



Article

Agribusiness Innovation through TVET: Role of Business Incubation in Nepal

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Abstract

Although the agriculture sector is the backbone of rural economy in Nepal, the agricultural productivity is low in rural areas coupled with limited opportunities for value addition. This has forced the youths to migrate abroad for employment. The Technical and Vocational Education and Training (TVET) system operating in Nepal has provided thousands of youths with technical skills. The education provided to the youths with a focus on entrepreneurial skills has, however, been weak. This study has reviewed the aspects of business incubation and examined how it can stimulate innovation and strengthen rural transformation in rural agricultural businesses. It has also reviewed the evidence from various agricultural policies of the country, innovation methods and incubation models operated in other countries. The study has identified business incubation as a mechanism to link skills with enterprise creation. Incubation services, such as market linkage development, business development support, will help in empowering trainees to become agricultural entrepreneurs. It has been concluded that the agricultural value chain can contribute to development and inclusive economic growth. Innovation centers, various support funds and national incubation frameworks should be established at various levels to formalize this approach in agribusiness. Moreover, it is imperative to transform Nepal's skills ecosystem into a vehicle for agribusiness innovation and rural prosperity.

Keywords: TVET, agribusiness innovation, business incubation, rural transformation, entrepreneurship

Introduction

Nearly two-thirds of the workforce are employed in agriculture, which continues to be the backbone of Nepal's economy (Food and Agriculture Organisation [FAO], 2021; National Planning Commission [NPC], 2024). However, the industry is marked by an aging workforce, low productivity and little

value addition. According to the economic activities report published by Nepal Rastra Bank (NRB), the capacity utilization is 48.3% in 2024/2024 (NRB, 2024). Thousands of young people are admitted into Technical and Vocational Education and Training (TVET) institutions annually, but

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a predominant proportion end up migrating abroad or working in different fields, as the system is unable to train job creators in comparison with job seekers (Asian Development Bank [ADB], 2021; Council for Technical Education and Vocational Training [CTEVT], 2022).

Nepal has traditionally been a subsistence farming country. There is a growing recognition that agribusiness should transform rural areas (Helvetas Nepal, 2023; United Nations Development Program [UNDP], 2022). However, innovation, entrepreneurship, and access to markets and technology are key areas in agribusiness, where Nepal's business system has yet to make a significant contribution (International Labour Organization [ILO], 2021).

In the context of Nepal, this article claims that business development services and incubation, especially in the agribusiness, CTEVT, and provincial TVET bodies have been providing practical skills training for employment generation (CTEVT, 2022). Yet, it seems that TVET provides regular, conventional and traditional training models that emphasize short-term skill achievement, such as vegetable farming, livestock management or agro-mechanic operations, without linking these skills to enterprise development (ADB, 2021; Ministry of Education, Science and Technology [MoEST], 2023). In contrast, agribusiness innovation goes beyond crop production. It encompasses the development of new products, enhanced processes, and innovative business models (FAO, 2021).

When TVET is connected to innovation and entrepreneurship, it can create a new generation of youth-led agribusinesses that strengthen value chains and generate local employment (Helvetas Nepal, 2023).

In Nepal, agricultural enterprises and processing operations appear to have contributed to skill development. Nowadays, the connection between TVET outputs and the needs of Nepal's agribusiness segment has been ruptured. The graduates are skilled, but they lack market orientation, business management experience and innovation exposure (ILO, 2020; UNDP, 2022). Furthermore, linking this gap requires a new approach, one that implants business incubation within the TVET ecosystem. Business incubation refers to a structured support system that helps hopeful entrepreneurs transform innovative ideas into viable businesses. It provides mentorship, technical guidance, seed funding, workspace, access to networks and market linkages. Altogether, incubators have been successful in stimulating entrepreneurship in the technology and manufacturing sectors (ADB, 2022). In the Nepali context, TVET-based business incubation could serve as a practical model for agribusiness development, where training centers act as "skills-to-startup pipelines" (Helvetas Nepal, 2023). In a similar vein, imagine a TVET center that not only teaches mushroom cultivation techniques but also helps trainees develop a branded mushroom business offering mentoring, packaging design, marketing channels and financial access. Such an approach converts technical

education into enterprise creation, allowing trained youths to innovate, compete and scale their operations (CTEVT, 2022; MoEST, 2023).

Some promising initiatives already exist in Nepal. Provincial governments have started experimenting with Enterprise Development Funds and youth entrepreneurship programs. Development partners like UNDP, ILO, and Helvetas have piloted agri-enterprise coaching and SME incubation models (Helvetas Nepal, 2023; ILO, 2020; UNDP, 2022). However, these remain isolated efforts rather than integral parts of the national TVET system. In Nepal too, various discussions are held on agricultural value chain development. Although TVET skill development is stressed for entrepreneurship, empirical research on how to operate in an integrated manner is limited (ADB, 2022).

This system can be important for contributing to the development of agribusiness through innovation, especially in Nepal, a country with an agricultural economy. If programs that develop people's skills are transformed into learning and transformed into a vibrant innovation ecosystem, agribusiness entrepreneurs can be inspired to improve Nepal's rural economy.

Literature Review

Theoretical Perspectives on Business Incubation and Innovation

The concept of business incubation originates from theories of innovation systems and entrepreneurial ecosystems,

which emphasize the role of supportive institutions in fostering innovation and firm creation (Etzkowitz & Leydesdorff, 2000; Isenberg, 2011). According to the Triple Helix model, collaboration among universities, industry and government generates environments conducive to innovation and entrepreneurship. The implications of this model is for promoting entrepreneurship development, innovation and skills utilization. It can be used as a tool to measure whether these aspects can be integrated into curriculum development, practical research and training methods to increase productivity and add value to products.

This experience is based on the belief that the development of skills in agribusiness and innovation through experiential learning should be based on the development of the overall capacity of the market actors in the value chain. Various levels of learning, universities and training institutions are not able to address the demands and needs of the market. In this way, there is a lack of coordination between the skills required in agribusiness and the content provided. This model will help in matching the necessary skills that will support the development of the value chain provided by skill provider (Etzkowitz & Leydesdorff, 2000). Incubators, within this model, act as intermediaries facilitating knowledge transfer and reducing the risks of market entry for start-ups (Organisation for Economic Co-operation and Development [OECD], 2021). In the same way, based on the experience so far, it

can be seen from the fact that various exports have been made in addition to improving the living standards of rural communities. The development of agribusiness value chains will help Nepal become globally competitive in the agricultural sector (Bhandari, 2024).

Empirical Evidence on Business Incubation and Agribusiness Innovation

Empirical research highlights the effectiveness of incubation programs in enhancing startup performance and innovation outcomes. Studies in Asia and Africa show that incubated enterprises demonstrate higher survival rates, innovation intensity and employment generation than the non-incubated firms (ADB, 2022; Hackett & Dilts, 2004). For example, empirical evaluations in India's agricultural universities found that agribusiness incubators increased product diversification and access to finance among rural youth entrepreneurs (MANAGE, 2020). In fact, the things that came out of the review have been seen positively. In the context of business incubation, there are many different institutions and ecosystems of enterprises, and underestimating any one aspect can be risky for the market. In business development, especially in incubation, there is limited attention to the dynamics of the relationship between training institutions and business organizations. Moreover, business incubation is not a panacea for business development, but it is a tool that can effectively develop skills, build relationships across various aspects of the enterprise, and clarify the state of the business management

structure and plan where all of these can support innovation.

In Africa, Kanu et al. (2019) found that agribusiness incubation significantly improved market access and technology adoption for smallholder enterprises. Similar outcomes were observed in Kenya and Tanzania, where incubation centers linked to vocational colleges enhanced innovation in post-harvest processing and agro-logistics.

In Nepal, empirical literature is still emerging but promising. UNDP's *Micro-Enterprise Development Programme (MEDEP)* demonstrated that incubation-style mentorship and financing helped over 70 percent of micro-entrepreneurs sustain their businesses beyond three years (UNDP, 2022). Evaluations of the *Nepal Agricultural Market Development Programme (NAMDP)* show that coordinated value-chain incubation increased youth participation in high-value crops and agri-tech ventures (Helvetas Nepal, 2023).

Evidence from the TVET sector also underscores the incubation gap. ADB (2021) and CTEVT (2022) report that while TVET institutions produce skilled graduates, fewer than 10 percent transition into self-employment. Integrating incubation components, business plan development, coaching and seed-funding could substantially raise that figure.

According to ADB (2020), business incubation is not a panacea for all the problems of entrepreneurship. This study specifically shows that it is a strategy that can

work on the ways in which various aspects of business development work, but these are linked to the socio-economic aspects of the entrepreneur. In regards to the developing countries, the evidence from the study on the financial potential of graduates trained by CTEVT depends on factors, such as the social aspects, the potential for skill development and the availability and continuity of local raw materials.

The theoretical and empirical literature implies that business incubation bridges the gap between skill acquisition and innovation-led entrepreneurship. Although most studies focus on technology or manufacturing sectors, relatively few address agribusiness incubation within TVET frameworks, especially in low-income, agrarian economies like Nepal. This study fills that gap by analyzing how incubation can serve as a catalyst for agribusiness innovation within Nepal's evolving TVET system, linking policy, institutional reform and inclusive rural development.

Methodology

This study draws on a desk-based literature review, policy analysis and comparative case review. This approach aimed to explore how integrating business incubation into TVET in Nepal's agricultural system can promote agribusiness innovation and inclusive rural transformation. A descriptive-analytical framework was applied to synthesize theoretical insights with empirical evidence, identify institutional gaps and make policy recommendations.

Data Sources and Collection

The policies of the Government of Nepal related to agricultural development, practices in various countries, incubation and the systems adopted were studied. Similarly, the selected topics included research topics, articles on technical skill development and incubation, analytical articles relevant to agricultural entrepreneurship and literature that was necessary at the policy level. The facts of the studies based on agricultural business development and business incubation in Nepal were studied. The focus was on presenting the articles logically, covering topics, such as skill development approaches in business incubation, models of entrepreneurship ecosystem, human resource development and innovation systems.

Findings from the Review

Importance of Business Incubation for Agribusiness in Nepal's TVET Sector

In order to address structural issues with agribusiness and young employment in Nepal, business incubation must be integrated into the TVET system. It serves as a crucial link, turning unskilled labor into long-lasting businesses and creating an innovation ecosystem that the rural economy needs urgently.

Bridging Skills-to-Enterprise Gap

Traditional TVET programs in Nepal often produce skilled graduates who lack the entrepreneurial capability to start or manage a business. Incubation provides the crucial "missing middle" by offering post-training

support in business planning, financial management and market linkage. This ensures that technical skills are effectively translated into viable agribusinesses, moving beyond mere subsistence livelihoods (MoEST, 2021).

Through a significant youth population entering the job market, Nepal faces a pressing challenge of unemployment and underemployment. TVET-based incubation shifts the focus from creating job seekers to nurturing job creators. By supporting young "agripreneurs," incubation cultivates a culture of self-employment and innovation, which is essential for sustainable economic growth and aligns with the national Youth Employment Transformation Initiative (Government of Nepal, 2015).

Driving Innovation in the Agricultural Value Chain

Nepal's agribusiness sector remains largely traditional with limited value addition and market access. Incubation centers embedded in TVET institutions can become hubs for practical innovation, where graduates are mentored to develop new products, improve processing techniques and explore niche markets. This directly contributes to enhancing productivity and competitiveness, a key goal of Nepal's Agriculture Development Strategy (ADS) (Ministry of Agriculture and Livestock Development [MoALD], 2025).

Nepal's agriculture is highly vulnerable to climate change. A modern TVET system with incubation can equip entrepreneurs

with the knowledge and tools to adopt climate-smart technologies and sustainable practices. This alignment with Nepal's Green Economy Framework ensures that new agribusinesses are not only profitable but also environmentally resilient (Ministry of Forest and Environment [MoFE], 2020). However, TVET-based incubation creates vital linkages between educational institutions, the private sector, financial institutions and government agencies. This synergy ensures that training is demand-driven and the graduates have access to a full spectrum of support services, from seed funding to market intelligence. This ecosystem approach is fundamental for achieving systemic and inclusive rural transformation (ADB, 2019; Bhandari, 2025).

Forging Future: Pathway for the TVET-Led Agribusiness Innovation in Nepal

The vision of transforming Nepal's agribusiness sector through a revitalized TVET system is both ambitious and achievable. The convergence of these two domains is not a matter of chance but of strategic design. The journey from a traditional training model to a dynamic innovation ecosystem is possible through a multifaceted pathway that involves structural, pedagogical and systemic shifts.

Institutional re-engineering and embedding incubation at the core is the first step to structurally integrate business incubation units within existing TVET institutions, particularly agricultural schools and colleges. This goes beyond adding a new course; it

requires establishing a dedicated physical and programmatic space where ideas can be prototyped. This means creating "agri-incubators" with access to demo farms, food processing labs and digital marketplaces, transforming TVET campuses from mere learning centers into vibrant enterprise hubs (MoEST, 2021).

According to the World Bank (2020), curriculum transformation from skill-delivery to problem-solving is the TVET curriculum that must evolve from teaching isolated technical skills to fostering entrepreneurial competence. This involves a project-based learning where students develop business models for real-world agricultural challenges. Modules on market analysis, financial literacy, value chain management and digital marketing become as fundamental as training in crop production or livestock management. This creates a mindset of innovation, preparing graduates to be solution-finders, not just laborers.

Building Bridges: The Ecosystem Partnership Model

TVET-based incubation will thrive on strategic partnerships. Linkages with private agribusiness firms ensure market relevance and provide channels for graduate enterprises. Collaborations with universities inject advanced research and development, while partnerships with financial institutions facilitate access to startup capital and credit. This multi-stakeholder approach creates a supportive ecosystem that de-risks entrepreneurship for young graduates (ADB, 2019).

Leveraging digital and green technologies, a modern agripreneur must be equipped for the challenges of the 21st century. TVET incubators must serve as access points for climate-smart agriculture technologies, such as drip irrigation and organic farming techniques and digital tools for e-commerce, precision agriculture and supply chain management. This dual focus ensures that the new generation of agribusiness is sustainable, resilient and competitive (MoFE, 2020).

A National Framework for Coordinated Action

This transformation requires a top-down enabling environment. CTEVT, in coordination with provincial governments, must champion the National Agenda for Agribusiness Innovation through TVET incubation. This framework would standardize best practices, mobilize resources, and align the efforts of all stakeholders towards the common goal of creating 'agripreneurs'. There is immense potential for business development, but by strategically integrating incubation into the TVET sector, Nepal can effectively harness the demographic dividend. It can address the aspirations of rural youth and unlock the hidden value in the agricultural sector. This is not just an educational reform that is happening now; it is also an economic strategy. It is a way to transform acquired skills into enterprises, enterprises into innovation, and innovation into inclusive rural prosperity. It is not too late to reimagine CTEVT as an engine of agribusiness innovation, which powers a future where

Nepal is not just a traditional producer. It is envisioning knowledge and creativity and inclusive entrepreneurship.

Discussion

Business incubation has emerged globally as an effective mechanism for fostering innovation and entrepreneurship, particularly in sectors undergoing structural transformation (OECD, 2021). Incubators provide a structured environment in which hopeful entrepreneurs can develop, test and scale business ideas by accessing mentoring, finance and networks (ILO, 2021). In the context of Nepal, integrating incubation within TVET could bridge the existing gap between technical skill development and market-driven innovation, creating a generation of agripreneurs equipped to drive a local economic transformation.

In Nepal, incorporating business incubation into TVET is possible. Despite this, there is a challenge to transform local economic development, to create new curricula and to work by integrating it into value chain development. Similarly, there is a danger that agricultural entrepreneurs will be more theoretical than practical knowledge. However, there is immense potential to work in the field of skill development by generalizing such barriers. Currently, there are many problems in agricultural enterprises in the country. It is important to work to solve these problems, which CTEVT has seen as an opportunity to lead.

Linking Incubation and Agribusiness Value Chains

Incubation plays a catalytic role by connecting trained youths to the value-chain actors, such as input suppliers, collectors, aggregators, wholesalers, processors and retailers (FAO, 2021). Through these linkages, trainees can identify market gaps, develop innovative solutions and transform technical know-how into business ventures (Bhandari, 2024). Despite being an agri-entrepreneur and being good in terms of production, they do not make a good linkage among the market actors. They face a barrier to access market network. Their market depends on linkage development due to this reality, a technical supporting part for business incubation.

For example, a graduate trained in dairy technology through a TVET institution with incubation support could establish a value-added dairy enterprise producing flavored yogurt or cheese for urban markets. Similarly, youth skilled in horticulture could develop organic packaging and e-commerce models targeting health-conscious consumers. These examples highlight how incubation embeds innovation at the intersection of production, processing, and marketing, thereby creating multiplier effects across local economies (Helvetas Nepal, 2023).

Nurturing Agripreneurs through Integrated Support Systems

The conventional TVET programs often end at the training phase, leaving graduates without the networks or confidence to

commercialize their skills (CTEVT, 2022). This is complemented in Nepal by company incubation, which provides a post-training innovation pathway that includes market exposure, seed fund access, mentoring and coaching. According to Start and Improve Your Business (SIYB), learners who receive organized incubation help have a much higher chance of surviving and expanding their businesses (International Labour Organisation, 2020).

Additionally, incubation fosters entrepreneurial attitudes that promote risk-taking, inventiveness and problem-solving abilities that are frequently lacking in conventional training methods (ADB, 2021). Participants can test technology, sample goods and co-create solutions with local communities through the innovation ecosystem established by TVET-incubation linkages. This improves employment and boosts rural businesses' ability to innovate (OECD, 2021).

Scaling Innovation through Institutional Collaboration

To function as catalysts, incubator will be institutionalized within the wider TVET and agribusiness ecosystem. Collaboration among TVET institutions, private sector actors, universities and development partners is crucial to ensure financial sustainability and knowledge transfer. However, business incubation support tools tend to be transformative rather than institutional in nature (MoEST, 2023). The globally successful incubation models, such

as India's National Institute of Agricultural Extension Management, Agri-Incubator, and Kenya's Agribusiness Incubation Hub demonstrate that partnerships linking academia, government and the private sector so that they can accelerate innovation and rural transformation (ADB, 2022).

In Nepal, similar collaboration could be achieved by establishing Provincial TVET Innovation Hubs, where local training centers host incubation units that focus on specific value chains, such as dairy, fruits, vegetables and herbal products. These hubs could leverage existing government funds like the Youth and Small Enterprise Self-Employment Fund (YSEF) and align with donor-supported programs for financial and technical backing (NPC, 2024; Helvetas Nepal, 2023).

Such an approach would not only expand the scope of TVET but also promote inclusive innovation, enabling women, marginalized groups and returnee migrants to access agribusiness opportunities. Inclusivity is particularly relevant in Nepal, where female participation in agriculture is high but access to entrepreneurship resources remains limited (FAO, 2021; UNDP, 2022).

Innovation as Systemic Outcome

Business incubation within TVET is not only an add-on activity but also a systemic innovation on how skills, entrepreneurship and markets interact. When effectively designed, incubation transforms TVET centers from passive training providers into active innovation platforms. These platforms

stimulate bottom-up innovation, allowing local entrepreneurs to experiment with technologies, such as solar dryers, mobile-based agro-advisory apps, or low-cost processing machinery (ILO, 2021; MoEST, 2023).

To enhance the competitiveness of Nepal's agribusiness, an innovation ecosystem needs to be created. This is in line with Nepal's Sixteenth Plan (NPC, 2024), which promotes value chain development, entrepreneurship and technology transfer as the cornerstones of economic transformation. Thus, business incubation can work by developing a link between the technical capabilities of TVET early graduates and the capacity of the agricultural sector for innovation.

Building Innovation-Driven Agribusiness Future through TVET

One of the most promising but understudied areas of rural development for a country like Nepal is business incubation. In particular, recent research suggests that skills development alone does not always result in innovation, employment or entrepreneurship (ADB, 2021; CTEVT, 2022). Combining acquired technical skills with market access, business incubation support and innovation services yields much better results for agribusinesses (Bhandari, 2024; ILO, 2020).

In agribusiness, from production to market and competitiveness, the learning of business incubation covers the objectives of vocational training to the use and development of new technologies by agribusiness entrepreneurs (MoEST, 2023). In business development,

it transforms the business into an innovation ecosystem by training the dynamic value chain, market demand and supply system (Bhandari, 2024).

In addition to directly supporting Sustainable Development Goals (SDG) 8 'Decent Work and Economic Growth' and SDG 9 'Industry, Innovation, and Infrastructure', the model is in line with Nepal's national priorities under the ADS, Youth Employment Policy, and Green Economy Framework (Government of Nepal, 2015; NPC, 2024). The TVET-based incubation might be the institutional mechanism that converts these policies into observable results for rural enterprises if it is mainstreamed (Helvetas Nepal, 2023).

According to ILO (2021), innovation is not only about technology but also about creating new linkages: between skills and markets, between youth aspirations and local resources, and between learning institutions and private enterprises. In the same way, ADB (2022) notes that by fostering such linkages, TVET incubation centers can transform rural youths into innovation actors who introduce new products, develop value chains, and address community challenges through entrepreneurship.

In the long term, Nepal's agribusiness competitiveness will depend not only on the quantity it produces, but also on how creatively it produces, processes and markets its agricultural products (FAO, 2021). TVET, when reimaged as a platform for innovation and incubation, can play a decisive role in shaping that creative, knowledge-based

future. Nepal, now, needs the National Agenda for Agribusiness Innovation through TVET Incubation, a coordinated framework that mobilizes provincial governments, CTEVT, private agribusinesses, universities and development partners to co-create the next generation of agripreneurs (MoEST, 2023; UNDP, 2022). Integrating business incubation into TVET is more than an educational reform; it is an innovation movement, a pathway to transform skills into enterprises, enterprises into innovations and innovations into inclusive rural prosperity.

Reorienting TVET Policy toward Innovation and Entrepreneurship

The integration of business incubation within TVET represents both an institutional innovation and a strategic policy opportunity for Nepal. To translate this concept into systemic impact, a coordinated framework is required to align the national TVET reform, agribusiness competitiveness strategies and youth entrepreneurship promotion under a single innovation agenda. The following policy and institutional implications provide a roadmap for operationalizing this vision.

Nepal's education policy (2019) focuses primarily on producing skilled human resources to meet labor market demands, but it pays limited attention to entrepreneurship and innovation outcomes. A fundamental policy reorientation is therefore necessary from a "training for employment" paradigm to a "training for enterprise and innovation" paradigm (ADB, 2021).

This shift would require integrating entrepreneurship development, incubation

and business model innovation as core components of all agricultural and technical syllabuses. The TVET institutions should include enterprise incubation targets within their performance indicators, ensuring that success is measured not only by employment rates but also by the number of enterprises created, sustained and scaled (ILO, 2021).

Besides, innovation-oriented TVET reform aligns with the objectives of Nepal's ADS and the Youth Employment Policy, both of which emphasize entrepreneurship, technology transfer and market access (Government of Nepal, 2015). Mainstreaming incubation into TVET can thus operationalize these policy commitments through structured and measurable interventions.

Establishing Provincial TVET Innovation and Incubation Hubs

According to ADB (2022), co-funding arrangements can be developed through public-private partnerships to ensure sustainability and reduce dependency on donor-driven projects. With the federalism in place in Nepal, provincial governments have increasing authority over education, enterprise development and agriculture (NPC, 2024). This creates an opportunity to institutionalize the Provincial TVET Innovation and Incubation Hubs that serve as regional platforms linking skills, innovation and markets. Each hub could specialize in specific value chains, for example, citrus in Sudurpaschim, dairy in Bagmati, or vegetables in Koshi Province, based on local comparative advantages. These hubs might be embedded within existing polytechnic

institutes or CTEVT-affiliated centers so as to reduce infrastructure costs and enhancing ownership. Such hubs can collaborate with universities, private sector associations, and development partners like UNDP, ILO, and Helvetas, which already possess experience in entrepreneurship coaching and SME development (Helvetas Nepal, 2023; UNDP, 2022).

Financing Mechanisms for Agribusiness Innovation

In the context of Nepal, access to finance may be one of the extreme barriers for young entrepreneurs in agribusiness (FAO, 2021). For this, the government and financial institutions could design the Innovation Seed Funds or the Agripreneurship Challenge Funds targeting TVET graduates who complete incubation programs. Such funds could be managed jointly by provincial TVET boards and local development banks to provide small grants, soft loans, or equity matching support to early-stage ventures (MoEST, 2023).

Furthermore, the YSEF can be reformed to incorporate innovation criteria, supporting not just traditional enterprises but those that demonstrate technological, social or environmental innovation. Financial literacy and business management modules should also be integrated into TVET curricula to ensure that graduates are investment-ready and capable of managing growth sustainably (ILO, 2020).

Strengthening Research, Monitoring and Knowledge Exchange

OECD (2021) stated that evidence-based policymaking is essential for scaling innovation. The government should establish a National Agribusiness Innovation Observatory to document lessons learned, success stories and policy impacts. Such a knowledge platform could serve as a repository of data on startup performance, gender inclusion, technology adoption and job creation.

The success of an enterprise is based on the regular monitoring and evaluation (M&E) that assesses not only training outcomes but also innovation outcomes, such as the number of new products, processes or business models emerging from incubation programs. Collaborative research between TVET centers and universities, especially in the fields like agricultural technology, value chain analysis and digital marketing can further strengthen the innovation ecosystem (ADB, 2022).

Promoting Inclusive Innovation and Green Transition

Nevertheless, innovation must be inclusive and sustainable. Policies should ensure that women, marginalized groups, and returnee migrants have equitable access to incubation services, finance and mentorship. Targeted quotas and gender-responsive design within TVET incubation programs can help in overcoming existing barriers (FAO, 2021; UNDP, 2022). Furthermore, Nepal's move toward a green and circular economy presents new opportunities for innovation.

Incubation centers should prioritize enterprises that promote climate-smart agriculture, renewable energy applications, waste recycling, and eco-friendly processing technologies. This aligns with the Green Economy Framework and the Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure) (NPC, 2024).

Toward National Framework for Agribusiness Innovation through TVET

In order to make these changes official, Nepal needs a National Framework for Agribusiness Innovation through TVET, to be developed jointly by the Ministry of Education, Science and Technology (MoEST), the Ministry of Agriculture and Livestock Development (MoALD), and provincial governments. The framework should define clear governance mechanisms, resource mobilization strategies, and accountability measures to integrate innovation and incubation into the mainstream TVET system (MoEST, 2023). TVET can be positioned by such a coordinated framework not just as a training subsystem but also as a strategic driver of rural innovation and economic transformation, transforming Nepal's rural communities from subsistence-based economies into innovation-driven agribusiness clusters and its youth from job seekers into job creators.

Conclusion

Research has been conducted on sustainable business services to strengthen agribusiness in Nepal, transform agribusiness into inclusive economic growth, and create

employment opportunities. Various vocational education and trainings conducted by CTEVT in Nepal have provided skills. It is imperative to use these skills to become entrepreneurial along with business development. It is expected that business incubation services along with business skill development can act as a mechanism to develop agribusiness entrepreneurially.

This article has shown that the incubation services conducted in Nepal are operated by a few donors and are gradually being phased out. It is, however, essential to operate this service sustainably and promote in an integrated manner along with vocational education and training. Based on experience, it is expected that vocational education and training graduates who have not been successful at their work due to having insufficient entrepreneurial skills will be able to benefit from incubation services, which will help agricultural entrepreneurs to develop and strengthen their market.

Business development and incubation should be institutionalized along with the vocational skills provided by CTEVT. This leads to the conclusion that policy reforms should be made to develop agricultural businesses along with skill development. In regards to the institutional reform, CTEVT can be developed as an institution that provides vocational skills and works on innovation in agricultural business development. It is also necessary to develop enterprises run by students who have received vocational education and training as a provider of incubation services based on demand and needs.

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