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Preface

This policy compendium brings together a diverse yet interconnected set of policy briefs that reflect some of the most pressing socio-economic, cultural, and technological challenges confronting Sri Lanka today, particularly within the domains of agriculture, rural livelihoods, education, and community well-being. As editor, it has been both a privilege and a responsibility to curate these contributions, each grounded in empirical inquiry and shaped by a commitment to practical relevance.

Sri Lanka's agricultural sector is at a critical juncture. Rapid technological change, shifting market dynamics, environmental pressures, and evolving societal expectations demand thoughtful policy responses. The opening brief on modernizing agricultural education underscores the urgency of aligning university curricula with emerging industry trends, ensuring that graduates are not only knowledgeable but also adaptable and innovative. Complementing this, studies on farmer entrepreneurship and marketing channel selection highlight the need to strengthen value chains and empower farmers as active economic agents.

Equally important are the human dimensions explored in this volume. The examination of employee turnover intentions in the poultry sector and welfare disparities in estate communities reveal underlying structural and social challenges that continue to shape labor dynamics and equity. These insights call for policies that are not only economically sound but also socially just and inclusive.

The compendium also recognizes the importance of preserving Sri Lanka's rich ecological and cultural heritage. The policy brief on traditional rituals within cascade tank-village systems illustrates how indigenous knowledge and cultural practices can play a vital role in biodiversity conservation and sustainable resource management. Such perspectives are crucial in rethinking development pathways that are both locally rooted and environmentally resilient.

At the same time, the inclusion of research on digital addiction and its impact on undergraduate social well-being reflects the changing realities of contemporary society. As digital technologies become increasingly embedded in daily life, their unintended consequences must be carefully addressed through informed institutional and policy interventions.

Finally, the analysis of technical efficiency among paddy farmers in minor irrigation schemes provides valuable insights into productivity enhancement and resource use optimization—key concerns for ensuring food security and sustainable agricultural growth.

Collectively, these policy briefs demonstrate the value of interdisciplinary research and evidence-based policymaking. They are intended not only to inform policymakers but also to stimulate dialogue among academics, practitioners, and development stakeholders. It is my hope that this compendium will contribute meaningfully to ongoing efforts to foster a more resilient, equitable, and sustainable future for Sri Lanka.

Dr. Chinthaka Karalliyadda
Editor

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Modernizing Sri Lankan Agricultural Education: Aligning Curricula with Evolving Industry Trends

Modernizing Sri Lankan Agricultural Education: Aligning Curricula with Evolving Industry Trends

Introduction

A curriculum provides a structured framework that guides teaching and learning by equipping students with the knowledge, skills, attitudes, and mindset (KSAM) required for personal development and professional success (Mohanasundaram, 2018). With the global transition toward Industry 4.0, education systems in OECD and other developed countries have shifted from traditional content-based approaches to competency-based curricula that integrate emerging sciences and technological advancements (OECD, 2013, 2015). However, many South Asian countries, including Sri Lanka, have struggled to adapt to these changes, resulting in state university curricula particularly in agriculture being criticized for their limited alignment with modern industry demands (Rambodagedara and Jayasinghe, 2019; Aturupane and Little, 2020). The rapid emergence of Agriculture 4.0, characterized by technology-driven and innovative farming systems, is expected to create new and evolving employment opportunities, highlighting the need for curriculum reform. Given the absence of prior studies examining the alignment of Sri Lankan agricultural curricula with these emerging trends, this study aimed to assess the extent to which agricultural degree programs in state universities reflect contemporary agricultural industry developments.

Methodology

- Conducted a systematic literature review of 100 peer-reviewed academic publications published between 2015 and 2023 to identify emerging global agricultural trends.
- Performed a thematic content analysis of curricula (course capsules) from all eight agriculture faculties in Sri Lankan state universities.
- Conducted Key Informant Interviews (KIIs) with university academics and administrators to explore institutional constraints and challenges affecting curriculum modernization.

Key Findings

- **Emerging Global Agricultural Trends**
    - Analysis of 100 peer-reviewed publications identified 20 key emerging trends in the global agricultural sector (Faskhutdinova et al., 2020; Charatsari et al., 2023). These trends were thematically categorized and ranked according to their frequency of occurrence in the literature. The identified trends, in order of frequency, are as follows:
        - Sustainable agriculture
        - Precision agriculture
        - Integration of artificial intelligence (AI) in agriculture
        - Applications of agricultural robotics
        - Urban agriculture
        - Nanotechnology in agriculture
        - Climate-smart agriculture (CSA)
        - Entrepreneurship in agriculture
        - Blockchain in agricultural value chain analysis
        - Alternative feed sources for livestock
        - Controlled Environment Agriculture (CEA)
        - Alternative protein sources
        - Automation in agriculture
        - Clean labeling in food production
        - Drone applications in agriculture
        - Regenerative agriculture
        - Animal welfare and ethical considerations

- Traceability in food and agricultural systems
- Bio stimulants in crop production
- Minichromosomal technology in agriculture

- **Representation of Global Trends in Sri Lankan Agricultural Curricula**
  - Widely Integrated Trends: Climate-smart agriculture, precision agriculture, entrepreneurship, and sustainable agriculture are consistently included across all faculties
  - Limited Inclusion: Urban agriculture, automation, and animal welfare are covered in only one or two faculties
  - Absent Trends: Drone applications, alternative feed sources, alternative proteins, clean labeling, bio-stimulants, and minichromosomal technology are not included in any reviewed curricula, indicating a significant gap between academic training and industry requirements
- **Barriers to Integrating Emerging Trends**
  - Limited specialized human capital to teach advanced agricultural technologies
  - Insufficient faculty development opportunities in areas such as AI, biotechnology, and precision agriculture
  - Institutional resistance to change and preference for traditional curricula
  - Administrative rigidity and slow approval processes hindering timely curriculum updates
  - Infrastructure and financial constraints, including inadequate laboratories, equipment, and digital platforms

Policy Recommendations

- **Mandate Periodic Curriculum Review and Updating**
    - *Responsible:* Ministry of Higher Education; University Grants Commission (UGC); Universities
    - Establish formal, time-bound mechanisms to revise agricultural curricula with input from industry experts and academic specialists to reflect global trends
- **Strengthen Academic Capacity through Continuous Professional Development**
    - *Responsible:* Universities; Ministry of Higher Education
    - Provide structured training, international exposure, and research support to enhance staff expertise in emerging agricultural technologies
- **Promote Industry–Academia Collaboration**
    - *Responsible:* Universities; Agricultural Industry Stakeholders
    - Facilitate internships, joint research initiatives, and curriculum co-development to improve graduate employability and practical relevance
- **Invest in Infrastructure and Sustainable Financing**
    - *Responsible:* Government; Funding Agencies; Private Sector
    - Allocate resources for modern laboratories, precision agriculture tools, AI applications, and digital learning platforms
- **Cultivate an Innovation-Oriented Academic Culture**
    - *Responsible:* University Leadership; Academic Staff
    - Encourage interdisciplinary teaching, openness to curriculum reform, and proactive engagement with emerging agricultural challenges

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02

Do Employees Have the Intention to Turn Over the Poultry Sector? A Case Study of Gampaha District

Do Employees Have the Intention to Turn Over the Poultry Sector?

A Case Study of Gampaha District

Introduction

Poultry farming is one of the fastest-growing livestock sub-sectors in Sri Lanka, contributing nearly 70% of total livestock output through chicken meat and egg production (Lohmann, 2020; Sri Lanka One Health Poultry Hub, 2021). The sector has expanded rapidly, with the number of poultry farms increasing by 37% between 2015 and 2022, alongside rising per capita consumption of poultry products (Statistical Bulletin, 2015; Statistical Bulletin, 2022). Despite this growth, labor turnover intention an employee's inclination to leave employment poses a serious threat to sector sustainability, as it affects farm productivity and operational stability. While turnover intention in the poultry sector has been studied internationally (Meyn, 2019), empirical evidence from Sri Lanka is lacking. This study addresses this gap by examining the turnover intention of minor employees in the poultry sector in the Gampaha District and identifying the personal, organizational, and exogenous factors influencing their decision to leave.

Methodology

- Adopted a mixed-method research approach integrating quantitative and qualitative techniques and used primary and secondary data sources.
- Conducted face-to-face interviews with poultry employees in the Dompe Divisional Secretariat, Gampaha District, using a semi-structured questionnaire.
- Carried out key informant interviews using guided questions
- Collected secondary data such as list of famers, feed suppliers and cost of medicines from
- Livestock Development Officer, Agrarian Agriculture Service Center, Dompe and background data and information on poultry industry from Published and Unpublished sources, including Department of Animal Health records
- Analyzed data using descriptive statistics for socio-demographic characteristics and binary logistic regression to assess turnover intention determinants

- Developed three logistic regression models, including Personal-related factors, Organizational-related factors, and Exogenous (environmental) factors

Key Findings

Intention to leave the poultry sector:

- 58.6% of respondents intend to leave.

Factors influencing turnover intention:

- **Organization-related factors:**
    - Human Resource Management (HRM) practices such as long working hours and difficulties obtaining leaves significantly affect turnover intention.
    - Nature of the job and job satisfaction also influence employees' decisions to labour turnover intention.
- **Environmental-related factors:**
    - Prevailing Labor laws such as long working hours from 6.00 am to 6.00 pm and absence of fixed holidays and better job opportunities outside the poultry sector such as transport and construction sectors impact turnover intention. The absence of new technologies such as automation and accident prevention methods have impacted on labour turnover intension.
    - Economic environment had no significant effect.
- **Personnel-related factors:**
    - Gender: Male employees have 15.76 times more likely to intend to leave the job compared to the female employees due to dissatisfaction of the working environment.
    - Age: Turnover over intension of the younger employees is 80 percent higher than older employees because young employees search for employment opportunities than older employees as found in many studies.
    - Experience: Experience employees have only 10 percent of turnover intention because of availability of more benefits such as bonuses and gratuity payments.
    - Education, marital status, and salary: No significant effect on turnover intention.

Policy recommendation

- **Improve HRM practices such as employee safety and participation in decision making**
  - *Responsible:* Poultry farm owners and Human Resource Managers
  - Address non-monetary factors such as welfare facilities, sanitation, and employee well-being
- **Review and adapt labor laws and workplace regulations**
  - Engage minor employees in dialogue when revising regulations
  - Promote work-life balance through flexible work arrangements
- **Promote adoption of modern technologies and automation**
  - *Responsible:* Poultry industry stakeholders, R&D institutions
  - Reduce labor intensity and enhance productivity through smart labor practices
  - Strength collaboration with research and innovation institutions, consistent with Schumpeterian innovation principles
- **Enhance job satisfaction through positive organizational culture**
  - *Responsible:* Poultry farm management
  - Foster confrontation, openness, experimentation, and proactive task management (Nazneen et al., 2014)
- **Ensure proper job-person matching and targeted training**
  - *Responsible:* Farm managers and HR units
  - Assign employees based on skills and provide job-specific training to reduce dissatisfaction
- **Address employees' needs proactively**
  - *Responsible:* Farm owners and policymakers
  - Improve retention strategies to counter the ease of job switching due to alternative employment opportunities

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03

Safeguarding Cultural Heritage and Biodiversity through Traditional Rituals in the Palugaswewa Cascaded Tank-Village System, Sri Lanka

Safeguarding Cultural Heritage and Biodiversity through Traditional Rituals in the Cascade Tank-Village Systems, Sri Lanka

Introduction

Human–environment relationships have evolved through long-standing ecological knowledge systems embedded in cultural beliefs and ritual practices (Hakim, 2014). Ethnobiology provides a multidisciplinary framework for understanding how traditional communities use, symbolize, and conserve biodiversity (Albuquerque & Alves, 2016; Simbiak et al., 2019). In Sri Lanka's dry zone, the Cascaded Tank-Village System (CTVS) represents a unique socio-ecological landscape where rituals linked to agriculture, religion, and healing reinforce sustainable resource use and cultural identity (Ministry of Agriculture, 2016). The Palugaswewa CTVS, in particular, hosts rich ritual traditions that integrate plant and animal resources with spiritual and social values. However, documentation of species used, symbolic meanings, and extraction practices remains limited, while oral transmission of knowledge is rapidly declining (Goonatilake et al., 2015). This study aimed to document the ethnobiological dimensions of traditional rituals in the Palugaswewa CTVS and to highlight their relevance for biodiversity conservation and cultural heritage preservation.

Methodology

- Conducted ethnobiological fieldwork in three villages: *Palugaswewa, Udakadawala, and Horiwila* (2024)
- Selected 28 elderly informants (50–80 years) using purposive and snowball sampling
- Used semi-structured interviews, focus group discussions (FGDs), and participatory observation
- Documented ritual types, species used, extraction and processing methods, and symbolic meanings
- Supplemented primary data with published literature and historical records
- Applied descriptive statistics and thematic analysis for data interpretation

Key Findings of Rituals

- **Diversity and Functions**

Twenty rituals currently in active practice have been identified and classified into -agricultural, healing, religious, social, and cultural categories.

  - Agriculture-based rituals (e.g., *Mutti Nameeme Mangallaya*, *Kiri Ithirime Mangallaya*) align with cultivation cycles and crop protection
  - Healing rituals (e.g., *Bali* and *Pideni Shanthikarmaya*) combine plant-based remedies with spiritual elements
  - Religious and socio-cultural rituals reinforce community cohesion and collective participation

- **Use of Plant and Animal Species**
  - It has found 90 plant species (79 genera, 41 families) and six animal species used in rituals
  - The *Palugaswewa* CTVS community frequently uses species such as *Cocos nucifera*, *Piper betle*, *Vigna mungo*, and *Ficus religiosa*
  - The Fabaceae family represents the highest number of species, and the *Palugaswewa* CTVS community symbolically links it to fertility and abundance
  - The *Palugaswewa* CTVS community commonly uses plant parts such as leaves, fruits, flowers, and seeds

- **Sourcing Patterns and Sustainability**
  - The findings indicate that trees (47%) represent the highest proportion of sustainably used plant species, followed by shrubs (22%), lianas (15%), herbs (12%), and grasses (4%)
  - The majority of species are sourced from home gardens (28 species) and local shops (27 species)
  - Only 21 species collected from forests, indicating low pressure on natural ecosystems

- **Symbolic Value and Knowledge Transmission**
    - Species selection reflects deep symbolic meanings (e.g., rice and legumes for fertility, jasmine and citrus for purification)
    - Sacred status of species such as Bo and Neem trees contributes to their protection
    - Knowledge is primarily held by elders, with a high risk of loss due to declining intergenerational transmission

Policy Recommendations

- **Incorporate Traditional Ecological Knowledge (TEK) and related cultural rituals into National Conservation Frameworks and School Curricula to enhance sustainable resource management**
    - *Responsible:* Ministry of Environment; Department of Wildlife Conservation; Department of Cultural Affairs
    - Formally recognize ritual-based TEK within biodiversity and cultural heritage policies, including the National Biodiversity Action Plan and REDD+ initiatives
    - *Responsible:* Ministry of Education; National Institute of Education; Local Schools
    - Introduce curriculum modules on local rituals, biodiversity, and sustainable agriculture
    - Engage village elders and ritual practitioners as resource persons
- **Support Community-Based Documentation of Ritual Knowledge**
    - *Responsible:* Department of Agriculture; Universities; IUCN Sri Lanka
    - Fund participatory documentation of rituals, species use, and oral histories
    - Train youth in ethnobiological recording to ensure intergenerational knowledge transfer

- **Develop culturally authentic income avenues within a Community-Led Cultural Eco-Tourism model by linking to local rituals**
    - *Responsible:* Sri Lanka Tourism Development Authority; Divisional Secretariats
    - Develop culturally sensitive eco-tourism initiatives such as ritual demonstrations, herbal gardens, and traditional food exhibitions
    - Ensure benefits flow directly to local communities
- **Ensure Sustainable Harvesting of Ritual Species**
    - *Responsible:* Department of Forest Conservation; Department of Wildlife Conservation; Community Forest User Groups
    - Develop guidelines for sustainable harvesting and cultivation of commonly used ritual species
    - Encourage home-garden cultivation of high-use species to reduce pressure on forests

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04

Welfare Disparities in Estate Communities: A Study in Kegalle District, Sri Lanka

Welfare Disparities in Estate Communities: A Study in Kegalle District, Sri Lanka

Introduction

The estate sector, rooted in tea, rubber, coconut, and spices, is a vital contributor to Sri Lanka's economy, generating approximately Rs. 750 billion in export earnings and employing nearly 30% of the national labour force (Ministry of Plantation, 2021). Despite this economic importance, estate workers who represent about 4.3% of the population continue to experience low incomes, inadequate housing, poor sanitation, and limited access to health and education services compared to other communities (Periyasamy, 2018; World Bank Group, 2017; Kowsalya, 2014). Although government agencies, NGOs, and estate management have introduced welfare programs, these interventions are unevenly distributed, particularly disadvantaging smaller estates (Balasuriya et al., 2013; Njeru et al., 2017). Addressing these welfare disparities is essential for improving workers' quality of life and ensuring the long-term sustainability and productivity of the plantation sector, as a healthy and supported workforce reduces absenteeism, turnover, and operational inefficiencies (Balasuriya et al., 2013; Shyamalie et al., 2020).

Methodology

- Adopted a mixed-method research approach
- Study conducted in six estates in Kegalle District
- Data collection methods:
    - Focus group discussions with estate workers
    - Key informant interviews with estate managers
    - Field visits and direct observations
- Used narrative analysis to capture the depth of the experiences of workers
- Measured satisfaction with welfare services using a five-point Likert scale
- Data analyzed using Microsoft Excel

Key Findings

- **Socio-economic profile**
    - Majority of workers were male (58.7%), married (91.3%), and middle-aged
    - Primary education level dominated (78.3%)
    - Over 70% had more than 10 years of estate work experience
    - Average monthly income was approximately LKR 26,300
- **Estate characteristics**
    - Six estates covered about 2,912 ha and employed over 1,600 workers
    - Daily wages ranged from Rs. 1,150–1,550, varying by estate size and crop mix
    - Rubber was the main crop, with coconut, oil palm, tea, durian, and cinnamon as secondary crops
- **Welfare programs**
    - A total of 33 welfare programs were implemented between 2018–2023
    - Programs mainly focused on health, nutrition, and education
    - Housing and financial support programs were limited, while community safety programs were scarcely evident.
- **SDG alignment**
    - Majority of programs aligned with SDG 2 (Zero Hunger), SDG 1 (No Poverty), and SDG 3 (Good Health & Well-being)
    - No programs addressed clean water, energy, or climate action
- **Perception gap**
    - Estate managers consistently rated welfare services as adequate
    - Workers reported low satisfaction, especially for:

        - Housing
        - Skill development
        - Nutrition support
        - Financial assistance

- **Observed conditions**
    - Overcrowded line rooms with damaged roofs
    - Poor sanitation and inconsistent water supply
    - Limited reach of clinics, childcare centers, and nutrition programs

Policy Recommendations

- **Upgrade housing, sanitation, and water facilities**

  Responsible: Plantation companies, Ministry of Plantation and Community Infrastructure, Plantation Human Development Trust

    - Renovate line rooms, improve sanitation, and ensure reliable access to clean water

- **Involve Workers in Planning Welfare Programs**

  Responsible: Estate management, Trade unions, Plantation Human Development Trust

    - Include worker representatives in welfare planning and decision-making processes

- **Expand skill development and self-employment opportunities**

  Responsible: Ministry of Education, Higher Education and Vocational Education, NGOs, and Estate Management

    - Provide vocational training and support small income-generating activities

- **Strengthen and standardize nutrition programs**

  Responsible: Estate management, Ministry of Health, NGOs

- Expand child nutrition programs, support home gardening, and promote nutrition education

- **Ensure equal welfare services across all estates**

  Responsible: Ministry of Plantation and Community Infrastructure, Plantation companies, Plantation Human Development Trust

  - Develop and enforce minimum welfare standards applicable to all estates

- **Address neglected welfare areas aligned with SDGs**

  Responsible: Government agencies, NGOs, Estate management

  - Introduce programs focusing on clean water, gender equality, environmental sustainability, and climate resilience

- **Establish regular monitoring and evaluation mechanisms**

  Responsible: Plantation companies, Worker committees, Government oversight bodies

  - Conduct joint annual welfare reviews to assess effectiveness and improve implementation

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05

Are Paddy Farmers in Minor Irrigation Schemes Technically Efficient?

Are Paddy Farmers in Minor Irrigation Schemes Technically Efficient?

Introduction

Paddy is a principal crop in Sri Lanka's lowlands and is cultivated under major irrigation, minor irrigation, and rain-fed systems, with minor irrigation accounting for 24.1% of the total paddy extent in 2023 (Department of Census and Statistics, Sri Lanka, 2023). Improving agricultural efficiency, particularly technical efficiency, which reflects the ability to maximize output from a given set of inputs, is critical, as land expansion is no longer feasible and national policy targets aim to raise paddy productivity to 6 mt/ha (Budget Speech, 2025). Despite this, yields under minor irrigation average only 3.5 mt/ha, compared to a potential yield of 5.0 mt/ha, resulting in a substantial yield gap of 1.5 mt/ha (Department of Census and Statistics, 2023; FAO, 2023). While existing research has largely focused on major irrigation schemes (Aslam, 2016; Aruna *et al.,* 2013; Gunarathne, 2010; Udayanganie *et al.*, 2006), minor irrigation systems, which contribute nearly one-fifth of national paddy production, remain understudied. This study aimed to assess the level of technical efficiency among paddy farmers participating in minor irrigation schemes and identify the factors influencing inefficiency.

Methodology

- Adopted a case study approach focusing on the Pannala Divisional Secretariat Division in Kurunegala District (Robert, 2014).
- Used primary and secondary data, including farmer surveys, key informant interviews, and field observations.
- Survey data collected in July 2024, referring to the Maha season 2023.
- Applied two-stage stratified random sampling to select farmers from major paddy-producing GN divisions.
- Employed the Cobb–Douglas production function to estimate technical efficiency (Mansour *et al.,* 2012; Kanesh *et al.,* 2021).

- Used the stochastic frontier approach based on Farrell (1957) to estimate efficiency and inefficiency simultaneously.

Key Findings

- **Socio-economic Characteristics of Farmers**
    - The farming population was predominantly male (86%), with a significant share (36%) aged 60 years or above.
    - Notably only 10% of farmers were below 40 years of age, indicating limited youth participating in paddy cultivation.
    - 62% earned a monthly income between Rs. 15,000 and Rs. 30,000
    - None had an education at GCE (O/L) or above
    - Over 50% cultivated less than one acre; 52% owned land, while 48% cultivated under the *Ande* system
- **Technical Efficiency and Input Use**
    - 99% of the deviation from frontier output was due to farmer-controlled inefficiency
    - Labor, fertilizer, and land were underutilized, indicating scope to increase output through better use
    - Agrochemicals were overused, and reducing their use would increase production
    - All elasticity coefficients were less than one, indicating farmers operate in the second stage of production, requiring rational input decisions
- **Determinants of Efficiency**
    - Educated, experienced, and owner-cultivated farms were significantly more technically efficient
    - Adverse weather conditions negatively affected paddy output

- Mean technical efficiency was 62%, indicating potential to increase production or reduce costs by 38%
- Expansion of farm size showed positive effects on paddy production

Policy Recommendations

- **Strengthen Agricultural Extension Services**
  - Responsible: Ministry of Agriculture; Department of Agriculture
  - Modernize extension services using ICT tools (mobile apps, SMS platforms) to provide real-time guidance on pest control and irrigation management.
  - Introduce a hybrid extension model combining public support with user-pay agribusiness-based services, drawing on successful models from India.
- **Introduce a Soil Health Card System**
  - *Responsible:* Department of Agriculture; Soil Science Institutions
  - Implement soil testing and nutrient-based fertilizer recommendations to improve fertilizer-use efficiency, following the Indian Soil Health Card model.
- **Promote Modern Agricultural Technologies**
  - *Responsible:* Ministry of Agriculture; Private Sector Technology Providers
  - Introduce drones and sensor-based technologies to optimize labor, fertilizer, and agrochemical use
  - Prioritize educated, experienced, and owner-cultivating farmers during initial implementation
- **Encourage Group Farming and Land Consolidation**
  - *Responsible:* Ministry of Agriculture; Farmer Organizations

- Promote group farming models such as Farmer-Producer Organizations (FPOs), Farmer Companies (FCs), and Self-Help Groups (SHGs) to achieve economies of scale and enable pooling of resources.

- **Advance Climate-Smart Agriculture Practices**
  - *Responsible:* Department of Agriculture; Extension Services
  - Promote water-saving practices, resilient crop varieties, crop rotation, and the System of Rice Intensification (SRI) through training and field demonstrations to ensure the success of the concept of "low inputs and high production".
- **Build Farmer Capacity for Rational Input Decision-Making**
  - *Responsible:* Extension Services; Agricultural Training Institutes
  - Educate farmers on economic principles of input use, emphasizing that marginal returns should exceed marginal costs to maximize profitability.

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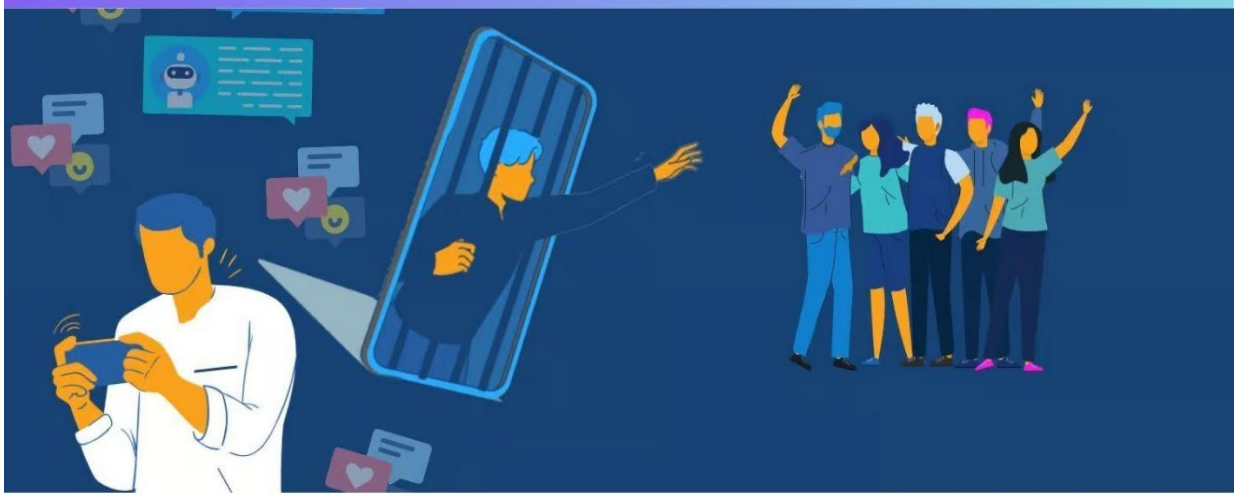

Effect of Digital Addiction and Phubbing on the Social Well-being of Undergraduates of the Faculty of Agriculture at Rajarata University of Sri Lanka

The Impact of Digital Addiction and Phubbing on the Social Well-being of Undergraduates:

A Study at the Faculty of Agriculture, Rajarata University of Sri Lanka

Introduction

Rapid advancement in electronics and digital technologies has transformed communication, education, and work, but has also given rise to digital addiction characterized by excessive and uncontrolled use of smartphones, the internet, and social media which negatively affects mental health, academic performance, and social relationships. As agriculture increasingly transitions towards precision and technology-driven systems, future agricultural professionals require not only digital literacy but also balanced and responsible technology use. Undergraduate students, particularly in developing countries such as Sri Lanka, are highly vulnerable to problematic digital behaviours, including digital addiction and phubbing, which contribute to emotional distress, social withdrawal, reduced emotional intelligence, and impaired interpersonal relationships. Despite its growing relevance, empirical evidence on these issues among Sri Lankan agricultural undergraduates is limited. This study, therefore, examines the effects of digital addiction and phubbing on the social well-being of undergraduates in the Faculty of Agriculture at Rajarata University of Sri Lanka, intending to inform institutional strategies to promote healthier digital behaviours, mental well-being, and graduate readiness.

Methodology

- Adopted a cross-sectional case study design at the Faculty of Agriculture, Rajarata University of Sri Lanka
- Gathered data via structured questionnaire using stratified random sampling, proportional to academic year; final sample of 261 undergraduates after outlier removal with Mahalanobis distance.
- Classified addiction levels using z-score cut-off values for precise grouping.
- Employed Structural Equation Modelling (SEM) in AMOS 26, with validity and model fit evaluated per Hair et al. (2014) guidelines.

Key Findings

- Smartphones; 93.23% used one device, 6.02% two, 0.75% three; average spend Rs. 51,000 per device.
- Laptops & Tablets; 91.35% owned one laptop (average Rs. 150,000), 7.89% none, 0.76% two; 92.48% no tablet (average Rs. 66,000 for users), 7.52% one.
- Network usage: Dialog preferred by 62%; average monthly package cost Rs. 716.
- Digital addiction levels:
    - 45.87% non-addicted
    - 41.35% moderately addicted
    - 12.78% highly addicted
- Phubbing behaviour:
    - 48.12% non-phubbers
    - 42.48% moderately engaged
    - 9.40% highly engaged
- Social well-being:
    - 47% high
    - 40.97% moderate
    - 12.03% low
- SEM results showed good model fit ($\chi^2/df = 1.177$, CFI = 0.992, RMSEA = 0.026)
- Digital addiction significantly affected:
    - Social well-being ($p = 0.001$)
    - Phubbing behaviour ($p < 0.001$)
- FoMO and self-control significantly influenced both digital addiction and phubbing
- English literacy significantly influenced:

- Digital addiction ($p = 0.013$)
- Social well-being ($p = 0.021$)
- FoMO ($p = 0.005$)

- Digital addiction and social support directly influenced social well-being

Policy Recommendations

- **Integrate digital well-being education into university programs**

  Responsible: University Grants Commission (UGC), University administration

  - Include digital literacy and responsible technology use in orientation and curricula

- **Strengthen student awareness and mental health interventions**

  Responsible: University student welfare units, counselling centres

  - Conduct regular awareness programs on digital addiction, phubbing, and FoMO
  - Collaborate with mental health professionals for workshops and counselling

- **Build academic staff capacity to address digital addiction**

  Responsible: Faculty administration, Staff Development Centres

  - Train lecturers to identify and support digitally addicted students
  - Introduce mentorship and monitoring mechanisms for high-risk students

- **Promote structured digital use management strategies**

  Responsible: University ICT units, faculty boards

  - Encourage use of app timers, data limiters, and mindful technology tools
  - Design academic tasks that demonstrate productive and purposeful technology use

- **Enhance social engagement and extracurricular participation**

  Responsible: Student affairs divisions, student unions

  - Expand clubs, societies, and peer-learning initiatives

- Link extracurricular achievements with employability and career development

- **Improve English literacy as a protective factor**

  Responsible: English Language Teaching Units, Faculty of Agriculture

  - Offer language camps, short courses, and collaborative programs with local and international partners

- **Institutionalize digital well-being policies**

  Responsible: University administration, Quality Assurance Council

  - Establish digital detox initiatives and device-free zones
  - Appoint Digital Wellness Ambassadors
  - Embed digital well-being strategies into student support services and institutional policies

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07

Role of Farmer Entrepreneurship in Alleviating Rural Poverty in Anuradhapura District, Sri Lanka

Role of Farmer Entrepreneurship in Alleviating Rural Poverty in Anuradhapura District, Sri Lanka

Introduction

Rural poverty remains a persistent challenge in Sri Lanka, particularly in agriculturally dependent districts such as Anuradhapura. Despite long-standing government interventions including the Samurdhi Programme and microfinance initiatives (Department of Census and Statistics, 2022), these efforts have often been constrained by structural inefficiencies, limited diversification, and weak entrepreneurial engagement, with national entrepreneurship rates remaining low (1.5%) and agricultural entrepreneurship being predominantly male-dominated (81.4%). Drawing on the Capability Approach (Sen, 1982), this study argues that how economic, educational, and socio-cultural capabilities drive entrepreneurial success and poverty reduction. Accordingly, the study aimed to examine the transformative potential of farmer entrepreneurship, emphasizing qualitative growth such as community development and income redistribution as a more effective poverty reduction strategy than quantitative expansion alone.

Methodology

- Employed a snowball sampling technique to collect primary data from farmer entrepreneurs
- Conducted a structured questionnaire survey with 154 farmer entrepreneurs in Anuradhapura District
- Applied Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA) to test relationships among capabilities, entrepreneurial growth, and poverty alleviation

Key Findings

- **Entrepreneurial Context and Challenges**
    - National entrepreneurship rate remains low (1.5%), with agriculture highly male-dominated (81.4%)
    - Heavy reliance on traditional crop farming (85.1%) with limited enterprise diversification

- Persistent barriers related to access to credit, markets, and training

- **Capabilities and Entrepreneurial Growth**
  - Socio-cultural capabilities

(e.g., community support, democratic participation) showed the strongest influence on:

  - Qualitative growth (β = 0.76)
  - Quantitative growth (β = 0.71)

  - Economic capabilities

(e.g., access to credit, technology) significantly influenced qualitative growth (β = 1.22) but did not significantly affect quantitative expansion

  - Educational capabilities

(e.g., training and knowledge acquisition) were critical for qualitative growth but showed no direct effect on quantitative growth

- **Entrepreneurship and Poverty Alleviation Outcomes**
  - Qualitative entrepreneurial growth had a strong positive effect on poverty reduction (β = 0.82)
  - Quantitative growth showed a weak and negative relationship with poverty alleviation (β = −0.32)
  - 87.7% of respondents reported increased income, while 85.8% experienced improved access to services due to entrepreneurial activities

- **Demographic Insights**
  - Majority of farmer entrepreneurs were middle-aged (46–55 years; 40.3%) and male (81.4%)
  - Higher educational attainment was associated with the adoption of advanced practices such as hydroponics and value-added enterprises

Policy Recommendations

- **Enhance Farmer Capabilities**
    - Responsible: Ministry of Agriculture; Ministry of Finance; Agricultural Extension Services
    - Expand tailored microcredit schemes with low-interest loans for farmer entrepreneurs
    - Invest in rural infrastructure and digital platforms to improve market access
    - Integrate entrepreneurship training into agricultural extension programs
    - Partner with universities and training institutes to deliver certified programs in modern farming and agribusiness
- **Strengthen Socio-cultural Foundations for Entrepreneurship**
    - Responsible: Local Government Authorities; Community-Based Organizations
    - Establish local entrepreneurial hubs to promote peer learning, mentoring, and trust-building
    - Conduct awareness campaigns to reposition entrepreneurship as a viable and respected rural livelihood
- **Prioritize Qualitative Entrepreneurial Growth**
    - Responsible: Ministry of Agriculture; Development Agencies
    - Incentivize community-oriented enterprises (e.g., cooperatives, agritourism, value-added processing) through grants or tax incentives
    - Monitor success using social impact indicators such as income redistribution, employment creation, and village-level welfare
- **Address Structural and Gender Barriers**
    - Responsible: Ministry of Women and Child Affairs; Financial Institutions
    - Allocate at least 30% of agricultural grants to women-led entrepreneurial ventures

- Promote enterprise diversification through subsidies for mixed farming systems (crop–livestock integration) to reduce climate and income risks

- **Improve Monitoring and Evaluation Systems**
  - Responsible: Government Agencies; Statistical Authorities
  - Introduce real-time data systems to track entrepreneurial performance, income changes, and access to services
  - Conduct annual policy reviews incorporating direct feedback from farmer entrepreneurs

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08

Selecting Rambutan Marketing Channels by Farmers in Gampaha District, Sri Lanka

Selecting Rambutan Marketing Channels by Farmers in Gampaha District, Sri Lanka

Introduction

Rambutan is a major commercial fruit crop in Sri Lanka, serving both domestic and export markets, with annual exports ranging between 90,000–95,000 kg mainly to the Middle East, Maldives, and selected European countries (Serendib Global | Exports, n.d.). Rising prices indicate strong and growing demand, although data on local consumption remain unavailable. Rambutan contributes significantly to poverty alleviation by enhancing household income and to food security by enabling fruit distribution from surplus to deficit areas (Poulton and Dorward, 2003). Gampaha District is the largest rambutan-producing area in the country; however, both production and cultivated extent are declining, largely due to marketing-related challenges, including seasonal oversupply and sharp price drops. Farmers engage with multiple marketing channels, yet improper channel selection can reduce profitability and market reach (Arinloye et al., 2015). Despite its importance, empirical studies on the determinants of rambutan marketing channel selection in Sri Lanka are lacking. This study addresses this gap by identifying factors influencing farmers' choice of rambutan marketing channels in the Gampaha District to support sustainable production and marketing development.

Methodology

- Employed a cross-sectional research design
- Adopted a mixed-method approach combining quantitative and qualitative techniques
- Selected Gampaha District purposively as the highest rambutan-producing district
- Chose Attanagalla DS Division purposively; selected five GN divisions
- Surveyed 70 commercial rambutan farmers using snowball sampling
- Collected quantitative data using a pre-tested semi-structured questionnaire
- Conducted qualitative data collection through:
    - Key informant interviews (farmers' leaders, traders, exporters, government officers)

    - Case studies of successful farmers and traders
    - Field observations
- Analyzed data using:
    - Descriptive statistics (frequencies, percentages, averages, graphs)
    - Marketing channel mapping
    - Multinomial Logistic (MNL) regression to identify determinants of channel choice (Gujarati and Porter, 2009; Thakur et al., 2022)
- Defined three marketing channel choices as dependent variables; independent variables included age, education, distance to buyer, price received, off-farm income, quantity sold, market information access, and buyer-led harvesting

Key Findings

- Rambutan farming is largely undertaken by educated and retired individuals as a supplementary income source
- Over one-third of farmers held a degree or higher qualification
- 50% of households earned more than LKR 100,000 per month
- Identified nine marketing channels operating at the farm level
- Collectors were the dominant buyers (49%), followed by roadside vendors (17%), fair traders (11%), and exporters (10%)
- Direct selling to consumers was negligible (<1%)
- MNL regression results showed that Distance to buyer, price paid, off-farm income, buyer-led harvesting, farmer education, and availability of market information significantly influenced channel selection
- Distance to the buyer and harvesting by buyers were the most critical determinants
- Quantity sold did not significantly influence channel choice due to the easy availability of produce for traders

- Collectors were preferred due to proximity and the provision of harvesting services

Policy Recommendations

- **Improve market access through localized collection systems**
    - Responsible: Exporters, processors, private buyers
    - Establish collection centers in production areas and promote farm-gate purchasing
- **Reform Agrarian Service Centers (ASCs) into agribusiness hubs**
    - Responsible: Ministry of Agriculture, Department of Agriculture
    - Expand ASC functions to include farmer–buyer linkage, marketing coordination, and agribusiness support
- **Develop organized and skilled harvesting services**
    - Responsible: ASCs, private sector, research institutions
    - Train and organize harvesting labor groups and promote online service platforms
    - Strengthen R&D on efficient harvesting technologies
- **Promote value addition and processing of rambutan**
    - Responsible: Ministry of Industries, research institutions, private sector
    - Encourage production of rambutan wine, jam, juice, canned products, and other processed goods
    - Support research to extend shelf life and off-season utilization
- **Strengthen supply/value chain integration**
    - Responsible: Department of Agriculture, farmer organizations
    - Establish rambutan growers' associations
    - Promote collaboration, trust-building, and resource sharing among value-chain actors

- Introduce blockchain-based traceability systems

- **Develop e-marketing and direct marketing platforms**
  - Responsible: ASCs, farmer organizations, ICT agencies
  - Facilitate virtual markets, mobile apps, and direct-to-consumer models
  - Promote innovative marketing options such as “rambutan gift baskets” (Hakan, 2016)

- **Promote export-oriented marketing strategies**
  - Responsible: Export Development Board (EDB)
  - Integrate farmers into global value chains
  - Establish rambutan export villages aligned with national policy initiatives (Pohosath Ratak Laksana Jeewithayak, 2024)

- **Develop agrotourism linked to rambutan farming**
  - Responsible: Sri Lanka Tourism Development Authority, private sector
  - Promote “Pick Your Own” concepts and roadside orchard tourism
  - Integrate organic fruit branding and complementary coconut-based products

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