

The Role of Agricultural Institutions in Providing Support Towards Sustainable Rural Development in South Pacific Island Countries

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Abstract

This paper examines the agricultural training in higher education institutions and tertiary colleges, their pre-eminent role and how best they can contribute to alleviate poverty in rural communities in Fiji and other South Pacific island countries. These institutions provide support through training farmers (vocational and adult education) and/or extension officers and providing researchers. Unfortunately, agricultural training institutions are not adapting to the rapid changing times early enough and have more or less maintained the traditional way of training. There is a need for agricultural institutions to amend their programs to facilitate the new emerging areas, together with new learning and teaching frameworks, establish new partnerships with the private sector in addition to expanding their representation in governance in addition to holding continuous dialogue with policymakers. Further, these institutions can potentially showcase local customs and knowledge, mirroring the regional culture, and ethical customs of the Pacific island community, as well as global movements and development forces. In reinforcing their title role as contributors to a culture of education and rural agricultural development, we suggest that agricultural institutions engage more directly and more effectively in partnerships and dialogue with other local agricultural stakeholders and their surrounding rural communities in Fiji and other Pacific island countries.

1. Introduction

Sustainable rural development is the management and conservation of natural resources through technological and institutional change in a manner that ensures the attainment and continued satisfaction of human needs for the present and future generations (Hissa et al., 2019). Agriculture plays a key role in rural development in developing regions such as the Pacific Islands (Addinsall, Glencross, Scherrer, Weiler, & Nichols, 2015; Berno, 2011; Duncan, 2007; Gollin, 2010). Sustainable rural development is centered on the agriculture, forestry and fisheries sectors mainly by conserving land, water, plant and animal genetic resources (Reijntjes, Haverkort, & Waters-Bayer, 1992; Thrupp, 2000). Sustainable agriculture is environmentally non-degrading, technically appropriate, economically viable, and is socially acceptable by rural Pacific communities (Lee, 2005; Vijaykumar, Patil, & Satihal, 2017). The multi-disciplinary expansion of agriculture schools and sustainable source of revenue have also prepared significant strides in fostering people-oriented attitudes to rural development. Agriculture is constantly broadening its disciplinary limits and sources. Over the past two decades, it has evolved into an interconnected viewpoint that reflects on the task of empowering small-scale farmers to improve their income sustainably while maintaining food stability in the developing world (Addinsall et al., 2015). Food security and its affiliation to sustainable agricultural and rural development are gradually becoming important for Fiji and other South Pacific island countries (Campbell, 2015; Charlton et al., 2016).

Agricultural institutions influence sustainable development and food security through training in agriculture. They play a vital role in preparing agriculturalists, researchers, educationalists, extension staff, and agri-business people to make meaningful influences to the development of rural economies (Charlton et al., 2016; Chittoor &

Mishra, 2012; Raidimi & Kabiti, 2019). South Pacific island countries face several challenges, including persistent cyclones, which offer a fertile ground for research and development of alternative, innovative and precision agricultural methods (Barnett & Campbell, 2010; Dev, 2011). Of utmost importance are the changes and adaptations required in agrarian education to effectively contribute to enhance food security, sustainable agricultural production, and rural development (Dev, 2011). Therefore, agricultural institutions have a critical role to play in articulating these challenges to stakeholders as part of generating knowledge. The design and scope of higher agricultural degree training and research in the agricultural institutions contribute to knowledge and innovations necessary for rural communities in the South Pacific island countries (Ameur, 1994; Douglas, Eti-Tofinga, & Singh, 2018; Walshe, Seng, Bumpus, & Auffray, 2018). Much of this knowledge and innovations remain unpublished and, thus, the outputs are not shared for uptake and application by rural communities in the Pacific region. There is a need for enhancing the outreach programs of the agricultural institutions to secure increased influence and impact of agricultural technologies among rural communities, stakeholders, including policy-decision makers in the South Pacific island countries. This review gives thoughts into the correlation between agricultural institutions and sustainable rural agricultural development and highlights the current strategies and challenges for sustainable agricultural rural development in the Pacific island countries.

2. Role of Agricultural Institutions in Sustainable Rural Agricultural Development in the South Pacific Region

Agricultural institutions have a mandate to contribute to alleviating poverty, especially in developing regions. To achieve their mandate in rural development, agricultural institutions need to constantly adjust their programs to meet the dynamic community needs, create new products and services, influence policy, as well as build capacity to ensure sustainability.

2.1 Creation of New Products and Services

A paradigm shift in agricultural education is relevant to the future of rural agricultural economies in response to a tourism industry that is prone to many external forces like the COVID-19 pandemic in the Pacific island countries (Bausch, Gartner, & Ortanderl, 2021; Nhamo, Dube, & Chikodzi, 2020; Wolf et al., 2021). Through sustainable rural agricultural development, new sources of revenue can be mobilized to augment the revenue from the tourism industry and improve the livelihood of the rural communities in the South Pacific island countries. In addition, rural agricultural development practices can be facilitated by the implementation of new, low-cost innovative methods from agricultural institutions (Leeuwis, 2013; Van der ploeg et al., 2000). This sustainable rural agricultural development constitutes an economic source for the rural economy, farm enterprise and food for the vulnerable rural community in the Pacific island countries. Sustainable rural agricultural development requires the establishment of new products/services, commercialization and reinvigorated economical agricultural methods taking into account the needs and expectations of society through redefining and reconfiguring of rural resources in the Pacific island countries (Hebinck & Schneider, 2014; Meera, Jhamtani, & Rao, 2004; Sonnino, Kanemasu, & Marsden, 2008; Van der Ploeg et al., 2000).

2.2 Redefining Agricultural Extension Services

Extension, which is a non-formal agricultural educational contribution, can significantly enhance sustainable agricultural production and rural rehabilitation (Rivera & Qamar, 2003; Van Crowder et al., 1998; Zwane, 2012). However, there is a captious need for docile extension work force in the Pacific island nations. Further, the extension strategies entail genuine review and correction of the inadequate curricula and programmes of study of many institutions (Chisholm, 2005; Parr, Trexler, Khanna, & Battisti, 2007). Many agricultural institutions primarily focus on providing students with scientific and practical knowledge in the various agricultural disciplines, however. There is little scarce attention to courses that are necessary to prepare scholars as agricultural extension workers who can successfully connect with a diverse farming community in the Pacific island countries as well as collaborative problem-solving skills (Council, 2009; Parr et al., 2007; Röling, 2019; Wagner, 2010). The prospectuses need to be revised for extension training, considering technology-transfer extension methodologies and combined learning approaches with the rural community in the Pacific island countries. Specifically, curricula need to emphasize less on theoretical models and concentrate more on the practical application of research and innovations. The extension should advance from sustenance agriculture to profitable agriculture. Agricultural institutes should have a principal role in training extension workforces towards addressing the improvement of small farmers (Jerneck & Olsson, 2013; Leeuwis, 2013; Naswem & Ejembi, 2017), and in particular, improving the food production and marketing capabilities of rural communities in the South Pacific island countries. Additionally, participatory teaching and learning strategies need to be integrated into all aspects of scholastic delivery (Arblaster, Mackenzie, & Willis, 2015; Bullen, 1998).

2.3 Adoption of Inter-Disciplinary System Approach

Scholars require an overview of the agricultural and countryside structures of their specific Pacific Island countries early in their career (Charlton et al., 2016). Throughout their training, they need the knowledge of the specialized integrated farming systems and multi-dimensional nature of sustainable agricultural production in Pacific island countries (Pigford, Hickey, & Klerkx, 2018; Sal & Garcia, 2007; Van Crowder et al., 1998). An interdisciplinary systems approach to agricultural education is required. Specifically, they need training on the density of agriculture, food and rural systems, ecological security and management problems, female agriculturalists and household issues, and the needs of small-scale farmers (Birner et al., 2009; Chittoor & Mishra, 2012; Van Crowder et al., 1998).

On a smaller scale, traditional disciplines have been bridging to answer challenging scientific issues, frequently culminating in emerging fields of study such as chemical ecology, biomedical engineering, and sociobiology. These expanding areas of study provide new arenas for researchers to learn and theoretically educate outside the confines of a particular discipline (Tripp & Shortlidge, 2019).

Furthermore, agricultural institutions need to offer courses in agroforestry, agro-ecology, and the socio-economics of integrated production systems in the South Pacific island countries (Tuitele-Lewis, 2004). Additionally, the complexities of indigenous food production systems need to be studied based on the economic and social context of rural communities. A systematic and coordinated approach to team-teaching in agricultural institutions using case studies, problem-solving methodologies, hands-on, field-based exercises and a participatory rural appraisal are necessary (Finch, Frantz, Mooney, & Aneke, 1997; Marr, 2011). Specifically, associations between basic and applied science, between research, education and extension, and between people, the environment, sustainable agricultural production and rural development should be emphasized (Knickel, Brunori, Rand, & Proost, 2009; Pugliese, 2001; Van der Ploeg et al., 2000).

3. Challenges Faced by Agricultural Institutions in Sustainable Rural Development in the Pacific

3.1 Changes in Consumer Demand

Rural development in the Pacific island countries should comply with the variable and increasing public anticipations about the function and purpose of rural areas; consumer demand for quality food, amenity, tourist spaces and areas of environmental management are on high demand (Gössling et al., 2012; Hellerstein et al., 2002; Ohe, 2019). In this regard, rural areas in Pacific island countries are under growing pressure from urban populations to deepen, broaden and reground the rural economy. These processes are endogenous to areas in rural Pacific island countries and are as a result of increasing interaction between different producer-consumer networks as well as competition for both of rural goods and services. These demands for rural goods and services are influenced by consumption lifestyles and developments influenced by a more extensive media, through commercial retailers, tourist advertising, scientific research and experts, ethical concerns for organically produced food. Changing urban demand is also the other factor that affects the sustainability of Pacific island countries (Johnston, Szabo, & Rodney, 2011; Marsden, 2009; Miele, 2001).

It is obvious that Fiji must concentrate on other important areas as it transitions from the agriculture, which is its heritage and to white-collar employment that is now preferred by the younger generation. Agriculture must be made to be attractive to the young generation right from training to practice. In particular, Fiji needs to regenerate its agriculture sector from abundant land and the environment in which it is able to grow many agricultural products as a big foreign exchange operator, rather than relying exclusively on tourism.

3.2 Limited Resources

There has been a tremendous reduction in government spending on agricultural institutions, which has resulted in major structural adjustment due to pressure on agricultural institutions to better relate curricula to employment opportunities (Heward & Bunwaree, 1999; Kaiser et al., 2014; Welch, 2003). The dramatic reduction in employment by the ministries and other relevant government institutions in recent past means that students need to acquire knowledge and skills for private-sector employment. It is most unlikely that employability outside the agricultural sector will grow at an increasing rate compared to absorption of graduates into agriculture. Job markets and employers' requirements are therefore necessary for the continuous analysis, planning and development of appropriate agricultural curriculum (Hills, Robertson, Walker, Adey, & Nixon, 2003; Nilsson, 2017). The reduction in the public-sector workforce demand requires training institutions to prepare graduates for employability in the private sector and/or developing skills to start up their own agricultural enterprises (Alam, Hoque, Khalifa, Siraj, & Ghani, 2009; Frank, 2007; Wang, 2012). However, the management and academic staff of agricultural institutions have been slow to acknowledge the need for these changes. There is a

need to conduct sectoral economic analysis and engage frequently with prospective private-sector employers to estimate the numbers and types of jobs available for graduates in order to appropriately plan curricula (van Aswegen & Retief 2020) and enrollment. Agricultural institutions need to develop ways of keeping up to date with the labor market to inform the adjustment on training for private-sector employment through continuous adaptation of courses (Movahedi & Nagel, 2012; Van Crowder et al., 1998). Unfortunately, perennial deficiency in terms of government financial support and labour force to agricultural institutions makes this adaptation slow and difficult to achieve. Agricultural institutions are acting by establishing better association with potential employers of graduates by studying the agricultural employment market and identifying related training needs by attaching students to agricultural enterprises to gain practical experience and possible entry to the job market.

It is only by including potential employers in the curriculum development process that agricultural institutions can prepare graduates for gainful (McMurray, Dutton, McQuaid, & Richard, 2016). Specific technical knowledge is also necessary for improving the employability for graduates; this necessitates that curricula focus less on that which will quickly become obsolete and a process that enhances the abilities of students to think and solve problems that are relevant to rural societal needs.

3.3 Vulnerabilities and Changes in the Rural Political Economy

Many development schemes in the Pacific have not changed the welfare of the people (Cahn, 2006). Community and heritage are often referred to in all of these programs as an obstacle to development. The dominating capitalist approaches to economic growth do not suit the current approach. Very few studies or theoretical thought have made attempts in the Pacific to design ways of working within communal systems and property control for the cash economy and political institutions (Addinsall et al., 2015).

Inadequate training of agricultural extension staff and agricultural professionals, in general, is recognized as part of the problem of extension ineptitude in South Pacific island countries (Bachmann, 2000; Douglas et al., 2018; Hardaker & Fleming, 1989). Regrettably, the training of human resources in agriculture is often not a high precedence in the development plans of governments of Pacific island countries as manifested by poor funding opportunities for agricultural research and innovations (Harvey et al., 2014; Liu & Wall, 2006; Organization, 2015). Consequently, curricula and teaching program are developed based on the production requirements of governments and employment demands of the agricultural sector rather than research and innovations (Hall, 2005; Van Crowder et al., 1998). The state of affairs has become further complicated in recent years due to the slump in the public sector in many South Pacific island countries. In the past few decades, through the respective ministries in the south Pacific island countries, the public sector absorbed almost all agriculture graduates (Antholt, 1994; Ayeni, 2002; Booth & Balakrishnan, 1999). However, there has been a paradigm shift, with a reduction in opportunities relative to the number of graduates. Despite this change, curricula and teaching programmes in agriculture education have not kept pace with the progressively more sophisticated labor demands of the private sector, whose training requirements are different; contain more biotechnology and precision agriculture. Additionally, graduates in agricultural institutions in the Pacific island countries need to be trained on setting up their own agricultural enterprises than seeking employment since the labor market is small. However, there is a high demand for agricultural products not only by the population but the tourism industry in the South Pacific island countries (Berno, 2011; Campbell, 2015). Furthermore, environmental degradation, recurrent cyclones, climate change, rapidly changing technical knowledge and the increasing marginalization of rural communities in the Pacific island countries necessitate changes in the current education systems by agricultural institutions in the developing Pacific island countries (Barnett & Campbell, 2010; Berno, 2011; Bryant-Tokalau, 2018; Nunn, 2009).

4. Strategies for Agricultural Institutions on Sustainable Rural Agricultural Development in the Pacific Region

For many years, Agriculture will remain a key contributor to the economies of most Pacific Island countries alongside tourism. This linkage is very important to reduce the need for the tourism industry to import all the food it needs. In most Pacific island countries, the contribution of the agricultural gross domestic product (GDP) is, however, gradually declining. The agricultural sector in the Pacific island countries is undergoing rapid change both in innovative advancement and economic forces, which call for an improved market focus, competitiveness and higher efficiency. There is increased employability in the off-farm sector. This emphasizes the present employment shift of agricultural graduates to related sectors, necessitating a revision of existing curricula to address the changing labor needs. The curricula of agricultural institutions should be revised to address the labor demands of the private sector and direct relevance to food security and rural poverty alleviation.

Further, curricula should better mirror the role of social and environmental concerns for sustainable agricultural development in rural communities. Agricultural institutions in the Pacific island countries need to determine their distinctive functions and the special characteristics they should build into pupils. These attributes should be visible to the rural agricultural community if they expect to remain financially sustainable given the current economic constraints of the vulnerable tourism industry. Additionally, agricultural institutions must be exceptionally good at executing their strategies with which they can solve the agricultural complications of the rural communities in the South Pacific island countries. This can be achieved through a universal approach to teaching agricultural science through a multi-disciplinary approach, incorporating scientific and indigenous knowledge. University collaboration are the best offer and a means to capitalize on an any particular university strength and moderate the costs replicated of efforts. Provincial government collective stratagems should be explored to keep pace with accelerated scientific advancement between Pacific island countries. The curricula of agricultural institutions in Pacific island nations should be adjustable to graduates' current and future employment needs through enhanced conceptualizing skills and on skillsets that are transferable to a diverse employment sector. Innovative options for developing curriculums of study should be centered on empowering students to meet the expectations of agricultural employers and increase the employment needs of the private sector in the region. Considering the dwindling commercial resources, governments in the Pacific island countries need to sustain continued support to agricultural institutions while wooing them to carry out curricular amendments that reflect employment markets. Recently, there has been exponential development in the number of technical and vocational agricultural institutions in Pacific island region, mainly due to the supply and demand for trained human resources in the agricultural sector.

5. Summary

Agriculture can play a vital role in the development of rural communities, especially in developing regions such as the South Pacific island countries. Agricultural institutions, which should be key drivers of sustainable agriculture in developing regions have, however, not been supported to offer training on modern and precision agriculture in the South Pacific island region. In a bid to improve the standard of living in rural communities, Pacific island countries governments have allocated more funds without concurrent increase in agricultural productivity and improvement in the livelihood of its people.

A number of regional development agencies, international development establishments, and NGOs are also making their best efforts to increase sustainable rural agricultural development. Their efforts can be best achieved through collaboration with agricultural institutions.

In the near future, agricultural institutions in the Pacific island countries will need to address instantaneous production needs and long-term food security, sustainable agriculture, and rural development. This will necessitate a paradigm shift from a single-disciplinary approach to an interdisciplinary, systematic approach that incorporates an extensive range of new areas such as precision agriculture, environmental management, gender balance and inclusion of rural population. A significant challenge to the transformation of agricultural institutions into dynamic advocates of change within their environments is funding constraints due to frequent natural disasters, including the ongoing COVID-19 pandemic. Agricultural institutions also need to abandon long-established traditions of academic isolation and become active contributors to sustainable agricultural and rural development through innovative teaching, research and extension.

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