



श्रद्धावान् लभते ज्ञानम्

**AMRITA**  
VISHWA VIDYAPEETHAM

**Live-In-Labs®**



While India is an eclectic and vibrant mixture of cultures, traditions, customs, and people, it is also home to 33% of the world's poor. Among the poor that live in India, approximately 70% reside in rural areas that often lack access to safe drinking water, sufficient food, and basic facilities. However, it is the people of these rural communities that contribute to feeding the rest of the country and the world.

In early 2013, Amrita Vishwa Vidyapeethams Chancellor, Sri Mata Amritanandamayi Devi (Amma), proposed a program in which Amrita students and faculty, in conjunction with students and faculty from international universities, could spend two weeks to 6 months in villages in India in order to understand current challenges and, subsequently, develop sustainable solutions.



## MISSION

The Amrita Live-in-Labs® program aims to expose youth to problems faced by rural communities in India. Through experiential learning opportunities, participants put theory into practice by generating innovative solutions, thereby facilitating critical and collaborative problem solving abilities of participants.

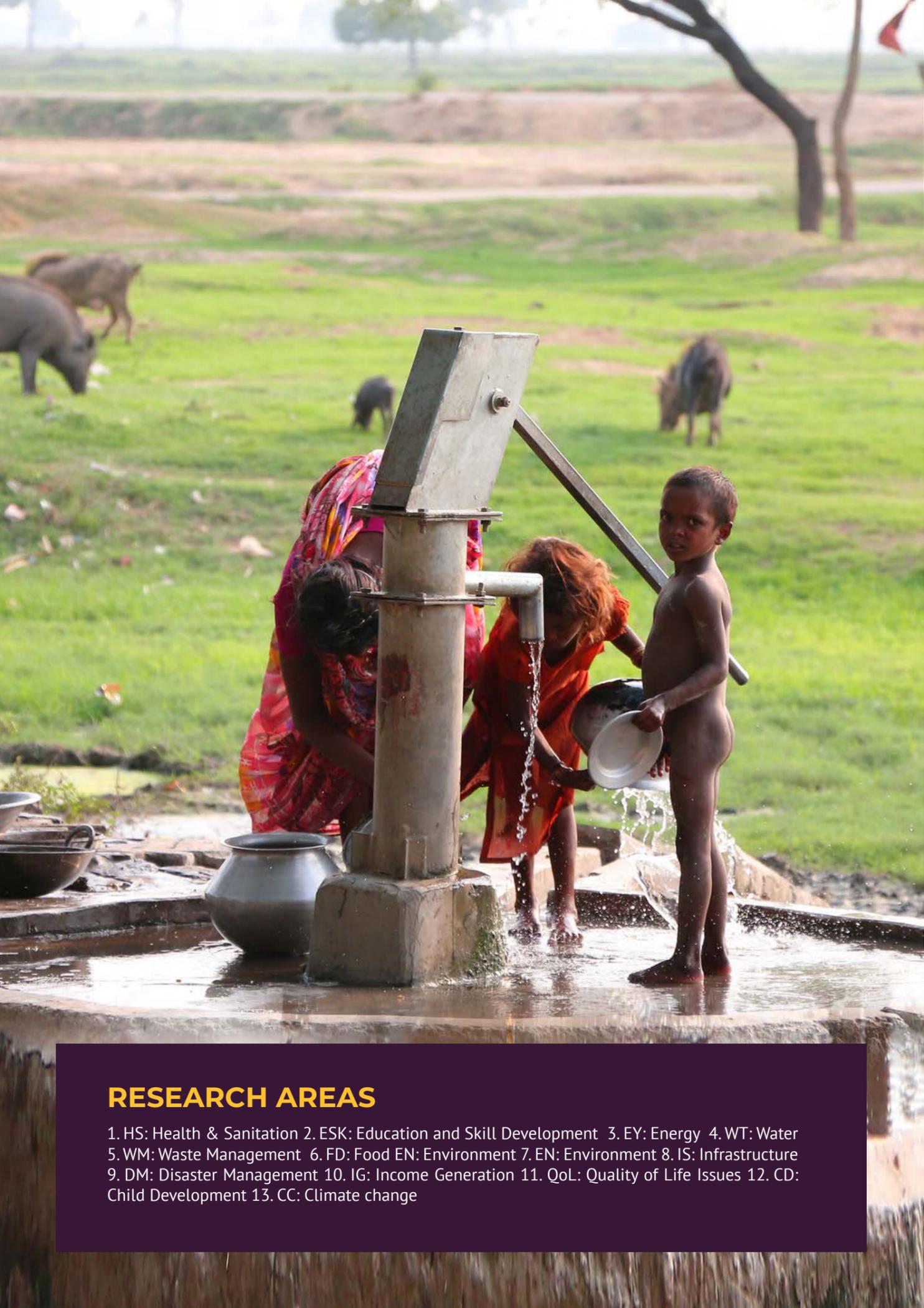
## OUR PROGRAM

Amrita Live-in-Labs® is a multidisciplinary experiential learning program that facilitates the research, development, and deployment of sustainable solutions for current challenges faced by rural communities in India. The program is designed to engage participants in a mutual learning and sharing experience by breaking classroom and lab barriers to implement theoretical knowledge to address real world problems. The program allows participants to study, observe, and interact with rural populations while living in rural communities to gain a better understanding of challenges in different focus areas.

Since the emphasis of the program is on mutual sharing and learning, we at Amrita strongly believe in taking an inclusive approach to addressing challenges and, therefore, encourage students to work with rural populations to come up with sustainable solutions. As a result, the program is designed as a two-way model of sharing and learning and encourages students to be open to "other ways of thinking".

International students, both undergraduates and graduates, can spend one month to a semester (4- 6 months) as a member of an interdisciplinary team of students and faculty at one of the program sites (villages). Before heading to a village, students will receive an orientation about village life and culture. Following the orientation, students will either join an existing on-going project or identify a new project that addresses a challenge in a particular village. Subsequently, students will design, test, and implement an affordable, comprehensive, and sustainable solution to the specified challenge.

After students complete their time in the field, they will submit a report about the village, the challenge they addressed, and the subsequent solution that was applied. Students will also make an oral presentation to Amrita faculty about their work and their overall experience in the village.



## 1. HEALTH & SANITATION

Develop innovative strategies to provide access to affordable and advanced healthcare, awareness and counseling for alcoholism, substance abuse etc.

### LL-HS-100

**Title:** Wearable Wireless Health Monitoring Devices

**Abstract:** This project is about designing and building a multi sensor, wearable, low power, cost effective devices for monitoring multiple physiological parameters of the post hospitalized patients and aged populations especially in rural areas in the country. The proposed devices will be able to measure the vital parameters such as heart rate, respiratory rate, blood pressure, blood-oxygen saturation and many other parameters continuously and transmit it to the hospital/doctors through a smartphone interface. The finality of the project is that this wearable device and the smart phone should be integrated to an existing Hospital Information System, thereby providing a comprehensive vital parameter monitoring for rural people in India.

**Prerequisite:** signal processing/embedded systems/programming

**Possible Stream:** Electronics/Electrical/Computer Science Engineering, Management, Social Science

**Duration:** 2 - 6 months

**Department:** Amrita Center for Wireless Networks & Applications (AmritaWNA), Amrita Institute of Medical Sciences, Amrita School of Business

**Deliverables:** Prototypes/Algorithms/Feasibility of an Existing Prototype/Deployment

**Possible Achievements:** one joint conference paper

### LL-HS-200

**Title:** Healthcare Infrastructure Mapping

**Abstract:** This project is about mapping the available healthcare infrastructure, and diseases prevalent in the rural community. Based on this design methodologies or approaches to enhance the healthcare access

**Prerequisite:** GIS/management/healthcare

**Possible Stream:** Electronics/Electrical/Computer Science Engineering, Management, Social Science, Medical

**Duration:** 1-3 months

**Department:** Amrita Center for Wireless Networks & Applications (AmritaWNA)

**Deliverables:**

**Possible Achievements:** one joint conference paper

### LL-HS-300

**Title:** Health Analytics (Oncology, Precision)

**Abstract:**

**Prerequisite:**

**Possible stream:** Health Sciences, Public Health, Data Analytics, Text Analytics, Image Analytics, Omics

**Duration:** 3-6 months

**Department:** CREATE, AIMs, CSE

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more

## RESEARCH AREAS

1. HS: Health & Sanitation 2. ESK: Education and Skill Development 3. EY: Energy 4. WT: Water  
5. WM: Waste Management 6. FD: Food EN: Environment 7. EN: Environment 8. IS: Infrastructure  
9. DM: Disaster Management 10. IG: Income Generation 11. QoL: Quality of Life Issues 12. CD:  
Child Development 13. CC: Climate change

## LL-HS-400

**Title:** Rural Health Management using a Personalized Health Monitoring System (Common Village Ailments, Elderly, Maternity, Child Health)

**Abstract:**

**Prerequisite:**

**Possible stream:** Public Health, Community Health, Disease Prevention, Social Science,

**Duration:** 3-6 months

**Department:** CREATE, AIMS (Community Medicine), AmritaServe

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more

## LL-HS-500

**Title:** Traditional Medicine for Common Disease Prevention and Management

**Abstract:**

**Prerequisite:**

**Possible stream:** Ayurveda, Public Health, Community Health,

**Duration:** 3-6 months

**Department:** CREATE, AIMS (Community Medicine), Ayurveda

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more

## LL-HS-600

**Title:** Distant Monitoring for adherence for TB patients

**Abstract:**

**Prerequisite:**

**Possible stream:** Public Health, Community Health,

**Duration:** 3-6 months

**Department:** CREATE, AIMS (Community Medicine), AIMS

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more

## LL-HS-700

**Title:** Business Models for Wearable Devices for Healthcare

**Abstract:** Feasibility analysis and development of business models for unique devices developed at Amrita vishwa vidyapeetham for rural community. Engaging with Amrita TBI to develop a new startup.

**Prerequisite:**

**Possible stream:** Management, Engineering, Social Science

**Duration:** 3-6 months

**Department:** Amrita Center for Wireless Networks & Applications (AmritaWNA), Amrita Institute of Medical Sciences, Amrita School of Business, Amrita Technology Business Incubator

**Deliverables:** Reports on Business Models, present in pitch fest,

**Possible achievements:** Startup company under Amrita TBI, one joint conference paper publication or more

## LL-HS-800

**Title:** Preclinical platform for effective outpatient assessment of neurological conditions

**Abstract:** Extracting imagery data from volunteering human subjects in villages and in urban areas looking into data aggregation, neurological imaging and assessment of preclinical features for conditions like epilepsy (through early epileptiforms) to assist multispeciality clinics and hospitals and clinicians.

**Prerequisite:** Basic mathematics, skill to interact with people from various cultures, basic technical writing.

**Possible stream:** Engineering, Sciences, Mathematics, Neuroscience, Cognitive Sciences, Psychology and Medicine.

**Duration:** 3-6 months

**Department:** Amrita School of Biotechnology (Computational neuroscience and Neurophysiology Lab)

**Deliverables:** Reports, conference papers, Data. (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee)

**Possible achievements:** Conference and/or journal publication.



## 2. EDUCATION AND SKILL DEVELOPMENT

Empowering rural communities with basic education through the use of innovative technologies. This will involve language training, vocational training, life skill training, and communication systems.



### LL-ESK-100

**Title:** Digital Literacy/eLiteracy to youth in Amrita villages.

**Abstract:**

**Prerequisite:**

**Possible Stream:**

**Duration:** 1 - 6 months

**Department:** Center for Research in Analytics & Technologies for Education (CREATE)

**Deliverables:**

**Possible Achievements:** one joint conference paper publication or more



### LL-ESK-200

**Title:** Haptics Based Skill Training

**Abstract:** Haptic technology as a modality takes advantage of the sense of human touch by applying forces and vibrations to provide real life-like experience to the user. It has been typically used in sophisticated surgical simulators and other expensive high-end applications.

However AMMACHI Labs is using it for vocational education and skill training in villages, in order to get a “high social impact”.

**Prerequisite:**

**Possible Stream:** Electronics/Electrical/Computer Science Engineering, Management, Social Science, Social Work

**Duration:** 1 - 6 months

**Department:** AMMACHILABS

**Deliverables:** Reports, conference papers,

**Possible Achievements:** one joint conference paper publication or more

### 3.ENERGY

Provide electricity to rural communities via solar power, aid in the development and utilization of smart energy technology, and encourage the efficient management of energy resources,

#### LL-EY-100

**Title:** Rural electrification using smart grids and micro-grids

**Abstract:** Having proper electricity is often the first step for villagers to start developing themselves and become self reliant. However some are still low electrified, if not electrified at all. In that respect several projects are ongoing to help villagers get a proper supply of energy, taking into consideration their different resources and specificities. Solutions often rely on smart grids, micro-grids, using solar PV or even micro hydro systems

**Prerequisite:**

**Possible stream:** Electronics/Electrical/Computer Science Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Amrita WNA, Electronic and Electrical engineering

**Deliverables:** System Design/Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more



#### LL-EY-200

**Title:** Rural electrification using E-Cycle

**Abstract:** Standard electrification schemes are not affordable for many indian rural households. The major challenge in order to provide electricity for rural area, is to develop an affordable solution that can be easily used by the villagers. On the other hand, bicycles are extensively used by villagers. This project, proposes an innovative solution to generate and store energy produced during the cycling process and use it later for lighting rural households.

**Prerequisite:**

**Possible stream:** Electronics/Electrical/Computer Science Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Amrita WNA

**Deliverables:** System Design/Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more

### 4.WATER

providing solutions to help communities access safe drinking water, and addressing the issue of water availability and quality in villages

#### LL-WT-100

**Title:** Jivamritam water filtration system

**Abstract:** Water quality is one of the major challenges villagers all over India have to face. Amid alarming reports of the ill effects of contaminated water, researchers at Amrita have developed a cost effective system which can be used by local communities.

The Jivamritam water filter project is initiated to provide clean drinking water to help the poor people. It is now being deployed gradually all over the country.

**Prerequisite:**

**Possible stream:** Civil/Electrical/Mechanical Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Amrita WNA

**Deliverables:** System Design/Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more



#### LL-WT-200

**Title:** Real-time River Water Quality Monitoring

**Abstract:** Rivers are getting polluted because of increase in population and industries around the river banks combined with the practice of releasing untreated sewage and industrial waste into the rivers. The continuous, real-time, in situ monitoring of the river water for pollutants is an important step in progressing towards reducing them. This would help in finding out the point sources for preventive action, providing real-time alerts to stakeholders for taking precautionary measures, and systematic modelling and analysis with historical data for formulating effective policies for long-term actions.

**Prerequisite:**

**Possible stream:** Electronics/Electrical/Computer Science Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** AmritaWNA

**Deliverables:** Prototype extension/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more

## 5.WASTE MANAGEMENT

Effectively using waste through various recycling methods, and providing solutions to prevent waste generation

### LL-WM-100

**Title:** Manufacturing bricks out of shredded plastic waste

**Abstract:** In developing countries like India, the urban sector is drowning with plastic waste, while the rural sector faces huge challenges with lack of sanitation facilities. Large-scale utilization of plastic from the urban population has been a challenge for civic administrators. Similarly rural areas are struggling to install adequate sanitation infrastructure due to the cost of raw materials and lack of skilled workers. This project provides a common solution to address these two issues by transforming urban plastic waste into interlocking construction blocks, which can be used to construct rapid cost effective toilets.

**Prerequisite:**

**Possible stream:** Civil/Electrical/Mechanical Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Ammachi Labs, Civil Engineering Dept.

**Deliverables:** Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more



## 6.FOOD

Helping villages ensure food security through sound use of available natural resources, introducing organic gardening, permaculture, and forestation; and cultivating high-value crops.

### LL-FD-100

**Title:** Smart irrigation using IoT

**Abstract:** Water scarcity in India impacts directly the villages which rely mostly on agriculture. As water becomes scarce, using it properly is even more important. Technology can help in that respect. Research is ongoing at Amrita University to help develop precision farming in the area of irrigation. The aim is to consume less water while using it more efficiently, in order to improve the yield.

**Prerequisite:**

**Possible stream:** Civil/Electrical/Mechanical Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** AmritaWNA.

**Deliverables:** Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more



## 7. ENVIRONMENT

Analyzing the environmental impact of current living standards and farming methods: determining the optimal utilization of technology to improve existing farming techniques;

### LL-EN-100

**Title:**

**Abstract:**

**Prerequisite:**

**Possible stream:** Electronics and Electrical/Computer Science Engineering, Management, Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:**

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more



## 8. INFRASTRUCTURE

Providing rural communities with safe homes, roads, dams, canals, bridges, as well as drainage and sanitation facilities using biodegradable solutions

### LL-IS-100

**Title:** Alternative architecture solutions for affordable housing in villages using locally available materials and techniques

**Abstract:** To address the need of proper housing in some rural areas, government and NGOs have mostly relied on building concrete houses. Although it can be viewed as an efficient solution in the short term, it may not be suitable for all villages. In villages where temperatures can be extreme, concrete houses are very difficult to live in.

Research is ongoing to see how traditional techniques can be used along with other locally available materials to propose sustainable alternatives. Amrita Researchers and students are working on applying engineering techniques into traditional methods to improve the durability and solidity of the construction.

**Prerequisite:**

**Possible stream:** Architecture/Civil/Mechanical Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Civil Engineering

**Deliverables:** Design/Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more



## 9. DISASTER MANAGEMENT

providing solutions to prevent disaster before they occur, and to help populations afterwards



### LL-DM-100

**Title:** Landslides early warning and monitoring system

**Abstract:** Villages in the mountainous regions of India are very often victims of landslides, especially during the rainy season.

To prevent this, a real-time landslide monitoring system has been developed by Amrita University. It is detecting landslides in advance, issuing real-time warnings for the populations. It has been operating successfully in Munnar, Kerala, for more than 10 years. Now it has been deployed in the Himalayan region, in North India. The field is different, so there are specific challenges.

To improve the warning reliability, we want to install a slope monitoring system. It involves slope stability model development. The student will study the water flow lines and drainage patterns which need to be analyzed in that slope, and integrated with a slope stability model.

**Prerequisite:**

**Possible stream:** Civil/Electrical and Electronics/Mechanical Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Amrita WNA

**Deliverables:** Prototypes/Feasibility of an Existing Prototype/Deployment

**Possible achievements:** one joint conference paper publication or more

## 10. INCOME GENERATION

making sure technological solutions are viable on the long run, and helping communities to develop sustainable business models to generate an income.

### LL-IG-100

**Title:** Lemongrass oil based product development

**Abstract:** Villages in remote areas with poor infrastructure and no road access are especially prone to economic deprivation, as they are unable to develop sustainable income activities. In one such village, there used to be a traditional activity of distilling lemongrass and selling it in the market. Due to the high costs and environmental impact of the traditional technique used, it has slowly disappeared. Amrita researchers have designed a solar-powered distillation unit, which has been deployed in the village. Now villagers are being trained on it, and lemongrass oil-based byproducts will be developed with the villagers.

**Prerequisite:**

**Possible stream:** Electrical and Electronics/Mechanical Engineering, Management, Social Science

**Duration:** 3-6 months

**Department:** Chemical Engineering Dept, Ammachi Labs

**Deliverables:** Process design/Business Model/Cost and Feasibility Study

**Possible achievements:** one joint conference paper publication or more



## II. QUALITY OF LIFE ISSUES

A Impoverished rural villagers of all ages face formidable obstacles to living stress-free, prosperous, balanced lives. Assessment of strengths and vulnerabilities in such areas as domestic violence, depression, trauma related disorders (e.g., post disaster), alcohol and drug use/abuse, mother-child interactions, self-esteem factors among adolescents, etc. can allow for research-supported interventions, as well as ongoing research, to bring relief and resolution to discovered areas of suffering and distress.

### LL-QoL-100

**Title:** Assessment of, interventions for (reinforcing) mental health issues

**Abstract:** As a developing country, many populations in rural India face challenges and stressors beyond what those in most urban areas experience. Lack of development, including education, food security, livelihood security, access to quality health care, and technology to ease the burden of a multitude of emotional and physical demands, can all contribute to significant strains on one's emotional, mental, and psychological inner resources. Thorough assessments of the strengths and weaknesses unique to rural villagers will help to provide the appropriate interventions necessary to reinforce strengths, intervene upon vulnerabilities, increase a sense of security and safety both externally and internally, and foster resiliency and an overall sense of wellbeing.

**Prerequisite:** Some educational background in issues pertaining to Clinical Psychology or other disciplines pertaining to mental and psychological wellbeing.

**Possible stream:** Psychology/Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:** WEGE, AmritaServe

**Deliverables:** Quantitative and qualitative data, Intervention methods including awareness strategies for recognizing oncoming mental distress, mind strengthening practices, stress awareness and modulation practices, methods to reinforce self-confidence and resiliency in the face of challenges, etc.

**Possible achievements:** one joint conference paper publication or more; research evidence of efficacy of applied interventions.

### LL-QoL-200

**Title:** Assessment of, and interventions for depression in adults

**Abstract:** Depression is rampant throughout the world, and is projected to escalate exponentially among the rural poor. Accurate assessments of depression and the complex contributing factors to its etiology will be examined, as well as conditions mimicking depression but of differing etiologies. Interventions will be developed based upon the findings, particularly as related to the contributing factors to the onset of the illness.

**Prerequisite:** Some educational background in issues pertaining to Clinical Psychology or other disciplines pertaining to mental and psychological well-being

**Possible stream:** Psychology/Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:** WEGE, AmritaServe

**Deliverables:** Quantitative (for statistical analysis) and qualitative data, Intervention methods devised and piloted, possible neurological studies in collaboration with AIMS

**Possible achievements:** one joint conference paper publication or more, development of technological devices to support those suffering from depression.

### LL-QoL-300

**Title:** Assessment of, and interventions for domestic violence

**Abstract:** Higher prevalence rates of domestic violence have been demonstrated to be associated with rural vs urban living, lower educational status, alcohol use, and low income. These factors selectively burden rural villages of India, setting the stage for associated high rates of DV as supported by research. This project will assess and identify DV victims, assess for comorbid conditions and awareness of the impacts of the violence on one's well-being. Interventions will be multimodal, including awareness, women's groups, personal and legal rights awareness interventions, strategies for safety, and work with women and men in areas of communication, needs assessment of areas escalating anxiety and fear, skills by which to manage emotions, by which to maintain personal and familial balance, safety, and appropriate expression of affect.

**Prerequisite:** Some educational background in issues pertaining to Clinical Psychology or other disciplines pertaining to mental and psychological well-being

**Possible stream:** Psychology/Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:** WEGE, AmritaServe

**Deliverables:** Multidimensional data for analysis, multimodal intervention strategies and protocols, possible workshops. Reports, Data, Publication (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee)

**Possible achievements:** one joint conference paper publication or more

### LL-QoL-400

**Title:** Assessment of, and interventions for parent-child interactions

**Abstract:** It is well known that the nature of the mother-child as well as parent-child interactions significantly influences child neuronal and overall brain development, including in areas of cognitive and affective evolution and modulation. These studies will involve learning to code specific gross and subtle interactions between the parent and child to assess areas that require instruction and intervention. Codings will determine the degree and nature of interventions required. Parents will be taught methods by which to maximize optimal development and relating with their growing children. This process allows for a potential long term study related to the strengthening of rural village children, giving them a sounder foundation from which to mature into healthy adults who contribute to the wellbeing of their families and communities.

**Prerequisite:** Some educational background in issues pertaining to Clinical Psychology or other disciplines pertaining to mental and psychological well-being

**Possible stream:** Psychology/Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:** WEGE, AmritaServe

**Deliverables:** Reports, Data, Publication (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee); Learn parent child coding methods, quantitative & qualitative data for analysis, video analysis, possible EEG's on children and parents interactive via collaboration with AIMS Neurology Dept., interventions for improving parent-child relations.

**Possible achievements:** one joint conference paper publication or more

## LL-QoL-500

**Title:** Assessment of, and interventions for adolescent self-esteem, social awareness skills,

**Abstract:** Adolescence can be a time of stressful transition regardless of whether one lives in urban or rural areas. However, rural adolescents have fewer resources to call upon, such as unreliable education opportunities and significantly limited livelihood options. Adolescents are a highly vulnerable group for alcohol and/or drug use and abuse, impulse control difficulties, and suicidal tendencies. This program will assess rural village adolescents in villages with varying levels of development, and will introduce interventions to reinforce the values and strengths of young people. This will include continued use of, and assessment of, the CREATE Triple A Ambassador program, as well as other strength and resource building interventions.

**Prerequisite:** Some educational background in issues pertaining to Clinical Psychology or other disciplines pertaining to mental and psychological well-being

**Possible stream:** Psychology/Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:** AIMS (Clinical Psychology), CREATE, ASB, AIMS (Community Medicine)

**Deliverables:** Comprehensive data collection regarding the vulnerabilities and challenges of rural village adolescents, interactive and participatory programs to uplift struggling youth, technological devices to reinforce positive goal-directed behaviors as well as to provide support during times of stress and heightened perceived risk: Reports, Data, Publication (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee)

**Possible achievements:** one joint conference paper publication or more

## LL-QoL-600

**Title:** Assessment of, and interventions for alcohol and drug abuse

**Abstract:** Rural villages, especially men (but to some degree women as well in some regions), are vulnerable to alcohol addiction, which frequently results in personal, occupational, familial, and social dysfunction, all of which can exacerbate impoverished living conditions. Alcohol abuse can also lead to comorbid psychological issues, including depression and anxiety. In rural villages, alcohol abuse has been frequently related to family discord and violence. Understanding deeply the struggles experienced by these men, as well as the actual chemical components in some forms of the alcohol they ingest, will be investigated. Supportive and educational interventions will be designed to match their perceived and observed needs. This will include programs to assist with the gradual awareness development and understanding of the adverse effects of alcohol on every aspect of their lives (e.g., physical, neurological, cognitive, emotional, social, occupational, etc). It will also involve strategies by which to enhance a deeper sense of self-esteem as well as self-and-other compassion in the participants, values building, and other intervention strategies that will include spouses and children as deemed appropriate.

**Prerequisite:** Some educational background in issues pertaining to Clinical Psychology, especially alcohol abuse, or other education pertaining to mental and psychological well-being

**Possible stream:** Psychology/Social Science/Medical/Social Work

**Duration:** 3-6 months

**Department:** AIMS, Social Work Dept.

**Deliverables:** ETHO analysis via AIMS laboratories; Reports, Data, Publication (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee)

**Possible achievements:** one joint conference paper publication or more

## LL-QoL-700

**Title:** Evaluation of Frontal Asymmetry in Yoga-Meditation Practitioners as Marker for Stress Reductions in Rural and Urban Population

**Abstract:** Integrative Yoga-meditation has been known to reduce stress and anxiety through several studies. With integrated yoga-meditation techniques, it is crucial to look into visual and motor imagery as a means to look into neural representations that are perceived as effects pre and post stress reduction practices. We specifically would look into measuring cohorts in rural India and compare with measurements that will be done in controlled environments and look at frontal asymmetry changes relating to integrative practices as stress reduction methods.

**Prerequisite:**

**Possible stream:** Engineering, Sciences, Psychology, Social work, Neurosciences, Medicine.

**Duration:** 3-6 months

**Department:** Amrita School of Biotechnology (Computational Neuroscience Laboratory)

**Deliverables:** Reports, Data, Publication (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee)

**Possible achievements:** one joint conference and/or journal paper publication or more

## LL-QoL-800

**Title:** Assessment of Psychological Trauma-Related Disorders Post Natural Disasters, and Interventions to Mitigate their Emergence

**Abstract:** There is growing international concurrence regarding projections of significantly increasing numbers natural (and human-made) disasters (ND) globally, based upon exponential increases in these over the last decade around the world. Research has well established the very high prevalence rates of traumatic disorders, particularly Post Traumatic Stress Disorder (PTSD) and its frequent comorbid disorders (e.g., substance abuse, depression, anxiety disorders, etc.) in the aftermath of such disasters. Further, PTSD and comorbid disorders have been associated with significant disruption in usual levels of functioning in multiple areas, such as interpersonal, marital and familial, social, occupational, as well as deficits in areas of physical and mental health, sleep, affect modulation, and so on. This study aims to identify strategies by which to identify most vulnerable areas and populations at risk for disaster, and to introduce interventions of awareness, resiliency building, internal coping strategies, and other such interventions in an attempt to buffer smaller rural communities from potential severe destabilization of emotional and mental well-being post disaster. In the First Phase of this study, assessments will be administered pre and post interventions. In the event of a ND, the Second Phase will involve assessments again to be administered both to experimental (pre-ND interventions) and control (no pre-interventions) ND-affected communities, along with supportive interventions introduced as deemed necessary. This would be one method by which to measure the efficacy of pre-ND interventions, after accounting for other possible intervening factors. A separate study pertaining to this topic will be to introduce research-based interventions into the Disaster Relief Operations of the MA Math NGO, with the goal of mitigating the development of PTSD and other trauma-related disorders post ND.

**Prerequisite:** Knowledge related to ND's, Relief interventions, and PTSD

**Possible stream:** Engineering, Sciences, Psychology, Social work, Neurosciences, Medicine.

**Duration:** 3-6 months

**Department:** Amrita School of Biotechnology (Computational Neuroscience Laboratory)

**Deliverables:** Reports, Data, Publication (all data will be retained by Amrita Vishwa Vidyapeetham and will be handled as approved by our Ethics committee)

**Possible achievements:** one joint conference and/or journal paper publication or more

## 12. CHILD DEVELOPMENT

addressing development problems faced by children in rural areas, in terms of health, learning capacities etc. by developing innovative tools and better practices.

### LL-CD-100

**Title:** Effects on Health/Cognition in children with Amrita KidsYoga

**Abstract:**

**Prerequisite:**

**Possible stream:** Cognition, Cognitive Psychology, Neuroscience, Health & Well Being

**Duration:** 3-6 months

**Department:** CREATE, Amrita Darshanam, AIMS

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more

### LL-CD-200

**Title:** Identifying/Mapping Learning Disabilities in Rural India

**Abstract:** We are currently mapping learning disabilities across rural villages in India. Tools for early identification, in Indian languages and different types of interventions are being designed. The initial focus is on various types of Dyslexia.

**Prerequisite:**

**Possible stream:** Language Learning, Cognitive Psychology, Clinical Psychology, Special Education, Neuroscience

**Duration:** 3-6 months

**Department:** CREATE, AIMS (Clinical Psychology), AIMS (Pediatrics),

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more



### LL-CD-300

**Title:** Design of Low-Cost Science Labs to be used in conjunction with OLabs for Rural Areas.

**Abstract:**

**Prerequisite:**

**Possible stream:** Science Education, Education, Child Development, IoT based labs,

**Duration:** 3-6 months

**Department:** CREATE, School of Education, Departments of Physics, Chemistry, Mathematics, ECE

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more

### LL-CD-400

**Title:** Field Research using CREATE's Serious Games for Human Trafficking Awareness in multiple Indian Languages

**Abstract:**

**Prerequisite:**

**Possible stream:** Education, Child Development, Psychology, UI/Game Design,

**Duration:** 3-6 months

**Department:** CREATE, CIR

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more



### LL-CD-500

**Title:** Mapping current Educational Levels in Rural Villages with available Educational facilities, customs..

**Abstract:**

**Prerequisite:**

**Possible stream:** Education, Child Development, Data Analytics,

**Duration:** 3-6 months

**Department:** CREATE, AmritaSERVE

**Deliverables:**

**Possible achievements:** one joint conference paper publication or more



[www.amrita.edu/live-in-labs](http://www.amrita.edu/live-in-labs)