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Beekeeping in Nepal: Assessing Policy Effectiveness and Pathways for Sustainable Growth

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Abstract

Beekeeping holds significant potential for enhancing rural livelihoods, increasing agricultural productivity, and conserving biodiversity in Nepal. Although honey production in the country has grown notably between 2012/13 and 2022/23, the sector continues to face persistent challenges in both production and marketing. Nepal still imports more honey than it exports, revealing a substantial gap between its potential and actual performance. This study critically examines key policies, including the Bee Promotion Policy 2017, National Agriculture Policy 2004, Agribusiness Promotion Policy 2007, and the Agriculture Development Strategy (2015-2035), using a descriptive-analytical approach to assess their effectiveness in supporting the beekeeping sector. Qualitative data were collected from 12 respondents representing government agencies, research institutions, and farming communities. The analysis focuses on eight key areas: institutional development, species conservation, infrastructure and financing, information dissemination, capacity building, product quality, market access, and research advancement. Findings indicate that while supportive policies exist, their implementation remains weak due to institutional overlap, poor coordination, inadequate funding, limited research emphasis, a shortage of technical publications, insufficient technical support, and low awareness and capacity among grassroots beekeepers. The study concludes that a more integrated, farmer-centric, and evidence-based policy approach is essential to fully realize the potential of beekeeping in Nepal. It recommends enhancing policy coherence, investing in innovative technologies, and improving market competitiveness to promote beekeeping as a sustainable and profitable enterprise.

Keywords: Apiculture, beekeeping policy, rural livelihood, agriculture development, policy analysis

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नेपालमा मौरीपालनः नीतिगत प्रभावकारिता र दिगो वृद्धिका लागि मार्गहरूको मूल्याङ्कन

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सार

नेपालमा ग्रामीण जीविकोपार्जन उकास्न, कृषि उत्पादकत्व बढाउन र जैविक विविधता संरक्षण गर्न मौरीपालनले उल्लेखनीय सम्भावना बोकेको छ । सन् २०१२/१३ र २०२२/२३ को अवधिमा देशमा मह उत्पादन उल्लेखनीय रूपमा बढेको भए तापनि यस क्षेत्रले उत्पादन र बजारीकरण दुवैमा निरन्तर चुनौतीहरूको सामना गरिरहेको छ । नेपालले अझै पनि मह निर्यात भन्दा बढी आयात गर्छ, जसले यसको सम्भावना र वास्तविक प्रगति बिचमा ठुलो खाडल रहेको सङ्केत गर्दछ । यस अध्ययनमा मौरीपालन क्षेत्रलाई सहयोग गर्ने मौरी प्रवर्द्धन नीति २०७३, राष्ट्रिय कृषि नीति २०६१, कृषि व्यवसाय प्रवर्द्धन नीति २०६३ र कृषि विकास रणनीति (सन् २०१५-२०३५) लगायतका प्रमुख नीतिहरूको प्रभावकारिता मूल्याङ्कन गर्न वर्णनात्मक-विश्लेषणात्मक दृष्टिकोण प्रयोग गरिएको छ । यसका साथै, सरकारी निकायहरू, अनुसन्धान संस्थाहरू र कृषि समुदायहरूको प्रतिनिधित्व गर्ने १२ उत्तरदाताहरूबाट सूचना सङ्कलन गरी गुणात्मक विधिबाट विश्लेषण गरिएको छ । यस्तो विश्लेषण प्रमुख आठ पक्षहरूमा केन्द्रित छः संस्थागत विकास, प्रजाति संरक्षण, पूर्वाधार र वित्तीय लगानी, ज्ञान प्रसार, क्षमता विकास, उत्पादन गुणस्तर, बजार पहुँच, र अनुसन्धान प्रवर्धन । थुप्रै सहयोगी नीतिहरू विद्यमान भए तापनि संस्थागत आंशिक दोहोरोपना, कमजोर समन्वय, अपर्याप्त कोष, सीमित अनुसन्धान प्रवर्धन, प्राविधिक प्रकाशनहरूको अपर्याप्तता, अपर्याप्त प्राविधिक सहयोग र भुइँतहका मौरीपालकहरूमाझ कम जागरूकता र क्षमताका कारण तिनीहरूको कार्यान्वयन कमजोर रहेको अध्ययनले देखाएको छ । निष्कर्षमा, नेपालमा मौरीपालनको सम्भावनालाई पूर्ण रूपमा साकार पार्न थप एकीकृत, किसान-केन्द्रित र प्रमाणमा आधारित नीतिगत दृष्टिकोण आवश्यक छ । दिगो र लाभदायक उद्यमको रूपमा मौरीपालन प्रवर्धनका लागि नीतिगत सामञ्जस्य बढाउन, नवीन प्रविधिहरूमा लगानी गर्न र बजारको प्रतिस्पर्धात्मकता सुधार गर्न नीति सिफारिस गरिएको छ ।

Keywords: Apiculture, beekeeping policy, rural livelihood, agriculture development, policy analysis

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1. Introduction

Beekeeping plays an important role in the economy and livelihoods of rural households in Nepal. Along with their contribution to rural food security and economic benefits, beekeeping plays a crucial role in enhancing crop productivity and biodiversity through pollination services. The major product of the beekeeping industry is honey. Along with honey, various other bee products like pollen, beeswax, royal jelly, propolis, apilarnil, honeydew honey, bee bread, bee venom, and beehive air can also be produced from beekeeping (Aryal et al., 2025; Basnet, 2025; Ghimire, 2024; Inclusive Development of the Economy Programme [INCLUDE], 2014; Manandhar & Khanal, 2021; Panta et al., 2024; Thapa et al., 2018).

Nepalese honey accounts for only 0.05 percent of the global honey market (INCLUDE, 2014). In the past ten years, from 2012/13 to 2022/23, honey production increased from 1,625 to 4,308 metric tons with an average annual growth rate of 16.51 percent (Ministry of Agriculture and Livestock Development [MoALD], 2024). Despite this significant growth, Nepal continues to import honey to meet its national honey demand. In 2022, Nepal imported raw natural honey worth 1.982 million USD and exported worth 166 thousand USD (FAOSTAT, n.d.). However, it has been estimated that Nepal can accommodate one million bee colonies, producing over 10,000 metric tons of honey annually (Devkota, 2020). This suggests a significant potential for Nepalese honey in both the national and global markets.

However, there are many problems associated with the production and marketing aspects of beekeeping in Nepal. Constraints in the production aspect include declining bee forage and floral diversity, lack of knowledge on hive management, and farmers' inability to make initial investments due to poor socio-economic conditions and limited research activities in the beekeeping industry (Aryal et al., 2015). The marketing aspect faces problems such as lack of credible quality assurance and certification, as well as a supply gap between production and marketing actors (Manandhar & Khanal, 2021). To address this, the government and International/National Non-Government Organizations (I/NGOs) have made various efforts like training on good beekeeping practices and subsidies on beekeeping equipment (Thapa et al., 2018). Still, the effectiveness of these efforts remains unexplored.

Beekeeping has long been an integral part of development programs by I/NGOs and government policies in Nepal, aimed at uplifting rural and marginal communities (Aryal et al., 2015). However, the beekeeping industry never had its own clearly

defined policy. In the mid-1950s, Nepal introduced the concept of systematic policymaking with the implementation of its first five-year development plan. Later, the Agriculture Perspective Plan (APP) (1995-2015) and Agriculture Development Strategy (ADS) (2015-2035) were implemented (Dhungana et al., 2024). APP identified beekeeping as a priority output under Livestock (South Asia Watch on Trade, Economics and Environment [SAWTEE], 2015). The ADS aims to accelerate honey production and support the value chain through specialised programs within the ADS (MoALD, 2016). Industrial policy 2011 considers beekeeping as a significant agricultural enterprise within the context of various agricultural and commercial practices in Nepal (Government of Nepal [GoN], 2011).

Additionally, beekeeping is included as a part of agriculture in the National Agriculture Policy 2004 (GON, 2004), the Agriculture Business Promotion Policy 2007 (GON, 2007a), and the Agro-Biodiversity Policy 2007 (GON, 2007b). Finally, in 2017, consistent with existing agricultural policies, the Bee Promotion Policy was developed and implemented with the aim of providing direction to the beekeeping industry. It recognizes beekeeping as a significant agricultural practice for honey production, biodiversity, and pollination services. The policy aims to develop beekeeping as a competitive and profitable business, create employment opportunities, reduce honey imports, and promote honey exports (GoN, 2017).

2. Knowledge/Policy Gaps

Despite various policy provisions, the growth of the beekeeping industry is not as expected and the factors for it are unexplored. Inappropriate approaches in designing agricultural policies, plans, and programs; inadequate and in some cases, contradictory legislative provisions; low institutional capacity; and weak coordination between key stakeholders in formulating and implementing the sectoral policies are some major policy constraints limiting agricultural growth in Nepal. Additionally, insufficient monitoring, evaluation, and analysis of activities, as well as the timely revision of policies, programs, and acts based on feedback, have limited the outcome in terms of agricultural growth (Khanal et al., 2020). However, no study has been conducted to analyze policy and understand policy constraints, specifically in the beekeeping sector of Nepal. Thus, this study aims to examine relevant policies of the beekeeping sector and their practical implications and suggest possible solutions. The outcome of this study will be helpful in policy formulation for policymakers, planners, and a wide range of beekeeping stakeholders.

3. Methodology

This study employed a qualitative method and a descriptive-analytical approach to assess the perception of policy actors and analyze the existing policies and institutional frameworks governing the beekeeping sector in Nepal. The research aimed to explore policy constraints, their practical implications, and to propose evidence-based recommendations for the sustainable development of apiculture.

3.1 Data Collection

Primary data were collected through semi-structured interviews conducted between 2023 to 2025 with a total of 12 key informants, coded to maintain anonymity. The respondents included experts and stakeholders directly involved in the formulation, implementation, and practice of beekeeping policy.

Table 1: Coding of Respondents

Key informant	Number	Coded	Description
Official from the Apiculture Development Center (ApiDC), Lalitpur	1	A	Male, aged late 50s
Professor from Institute of Agriculture and Animal Sciences, Tribhuvan University, Kathmandu	1	B	Male, aged late 60s
Official from the Agriculture Knowledge Center (AKC), Sarlahi	1	C	Male, aged early 40s
Traditional beekeepers from Sarlahi	2	D	D1- Male, late 40s, has 5 log hives D2- Female, late 30s, has 3 log hives
Commercial beekeeper from Sarlahi and Chitwan districts of Nepal	5	E	E1- Male, early 50s, has 50 modern hives, Chitwan E2- Male, late 50s, has 150 modern hives, Chitwan E3- Male, early 50s, has 250 modern hives, Sarlahi E4- Female, early 30s, has 50 modern bee hives E5- Male, early 40s, has 50 modern hives, Sarlahi
Prime Minister Agriculture Modernization Project, Bee Zone officials	2	F	F1- Female, late 20s, Lamjung F2- Male, late 50s, Chitwan

These interviews focused on the respondents' perceptions of the current policies, implementation challenges, gaps, and opportunities in the beekeeping sector.

3.2 Policy Review

A comprehensive document analysis was conducted to review relevant policies, plans, and strategic frameworks, including:

1) National Agriculture Policy 2004
2) Agro Biodiversity Policy 2007
3) Agribusiness Promotion Policy 2007
4) Agriculture Development Strategy (ADS) (2015-2035)
5) Bee Promotion Policy 2017
6) Industrial Entomology Development Procedures 2021 and 2024
7) Operational Procedure Related to Agricultural Sector Coordination at Federal, Provincial, and Local Levels 2023
8) 16th Five Year Plan (2024–2029)
9) Food Hygiene and Quality Act 2024
10) Commerce Policy 2025

3.3 Thematic Categorization

The collected data were organized and analyzed under eight thematic categories:

1) Institutional support and development
2) Bee species management and forage conservation
3) Financial and infrastructural support
4) Informational publications
5) Awareness, training, and capacity building
6) Honey production, quality control, and certification
7) Market access and export promotion
8) Technological advancement and research

Each category was assessed by triangulating insights from policy texts and expert interviews to understand both the intended policy objectives and real-world implementation outcomes.

3.4 Data Analysis

The data from interviews were transcribed and analyzed using thematic content analysis. Emerging themes, recurring patterns, and key constraints were identified and interpreted in the context of Nepal's socio-economic and agro-ecological settings. Gaps between policy intentions and field-level realities were highlighted to derive practical recommendations.

4. Results and Discussion

4.1 Institutional Support and Development

Several national policies have guided the institutional development of Nepal's beekeeping sector, each offering varying degrees of support and focus. The National Agriculture Policy 2004 acknowledges the importance of forming cooperatives among farmers, including beekeepers, as a means to promote collective marketing and enhance resource sharing. This policy emphasizes the importance of institutional development for long-term sustainability; however, it remains broad in scope and does not address the specific needs of the beekeeping sector in terms of technical support, market linkages, or infrastructure development.

Similarly, the Agribusiness Promotion Policy 2007 reinforces the role of cooperatives and local bodies in organizing agricultural production, including honey, and ensuring market accessibility in both urban centers and production sites. It promotes the establishment of retail and wholesale markets, thus indirectly supporting institutional development through improved marketing systems. However, this policy largely emphasizes the market side and fails to create a comprehensive supply-side framework to strengthen beekeeping institutions from production to processing and distribution.

In contrast, the Bee Promotion Policy 2017 provides a more detailed and inclusive roadmap for institutional development. It prioritizes organizing women, youth, and disadvantaged groups into cooperatives and associations, emphasizing social inclusion in apiculture. The policy emphasizes strengthening Nepal's beekeeping sector by expanding support services, resource centers, and targeted "bee pocket areas" to improve productivity, disease management, and market linkages. Furthermore, the policy promotes a Public-Private-Cooperative Partnership (PPCP) model, a collaborative framework designed to involve multiple stakeholders in the development and expansion of beekeeping. Despite its

comprehensive design, the implementation of this policy faces several challenges, including inadequate funding, poor inter-agency coordination, limited capacity of cooperative management, and the absence of robust monitoring mechanisms (Panta et al., 2024).

There are various government and non-government institutions operating at the federal, provincial, and local levels in Nepal to promote the overall development of the country's beekeeping sector (Figure 1). However, there is weak coordination among institutions, which has hindered policy implementation efficiency. There is no unified institutional structure dedicated solely to the beekeeping sector. Apiculture Development Center is the dedicated center for beekeeping development under the Centre for Industrial Entomology Development. However, both mother and sister organizations conduct overlapping programs separately. Inadequate budget allocation for apiculture programs and further cuts on the provided budget have hindered the successful completion of programs (A, personal communication, July 15, 2024). Due to lack of coordination between federal and provincial institutions, the same beekeeper has taken the same training twice, occupying the slots of new untrained candidates (E1 & E4, personal communication, January 23, 2023).

To strengthen institutional development in the beekeeping sector, future efforts must focus on enhancing cooperative structures with dedicated support for technical training, financial literacy, and organizational management. An integrated value chain approach should be adopted, emphasizing clustering, branding, processing, and market linkage to ensure fair access and better prices for beekeepers. Additionally, there is a need to improve institutional coordination by establishing a central Bee Development Authority to harmonize activities and policies at all administrative levels. Public-Private-Cooperative Partnerships should be promoted to attract investment, enhance infrastructure, and deliver extension services. Special attention should be given to marginalized groups through targeted programs, skill development, and subsidized support. Lastly, introducing a robust monitoring and evaluation system will help assess the performance of institutions and enable data-driven policy revisions to adapt to emerging challenges and opportunities.

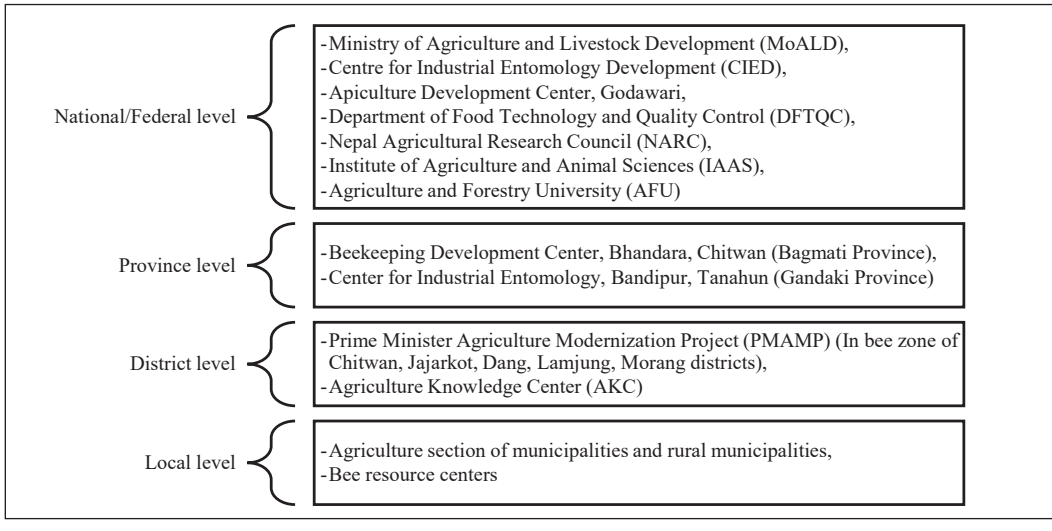

Figure 1. Government institutions involved in the development of beekeeping sector in Nepal

Source: Compiled by author

4.2 Bee Species Management and Forage Conservation

The management and conservation of bee species, along with the sustainable development of bee forages, are critical to ensuring pollination, ecological balance, and economic benefits through honey and other bee products. Nepal's policy framework presents a multi-dimensional approach to bee species management and biodiversity conservation. The National Agriculture Policy 2004 promotes biodiversity conservation and the adoption of organic farming practices. Its support for the establishment of gene banks indirectly benefits beekeeping by preserving diverse flora, which serves as essential forage for pollinators. Encouraging organic farming under this policy not only improves the environment for bees but also boosts the production of quality organic honey.

The Agribusiness Promotion Policy 2007 identifies beekeeping as a viable agribusiness and calls for technical assistance and feasibility studies to support it. The promotion of herbal farming under this policy complements beekeeping by increasing forage diversity. Similarly, the Agro Biodiversity Policy 2007 acknowledges pollinators as integral to agricultural productivity and biodiversity. It underlines the importance of preserving genetic diversity and ecological balance, which are essential for the survival and health of the bee population. Moreover, this policy also supports the conservation of traditional knowledge, which can include indigenous beekeeping methods suitable to Nepal's unique agro-ecological conditions.

The Bee Promotion Policy 2017 is the most detailed and specific in terms of bee species management and conservation. It advocates for the promotion of both native and introduced species tailored to Nepal's diverse agro-climatic zones. For instance, it promotes *Apis mellifera* in the Terai and inner hilly regions while prioritizing the conservation and improvement of *Apis cerana* in the hills and mountains. Migratory beekeeping, selective breeding, and the establishment of dedicated breeding centers are supported to ensure species suitability and sustainability. Furthermore, the policy outlines clear provisions for assessing the economic and ecological impacts of importing new species, reflecting an integrated approach to species introduction.

In terms of conservation, the policy emphasizes the importance of protecting natural habitats through environmental impact assessments, among other measures, during infrastructure development. It also encourages the traditional practice of honey hunting by training local communities, recognizing its cultural significance and potential for eco-tourism (Api-tourism). The policy further emphasizes the conservation of wild bees through collaborative programs with relevant agencies, thereby strengthening Nepal's broader biodiversity framework.

One of the standout areas in this domain is the development of bee forage, which is critical for the sustainability of bee species. Over 70% of the honey in Nepal is from wild flora, offering substantial potential for organic honey (Ghimire, 2024). The Bee Promotion Policy 2017 outlines an actionable framework, including mapping and classifying bee pastures, determining carrying capacity, and enforcing codes of conduct for sustainable use. It mandates that 25% of planted trees should be bee-friendly and encourages household-level plantation of such flora. The policy also promotes awareness to prevent destructive practices, such as pruning during peak flowering seasons, and advises farmers to minimize pesticide use during blooming. Additionally, incentives are offered to promote native bee-friendly flora such as *Chyuri* and *Mauwa*, and beekeeping is allowed in forests under regulated conditions.

Despite these comprehensive efforts, several policy gaps and constraints remain. Implementation remains a significant hurdle, particularly in remote areas that lack institutional support or awareness. The conservation of wild bee species remains under-resourced, and traditional honey hunting practices are at risk due to the limited number of skilled honey hunters and the reluctance of future generations to engage, mainly because of high risk involved and low income (F1, personal communication, April 15, 2023). Additionally, there is insufficient recording and monitoring of the population dynamics of various bee species and the health of bee

forage ecosystems (B, personal communication, July 25, 2024). Furthermore, inter-agency coordination between agriculture, forestry, and environmental sectors is often weak, limiting the effective enforcement of conservation strategies (E3, personal communication, March 13, 2025).

Looking ahead, the future pathway should focus on strengthening the research and monitoring systems for bee species, including population health, forage quality, and climate adaptability. Honey hunters should be trained with modern safety techniques and honey hunting should be developed as adventure tourism. Investments should be made to expand community-based conservation programs, particularly those involving women and indigenous groups, who possess valuable traditional ecological knowledge. Strengthening the institutional linkage between agriculture and forest management could ensure that bee-friendly practices are integrated into national land-use and forestry planning. Finally, policy reforms should prioritize mainstreaming beekeeping into biodiversity and climate resilience strategies, ensuring the long-term sustainability of both bee populations and rural livelihoods dependent on apiculture.

4.3 Financial and Infrastructural Support

The development of financial mechanisms and infrastructure is crucial for the growth and commercialization of Nepal's beekeeping sector. Several policies recognize this need and include various provisions to support it. The Agribusiness Promotion Policy 2007 stresses the creation of agricultural market infrastructure, such as collection centers and processing facilities, which are essential for enhancing the efficiency and scale of beekeeping operations. Furthermore, it outlines the provision of financial incentives, including concessional loans and interest subsidies, to encourage entrepreneurs to invest in beekeeping infrastructure and transportation for honey products.

Complementing this, the Commerce Policy 2025 (GoN, 2025) outlines broad financial and infrastructural measures that could be tailored to strengthen the beekeeping sector. It mentions subsidies for export-oriented Small and Medium Enterprises (SMEs), cold storage and warehouse development, Common Facility Centers (CFCs) for agro-processing, concessional loans for agro-industries, tax exemptions on imported machinery, public-private partnerships, and e-commerce promotion.

According to the Industrial Entomology Development Procedure 2024 (MoALD, 2024a), grants of up to 100% can be provided for public agricultural infrastructure; up to 85% for community-use agricultural infrastructure developed by farmers'

groups, cooperatives, user committees, or groups of at least three farmers, entrepreneurs, or consumers; up to 50% for private and commercial agricultural infrastructure; and up to 100% for technology extension, training, and workshops organized by public institutions.

The Bee Promotion Policy 2017 offers the most targeted and comprehensive approach to financial and infrastructural support. It facilitates investments through agricultural development banks, commercial banks, and financial institutions, with a focus on inclusive access to finance for women, dalits, and other disadvantaged groups, utilizing group guarantees and collateral arrangements. To facilitate better honey storage and marketing, cheap and simplified credit facilities are proposed for producers and traders. The policy also aims to introduce and expand insurance coverage to manage risks associated with bee transfer and honey production, a progressive move toward enhancing sector resilience.

Regarding taxation, the policy suggests tax exemptions for commercial beekeeping activities, provided such provisions are incorporated into tax laws. It also recommends a broad set of incentives and subsidies for hive construction, honey collection, and processing. Grants and targeted subsidies are envisioned to motivate capable entrepreneurs and help expand operations based on regional comparative advantages. Additionally, the policy promotes public-private collaboration to develop essential infrastructure for honey collection, storage, and processing, thereby strengthening the value chain for bee products.

Despite these policy commitments, several gaps and constraints hinder the full realization of financial and infrastructural support. A major gap exists in the implementation and accessibility of financial services, especially for smallholder and marginalized beekeepers who often lack the collateral or financial literacy needed to access institutional credit (D2, personal communication, March 15, 2025). Accessing financial services such as loans, subsidies, and insurance claims is often a complex and burdensome process for genuine farmers. In many cases, only those with connections to powerful or influential figures can secure these funds (E3, personal communication, March 13, 2025). However, bee zone officials claim that all registered beekeepers have received subsidies at least once (F2, personal communication, March 15, 2023). Additionally, the proposed tax and insurance benefits are either poorly defined or not effectively enforced due to a lack of clear operational guidelines and monitoring mechanisms. Infrastructure development remains uneven, with many rural and high-potential production areas lacking well-equipped processing facilities and storage units. Bee insurance claims require

documented proof of accidents, but since such events happen suddenly and it's often impossible to take photographs at the moment, obtaining insurance compensation becomes nearly impossible (E3, personal communication, March 13, 2025).

To address these challenges, the future path should focus on operationalizing and decentralizing financial services, ensuring that concessional loans, subsidies, and grants reach grassroots beekeepers through simplified procedures. Creating a dedicated fund or financing scheme for beekeeping under government or cooperative frameworks can help attract targeted investments. Equally important is the development of climate-resilient and standardized processing infrastructure, especially in major honey-producing districts, supported through public-private partnerships. Policies should also make sure that insurance schemes are tailored to the specific risks of beekeeping and actively promoted among beekeepers. Finally, stronger institutional coordination and regular evaluation of policy implementation are needed to align financial and infrastructural support with the sector's changing needs.

4.4 Informational publications

Informational publications targeted to beekeepers and supporting personnel are valuable tools for spreading awareness and strengthening the knowledge. However, much depends on the quality of the publications. This study has assessed materials published by the Apiculture Development Center, Lalitpur, the Beekeeping Development Center, Chitwan, and the International Centre for Integrated Mountain Development (ICIMOD) for their focus, merits, and weaknesses. The assessment is subjectively made by the author (Table 2). While these publications covered a wide range of topics and provided useful information, they had a few shortcomings. They lacked alignment with national policies, subsidies, training, and institutional linkages. They were often too technical for general farmers, requiring specialized tools and knowledge, with limited relevance to diverse ecological zones. Visual aids, cost analysis, and market guidance were largely absent, making implementation and scalability difficult, especially in rural contexts. Key areas, such as biosecurity, forage management, and commercialization, are inadequately addressed. The content is text-heavy, lacks practical examples, and offers minimal scientific validation. Overall, the materials are either too simplistic for advanced users or too complex for beginners, limiting their effectiveness and usability.

Table 2: Assessment of Technical Documents Published by Different Institutions

S.N.	Name of Document	Published Year	Assessment	
			Content and Merit	Weaknesses
Published by Apiculture Development Center, Lalitpur				
1	आधुनिक मौरीघार र यसको प्रयोगबारे जानकारी [Information on Modern Beehives and their Use]	2024	Offers detailed measurement of all parts of modern hive with photographs	It misses connections to national policies, subsidies, insurance, or training programs available in Nepal. Some parts, especially those with dense measurements and tool lists, may feel overly technical or repetitive without summarizing key takeaways.
2	मौरीमा लाग्ने प्रमुख रोगहरु सुलसुले तथा शत्रुजीवको पहिचान र व्यवस्थापन [Identification and Management of Major Bee Diseases, Wax Moth, and Pests]	2024	Covers wide range of diseases and pests of bee and their management	While treatment is covered well, biosecurity, hive hygiene, and early warning systems are not emphasized adequately. The document is text-heavy with no photos, diagrams, or visual identification tools, which are crucial for field-level diagnosis.
3	मौरी चरन तथा यसको व्यवस्थापन बारे जानकारी [Information on Bee Forage and Its Management]	2024	Written in simple Nepali language. Lists diverse seasonal bee forages. Promotes conservation of forage plants. Encourages use of indigenous/local species. Useful for basic awareness among farmers.	Flowering time of same plant may vary in different ecological zones. No practical forage management tips. Missing visuals (photos, tables). No information on economic/ market value.
4	रानु मौरीमा कृत्रिम गर्भाधान [Artificial Insemination in Queen Bees]	2023	Explains artificial insemination clearly in Nepali language. Includes step-by-step process with diagrams and illustrations. Promotes scientific breeding methods among farmers.	Content is highly technical—may be difficult for general farmers to implement. Requires special tools, training, and lab setup not easily accessible in rural areas. No cost analysis or affordability assessment for smallholder beekeepers. Limited information on success rate, risks, or failure handling.

S.N.	Name of Document	Published Year	Assessment	
			Content and Merit	Weaknesses
5	पुत्का मौरी पालन र यसको संरक्षण [Stingless Bees Rearing and Their Conservation]	2023	Uses simple and local language, easy for grassroots farmers to understand. Covers practical topics such as life cycle, hive making, honey extraction, and uses. Focuses on conservation and promotion of indigenous stingless bees. Includes illustrations and diagrams for better understanding. Highlights medicinal value of stingless bee honey. Promotes low-cost and locally adaptable hive-making techniques	Lacks scientific depth and is less suitable for advanced or commercial users. Does not include economic analysis or cost-benefit discussion. Formatting is dense and may be difficult to read for some users. Provides little guidance on marketing, branding, or value chain development. Contains few references and lacks deeper scientific validation.
6	आधारभूत मौरीपालन प्रविधि पुस्तिका [Basic Beekeeping Technique Manual]	2020	Covers a wide range of beekeeping topics. Emphasizes low-cost and locally feasible practices and presented in Nepali language.	Text- heavy and plain, lack beekeeping policies, support schemes, or linkages with institutions
7	गुणस्तर रानु उत्पादन प्रविधि पुस्तिका [Quality Queen Production Technology Manual]	2022	Written in clear Nepali language, accessible to farmers. Includes step-by-step guidance on queen rearing, grafting, and hygienic testing. Emphasizes quality bee production and colony management. Covers various rearing methods with local relevance. Includes diagrams and practical instructions. Encourages scientific queen rearing practices with low cost. Provides timelines and necessary equipment list.	Dense formatting may reduce readability for some users. Limited discussion on economics or cost analysis. Scientific validations and references are minimal. Less focus on market linkage or commercialization. Few real-life case examples or success stories

S.N.	Name of Document	Published Year	Assessment	
			Content and Merit	Weaknesses
8	मौरीजन्य उत्पादनहरू र तिनको प्रशोधन भण्डारण तथा प्रयोग [Bee Products and Their Processing, Storage, and Use]	2022	Covers wide range of bee products: honey, pollen, royal jelly, propolis, wax, venom, apilarnil, bee bread, etc. Provides clear processing, storage, and usage methods for each product. Uses simple Nepali language, understandable for farmers. Encourages value addition and diversified income from bee products.	Some sections are technically dense for less literate farmers. No visual aids (photos, diagrams, flowcharts) for easier understanding. No cost-benefit or market pricing details for products. Some advanced products (e.g., bee venom, apilarnil) may not be practically feasible for all farmers.
Published by Beekeeping Development Center, Chitwan				
1	मौरीपालन मासिक अभिलेख [Record Keeping Book]	2025	Clear guidance on bee disease identification and control. Tailored to Nepal's local context. Encourages record-keeping and better hive management. Promotes low-cost, natural treatments. Improves awareness on biosecurity.	Difficult scientific language. Few images or visual aids. No cost estimates provided. No market or income guidance.
	वार्षिक प्रगति प्रतिवेदन पुस्तिका (आ.व. २०८०/०८१) [Annual Progress Book 2080/81]	2025	Includes detailed statistical data on bees and honey production. Provides technical information on beekeeping practices and species. Clear history and organizational structure of the center. Tracks performance and budget utilization effectively. References national beekeeping policies and guidelines. Region-specific and locally relevant content.	Lacks visual aids like charts and graphs. Text-heavy; could be more concise. Minimal critical analysis or reflection on challenges. Language may be too technical for beginners.

S.N.	Name of Document	Published Year	Assessment	
			Content and Merit	Weaknesses
Published and disseminated by ICIMOD				
	आधारभूत मौरीपालन तालिम प्रशिक्षक स्रोत पुस्तिका (Beekeeping Training for Farmers in the Himalayas: Resource Manual for Trainers)	2012	Context specific to Nepal's mid-hill regions. Covers full beekeeping cycle (technical to marketing). Practical and farmer-friendly. Gender-inclusive approach. Developed from field-tested experiences	Limited scalability beyond pilot regions. Requires skilled trainers to implement. Some content may be too technical for beginners. Resource-intensive for replication. May not fully suit Terai or high-mountain contexts

4.5 Awareness, Training, and Capacity Building

Awareness creation, training, and capacity building are essential pillars for the sustainable development of Nepal's beekeeping sector. National policies have increasingly acknowledged the need to enhance human capital and share technical knowledge in this field. The National Agriculture Policy 2004 highlights the importance of agricultural training, which can include beekeeping as a means to boost productivity, improve livelihoods, and support sustainable farming. Incorporating beekeeping into broader training programs offers an opportunity to establish foundational knowledge among rural communities.

Similarly, the Agribusiness Promotion Policy 2007 emphasizes capacity building through specialized training to improve technical and managerial skills in beekeeping. This policy highlights modern techniques, quality control, and business-focused practices, ensuring that beekeeping is recognized not only as a traditional activity but also as a viable agribusiness. It aligns with the broader goal of integrating apiculture into Nepal's commercial agricultural sector.

The Bee Promotion Policy 2017 offers the most comprehensive strategy for raising awareness, training, and building capacity. It proposes a variety of initiatives to sensitize the public about the ecological and agricultural importance of bees, especially in pollination. Special awareness programs focus on discouraging harmful practices like pesticide spraying during flowering or pruning bee forage during peak bloom. These efforts target both general farmers and specific groups to promote pollinator-friendly practices and conserve bee populations.

Training programs are inclusive, focusing on economically and socially marginalized communities, including women, dalits, and other disadvantaged groups. Specific programs provide incentives and concessions to encourage their participation, promoting social inclusion in the beekeeping sector. Additionally, training on international quality standards and Good Beekeeping Practices (GBPs) is offered to beekeepers and honey traders to improve competitiveness in both domestic and export markets.

Furthermore, the policy emphasizes building technical expertise by developing skilled manpower in areas such as bee disease management, breeding, and product innovation. It suggests educational visits, workshops, and expanding beekeeping resource centers as knowledge hubs for practitioners. Capacity building is formalized through partnerships with universities, including the Agriculture and Forestry University, the Institute of Agriculture and Animal Sciences, and the Nepal Agricultural Research Council, which are mandated to develop and deliver specialized training programs. Curriculum reforms are also advocated to incorporate beekeeping into vocational education and agricultural training institutions, ensuring the long-term sustainability of knowledge transfer.

Industrial Entomology Development Procedure 2021 (MoALD, 2021) provisions for quality queen production training, two-day site-specific training for disease-affected areas, and Mites and European Foul Brood management program. Additionally, Industrial Entomology Development Procedure 2024 provisions an electronic advisory system to provide commercial beekeepers with information on the availability of bee forage, technical knowledge, honey, and bee products, national quality standards, market prices, and other necessary components. This system aims to make information accessible to producers, consumers, and technicians in one place, thereby increasing the productivity of beekeeping and improving income levels through effective facilitation.

Despite these commendable policy efforts, several gaps and constraints hinder effective implementation. First, awareness programs remain limited to certain regions, often excluding remote and mountainous areas. Training calls are only announced through websites, and those without Android phones or who are illiterate cannot access the information, resulting in about 40% of beekeepers still being unaware of training programs (D2 & E3, personal communication, March 13, 2025). Second, institutional coordination and funding for large-scale training initiatives are insufficient, leading to fragmented and short-term efforts (A, personal communication, July 15, 2024). There is also a shortage of trained trainers and technical experts, particularly in bee breeding, queen rearing, and modern disease

management (B, personal communication, July 25, 2024). Additionally, there are no provisions for refresher trainings to keep beekeepers updated and reinforce learned skills. Moreover, the use of Nepal's Indigenous Technical Knowledge (ITK) in the beekeeping sector—such as hive cleaning and disinfection methods—remains absent from training programs (E3 & E5, personal communication, March 13, 2025).

The future pathway should focus on expanding geographic coverage and ensuring consistency in training and awareness programs, with particular attention to integrating indigenous knowledge and modern science. Regular monitoring and evaluation of training efforts can help measure their effectiveness and identify areas needing improvement. Lastly, strengthening institutional capacity within government and academic institutions is essential through curriculum updates, trainer development, and ongoing investment in education infrastructure. By cultivating a knowledgeable and skilled community of beekeepers, Nepal can unlock the full potential of its apiculture sector, promoting ecological sustainability and economic growth.

4.6 Honey Production, Quality Control, and Certification

Honey production in Nepal has shown a steady upward trend over the years, reflecting the cumulative impact of various policy interventions and growing interest in apiculture. According to the data, honey production increased from 1,365 metric tons in 2010/11 to 4,308 metric tons in 2022/23 (figure 2). Furthermore, the 16th Five-Year Plan (National Planning Commission, 2024) targets increasing honey production to 6,600 metric tons by 2028/29.

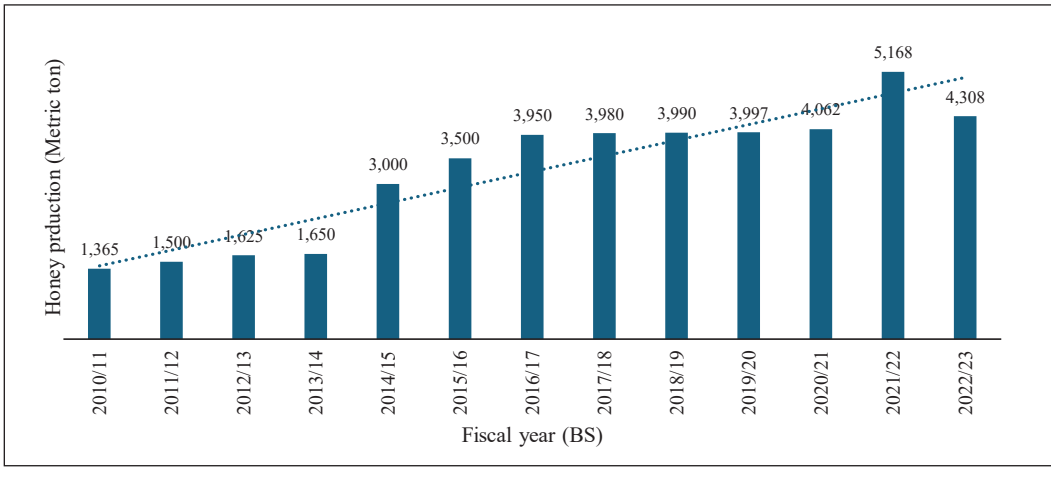

Figure 2. Annual honey production in Nepal (MoALD, 2024b)

Regarding the honey quality and standards, the Department of Food Technology and Quality Control (DFTQC) has developed "Minimum mandatory quality standards specified for food and feed products" that also includes honey standards for Nepal, which can be compared to the European Union (EU) Countries and our neighboring India, as shown in Table 3.

Table 3: Comparison Table of Honey Standard in Nepal, European Union, and India

Component	Standard Limit		
	Nepal	**European Union**	**India**
Moisture	Not more than 23%	Not more than 20% and up to 23% for heather honey	Not more than 20%
Ash	Not more than 0.5%		
Sucrose	Not more than 5% in pure floral honey and 10% in other types	Not more than 5%	Not more than 5%
Reducing Sugar	Not less than 65% in pure floral honey and not less than 60% in others	Not less than 60g/100g	Not more than 65% for blossom honey and not more than 45% for blends with honeydew
Fructose /Glucose Ratio	Not less than 0.95		0.95–1.50
Acidity (as formic acid)	Not more than 0.2%	Not more than 50 meq acid/1000g	Not more than 0.2%
Water Insoluble Solids	Not more than 0.5%	Not more than 0.1 g/100 g (honey) and not more than 0.5 g/100 g (pressed honey)	
Hydroxymethylfurfural (HMF)	Not more than 40 mg/kg	Not more than 40 mg/kg. Not more than 80 mg/kg (honey from countries with tropical ambient temperature)	Not more than 80mg/kg
Diastase Activity		Not less than 8 Schade units (honey after normal processing) and not less than 3 Schade units (honey with low natural enzyme content)	Not less than 3 Schade units

Component	Standard Limit		
	Nepal	European Union	India
Electrical Conductivity		Not more than 0.8 mS/cm (honey, honeydew, chestnut honey)	Not more than 0.8 mS/cm for blossom and not more than 0.8 mS/cm for honeydew
Authenticity testing			$\delta^{13}C/\delta^{12}C$ ratio (EA/LC-IRMS) & NMR profiling to detect sugar adulteration

Note: g – gram, mg – milligram, kg – kilogram, meq – milliequivalent, mS/cm – milli siemens per centimeter,

Source: Food Safety and Standards Authority of India, 2018; DFTQC, 2019; SAWTEE, 2015)

Multiple policies contribute to improving honey production. The Agribusiness Promotion Policy 2007 focuses on strengthening quality certification systems to ensure that honey and related products meet both national and international standards. Complementing this, the Food Hygiene and Quality Act 2024 (GoN, 2024) mandates the establishment of food laboratories, emphasizing hygienic production and requiring producers to adhere to food safety management systems. This framework helps ensure that honey is uncontaminated and properly labeled, particularly for domestic markets.

Although the Commerce Policy 2025 does not explicitly reference honey production, its frameworks for agricultural products provide a foundation for quality enhancement. The policy emphasizes sanitary and phytosanitary certification for agro-exports, promotion of organic certification systems, establishing modern laboratories for product testing and value-addition incentives.

The Bee Promotion Policy 2017 takes a comprehensive approach by promoting Good Beekeeping Practices (GBPs) and establishing mechanisms for quality determination and certification. This includes developing standards to control pesticide residues, heavy metals, and antibiotics in honey. Efforts are also made to establish and operate honey testing laboratories as per international guidelines. A unified quality management logo and trademark have been proposed to create a distinct identity for Nepali honey, boosting its market value. Furthermore, clear definitions for natural versus processed honey, grading systems, and regulatory categorization of beekeeping levels are essential components of this policy. Basic

honey quality data and standards are intended to be disseminated across institutions and stakeholders, ensuring consistency and compliance.

Despite these efforts, challenges persist. The fluctuation in production, as seen in the dip during 2022/23, suggests vulnerability to factors such as climate change, disease outbreaks, and inadequate input supply. There is still a lack of coordination among regulatory, academic, and marketing institutions, which hinders efficient implementation of quality and certification frameworks. Many smallholder beekeepers are not yet fully integrated into modern value chains or certified under formal standards, limiting their market access. Difficulty meeting foreign market's honey standards, lack of easily accessible honey testing labs and testing equipment are major bottlenecks for Nepal's honey industry (A, personal communication, July 15, 2024). Nepal's honey market is dominated by imported and fake honey. Infrastructure for quality testing, especially in rural and remote regions, remains limited, affecting the uniformity and scalability of quality assurance (E3, personal communication, March 13, 2025).

The future pathway must focus on enhancing the institutional capacity for laboratory testing, expanding GBPs through field-level training, and simplifying certification procedures for small producers. Stronger market linkage initiatives and incentivizing compliance with quality standards can boost both production and exports. Data-driven monitoring systems should be deployed to track production trends and adjust policy actions accordingly. Achieving the 2028/29 target of 6,600 metric tons of honey, as outlined in the 16th Five-Year Plan, will depend on sustained policy support, robust quality infrastructure, and inclusive market development strategies that empower beekeepers at all levels.

4.7 Market Access and Export Promotion

Nepal's policy landscape demonstrates a strong commitment to enhancing market access and export promotion in the beekeeping sector. The Commerce Policy 2025 aims to strengthen trade diplomacy and negotiate bilateral and regional trade agreements to expand market reach, implementing "Made in Nepal" campaigns to promote domestic products.

The Agribusiness Promotion Policy 2007 supports export-oriented strategies by enhancing information dissemination about global honey markets through Nepalese embassies abroad. It further promotes local honey varieties, advocating for their registration and recognition, which is essential for branding Nepali honey in international markets. Additionally, the policy pushes for the development of

e-commerce platforms, facilitating online honey sales and allowing producers to reach broader markets beyond traditional retail systems.

The National Agriculture Policy 2004 complements these efforts by regulating the production and distribution of quality agricultural inputs, including beekeeping supplies. Ensuring the availability of high-quality equipment and resources helps maintain the production standards needed for export-level honey.

A more detailed and strategic approach is taken by the Bee Promotion Policy 2017 which focuses on improving the market competitiveness of Nepali honey by enhancing productivity and reducing production costs. To improve marketing management, the policy recommends reducing and simplifying tax structures on local honey while controlling the import of foreign honey through increased customs duties. Participation in national and international exhibitions and fairs is encouraged to promote premium varieties like Himalayan honey and organic honey.

Furthermore, this policy outlines plans to replace imported honey with domestic production while also promoting the export of surplus. Effective utilization of bee pastures, access to capital, and technical knowledge are recognized as essential to achieving these objectives. In addition to honey, beekeepers are encouraged to diversify products by producing and marketing bee wax, royal jelly, propolis, and other value-added bee products, thereby expanding economic opportunities and enhancing export readiness.

Despite these comprehensive provisions, several gaps remain. Challenges include limited international branding of Nepali honey, lack of certification systems accepted by importing countries, and underdeveloped logistics for exporting bee products. Furthermore, electronic trading systems are still in nascent stages and not widely accessible to rural producers (A, personal communication, July 15, 2024). Nepal's export of honey to European countries was halted as Nepal could not meet the quality standard.

Back in 2013, the Department of Food Technology and Quality Control drafted a comprehensive Residue Monitoring Plan (RMP) to prepare honey for export to European Union (EU) markets. Figure 3 illustrates the planned institutional framework and coordination mechanism that Nepal plans to establish to ensure honey exports to the European Union comply with food safety standards, particularly regarding pesticide residues. At the center of this system is the DFTQC, which acts as the lead agency responsible for implementing the Residue Monitoring Plan (RMP) and coordinating with various stakeholders.

As mentioned in the plan, DFTQC will implement it in coordination with Ministry of Agriculture Development (Department of Agriculture) through District Agriculture Officers who will play a crucial role in the field by inspecting beekeeping practices, advising on pest management, and ensuring compliance with recommended procedures. The Plant Protection Directorate, functioning as the Plant Quarantine authority, will be responsible for verifying laboratory test results and issuing phytosanitary certificates required for export.

At the operational level, Registered Honey Processers will handle the post-harvest processing of honey, ensuring traceability and adherence to Good Manufacturing Practices (GMP). These processors will work closely with Registered Beekeepers, who will be responsible for safe pesticide use and providing honey samples for testing. Honey Exporters will be required to source honey only from registered and certified producers and processors to ensure traceability and compliance with EU standards.

Accredited Test Laboratories will carry out the residue analysis of honey samples, while the National Reference Laboratory, designated as the Central Food Laboratory under DFTQC, will oversee the laboratories' performance, verify results, and ensure consistency and accuracy in testing. However, since then, no further steps, such as discussion, testing, or certification, have been taken (Punthoki, 2019).

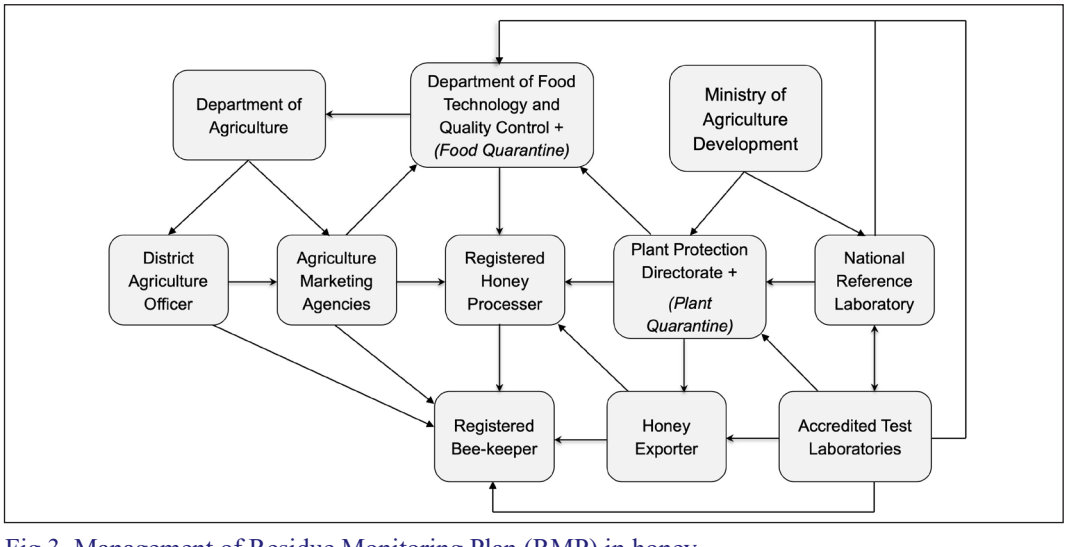

Fig 3. Management of Residue Monitoring Plan (RMP) in honey

Source: Dahal & Lama (2014)

Social media has played a significant role in promoting honey sales. Approximately 80% of sales were made directly from the house. However, there is a limited scope for honey export. Exposure to international trade fairs and on-farm visits to other countries should be provided to Nepal's beekeepers (E3, personal communication, March 13, 2025). Many smallholder beekeepers are unaware of available promotional opportunities, and, due to limited market networks, honey remains unsold (E2, personal communication, January 23, 2024).

To address these constraints, the future pathway must involve strengthening international branding through geographical indications (GIs) and trademarks, expanding digital literacy and online sales training, and ensuring access to export certification facilities. Investments in infrastructure for bee-products diversification, processing, packaging, and transport, as well as capacity-building programs on international trade standards, will be key to expanding Nepal's presence in the global honey market. Coordinated action across government, private sector, and development partners is essential to realize the full export potential of Nepal's beekeeping sector.

4.8 Technological Advancement and Research

The Government of Nepal has increasingly prioritized technological advancement and research in beekeeping, as reflected in several national policies and programs. The Bee Promotion Policy 2017 emphasizes the importance of studies on pollination efficiency, particularly comparing honey bees with wild bees and other pollinators, highlighting their ecological significance. To support such research, the policy mandates the active involvement of institutions like the Nepal Agricultural Research Council (NARC), Agriculture and Forestry University (AFU), the Institute of Agriculture and Animal Science, and the Department of Agriculture. It also encourages collaboration with national and international universities to promote dissertations and academic studies related to beekeeping. Further, the policy stresses the development of adequate research infrastructure across governmental and non-governmental bodies and provides priority funding for beekeeping proposals under the Nepal Agricultural Research and Development Fund. Complementing these initiatives, the Agriculture Biodiversity Policy 2007 calls for in-depth research on agricultural biodiversity, which includes exploring the role of bees in pollination and honey production, vital for promoting sustainable agricultural practices.

A more recent initiative, the Procedure for Implementing Conditional Financially Transferred Agricultural Development Programs at the Provincial and Local Levels 2080 (MoALD, 2023), outlines a structured Honey Bee Breed Improvement

Program. This program aims to introduce modern techniques such as instrumental insemination and controlled mating, starting with the development of queen breeding infrastructure at AFU. In subsequent years, test apiaries will be set up to evaluate bee traits and estimate breeding values, leading to the production and distribution of breeder queens.

By the fourth year, the program targets the production of 500 breeder queens annually, to be supplied to seven queen rearing centers, including one government and five private facilities located in Kanchanpur, Dang, Nawalpur, Chitwan, and Jhapa. AFU is being developed as a national Bee Breeding Improvement Centre, while its Beekeeping Development Center in Chitwan will serve as a Queen Rearing Center. The program also aims to build technical capacity across institutions by training 10 AFU faculties, 2 PhD scholars, 20 postgraduate researchers, 500 undergraduates, and 50 postgraduate students. NARC will be strengthened with 10 scientists and 30 technicians, and DOA/CIED with 30 officers and 100 technicians. Additionally, 5 private apiaries, 20 honeybee entrepreneurs, and at least 3,000 beekeepers will benefit from collaborative research, training, and technology transfer.

However, there are notable gaps and constraints. Limited funding, weak infrastructure, and lack of awareness and training among beekeepers hinder the adoption of modern techniques like instrumental insemination (A, personal communication, July 15, 2024). There is also a lack of coordination among NARC, universities and government extension institutions, which affects the effective dissemination of research findings (B, personal communication, July 25, 2025). Moreover, the availability of quality queen bees in rural areas remains a challenge (C, personal communication, March 16, 2025). To address these gaps, it is necessary to fully operationalize breeding centers at AFU and Chitwan, improve funding mechanisms, promote digital platforms for research dissemination, and encourage international collaboration. Enhancing private investment and providing field-level training can also help bridge the gap between research and practice. Through these measures, Nepal can build a technologically advanced and sustainable beekeeping sector that supports both biodiversity and rural livelihoods.

5. Evaluation of the Beekeeping Promotion Policy, 2017

The Beekeeping Promotion Policy, 2017 was evaluated for major achievements and major underachievement or failure in the objectives and stated policies (targets) based on data scarcely available in various reports and the interviews with the experts (Table 4).

Table 4: Evaluation of Beekeeping Promotion Policy, 2017

Objectives	Policy	Major Achievements	Major Underachievement/ Failure	Sources of data
7.1	8.1 Species Management	- Promotion of native and exotic bee species - Successful queen production using AI in Beekeeping Development Center, Chitwan	- Lack of data on wild bees and species conservation impact -Breeding center for *Apis cerena cerena* not established - No morphological characterization of bees in Nepal	Dhungana, 2025; Policy documents and interviews
	8.2 Strengthening and Management of Beekeeping Pasture (Forage)	- Bee forage calendar made for Pyuthan, Sarlahi, Chitwan, Lamjung, Kavrepalanchowk. - Bee carrying capacity estimation started from Pyuthan and Sarlahi	- Difficulty to ensure 25% bee forage in plantation programs and conservation areas - No monitoring of forage sustainability -No preparation of code of conduct especially for community forest and National parks	Rijal et al., 2018; Bhattarai et al, 2023; Neupane et al., 2024; ApiDC reports
	8.3 Management of Beehive Migration	- Increment in the number of migratory beekeepers	- Difficulty for migratory beekeepers in negotiation with foraging area officials (extra charge for foraging), traffic police (colony loss due to long inspection time) and local people - Poor enforcement of regulations	Beekeeper's interview; Ghimire, 2024
	8.4 Management of Bee Diseases and Pests	- Farmers friendly booklets on bee diseases and pest published -Mite and EFB management campaign -2 days mobile training in problematic areas	- Still beekeepers lose bee colonies due to lack of good beekeeping practices and awareness programs on pest control -Beekeepers use banned and unrecommended chemicals to control disease and pests	ApiDC reports and interview with officials

Objectives	Policy	Major Achievements	Major Underachievement/ Failure	Sources of data
	8.5 Wild Honey Hunting Management and Habitat Conservation	- Recognized traditional honey hunting. - Preparation of code of conduct for safe honey hunting.	- Protect declining wild bee populations due to habitat loss. - Very limited promotion of honey hunting as Api-tourism. - In Environment Impact Assessment of Hydropower and road project, wild bees and their habitat are not well addressed.	Interview with official
	8.6 Honey Production and Market Management	- Increased honey production (1,625 to 4,308 MT, 2012–2023). - Annual training in bee product diversification - Bee processing plant setup in Jajarkot, Sarlahi and Chitwan	- Nepal still imports more honey than it exports -Limited number of honey testing labs - Quality compliance to EU standard not met yet. -GBP is not well accessed and practiced by beekeepers to producce quality honey	MoALD, 2024b; Punthoki, 2019
	8.7 Incentives and Subsidies	- Subsidies for hive equipment	- Unequal distribution; smallholders excluded - Focused more on expansion rather than market assurance and quality control	Panta et al., 2024
	8.8 Beekeeping Loans	- Credit access for commercial beekeepers	- Difficult paper works	- Interview with farmers
	8.9 Promotion of Insurance Policy	- Introduced bee insurance schemes	- Low adoption due to complex claim process	- Interview with farmers and officials

Objectives	Policy	Major Achievements	Major Underachievement/ Failure	Sources of data
	8.10 Tax Exemption Policy		- Poor enforcement of regulations	- Interview with farmers and officials
	8.111 Provision for Beekeeping Research	- Studies on value chain and bee forage	- Limited funding for applied research - Almost no bee-related research being conducted by research institutes - No advanced breeding or agro-climatic adaptability research by government agencies like NARC	- Interview with officials and researchers
	8.12 Human Resource Development	- Beekeeping included in courses of agriculture universities - Trainings provided for trainers (Training for trainers), carpenters (Hive making) and beekeepers (basic beekeeping, quality queen production, bee products diversification and artificial insemination) - Preparation of short-term course under CTEVT Apitherapy course 2077(520 hours) Beekeeper course 2079 (390 hours)	- Training not reaching remote areas and digitally illiterate beekeepers	- Interview with farmers and officials

Objectives	Policy	Major Achievements	Major Underachievement/ Failure	Sources of data
7.2	8.13 Honey Quality Determination, Certification, and Pesticide Residue Control	- Provided national honey quality standards	- No accredited labs for honey testing - No national standard or certification system in place at collection centers for honey quality control. - DFTQC only categorizes honey as edible or non-edible, without nutritional detail for consumer comparison.	Panta et al., 2024 and interview with officials
	8.14 Honey Marketing Management	- Nepal Honey Fair held every year to promote honey - Website on bee advisory system developed to facilitate online buying and selling of honey	- Honey smuggling due to open border	ApiDC, n. d.; Panta et al., 2024
	8.15 Standardization, Monitoring, and Regulation	- Drafted quality standards	- Poor enforcement of regulations	ApiDC reports
7.3	8.16 Mobilization and Management of Bees for Pollination	- Website developed for farmers to call for pollination	- No awareness programs for non-beekeepers regarding pesticide harming bee	
7.4	8.17 Mainstreaming of Economically and Socially Disadvantaged Groups	- Inclusive selection of participants in beekeeping training ensuring female and marginalized community inclusion	- Weak socio-economic condition to invest in beekeeping	Interview with officials

Objectives	Policy	Major Achievements	Major Underachievement/ Failure	Sources of data
	8.18 Institutional Development	- 38 Bee resource centers established in 21 different districts	- Bee resource center remains only under federal government (Lalitpur), while provincial governments haven't established their own, affecting service delivery like queen bee replacement and training	ApiDC, n. d.; Panta et al., 2024
Other provisions				
9 Economic Aspects		- I/NGO funded projects conducted through government offices	- Co-funding for large budget projects yet to be done	
10 Institutional Structure		- Committee for Bee promotion made		
11 Legal Provisions		- Good Beekeeping Practice Directive-2017 - Industrial Entomology Development Procedures 2021 - Industrial Entomology Development Procedures 2024	No clear licensing, regulations or land-use policies governing apiary movement or hive farming	Basnet, 2025
12 Monitoring and Evaluation			Timely evaluation missing.	Interview with officials

Although a sectoral policy is not necessarily a real guideline for making programs in Nepal, it is a helpful exercise to relate policy objectives to developmental achievements in that sector. Assuming there is a connection between the policy and actual developmental programs, the Beekeeping Promotion Policy seems to have made notable strides in promoting native and exotic bee species, advancing queen production using artificial insemination, and expanding migratory beekeeping. Bee forage calendars have been developed for several districts, and mobile trainings and farmer-friendly materials have improved awareness of bee diseases. Honey production has significantly increased, and several processing plants and training

programs have been established. Human resource development has advanced through inclusion in academic curricula and short-term courses, while inclusive training efforts have sought to engage marginalized groups.

However, several policy objectives remain underachieved. Key challenges include the absence of baseline data on wild bees, weak enforcement of forage protection and migratory beekeeping regulations, and continued use of unapproved chemicals. Forage sustainability, biosecurity, and habitat conservation are insufficiently monitored or supported. Economically, Nepal still imports more honey than it exports, and honey testing infrastructure and compliance with international standards are lacking. Incentives and insurance are poorly distributed, with complex procedures discouraging adoption. Research efforts are limited and underfunded, with minimal institutional involvement from government bodies like NARC. Legal enforcement, certification mechanisms, and effective M&E systems are weak. Provincial institutional structures are also underdeveloped, hampering localized support and service delivery.

6. Conclusion

The beekeeping sector in Nepal shows great potential for enhancing rural livelihoods, conserving biodiversity, increasing agricultural productivity through pollination and contributing to export earnings. While policies such as the Bee Promotion Policy 2017, National Agriculture Policy 2004, and Agribusiness Promotion Policy 2007 have laid foundational guidelines on aspects like quality control, market access, species conservation, and research, the implementation of these policies remains fragmented and under-resourced. Key challenges include poor coordination across government tiers, institutional overlaps, limited financial and technical support to farmers, and low awareness and capacity at the grassroots level. Technical publications related to beekeeping were also not sufficiently farmer friendly. Technological innovations in queen breeding and disease management show promise but require greater institutional backing. Similarly, efforts toward honey certification and developing the export market are commendable, yet they lack adequate infrastructure and investment. The absence of comprehensive data, weak enforcement of regulations, and limited attention to pollination services compound these issues. A growing consensus among stakeholders emphasizes the need for policy coherence, participatory planning, and integrated institutional mechanisms. Overall, while Nepal has established a preliminary policy base, transforming beekeeping into a robust, inclusive, and sustainable sector requires strategic strengthening of implementation, coordination, and investment mechanisms.

7. Policy Recommendation

Based on the study, the following policy recommendations are made:

a) Establish a National Bee Development Authority to coordinate federal, provincial, and local efforts and avoid duplication in training and resource allocation.

b) Introduce targeted subsidies and insurance schemes for first-time and marginalized beekeepers, using a digital registry to prevent repeat beneficiaries.

c) Fully operationalize queen breeding centers at AFU Chitwan and expand modern breeding techniques like instrumental insemination across regions.

d) Establish accredited honey testing laboratories in each province to ensure compliance with international quality standards and foster trust in exports.

e) Deploy mobile-based extension services and localized training to improve technical knowledge and reach remote and underrepresented beekeepers.

f) Integrate pollination services into agriculture and biodiversity policies and provide incentives for maintaining pollinator-friendly farms.

g) Promote international branding and export-readiness by securing GI tags for Nepali honey and building capacity in trade certification and logistics.

h) Create a digital beekeeping data hub and registry to monitor colony health, map forage zones, and support evidence-based policy planning.

i) Enhance accessibility and practicality of beekeeping materials through farmer-friendly beekeeping manuals that include visual aids, localized forage calendars, cost-benefit analyses, and practical guidance aligned with Nepal's diverse ecological zones.

j) Integrate beekeeping resources with national support systems. Beekeeping literature and training programs should be systematically linked with national policies, subsidies, insurance schemes, market access, and institutional support to ensure broader adoption, scalability, and economic viability for smallholder farmers.

8. Suggested Course of Action

The recommendations have been logically expanded into a suggested course of action by identifying specific tasks, the responsible authority, and the requirements (Table 5). The basis for the suggestion is the result, discussion, recommendation as well as the knowledge of the author and should be regarded as material for further consultations.

Table 5: Suggested Course of Action

Action	Details	Responsible Authority	Requirements
Develop a Coordinated Implementation Framework	Create a national beekeeping coordination unit with provincial linkages to oversee policy execution	MoALD, Provincial Agriculture Ministries	Intergovernmental agreement, staffing, legal mandate
Launch Targeted Support Schemes	Design financial incentive packages and insurance for smallholder beekeepers	MoALD, Agricultural Development Bank, Local Governments	Budget allocation, policy revisions, financial institution collaboration
Invest in R&D Programs	Support university-led and institutional research on queen breeding and disease management	NARC, Agricultural Universities, Ministry of Education, Science and Technology	Research grants, technical experts, infrastructure
Upgrade Quality Assurance Infrastructure	Establish and accredit honey testing and processing labs at provincial level	DFTQC, Trade and Export Promotion Center	Infrastructure development, training, international collaboration
Expand Extension and Awareness	Deploy trained extension agents and mobile-based information tools for farmers	Local governments, MoALD, NGOs	Capacity building, ICT tools, curriculum development
Promote Pollination Services	Integrate pollination into agricultural and biodiversity policies, and support bee-friendly farming	MoALD, Ministry of Forests and Environment, Local Units	Policy amendments, incentive design, stakeholder outreach
Enhance accessibility and practicality of beekeeping publications	Review currently available beekeeping self-help books and informational material and make recommendations for publishing improved editions, new publications and make them available to every local level where farmer have easy accessibility.	Apiculture Development Center, Agriculture Information and Training Center, Council for Technical Education and Vocational Training	Publication review, roster of experts, financing for publication projects

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