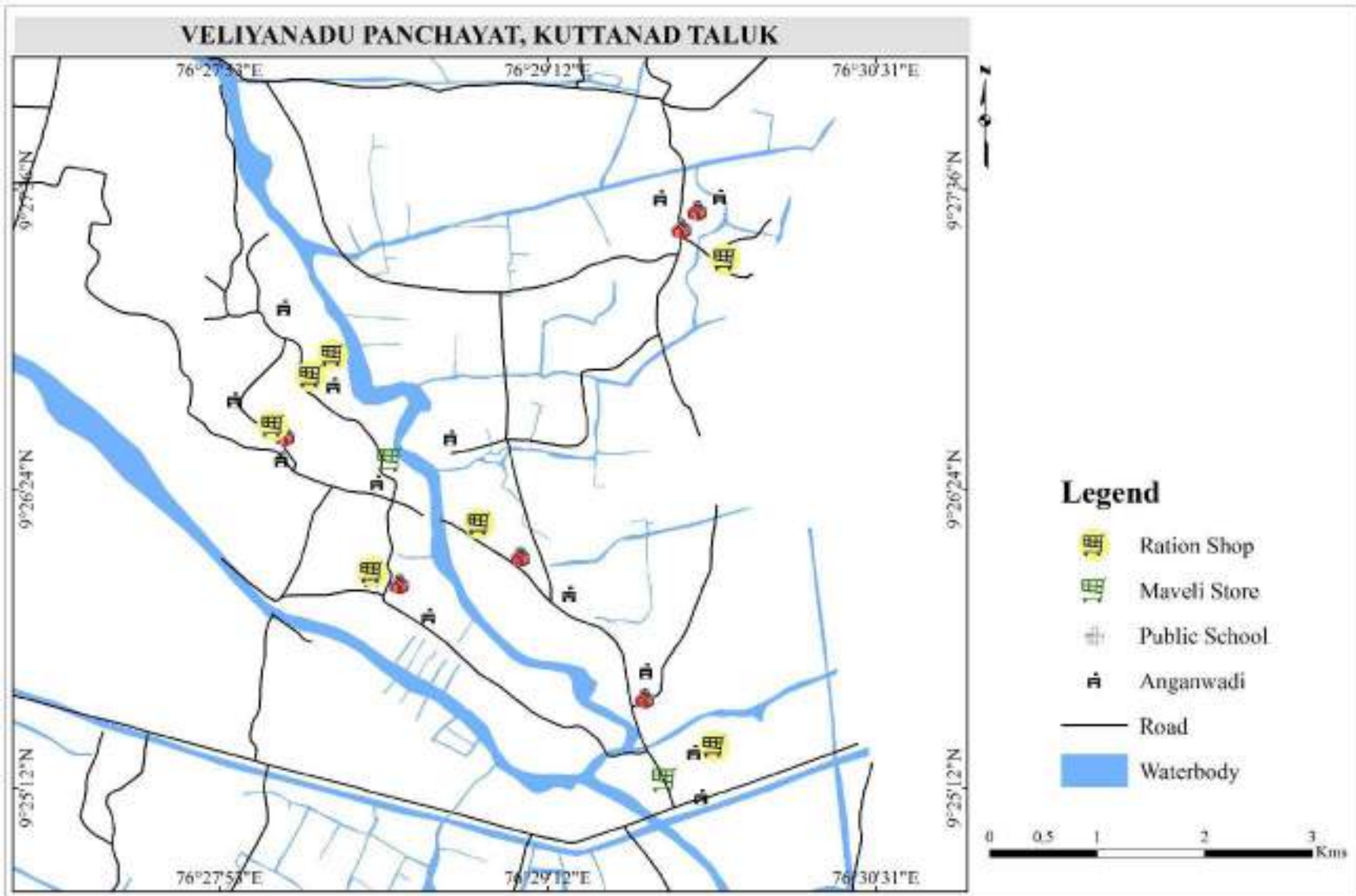


Figure 19 Location of Public Distribution Systems (PDS) in Velianadu Panchayat, Kuttanad Taluk

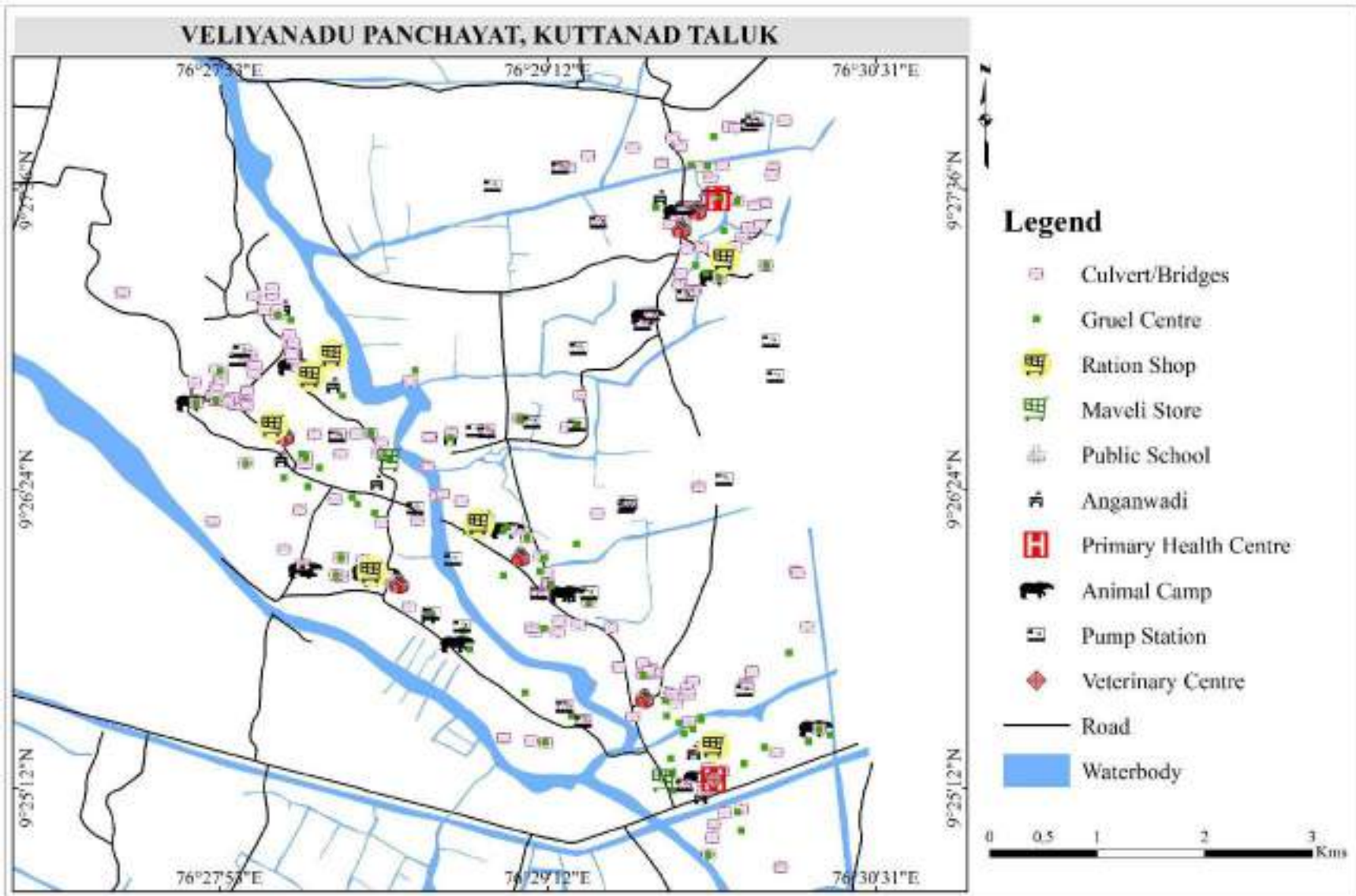
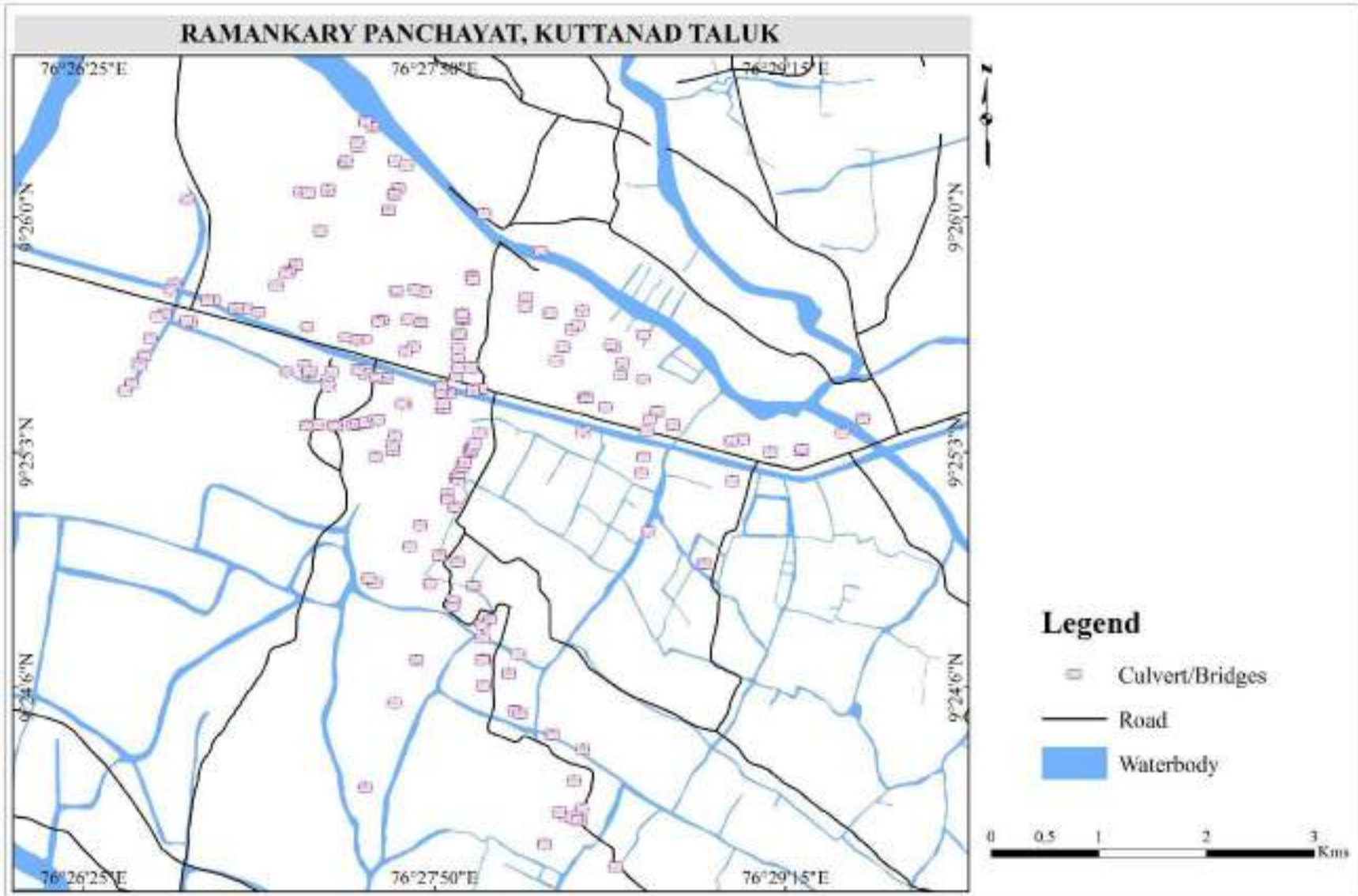


Figure 20 Integrated map show all features in Velianadu Panchayat, Kuttanad Taluk

**RAMANKARY PANCHAYAT**  
**KUTTANAD**



**Figure 21 Location of Culverts/Bridges in Ramankary Panchayat, Kuttanad Taluk**

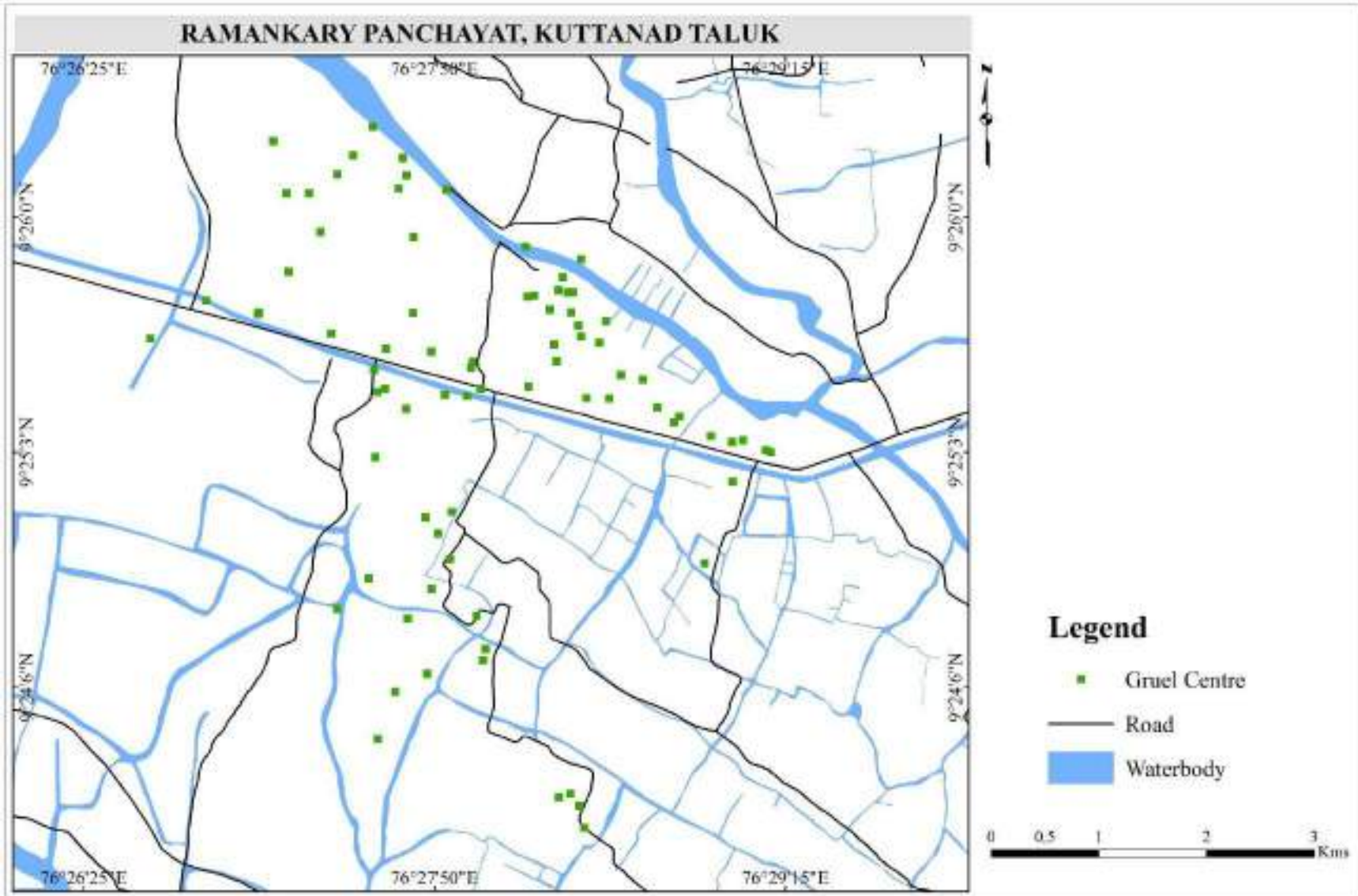


Figure 22 Location of Gruel Centres in Ramankary Panchayat, Kuttanad Taluk

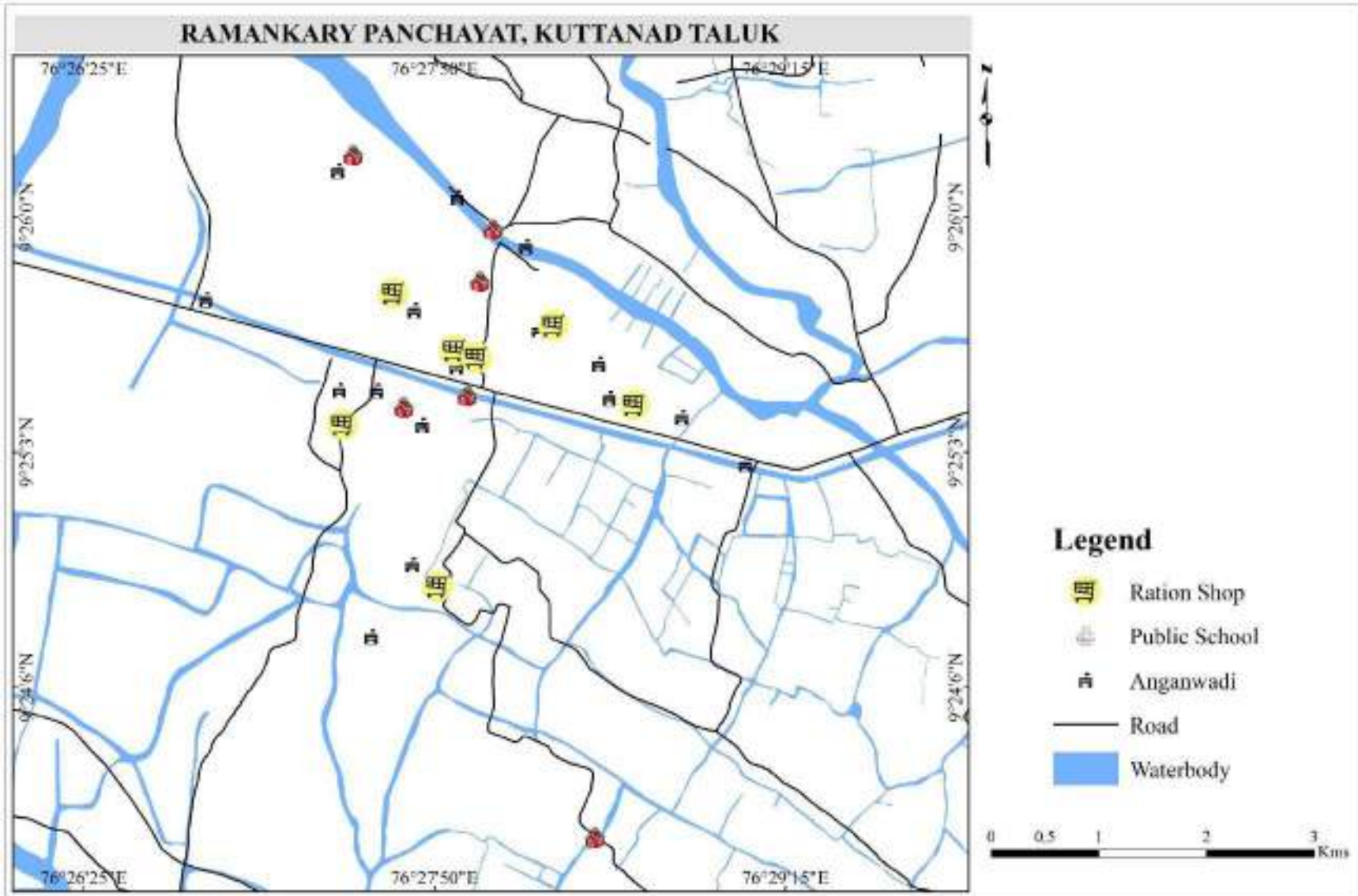


Figure 23 Location of Public Distribution Systems (PDS) in Ramankary Panchayat, Kuttanad Taluk



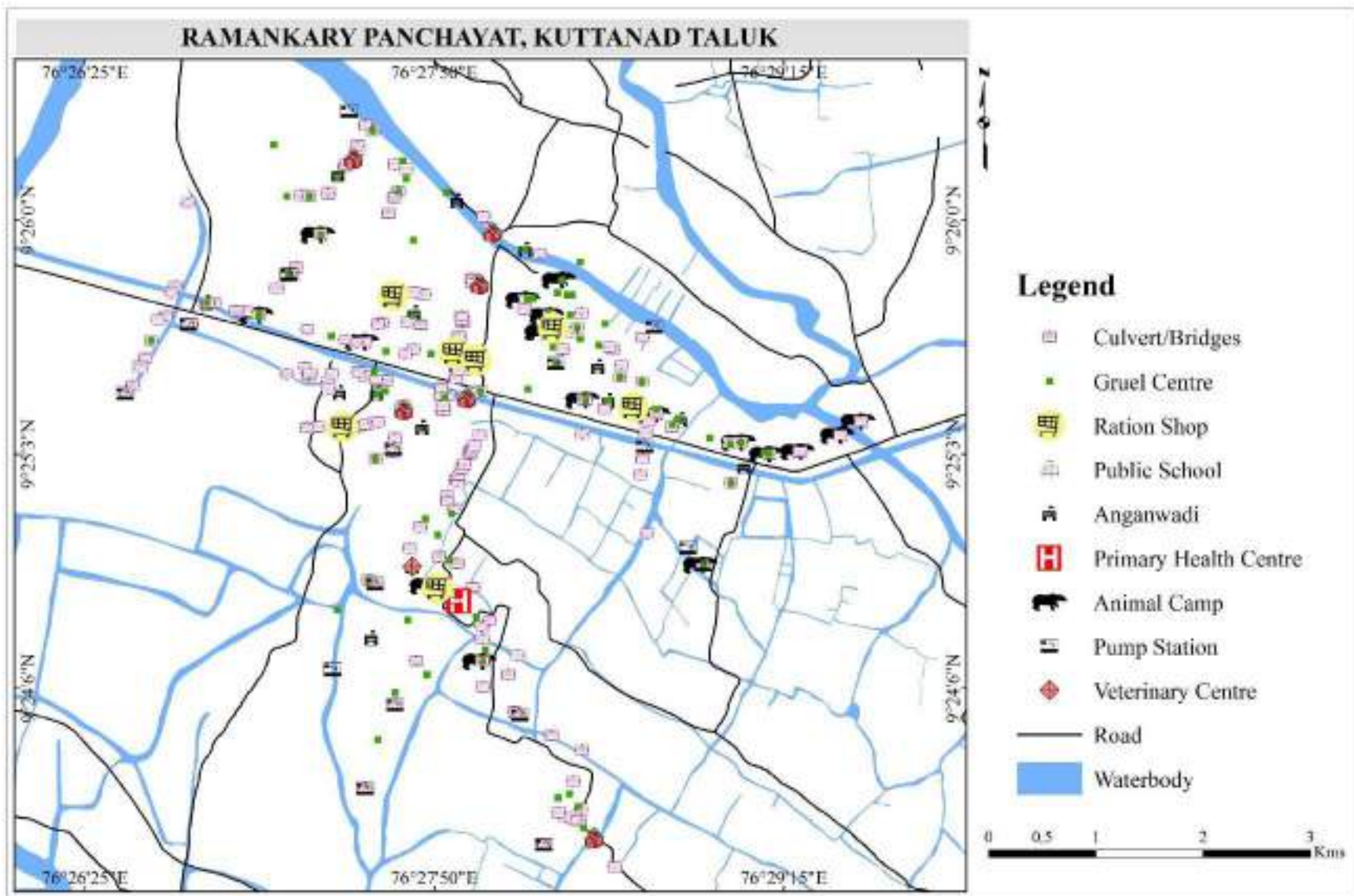
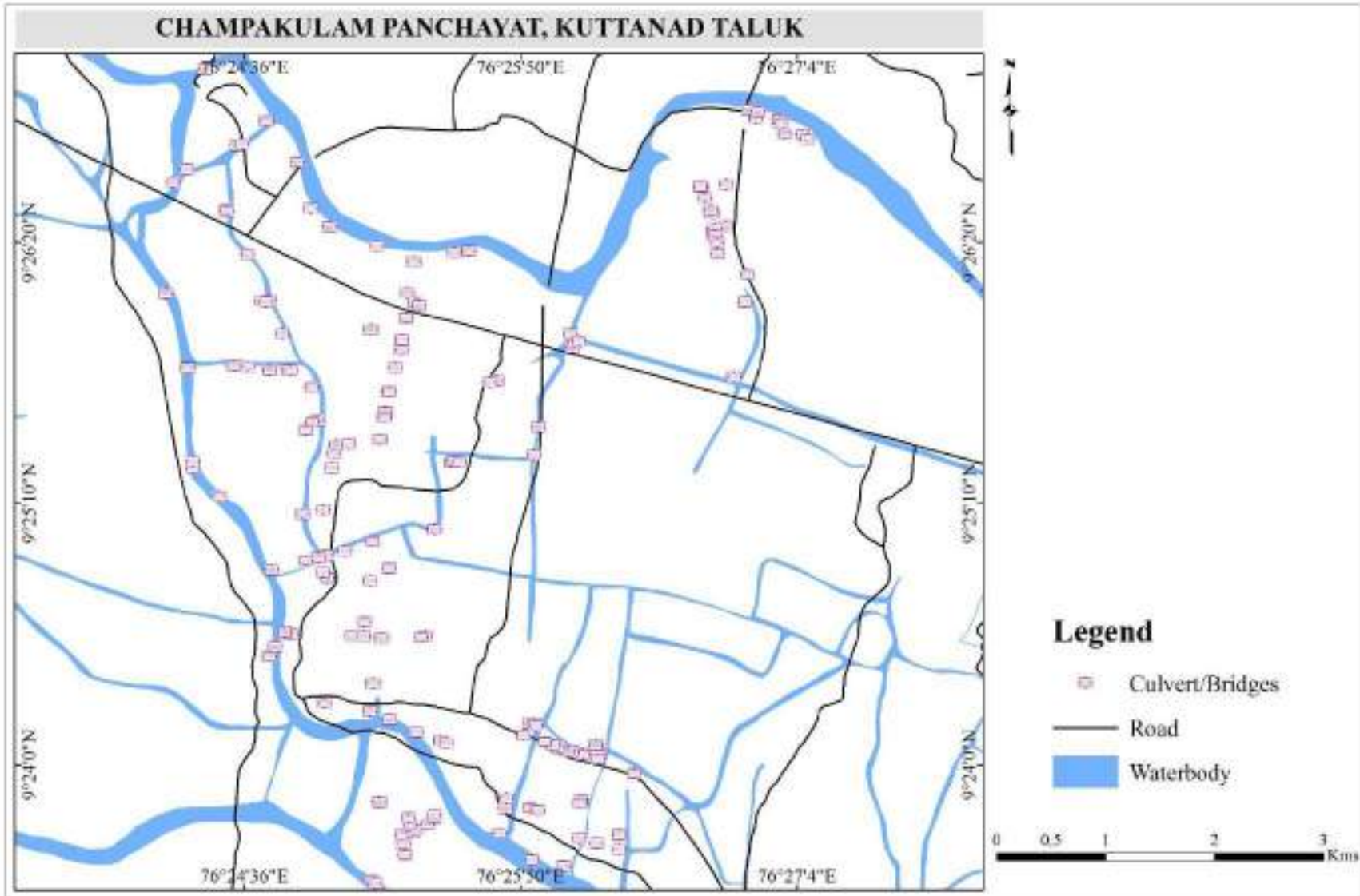
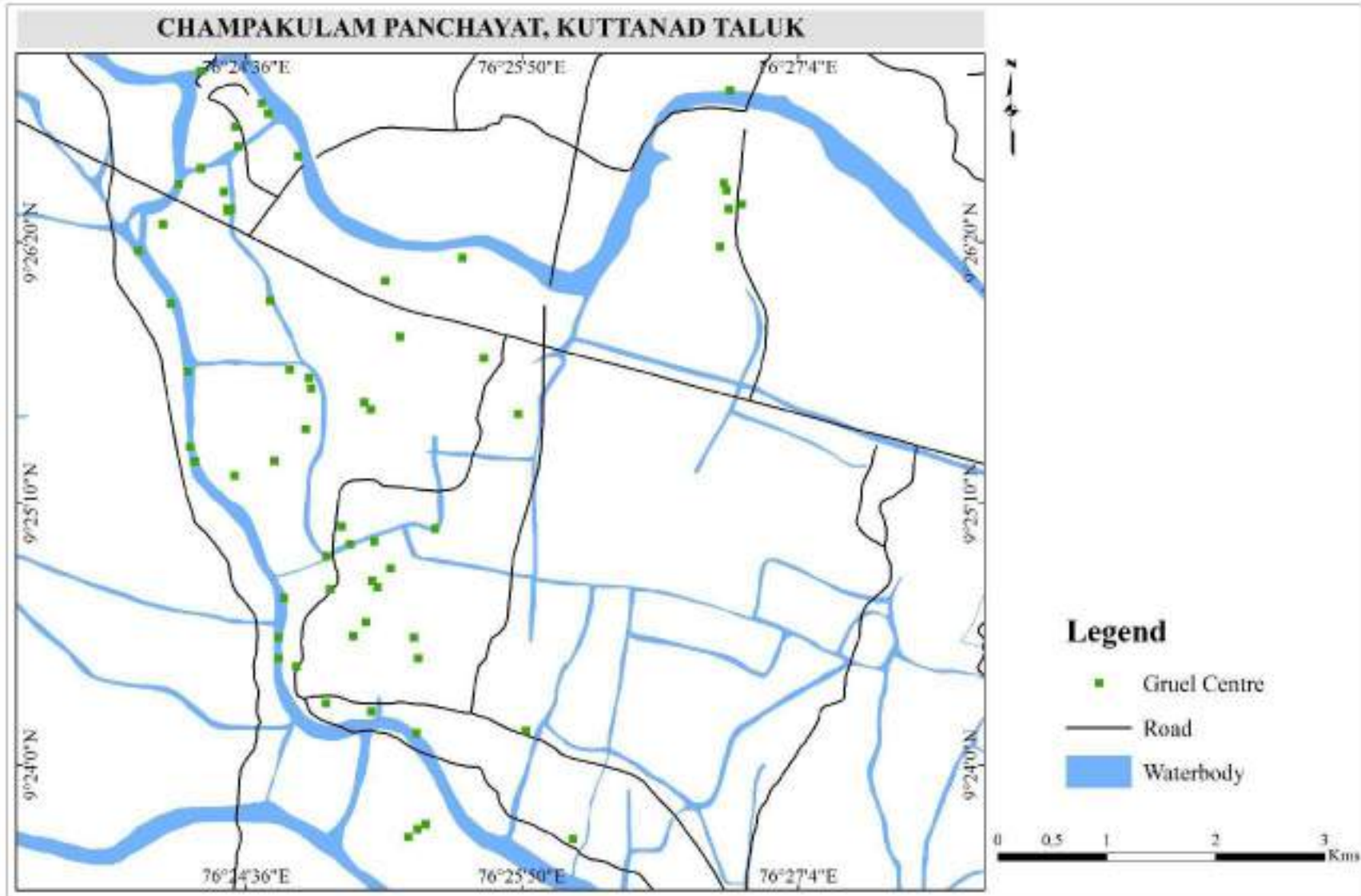


Figure 24 Integrated map show all features in Ramankary Panchayat, Kuttanad Taluk

**CHAMPAKULAM PANCHAYAT  
KUTTANAD**



**Figure 25 Location of Culverts/Bridges in Champakulam Panchayat, Kuttanad Taluk**



**Figure 26 Location of Gruel Centres in Champakulam Panchayat, Kuttanad Taluk**

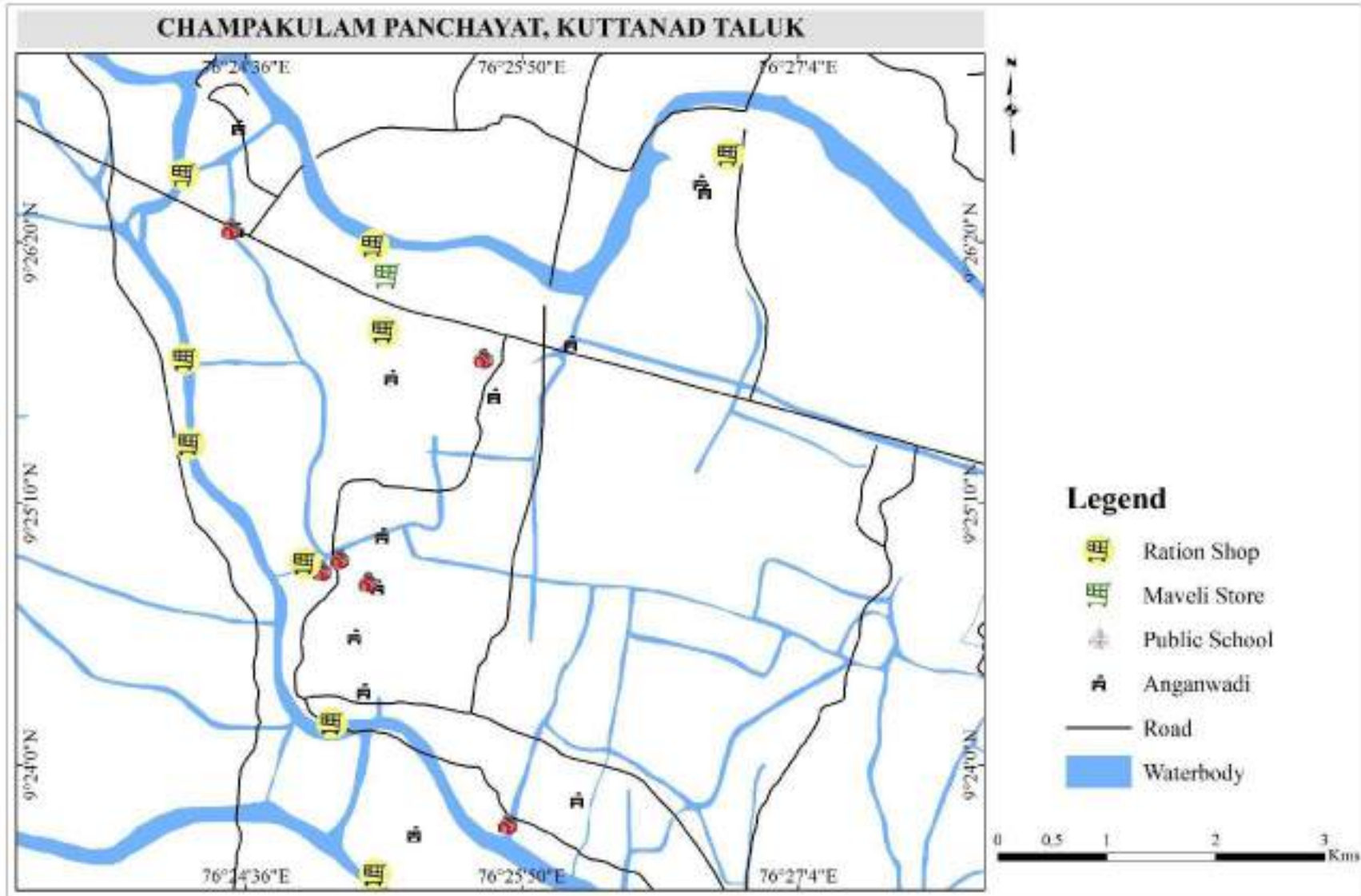


Figure 27 Location of Public Distribution Systems (PDS) in Champakulam Panchayat, Kuttanad Taluk

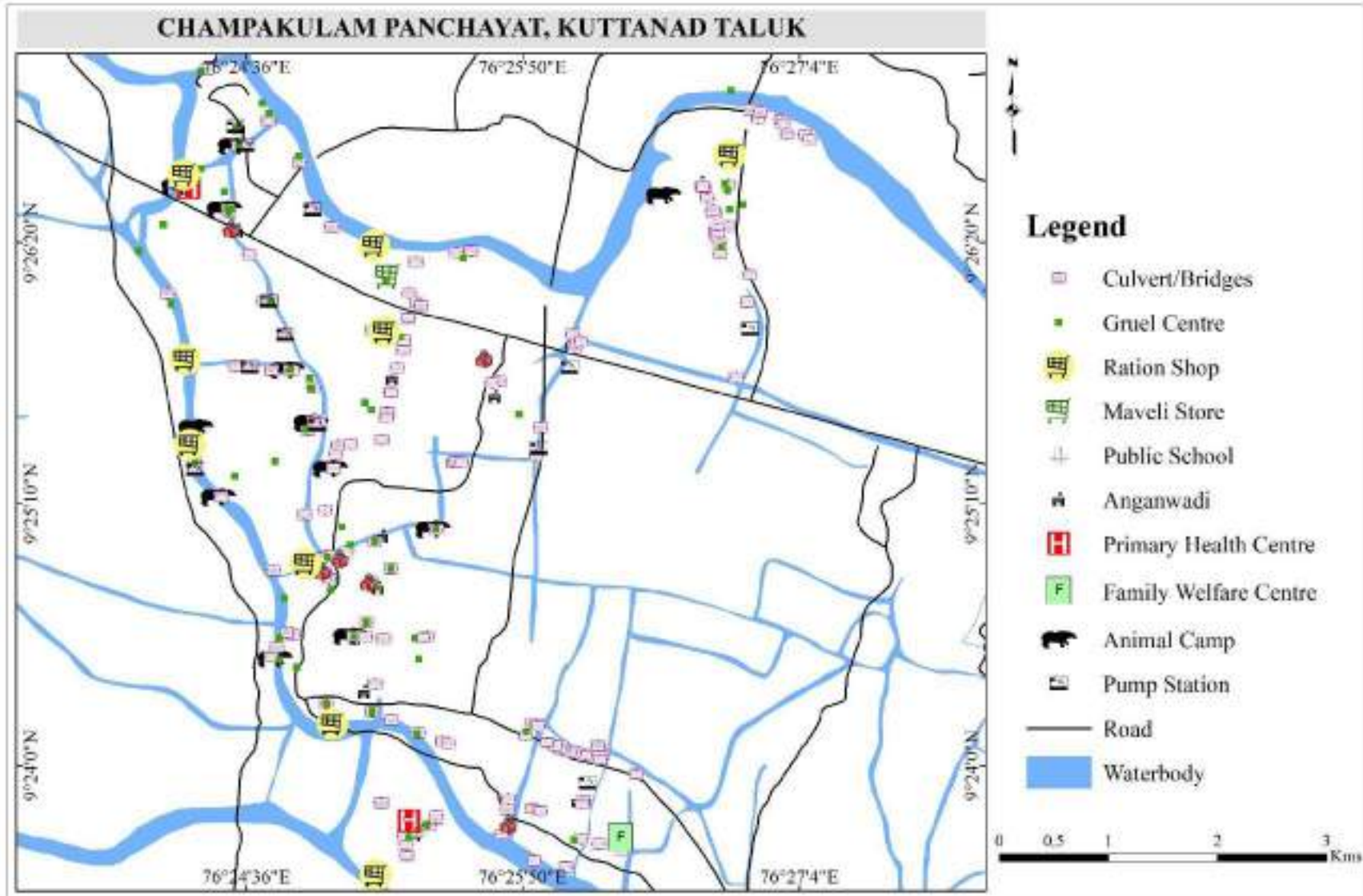
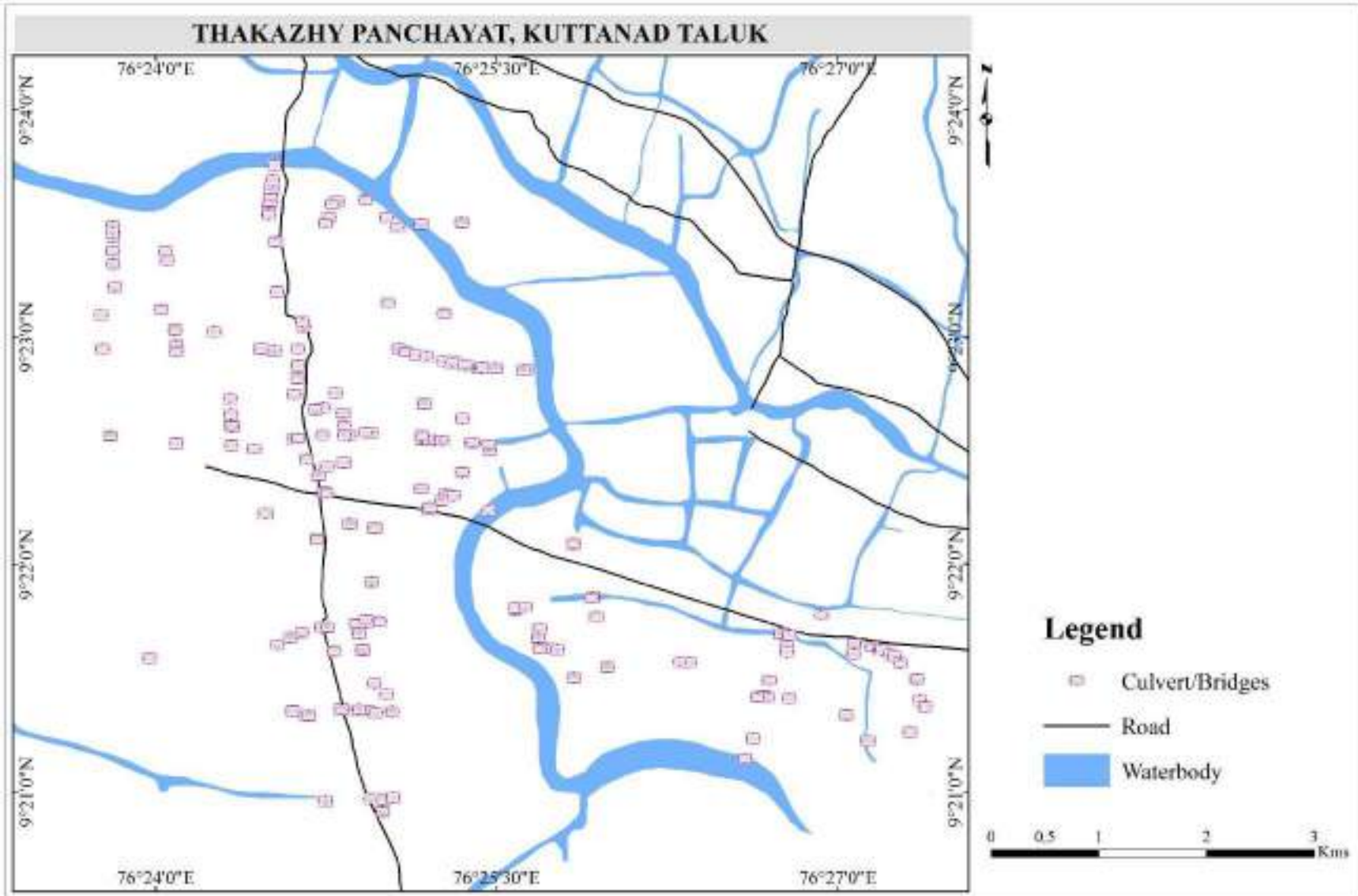


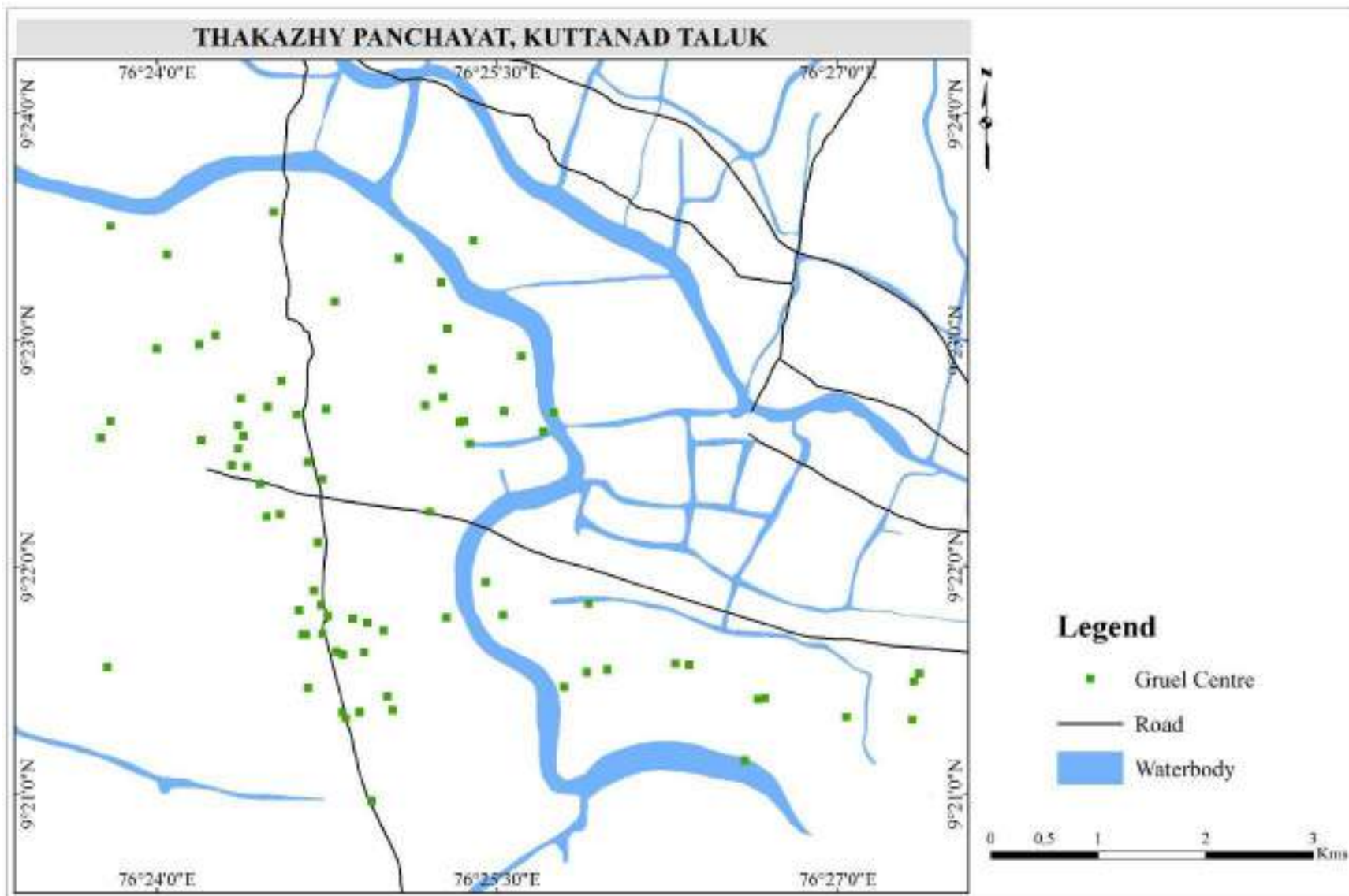
Figure 28 Integrated map show all features in Champakulam Panchayat, Kuttanad Taluk

**THAKAZHY PANCHAYAT  
KUTTANAD**

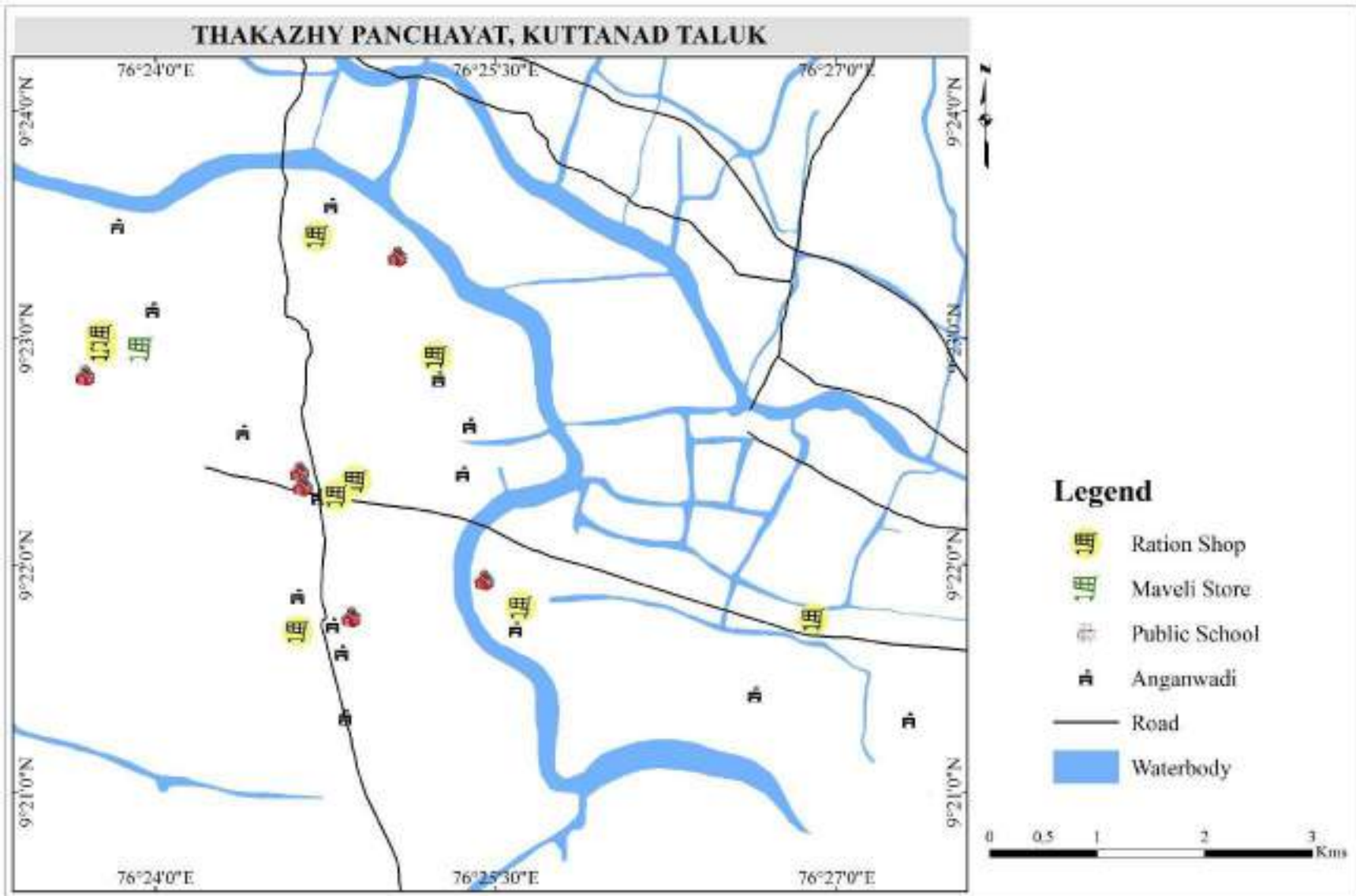


**Figure 29 Location of Culverts/Bridges in Thakazhy Panchayat, Kuttanad Taluk**





**Figure 30 Location of Gruel Centres in Thakazhy Panchayat, Kuttanad Taluk**



**Figure 31 Location of Public Distribution Systems (PDS) in Thakazhy Panchayat, Kuttanad Taluk**

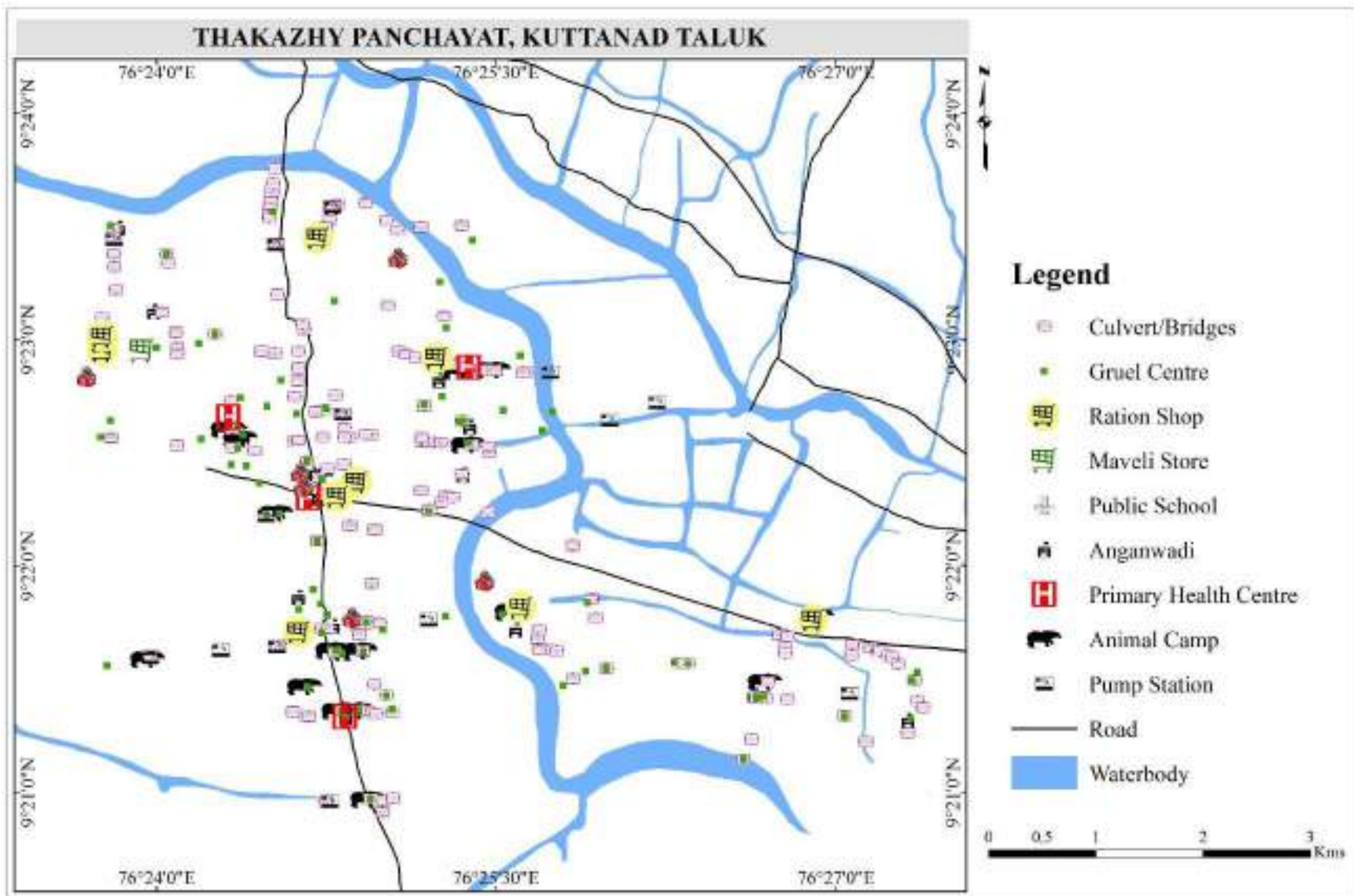
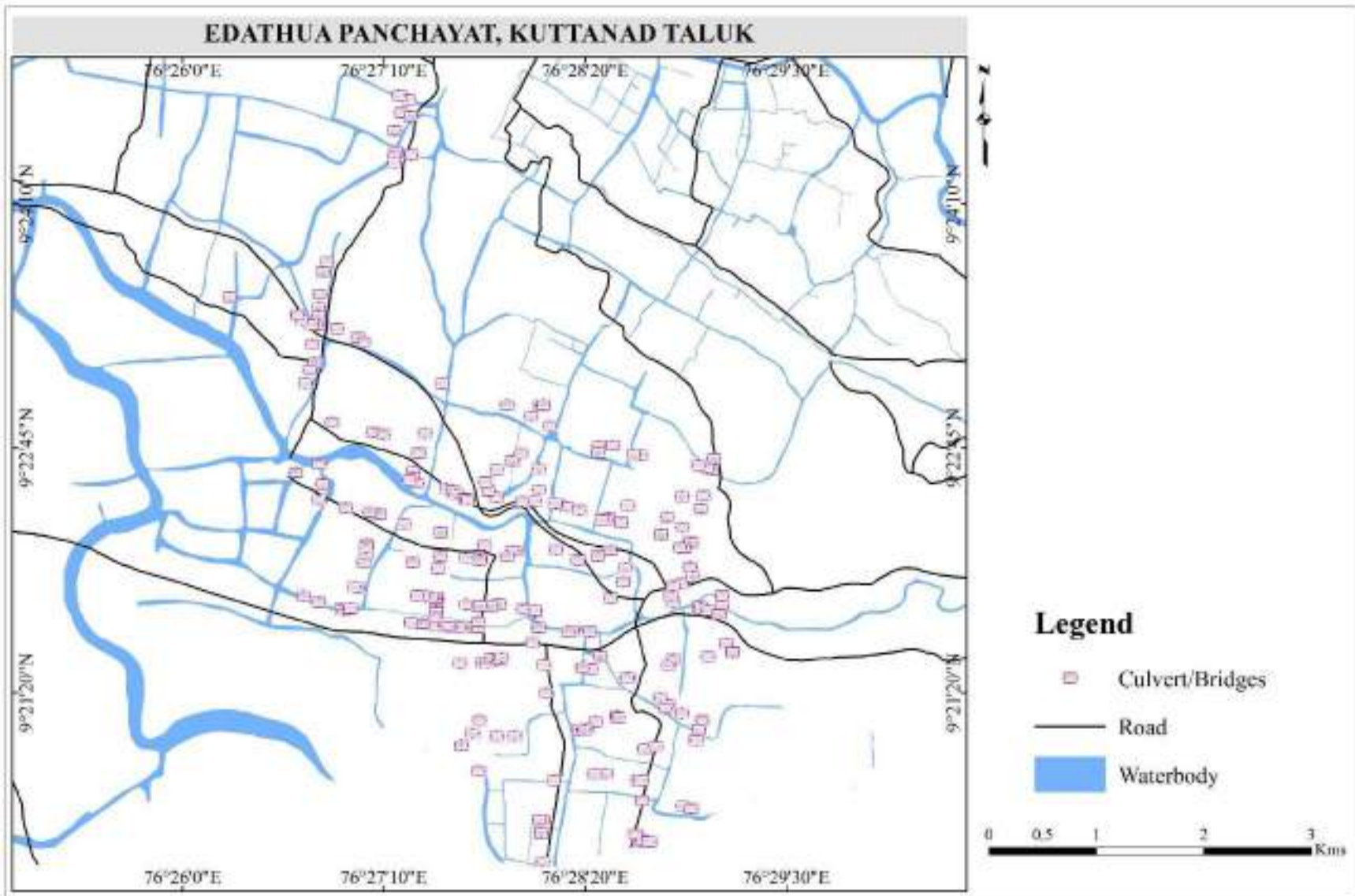
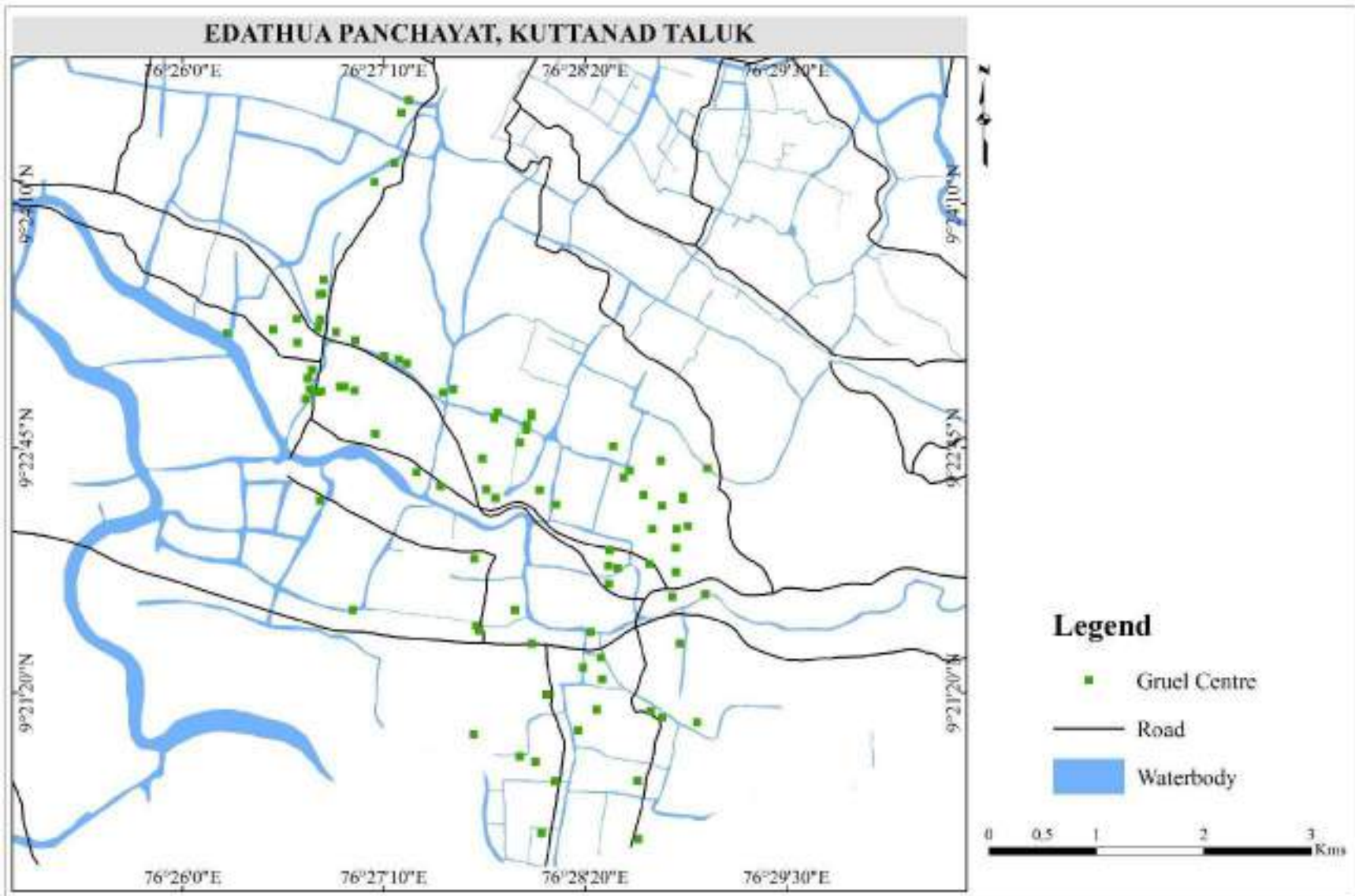


Figure 32 Integrated map show all features in Thakazhy Panchayat, Kuttanad Taluk

**EDATHUA PANCHAYAT  
KUTTANAD**



**Figure 33 Location of Culverts/Bridges in Edathua Panchayat, Kuttanad Taluk**



**Figure 34 Location of Gruel Centres in Edathua Panchayat, Kuttanad Taluk**

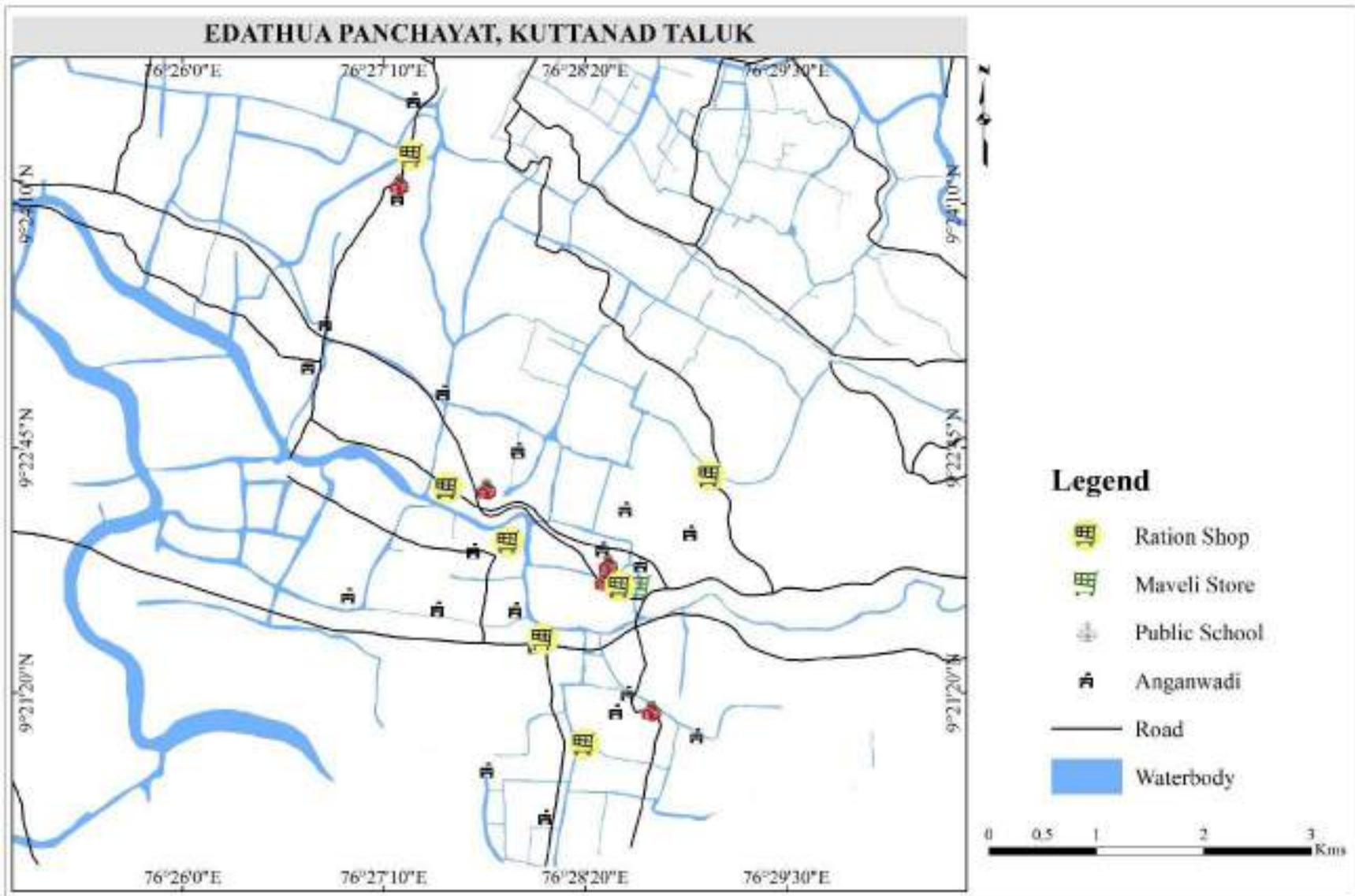


Figure 35 Location of Public Distribution Systems (PDS) in Edathua Panchayat, Kuttanad Taluk

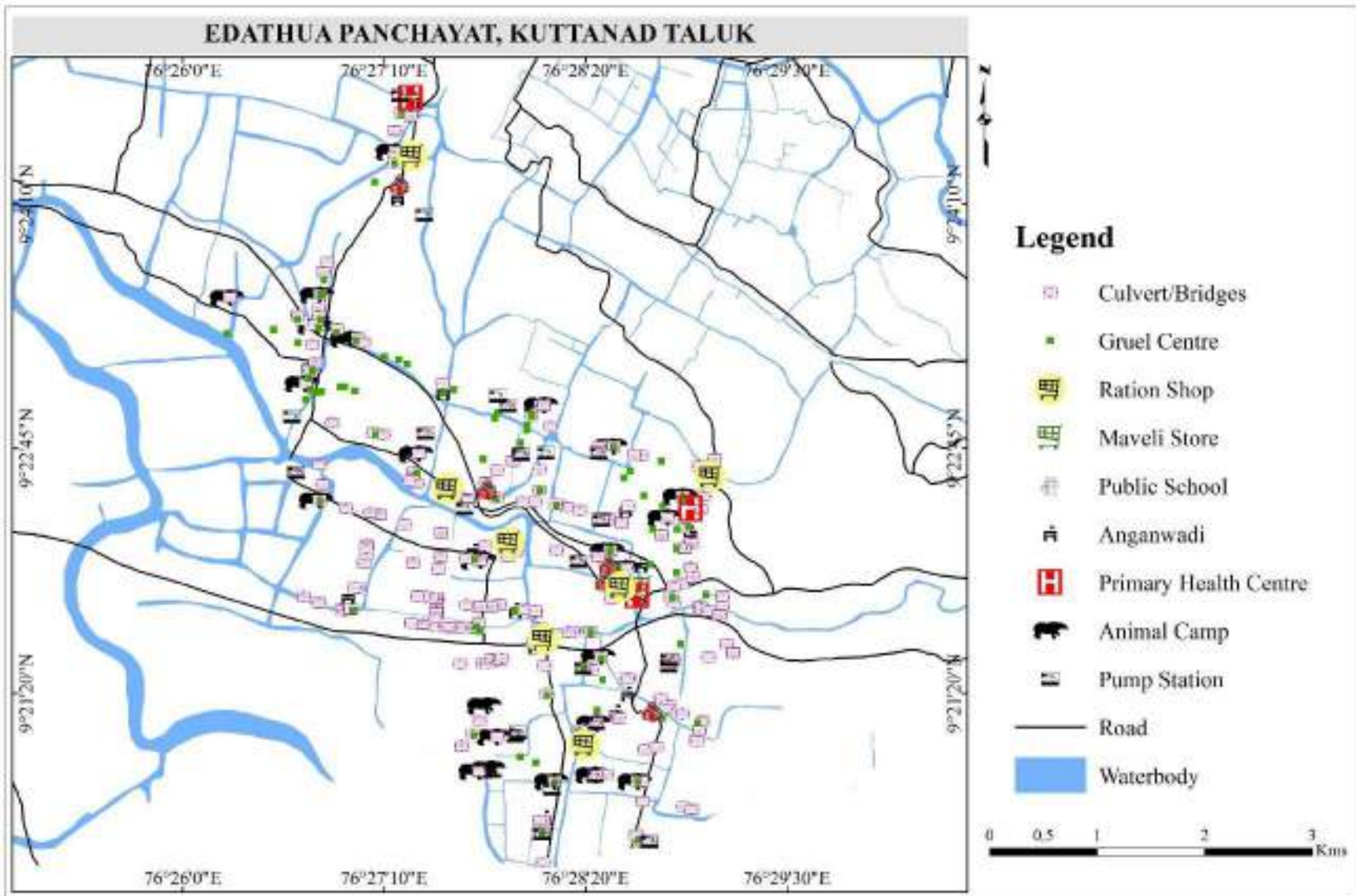


Figure 36 Integrated map show all features in Edathua Panchayat, Kuttanad Taluk



**MUTTAR PANCHAYAT**  
**KUTTANAD**

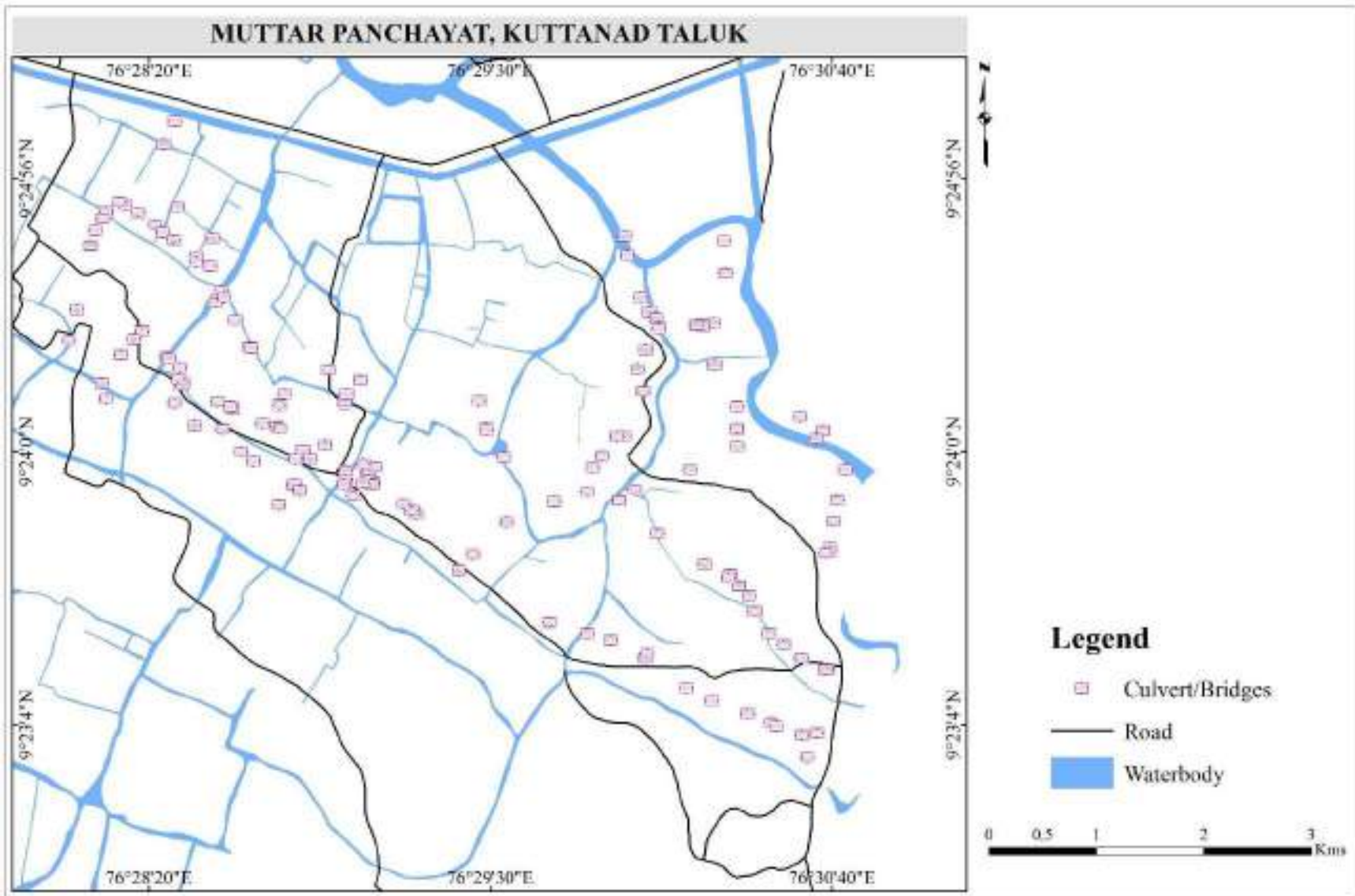


Figure 37 Location of Culverts/Bridges in Muttar Panchayat, Kuttanad Taluk

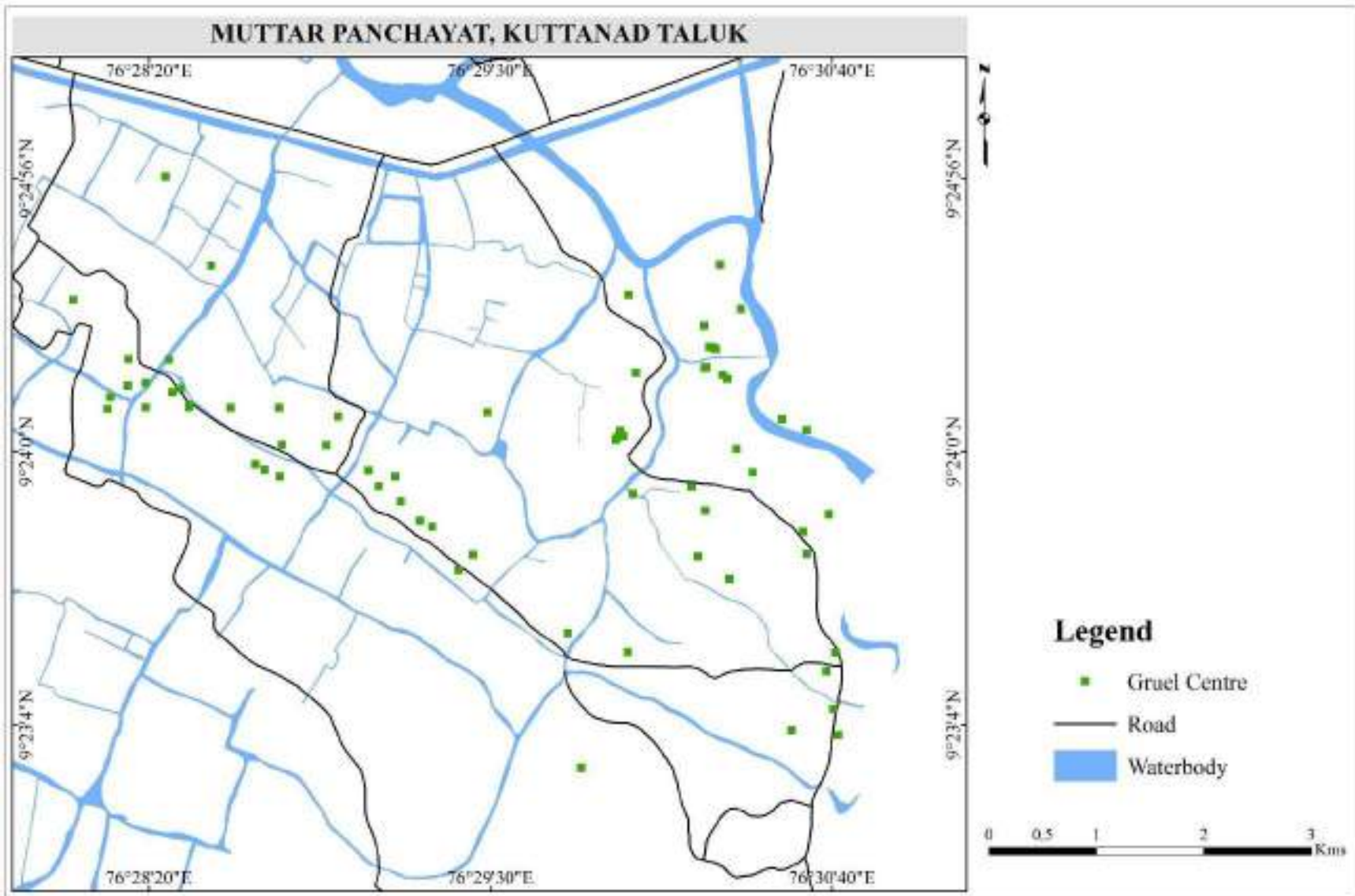


Figure 38 Location of Gruel Centres in Muttar Panchayat, Kuttanad Taluk

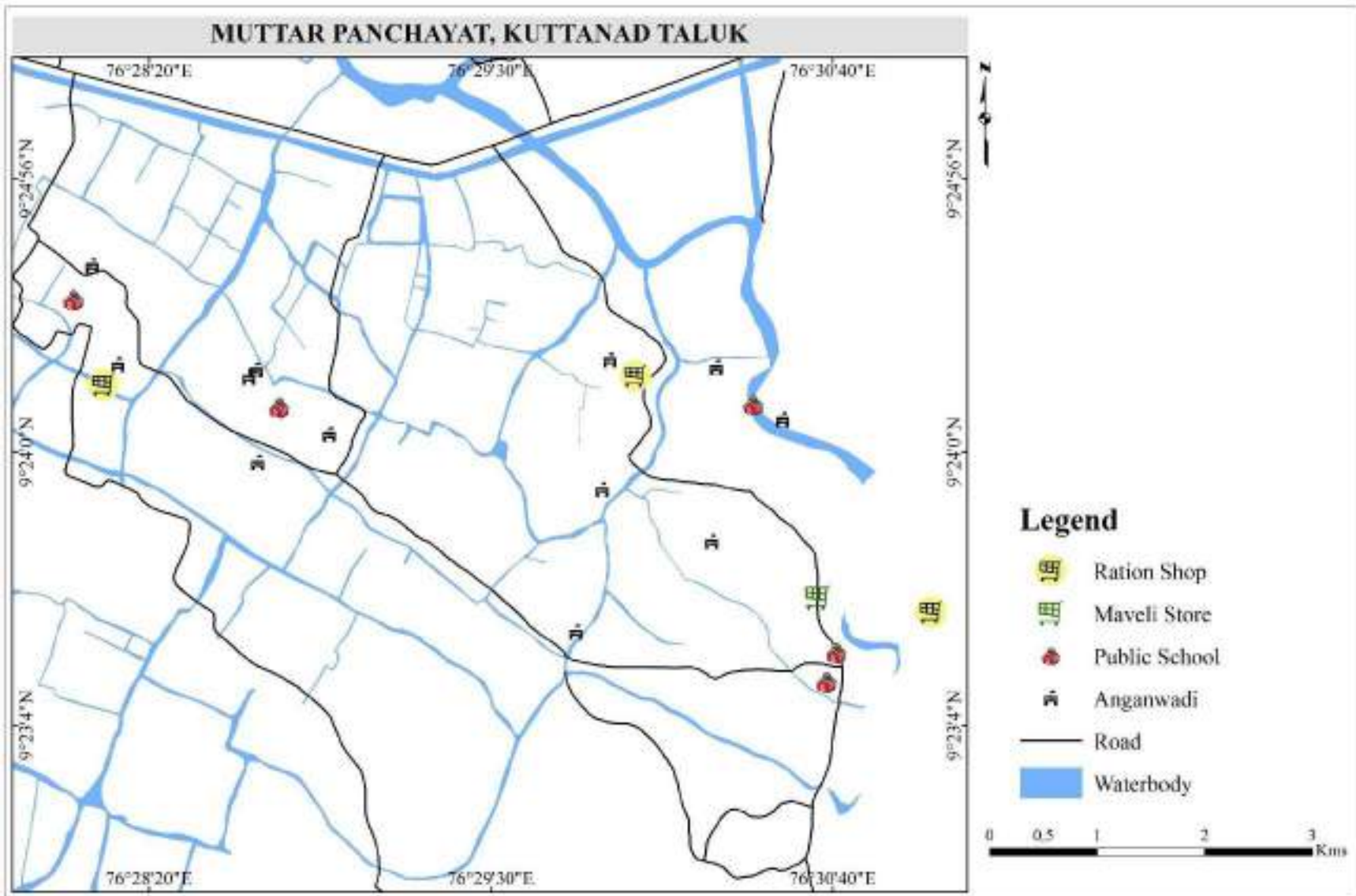


Figure 39 Location of Public Distribution Systems (PDS) in Muttar Panchayat, Kuttanad Taluk

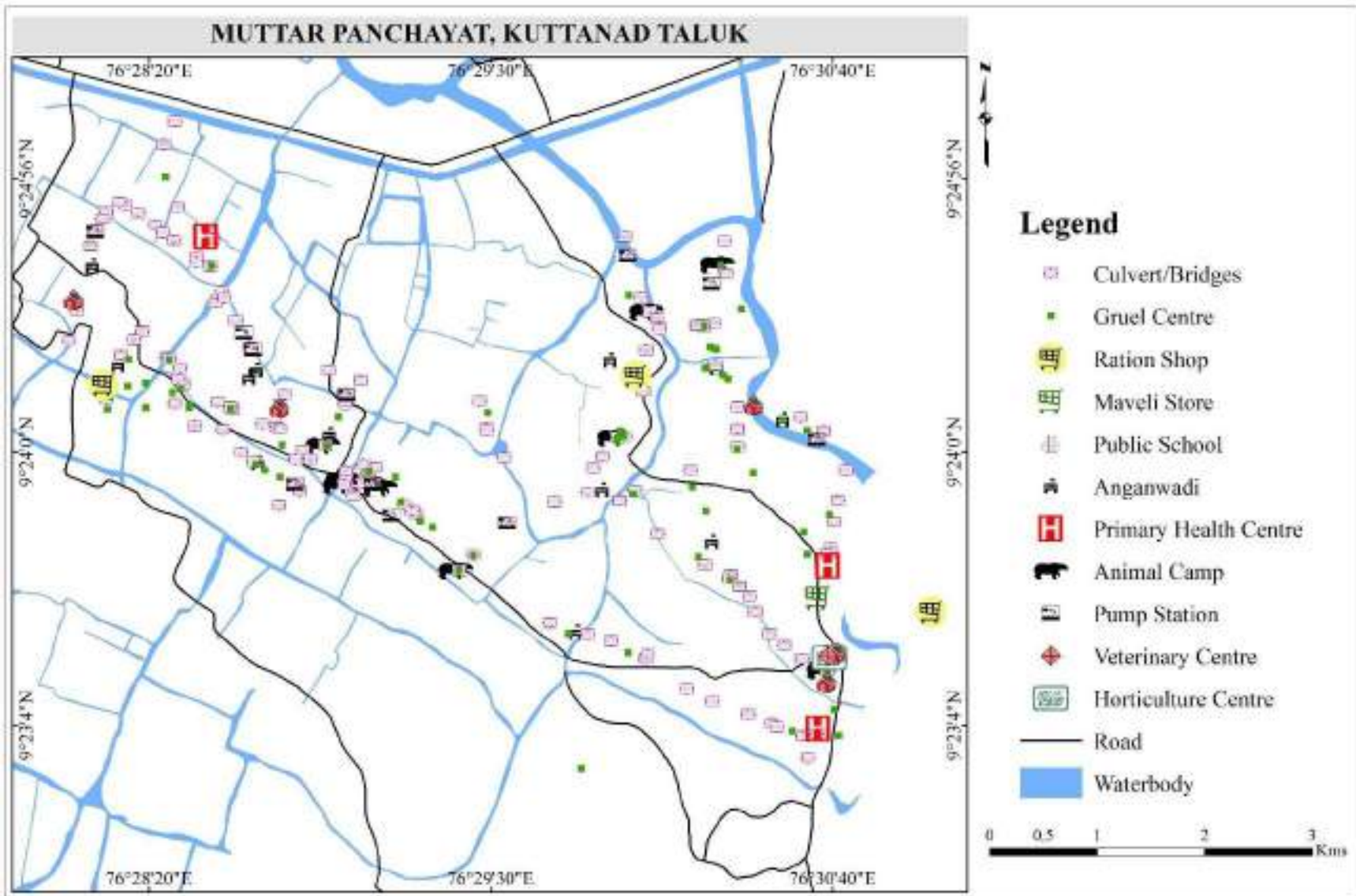


Figure 40 Integrated map show all features in Muttar Panchayat, Kuttanad Taluk

**THALAVADI PANCHAYAT**  
**KUTTANAD**

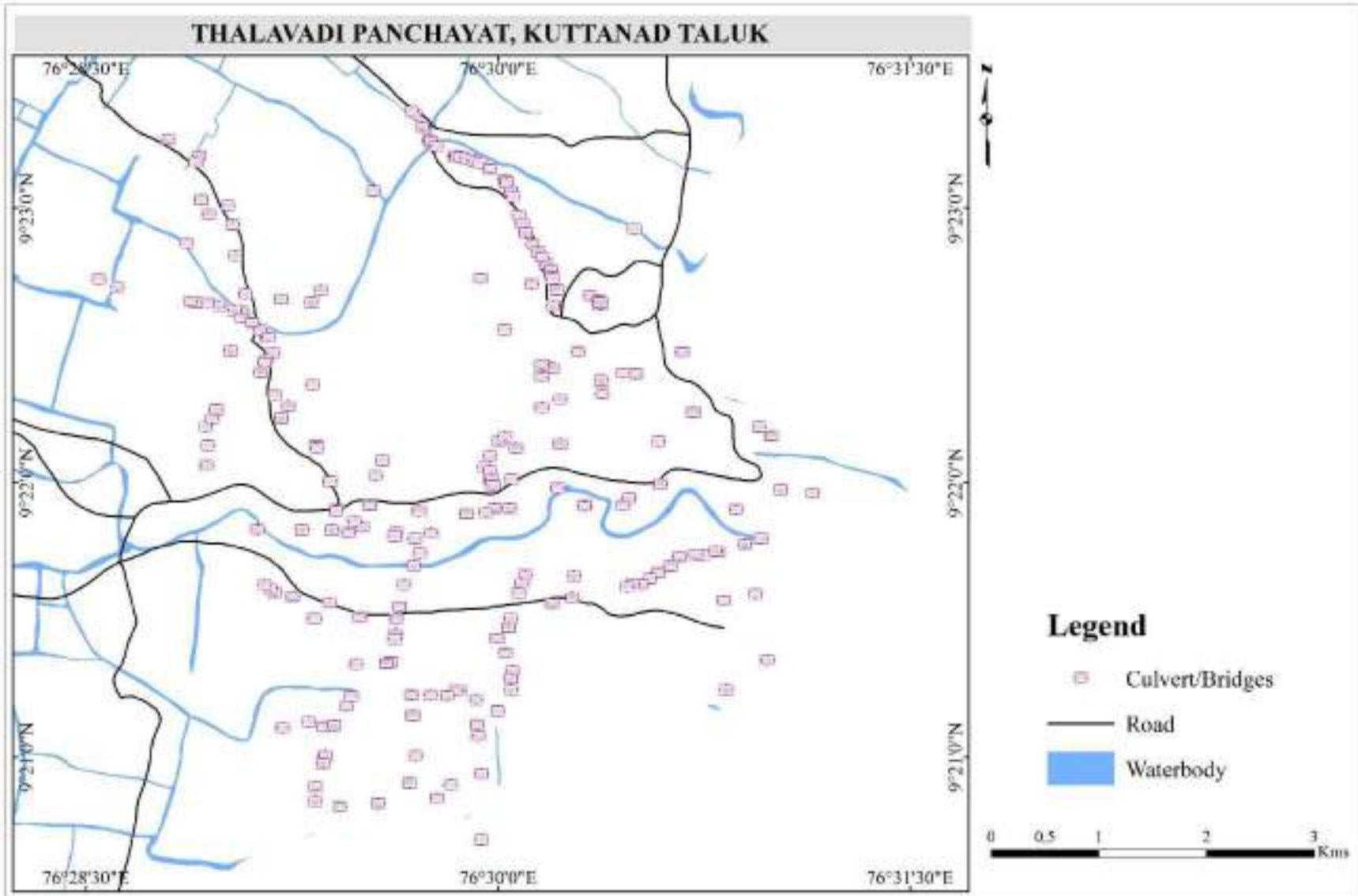


Figure 41 Location of Culverts/Bridges in Thalavadi Panchayat, Kuttanad Taluk

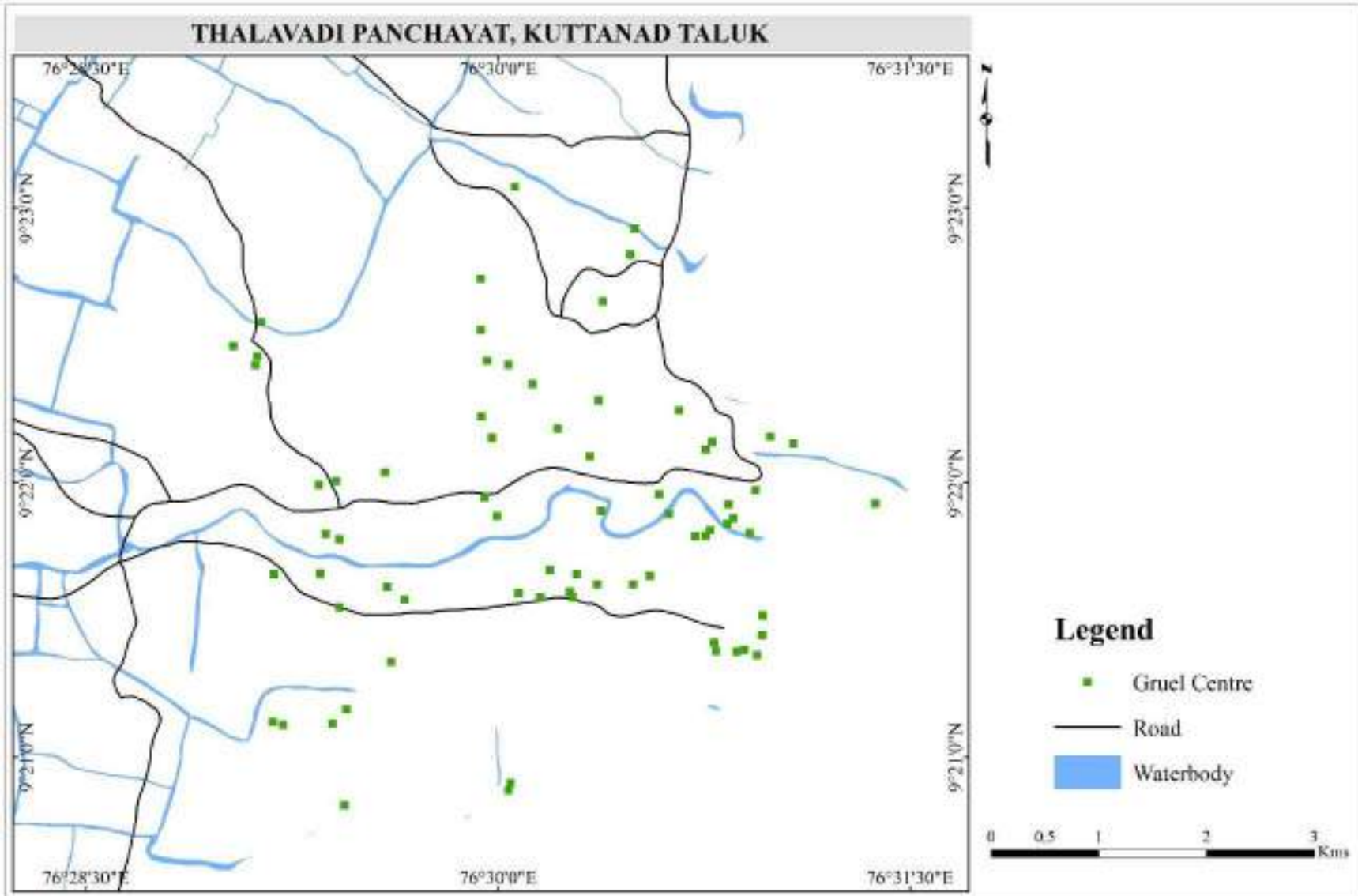


Figure 42 Location of Gruel Centres in Thalavadi Panchayat, Kuttanad Taluk



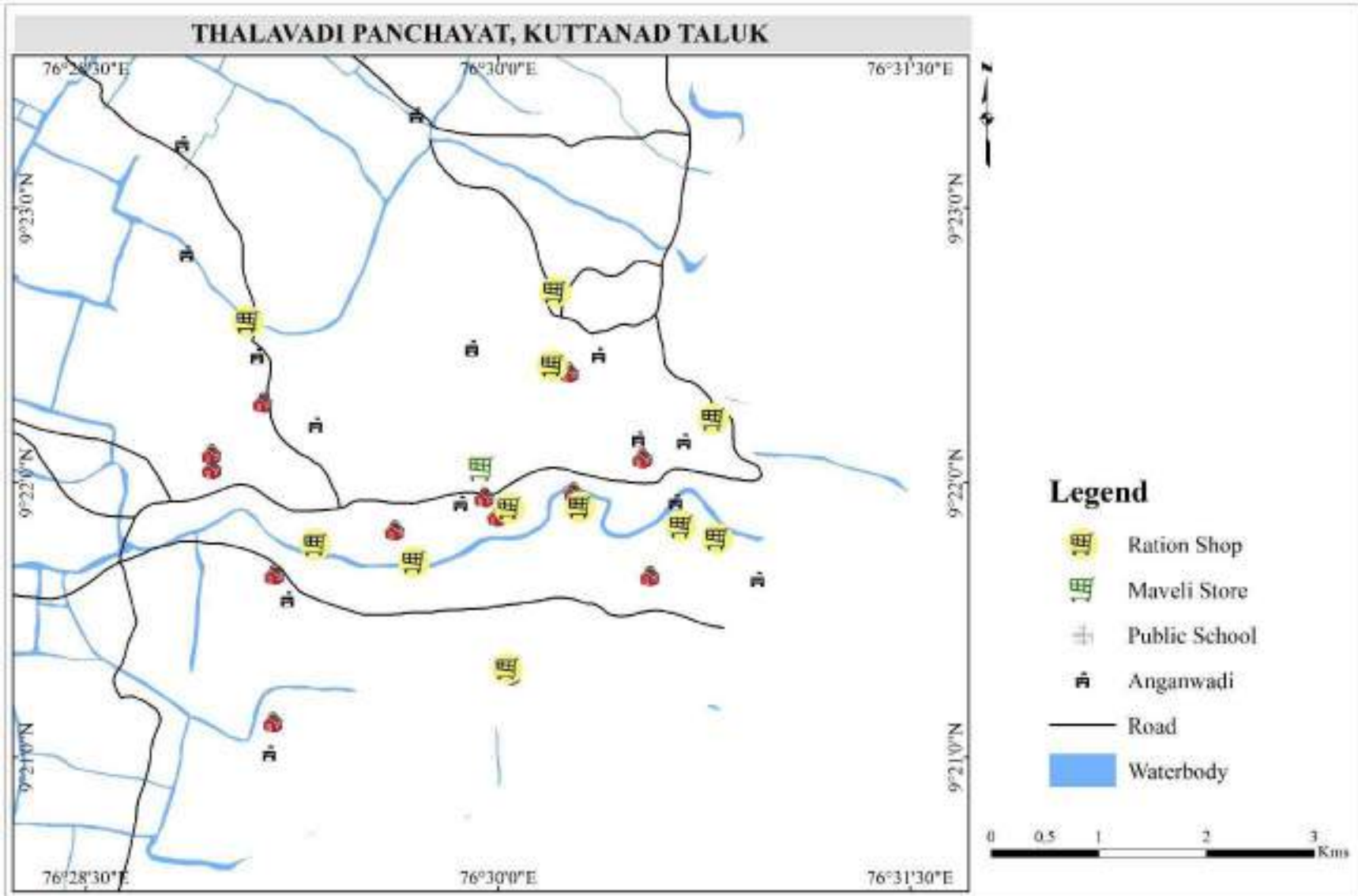


Figure 43 Location of Public Distribution Systems (PDS) in Thalavadi Panchayat, Kuttanad Taluk

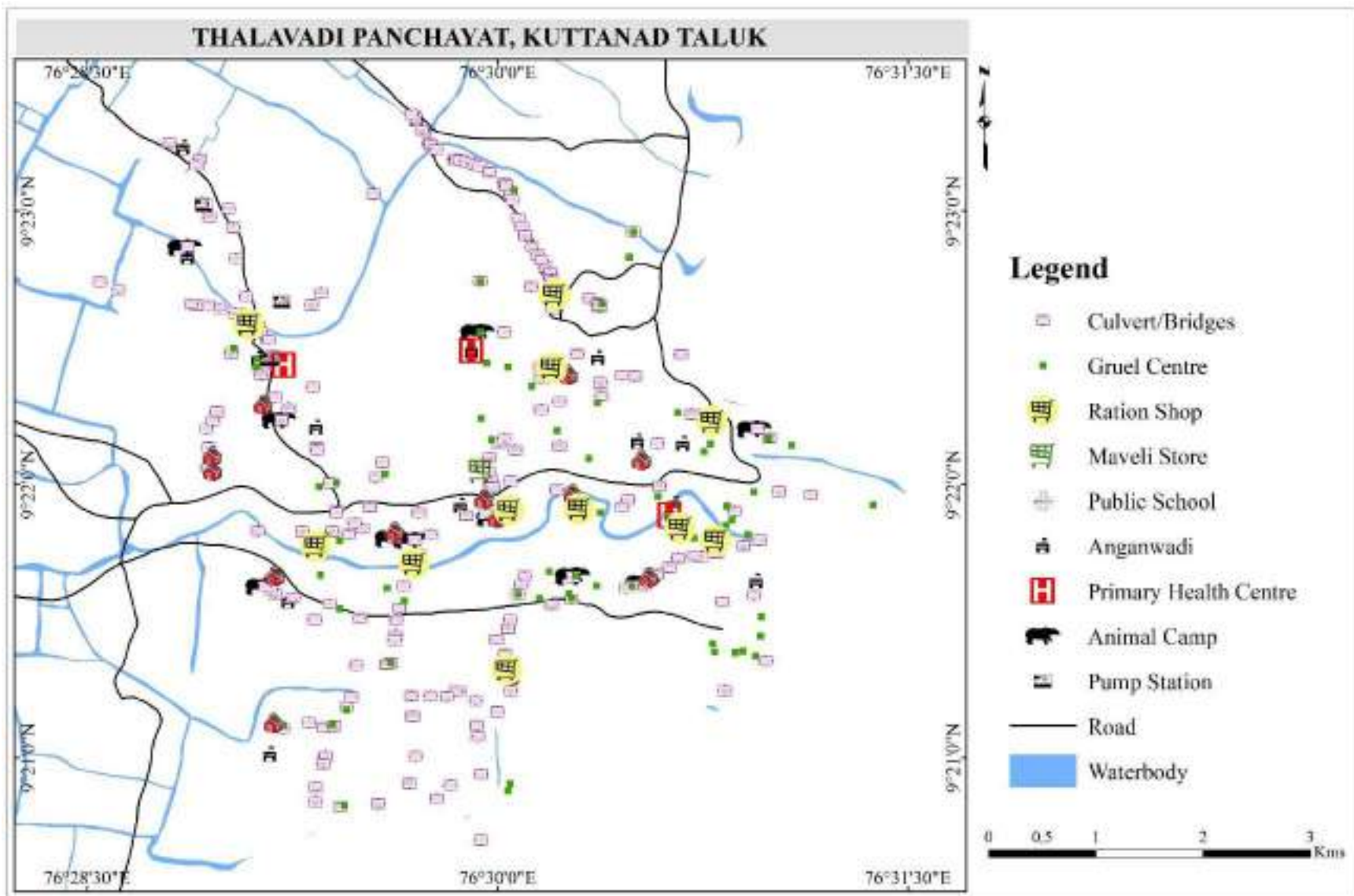
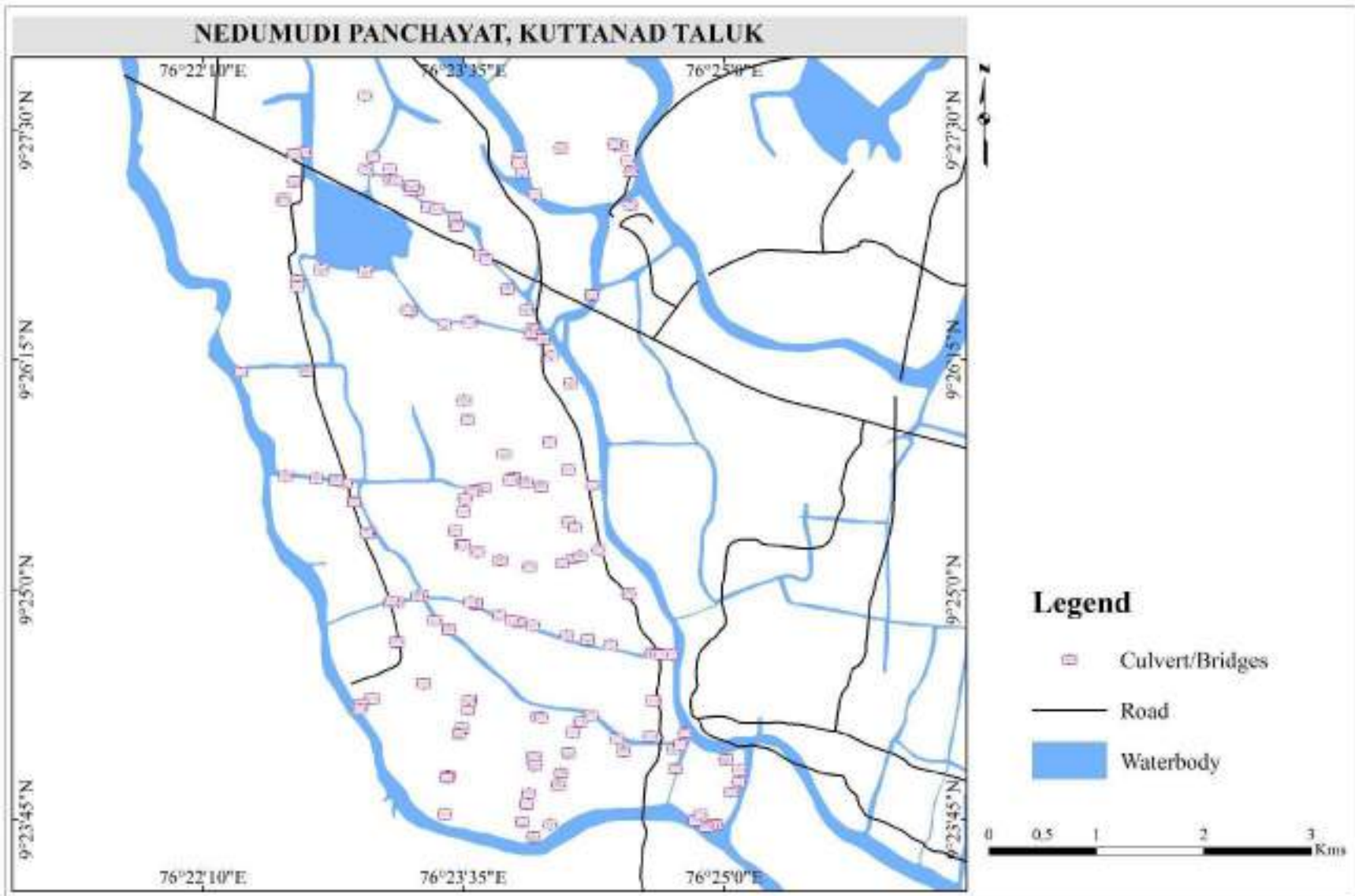


Figure 44 Integrated map show all features in Thalavadi Panchayat, Kuttanad Taluk

**NEDUMUDI PANCHAYAT**  
**KUTTANAD**



**Figure 45 Location of Culverts/Bridges in Nedumudi Panchayat, Kuttanad Taluk**

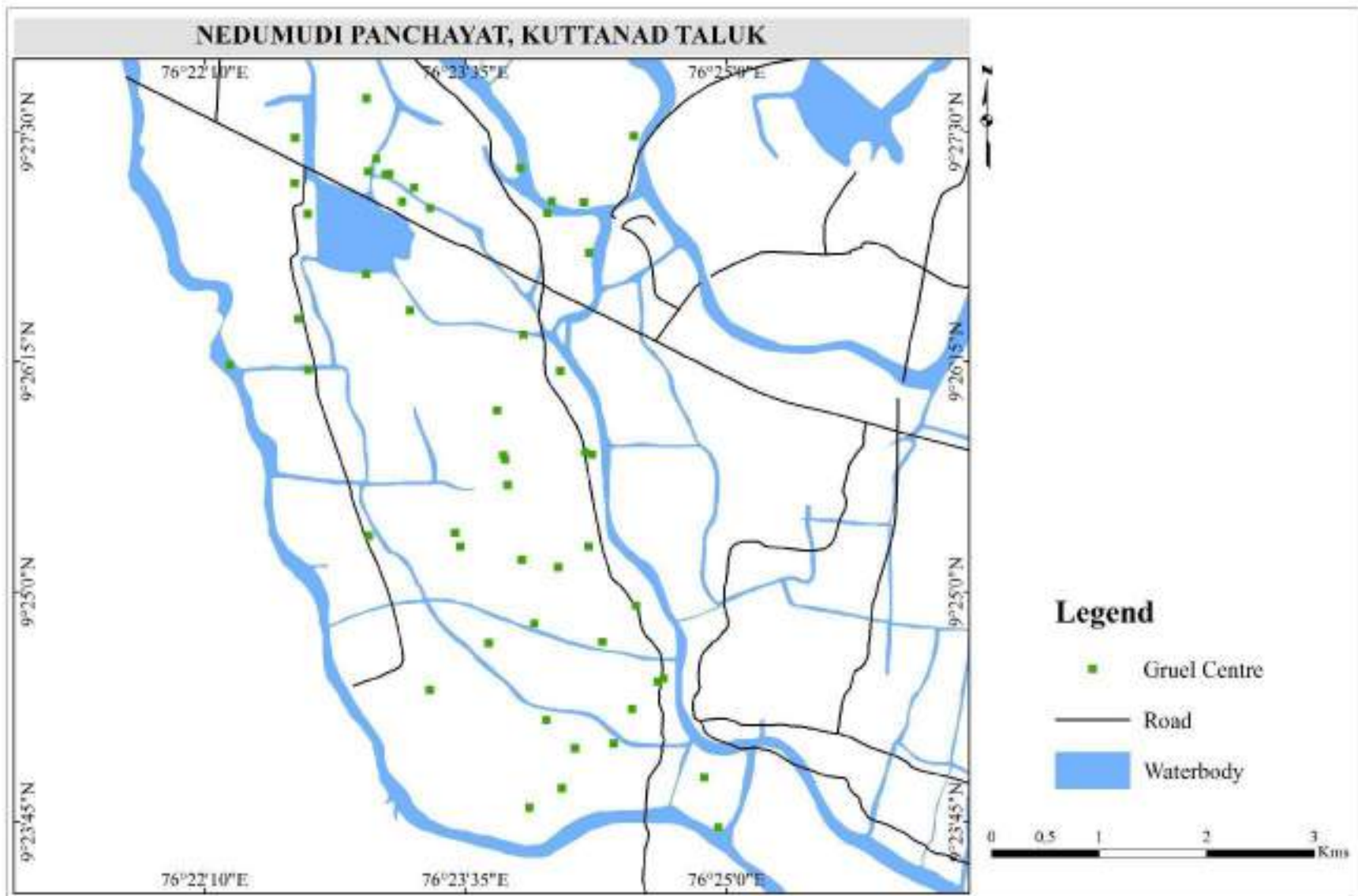


Figure 46 Location of Gruel Centres in Nedumudi Panchayat, Kuttanad Taluk

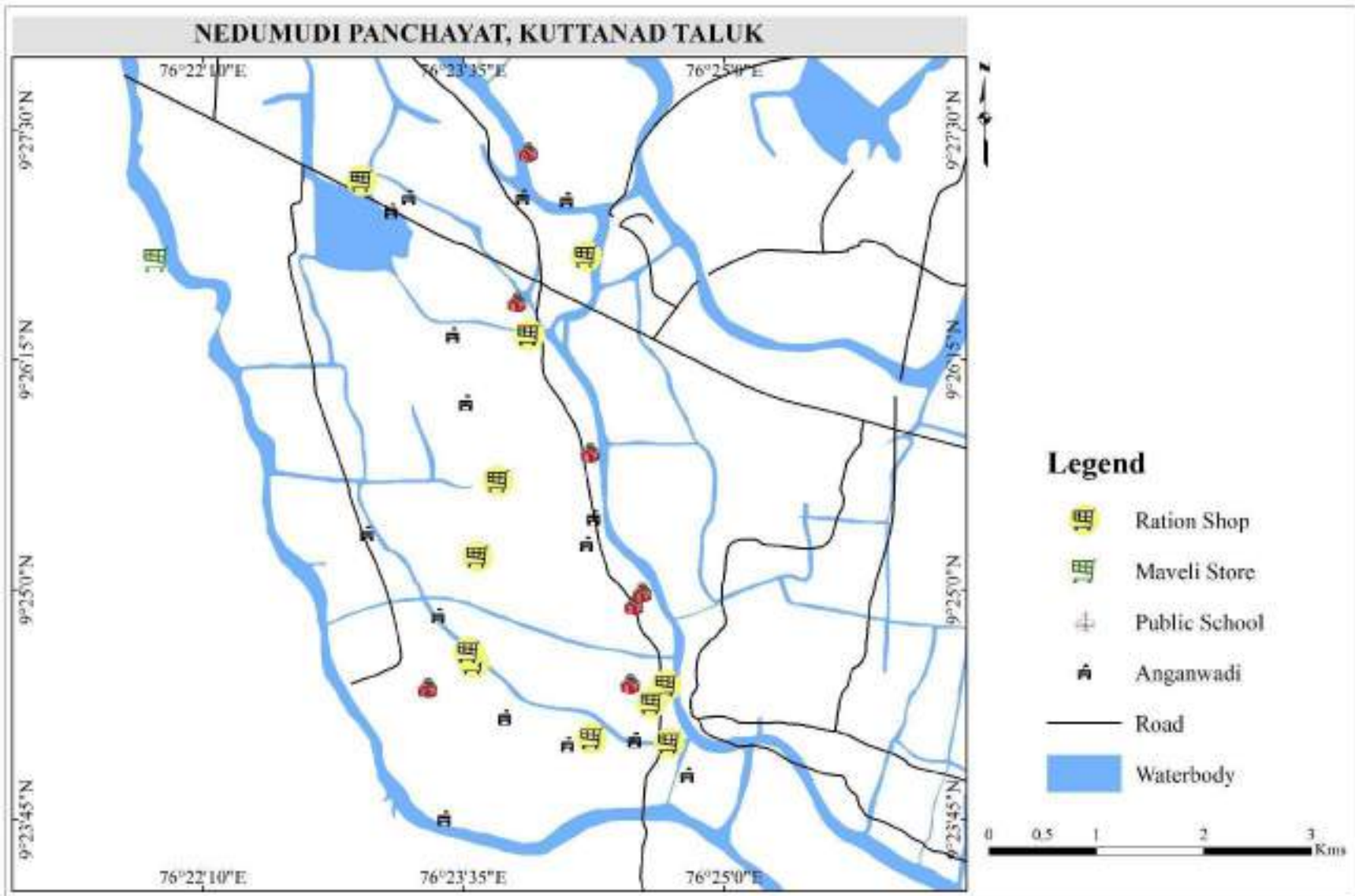
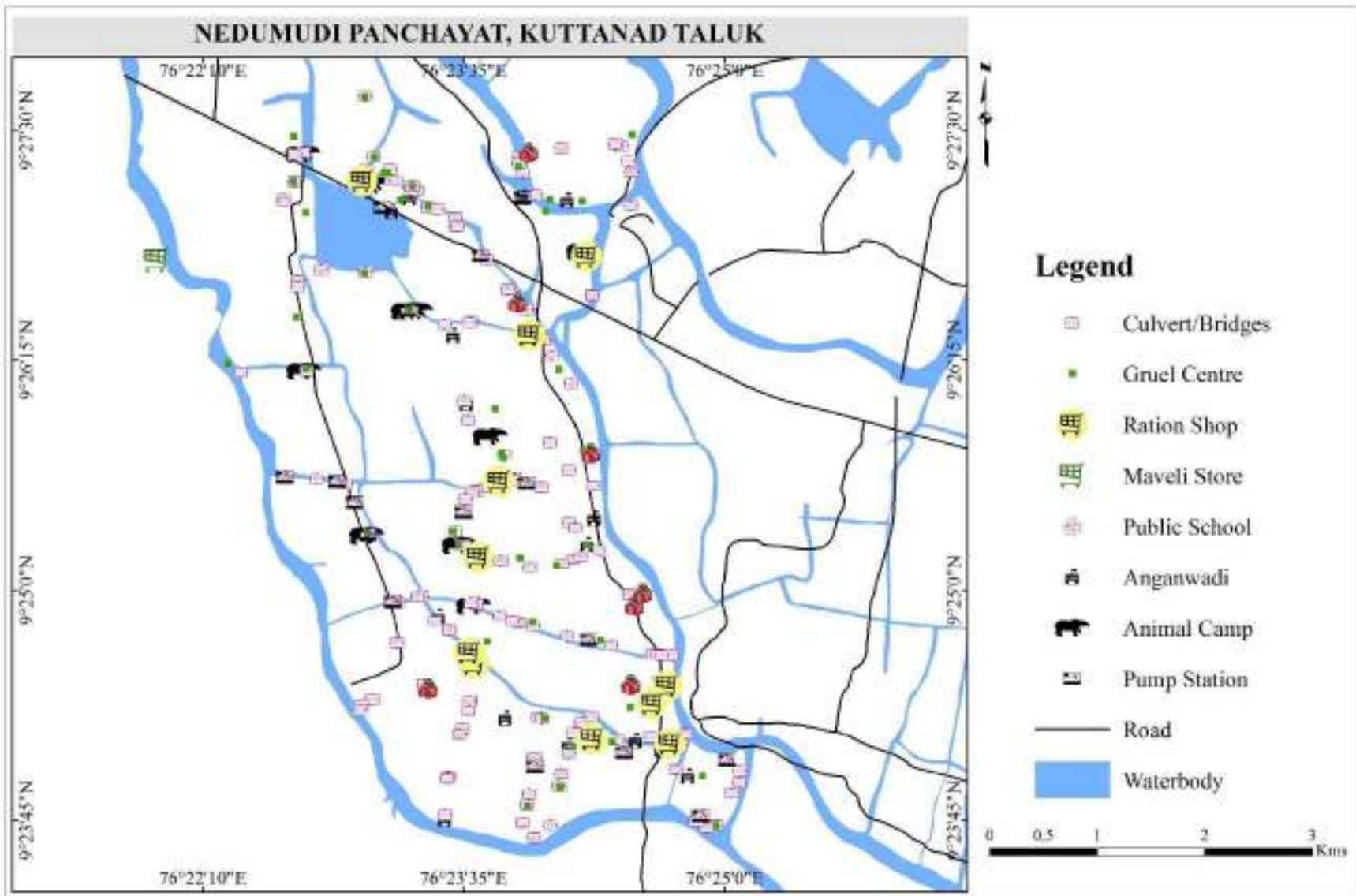


Figure 47 Location of Public Distribution Systems (PDS) in Nedumudi Panchayat, Kuttanad Taluk



**Figure 48 Integrated map show all features in Nedumudi Panchayat, Kuttanad Taluk**







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