



NEWSLETTER

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Editorial

The first newsletter of the project "Building Resilience in Tropical Agro-Ecosystems (BRITAE)" comes to light in a crucial time when the whole world is immersed into lockdown situations due to the inability of resolving the universal puzzle created by the COVID 19 pandemic. The root cause of the pandemic is still unclear with arguments focusing and revolving around humans and their brutal activities on nature, with prominence given to physical development of neglecting the spirituality of nature and natural balances. The time has come to think more precisely on nature and open avenues for nature to operate on natural balances to safeguard the future of mankind by living with nature protection programs that avail healthy food, air and water, for immunity building to combat nature attacks which might be accelerated in time to come.

The program "Building Resilience in Tropical Agro - Ecosystems" is co-funded by the Erasmus+ programme of the European Union where four leading European Universities are joined with four Sri Lankan Universities to set a platform for academics to think and act on natural and man-made agro ecosystems in a balanced manner to eliminate catastrophes which may intensify in the

future due to the negligence of hidden balances of nature.

The teaching programs linked to agriculture in many instances don't reflect the complexity of ecosystems in which many species interact, with ecological processes that take place at different spatial scales, and with strong interactions between ecological and management processes. Since agro-ecosystems are manmade eco-systems which are economically advantageous "social ecological systems" but are not self-regulatory like natural ecosystems, they need intense knowledge interventions to keep them healthy and sustainable. Due to the current scenarios and the impact of climate change, tropical Agro-Ecosystems are dragged to low resilient ends, demanding to adapt to special protective measures and technological interventions to increase their coping capacities. The situation requests world scientists to rally around inter-disciplinary and intra-disciplinary platforms to protect Agro-Ecosystems which are responsible to meet the escalating healthy food demand for immunity building of the growing population.

As an agricultural country Sri Lanka has the blessings of nature and an inheritance of irrigation technologies from antiquity that transferred unfertile lands of the dry plains to fertile Agro-Ecosystems. It has preserved many traditional knowledge systems which has to be mixed with new knowledge to build resilient agricultural ecosystems to meet the emerging challenges of the agricultural and food sectors.

The project will focus on new challenges and rally professionals to preserve and enrich them by maintaining the ecosystem health for sustainability.

Prof. K.D.N.Weerasinghe

Prof. Emeritus; Consultant Agri.Systems

**Modernization project funded by World Bank,
Ministry of Plantation**

INTRODUCTION TO THE BRITAE PROJECT



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Agro ecosystems are “natural ecosystems that have been modified to produce food and fiber while they retain many of the characteristics of natural ecosystems” (Hodgson, 2012). However, such systems are increasingly vulnerable to natural hazards such as floods and droughts which hamper agricultural production and result in huge economic losses. Given this challenge, the country aims to develop knowledge-based strategies, in which Higher Education Institutions (HEIs) would have to bear much responsibility through profound research programmes. Therefore, Building Resilience in Tropical Agro-Ecosystems (BRITAE) plans to guarantee that all targeted HEIs have the research and innovative capacities to tackle the challenges associated with building resilience in tropical agro-ecosystems. While evaluating agro-ecosystem based resilience in HEIs, strategies and frameworks will be developed to enhance the capacity for disaster risk reduction in the country. The project will span over three years (2020 - 2023) and is funded by a prestigious international research grant (Ref. No. 610012-EPP-1-2019-1-LK-EPPKA2-CBHE-JP) under the grant scheme of the Education, Audiovisual and Culture Executive Agency (Erasmus+: Higher Education - International Capacity Building - Joint Projects) of the European Union.

The objectives of the project are:

1. To understand the knowledge gaps in agro-ecosystem based resilience through a comprehensive survey framework by assessing the knowledge gaps, resources and capacities of current agro-ecosystem based resilience for joint curriculum development.
2. To develop a joint innovative and adaptive MSc curriculum on tropical agro-ecosystem based resilience aiming at food security and climate change impacts.
3. To develop a Smart Agro-ecosystem based resilience center for teaching, learning, research, and development.
4. To develop and implement an online student service platform by blending European practices in education from participating EU universities to program country universities.
5. To implement a Master’s degree programme in Building Resilience in Tropical Agro-ecosystems.
6. To prepare academic and administrative staff in the HEIs to undertake advanced, world-class and innovative, multi- and inter-disciplinary research that will contribute to increased ecological resilience to disasters.
7. To increase international cooperation by partner HEIs on research programmes that tackle ways to increase societal resilience to disasters.
8. To reinforce educational and scientific networking among EU and Sri Lankan universities in the BRITAE project.
9. To disseminate the project progress, successes and outcomes as far as possible and raise awareness about capacity building in higher education for agro-ecosystem resilience.

Since most project activities were hindered due to the SARS-COV 19 pandemic that swept throughout the entire world in late 2019 and in the year 2020, the team had to alter their activities; a unanimous decision was made to request the funding agency for a six month extension, physical meetings were replaced by virtual meetings and online surveys had to be conducted. However, all partners have now fully resumed their activities with the same enthusiasm, seeking to deliver results to the best of their ability.

Compiled by:
University of Colombo, Sri Lanka

THE PROJECT TEAM



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BRITAE is a joint project consisting of 08 national and international partner universities funded by the European Union (EU). The target beneficiaries of this project are students, academic and non-academic staff members, regional and national authorities, farmers, government officials and NGOs. Ultimately, five national universities in Sri Lanka will benefit from the BRITAE project over a period of three years.

There are seven (07) pre-determined work packages (WP). Local and international partner universities have been designated for specific work packages collaboratively, with a view of sharing their knowledge and experience together to achieve the objectives successfully. The proposed work packages, their outputs and allotted partner universities are as follows:

WP 01 - Preparation for BRITAE activities (Understanding the knowledge gap on Agro-ecosystem based resilience)

Led By: University of Ruhuna and University of Huddersfield

Main Task: Preparation for capacity building; initially recognizing the baseline capacity and comprehensive gaps in research and innovative capacities in Sri Lanka for the improvement of ecological resilience.

WP 02 - Development of Innovative and adaptive Curricula on Agro ecosystem resilience related food security and climate change

Led By: Sabaragamuwa University of Sri Lanka and University of Central Lancashire

Main Task: Development of a new Curriculum; development of a collective framework for BRITAE curricula; development of a common approach to learner-centered and real problem-based teaching and learning activities; training of teachers at workshop with consultation of EU experts; development of the curricula module content

WP 03 - Development of Smart Agro-ecosystem based resilience center for teaching, learning, research and development (SARC)

Led By: University of Ruhuna and Vilnius Gediminas Technical University, Lithuania

Main Task: WP 03 aims at developing the innovative Smart Agro-ecosystem based Resilience Center to enable the delivery of the proposed BRITAE curricular. This centre will enable and promote lifelong learning at large within the society by making study materials accessible outside the traditional classroom environment to various parties within the society, from students and lecturers to practitioners and policy makers.

WP 04 - Development and implementation of Master's degree Programme on Building Resilience in Tropical Agro-ecosystem

Led By: University of Sri Jayewardenepura and University of Central Lancashire

Main Task: Implementation of Resilience Building in Tropical Agro-Ecosystems Master's Programme; online student service platform as a resource tool will be developed and student recruitment strategies and marketing of the MSc.

WP 05 - Systematic and Monitoring Quality Assurance

Led By: University of Moratuwa and Tallinn University of Technology

Main Task: A comprehensive quality plan will be developed to establish standards, define objectively verifiable indicators, and describe the means of verification, including internal and external 'customer' evaluations. Internal evaluation will be informed by partners' verbal and written evaluations of the project's events, activities and outputs.

WP 06 - Dissemination and Exploitation of Results

Led By: University of Colombo, Tallinn University of Technology

Main Task: WP 06 intends to contribute to the implementation and shaping of national and European policies and systems by communicating project results and embedding them in the HEIs across the regions of programme and

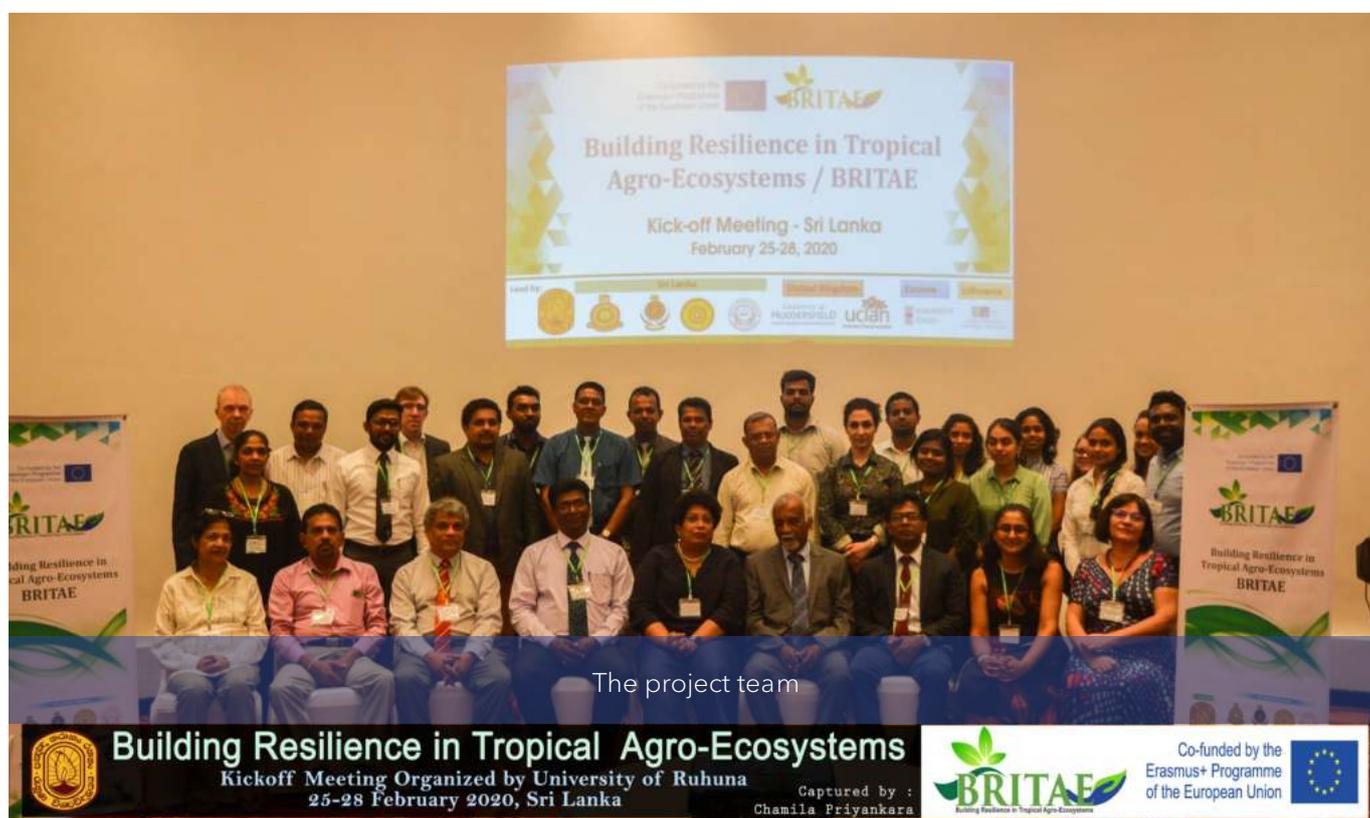
partner institutions. A project dissemination and exploitation plan will be developed to maximize the effect of the project activities on the immediate participants and wider audience during the project duration and also beyond its completion.

WP 07 - Project management

Led By: University of Ruhuna and University of Huddersfield

Main Task: Sustaining commitment, enthusiasm and delivery by all partners is a key variable in the viability of BRITAE. All members of BRITAE will engage in a consultative process to identify strategies and working practices that will help ensure we achieve this. These will: ensure transparency and a shared understanding of both formal rules and less formal norms of behavior in BRITAE; ensure appropriate risk management planning.

Compiled by:
University of Colombo, Sri Lanka



THE KICK-OFF MEETING



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The project officially commenced with the kick-off meeting which was held from 25th - 28th February, 2020 at Hotel Turyaa, Kalutara with the participation of all eight partner universities. The kick-off meeting was held on four days including a one-day field trip. Mr.N.N.S.I. Arambepola, expert in Agro-ecosystems delivered the keynote speech. Work packages and the BRITAE framework were presented in detail at the meeting together with discussions on Terms of Reference (ToR) and EU budget provisions. The kick-off meeting successfully ended after the first steering committee meeting of the project.



Project Lead: Professor Champa Navaratne,
University of Ruhuna



Academics at a discussion at the Hotel Turyaa



Discussion on the Terms of Reference



The Fruit Research and Development Institute (FRDI), Horana, HDDES Extract (Pvt) Ltd. and Madu Ganga were the targeted destinations of the one-day field visit.

The first destination was the Fruit Research and Development Institute Horana. The group was warmly welcomed by Dr. E.R.S.P. Edirimanna, Director, of the Institute who presented a brief introduction about the institute and its activities. The Fruit Crop Research and Development Institute, which sprawls across 120 hectares in Horana is a crop research institute which is administrated by the Ministry of Agriculture, Sri Lanka. The mandate of the Fruit Crop Research and Development Institute (FRDI) is to develop appropriate technology to enhance the productivity and production of fruit crops in the country. The FRDI gives a special emphasis on the crops adapted to the low country wet zone (LCWZ) in Sri Lanka.

The present research programs of FRDI are focused on the development of high yielding good quality fruit crop varieties, improved crop management practices, crop protection, plant nutrition, organic fruit culture and planting material production. While developing efficient, environmentally and agro ecologically friendly, sustainable and economically viable production and harvesting technologies on major fruit crops, FRDI is also committed to disseminating technologies in collaboration with state and private sector extension organizations on fruit and vegetables. It also collaborates with other public and private organizations to develop the fruit industry in an agro ecologically feasible manner. The Centre also works on research and development activities on vegetables adapted to the conditions of the low country wet zone in fulfilling the needs of the farmers in the region.

HDDES Extracts (Pvt) Ltd, Horana, was the next destination of the field visit. HDDES Extracts (Pvt) Ltd which is located in the Horana Export processing zone belongs to the HDDES group which manufactures and exports organic and conventional essential oils, spices, spices-based oleoresins, floral concretes and herbal products. This organization offers their products while maintaining high standards which are expected from specialists in relevant industries.

Before enjoying lunch at the Agro Village, Bandaragama, the team was able to gain insight on rubber tapping, traditional cinnamon processing, traditional coconut oil extraction and uses of coconut.

The Madu Ganga was the last destination of the field trip and it added a novel experience to the entire BRITAE team as they were able to engage in an exciting boat ride to the Madu Ganga wetland area.

The Madu Ganga estuary and mangrove islets is a complex coastal wetland eco-system situated within the two Divisional Secretariats of Balapaitiya and Karandeniya in the Galle District of Southern Sri Lanka. The total area of the estuary is 915 ha, of which 770 ha consist of open water, while islets account for 145 ha. The Madu Ganga Wetland was declared in 2003, in terms of the Ramsar Convention. It has high ecological, biological and aesthetic significance and is home to a large number of plants and animals. Some of the islets in Madu Ganga wetland are inhabited by local communities, some of which express the art of cinnamon peeling. An exciting boat visit to this wetland eco-system provided a glimpse of the nature, culture and the history of Sri Lanka.

Establishment of the Smart Agro-ecosystem based Resilience Centre (SARC)

Under Work Package 3, a Smart Agro-ecosystem based Resilience Centre (SARC) to enable the delivery of the BRITAE curricular will be developed as proposed in Work Package 2. University of Ruhuna, Sri Lanka and Vilnius Gediminas Technical University, Lithuania are the leading organizations for the mentioned task. The SAR Centre will be established in an attached building of the Department of Agricultural Engineering, Faculty of Agriculture, University of Ruhuna. Purchasing of equipment for the centre is in progress and equipment were ordered under 6 categories; passive network systems, active network systems, modelling and simulation, teaching aids, testing and analyzing equipment and video conferencing. This virtual education centre will be developed to provide teaching material, learning material, evaluation procedures, assignments and other required materials to complete the courses. Interconnected virtual library facilities will be provided for students by all participant universities in addition to carrier guidance, counselling and other facilities.

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University of Ruhuna, Sri Lanka



BRITAE WP1 EXTENDED LITERATURE REVIEW



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Under work package one, partnering with the University of Ruhuna, the University of Huddersfield has conducted an extended literature review in support of the proposed BRITAE framework. Adhering to the first BRITAE objective; to understand the knowledge gaps in agro-ecosystem based resilience for joint curriculum development, a systematic literature survey was conducted using three academic databases of SCOPUS, Science Direct, and Emerald. 88 shortlisted research papers were reviewed, focusing on agro-ecosystems, ecosystems resilience, and the role of higher education. Objectives of the literature review focused on understanding the conceptual background; identification of relationships, comparative advantages, and gaps; and evaluation of current practices and global perspectives related to agro-ecosystem resilience and the role of higher education. This was conducted in addition to the initial literature review compiled by the University of Ruhuna. Both literature reviews had different areas of scope as the University of Ruhuna focused more on the Sri Lankan context and the University of Huddersfield focused more on a global perspective. Therefore, the outputs of both surveys will support the proposed BRITAE framework by creating a strong foundation.

In addition to the academic databases, current policies, and frameworks related to the proposed BRITAE framework were also reviewed in support of the literature review. The 2030 Agenda for Sustainable Development, Sendai Framework for Disaster Risk Reduction, Paris Agreement, and New Urban Agenda were selected for the review since they all address areas related to agro-ecosystem resilience as in sustainable development, disaster risk reduction, climate change mitigation, and urbanization respectively. Simple conceptual models were developed to understand the key areas highlighted

by the international policies and frameworks where many links were identified among different areas. A complex, conceptual diagram was designed based on the academic literature, connecting related concepts under higher education, ecosystem resilience sustainable management, and climate change through a network of relationships.

The report on the extended literature review was structured as follows; the background of agro-ecosystems; climate change, tropical agro-ecosystems and Disaster Risk Reduction (DRR); the role of tropical agro-ecosystems in building resilience; importance of tropical agro-ecosystem resilience; international policies and tropical agro-ecosystem resilience; tropical agro-ecosystem resilience and role of higher education; current practices of tropical agro-ecosystem resilience in higher education; challenges faced by higher education institutions when promoting tropical agro-ecosystem based resilience, key areas to be improved in the higher education sector when promoting tropical agro-ecosystem based resilience; and tropical agro-ecosystem resilience and role of higher education within Sri Lankan context. The literature review highlighted key areas which should be focused on when linking higher education with agro-ecosystem resilience. Therefore, both literature reviews by the University of Ruhuna and the University of Huddersfield will provide productive inputs for the development of the proposed BRITAE framework.

Compiled by:
University of Huddersfield

