

## SAFE FOOD PRODUCTION REGIMES AND POTENTIALITY OF INTEGRATED MULTI-LEVEL FOOD CERTIFICATION SYSTEM IN NEPAL

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### ABSTRACT

*There is continuum of agricultural production systems between highly agrochemical intensive farming and pure organic system. The current certification system in Nepal involve two levels - organic and good agriculture practice (GAP). Other middle-way alternatives for safe food like traditional and pesticide-free systems have not been considered for certification. This paper analyses various safe-food production regimes and explore potential for integrated multi-label food-safety certification system. Taking four typologies with varied levels of food safety i.e. traditional, good agriculture practice (GAP), pesticide-free and organic products as alternatives to input-intensive production systems, this paper concludes that the integrated multi-label food safety certification system would provide choice for consumers to make price and food-safety trade-off. Labelled safer food alternatives would enable consumers to choose and pay for their safe-food need and increase consumption of safer food contributing to sustainable growth of agriculture sector.*

**Key Words:** Certification, Nepal, Organic, Pesticide-free, Safe-food, Traditional

### INTRODUCTION

Finding a balance between increasing agricultural productions and maintaining food safety has been a challenging act for policy makers in developing countries. Introduction of agro-chemicals, including pesticides, has increased food availability by enhancing crop yields by reducing critical growth constraints and protecting crops from pests, it has also increased the risk of food-safety challenges such as pesticide-toxicity (Lamichhane *et al.*, 2016; Carvalho, 2006). Nepal also emphasized on increasing application of agro-chemicals for increasing agricultural production based on the assumption of green revolution (Thapa, 2010). Consequently, high pesticide residues in food products, and resulted potential health risks is an important food safety issue in country (Bhandari *et al.*, 2019).

Nepal's formal effort on 'Food Safety' can be dated back to 1966 with enactment of Food Act (1967). Regulations about food safety, however, were under broad umbrella of three laws: Food Act (1967), Plant Protection Act (1972) and Animal Health and Livestock Services Act (1998). While food safety

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targets needs to be achieved by adopting safe methods during production, handling, preparing and storing food, historically, less attention has been paid on how farmers produce food/food ingredients. Food safety efforts in country were focused on inspecting and analysing end products. Realizing this gap, lately, National Food Safety Policy (2019) emphasized on the need for “Total Quality Management” - adopting the ‘farm to fork’ approach - to give due emphasis throughout food-chain including production level (MoALD, 2019a). Despite that, food safety agenda rarely reflected in the agriculture development agenda. Instead, agricultural development paradigm promoted green revolution which increased the use of agrochemicals including fertilizer and pesticides often leading to production of unsafe food. Nepal’s average pesticide use in agriculture is 0.27 kg/ha which is still low compared to other countries such as India (0.37 kg/ha), China (14.84 kg/ha) and Japan (12.63 kg/ha) (FAOSTAT, 2021).

The knowledge about harmful impacts of agrochemicals has increased in recent years. Due to this, some notable efforts have been made to address negative impacts of agrochemicals. Some of them include - introduction and promotion of Integrated Pest Management (IPM) since 1997; promotion of organic agriculture; introduction of Good Agriculture Practice (GAP), and implementation of Organic Agriculture Promotion Program (OAPP) since 2018. Nepal’s traditional production system is ‘*de facto*’ organic or naturally astute form of the organic farming. Nepalese farmers are practicing this traditional system for production of agriculture commodities for centuries without using any agrochemicals and harnessing the biological and cultural diversity.

Despite availability of these alternative production methods, food certification/labelling practice has not recognised these diverse production methods. Nepal Food Regulation (1970) was the first legislation about food labelling in Nepal which asked the producers to mandatorily put essential information like processing batch number, manufacturing date, weight, and preservatives (HMGN, 1970). The regulation established the Department of Food Technology and Quality Control (DFTQC) with mandate to ensure and enhance the quality and safety of food and feed products. DFTQC plays greater role in food processing and post-harvest issues related to food safety. Food safety issues at farmers level has seldom been priority agenda for DFTQC as some of these issues are seconded to agriculture and livestock sector departments.

Thanks to the efforts from promoters of organic and GAP, Nepal has established the provisions for labelling organic as well as GAP products. OAPP has been implemented since 2018, has recognised four typologies of production systems i.e. Traditional, Pesticide-free, Organic in Conversion and Organic (MoALD, 2020). However, due to lack of integrated multi-layered certification system, these intermediate safer-food production regimes have

been overlooked in the certification/labelling mechanism despite their potential to serve as safer-food alternative to wider consumers. This indicates towards the need for integrated certification system with multiple levels of food safety between pure organic and input-intensive production system. This paper reviews status of available safer-food production regimes, related policy and legal provisions and discuss the potential for integrated multi-level food-safety certification/labelling systems for Nepal.

## **OBJECTIVES**

The specific objectives of this paper are:

1. Assessment of status of various typologies of safe-food production regimes in Nepal
2. To review the policy and legal framework for traditional agriculture, pesticide-free, Good Agriculture Practice (GAP) and organic systems
3. To assess the need for integrated certification system for organic, traditional, pesticide-free and GAP labelling for promoting healthy and safe food production in Nepal

## **METHODOLOGIES**

This study examines the existing literature on diverse food production systems (traditional, organic, conventional chemical based) and policies, periodic plans, perspective plans, legal mechanism, focusing on pesticide safe vegetable production, and discusses the gap in these literature and policy measures. For first objective, the assessment of status of various typologies of safe-food production regimes was done through review of literatures about various typologies of healthy and safe-food production, analysis of secondary data regarding the status of those regimes and reviewing the constraints and problems identified for promotion of those regimes. For second objective, various policies, strategies and legal documents were reviewed and analysed to note the existing policy and legal frameworks relevant for promotion of various safe-food production regimes and discussions were made on policy gaps. Finally, for third objective, the need for the integrated multi-level safe-food certification and labelling system were assessed by reviewing different national and international practices for food-safety certification.

## **DISCUSSIONS**

### **TYPOLOGIES OF SAFE-FOOD PRODUCTION SYSTEMS AND THEIR STATUS IN NEPAL**

Various terminologies, often overlapping with fuzzy difference, are used to denote various safer production regimes in the continuum between pure organic and input-intensive paradigm (Table 1). Some of these systems call for rationalization of agrochemicals (e.g. GAP, integrated farming system, biological farming) or do not allow agrochemicals (e.g. traditional, organic

agriculture, permaculture and ecological agriculture). Production derived from these production systems are safer compared to the conventional system because they either do not have or have tolerable level of chemical residue in food. Despite these typologies being available, the area coverage and the market share of these systems remain low.

Table 1: Typologies of safe-food production paradigm

Typologies	Focus	Use of fertilizers	Use of pesticides	Status in Nepal
Traditional Agriculture	Application of indigenous knowledge, tools, resources, and cultural beliefs	Not used	Not used	Majority of farmers still practice traditional system without visible differentiation of production from traditional methods to other farm products (Pokhrel and Pant, 2009)
Biological Farming	System which minimizes the use of 'chemicals' for pest control (Farrell <i>et al.</i> , 2017)	Not used	promote biological pest control	Biological pest control has been promoted in few crops as part of IPM initiative, but the adoption is still low
Good Agricultural Practices (GAP)	Safe and quality food and non-food agricultural products; locally developed optimal practices	Rational use	Rational use	NepalGAP Implementation Directive has been approved in 2018 (MoALD, 2018). The area under GAP is 7.99 ha (DFTQC, 2021)
Integrated Farming Systems	Farms and the food production system as an integrated whole, synergies and complementarities (Soni <i>et al.</i> , 2014)	Rational use	Rational use	Nepal's traditional farming system is like integrated crop-livestock-agroforestry system (Paudel <i>et al.</i> , 2011)
Organic Farming	Avoids use of synthetic fertilizers, and agrochemicals including GMO free targeting to getting	Not allowed	Not allowed	Being promoted through policies and strategies since The tenth plan. The country has 11,851 ha

	official certification for marketing			land and 1,622 organic producers covering about 0.23% of agricultural land (Willer and Lernoud, 2019).
Pesticide-free or Zero Pesticide Residue	Avoids the use of toxic chemicals and pesticides targeting food safety (Nazarko <i>et al.</i> , 2003)	Allowed	Not allowed	There are areas and crops where fertilizers are used but pesticides are not used but they are not documented.
Permaculture	Low-maintenance integration of plants, animals, people and structure (Holmgren, 2020)	Not allowed	Not allowed	Viewed like organic farming, not widely adopted
Ecological agriculture / Agroecological farming system	Harmony with nature, harness natural process like nutrient cycling, biodiversity without using agrochemicals (Lacombe <i>et al.</i> , 2018)	Not used	Not used	Nepal's traditional subsistence farming system, particularly in high mountains and hills is ecological agriculture, however, not widely recognized

Source: Compiled by author

Among these typologies, we can observe Traditional, Integrated Farming System, Permaculture or Agroecological farming system in Nepal, often without knowing its literary definition. However, outputs derived from them are not differentiated in market. Nepal's certification system only consists 'organic' product and 'all others', except recent addition of GAP, failing to reward the producers who adopt traditional or agro-ecological systems and limiting consumers of the diversity of certified safer-food alternatives.

Traditional agriculture, GAP, pesticide-free and organic production regimes merits attention for Nepal due to their historical significance, area coverage, policy preference and potential to meet Nepal's food safety requirements. Globally, organic agriculture is most promoted safe-food production regime mainly due to its success in penetrating the market. Despite notable promotion of modern organic agriculture by government and private sector in Nepal only 11,851 ha of land (about 0.23%) was under certified organic agriculture, and only 1,622 farmers practiced it (Willer and Lernoud, 2019). A

high initial investment, long waiting period, shortages of labour, lack of organized market, high price of product, costlier and cumbersome process of third-party certification, lack of technical knowhow, complexity of certification, lack of consumer awareness, unclear product standards, and poor quality assurance are frequently cited reasons behind low adoption of organic agriculture (Bhatta *et al.*, 2009; Banjara, 2016). It is not possible to get information about the extent of coverage and adoption of other safe-food production systems. Traditional agriculture, which is closest to astute form of organic farming, is practiced for centuries, but is declining year after year. About 96% of agriculture land in mountain (high-hill), 80% of land in mid-hill and 41% of land in Terai are still pesticide-free in Nepal; however, due to lack of any certification and labelling, the agriculture products derived from these lands are treated as common unsafe food (PPD, 2014). There is some effort for GAP; however, it is in infant stage with almost negligible adoption at country level.

#### POLICY AND LEGAL FRAMEWORK FOR SAFE-FOOD PRODUCTION SYSTEMS

*Policy Framework:* Table 2 shows notable policies promoting organic and safe-food production regimes in Nepal. Starting from Agriculture Perspective Plan (1995) (NPC, 1995) to Agriculture Development Strategy (2015-2035) (ADS) there is notable progress in devising policies to address safe-food production issues and quality assurance issues of agricultural products through standardization, certification, accreditation, GAPs and SPS measures. National Fertilizer Policy (2002) emphasised on minimizing the negative impacts of chemical fertilizer, National Agricultural Policy (2004) emphasised on organic farming, promoting organic certification and conservation biodiversity and environment. Agribusiness Policy (2006) included the provision for establishing organic/pesticide free production areas, and registration of indigenous knowledge and technologies to promote traditional productions. Policies like National Coffee Policy (2003), Agricultural Biodiversity Policy (2014), Trade policy (2009), Nepal Trade Integration Strategy (2016) has supportive provisions for organic system. The recently introduced National Food Safety Policy (2019) has taken vision of ensuring food safety and quality in all stages of food chain. The OAPP Implementation Procedure has acknowledged the need to promote different types of safer-food production typologies (MoALD, 2020).

Recognition of these issues in policies is also paralleled with the inclusion of activities to promote safe-food production regimes in periodic plans - mainly promoting organic system and regulation of agrochemicals. For initial decades, agricultural sector plans were heavily focused on promoting green revolution technologies. The Eighth plan (1992-1997) was the first to recognize the need to rationing pesticide (NPC, 1992) as Pesticide Act 1991 (HMGN, 1991) was enforced with provision of controlled use of pesticide.

Table 2: Notable policies related to promotion of safer-food production regimes

<b>Policy framework</b>	<b>Focus on safe food production</b>	<b>Potential Provisions and Options</b>
Agriculture Development Strategy (2015-2035)	Standardization, Certification, Accreditation, GAPs and SPS measures	Provisions of GAPs and SPS measures can be used to refine standards and guidelines for certification for traditional and pesticide free products (MoAD, 2015)
National Agricultural Policy (2004)	Organic farming, organic certification, conservation of natural resources and biodiversity	Provisions to promote integrated farming and pesticide free farming in the new revision of the Policy (MoAC, 2004)
National Fertilizer Policy (2002)	Integrated Plant Nutrient System Management (IPNSM) to minimize the negative impacts of chemical fertilizer	Production and promotion of organic inputs for crop production (MoAC, 2002)
Agribusiness Policy (2006)	Establishing organic/pesticide free production areas, registration of indigenous knowledge and technologies	Organic/pesticide free certification of agricultural products (MoAC, 2006)
National Coffee Policy (2003)	Promotion of organic coffee	Development of national logo for coffee (NTCDB, 2003)
Agricultural Biodiversity Policy (2007), Amendment (2014)	Conservation and use of agrobiodiversity with traditional production system	Develop of Action plans, guidelines and legislation to promote traditional and pesticide free system for agrobiodiversity (MoAC, 2007)
Trade Policy (2009)	Production of organic, fresh and dried vegetables, certificates for organic products	Support to value addition and export (MoCS, 2009)
Nepal Trade Integration Strategy (2016)	Recognized organic products like large cardamom, ginger, tea, and medicinal and aromatic plants	Support to value addition and export (NTIS, 2016)
National Food Safety Policy (2019)	Ensuring food safety and quality in all stages of food chain and facilitate food trading	Adoption of risk-based food-safety and quality control mechanism, promotion of GAP and GVP certification (MoALD, 2019a)

Source: compiled by author

The Ninth plan (1997-2002) stressed on promoting Integrated Plant Nutrient Management Services (IPNMS) for rationing the use of chemical fertilizer and called for Integrated Plant Protection Services (IPPS) for minimizing the use of pesticides. The Tenth plan (2002-2007) promoted organic farming and Integrated Pest Management (NPC, 2002). All succeeding periodic plans after that have provisions, programs for promoting the organic production and paved ways to pilot innovative certification methods like Participatory Guarantee System (PGS) for organic certification and marketing. The Fourteenth Plan (2016/17-2018/19) gave strong attention to pesticide residue and risk analysis in vegetables (NPC, 2017). The Fifteenth plan (2019/20-2023/24) has called for development and dissemination of organic agricultural technologies and plans to identify and promote exportable Nepalese special production and facility of branding to these products, establish accredited laboratories to regulate and manage in pesticide use, certification, branding and marketing of organic products (NPC, 2019).

**Legal Framework:** Table 3 shows notable laws in Nepal related to food safety issues. Nepal’s Constitution, 2015 has expressed ‘consumer right’ as fundamental right and stressed on right ‘to obtain quality goods and services’ (GoN, 2015). Accordingly, The Consumer Protection Act (2018) was enacted to assure consumer with quality products and services at reasonable price. The Food act (1967) was already there to maintain purity in foodstuffs and prohibiting production, sale and distribution of adulterated foodstuffs, prohibit on sale of foodstuffs by lying or misleading (HMGN, 1967). Since previous version of The Consumer Protection Act (1997), it has stressed on labelling of products with adequate information. There are provisions in Environment Protection Rule (1997), Pesticide Act (1991) and Pesticide Rules (1994), Pesticide Management Act (2019), although not directly mentioning food safety issues but interwoven to favor safe food production system. Recently enacted The Right to Food and Food Sovereignty Act (2018) is closely attracted to the cause of safe-food system as it emphasizes to protect traditional foods, promote traditional agricultural products and markets.

Table 3: Major legal framework in agriculture and food production in Nepal

Legal framework	Connection to safe food production	Provisions
Consumer Protection Act (2018)	Quality products and services at reasonable price	Develop by laws (rules), guidelines and directives to develop standards for food products (GoN, 2018a)
Food Act (1967)	Prohibition in production, sale and distribution of adulterated food stuffs	Specify quality standards, power to withhold, licence (HMGN, 1967)



Consumer Protection Act (1998)	Protection of the rights and interests of consumers	Formation of Consumer Protection Council, Provision of inspection officer, compensation of loss (HMGN, 1998)
Environment Protection Rule (1997)	Environmental protection, safe-food production, mandatory provision of environmental assessments for activities involving handling of chemical fertilizer and pesticide	Develop guidelines, standards and promoting environmentally friendly technologies (MoWSS, 1997)
Pesticide Management Act (2019)	Safe import, export, sale, use of pesticides and reduce negative impact	Formulation of pesticide management regulation, directives and standards, promotion of bio-pesticides (MoALD, 2019b)
Right to Food and Food Sovereignty Act (2018)	Right to protect traditional foods, farmers rights, promote traditional agricultural products and markets	Develop by laws(rules), guidelines and directives to develop standards for certification of traditional & pesticide free production system (GoN, 2018b)

Source: Compiled by author

There are several standards and guidelines like National Technical Standards of Organic Agriculture Production and Processing (2007) developed in Nepal which are also supportive for food safety causes however most of efforts are concentrated on promoting organic agriculture as the only alternative. Recently adopted NepalGAP has provided another mid-way alternative for safe food but it is in juvenile stage until now. OAPP has accepted the traditional as well as pesticide-free typologies while promoting organic agriculture in country (MoALD, 2020).

#### NEED FOR INTEGRATED MULTI-LEVEL FOOD SAFETY CERTIFICATION MECHANISMS

Nepal has certification system for organic and GAP which are alternative to product from unsafe input-intensive system. Since GAP is just initiated, consumer face binary choice - either buy pure organic or not. Consumers do not get to choose anything between these two ends in the spectrum. Mid-way alternatives are available in various countries like in USA, the label 'organic' is given to any product with 100% organic ingredients, whereas "made with organic" is label to products with 70% organic ingredients (Parker *et al.*, 2021; USDA, 2021). GAP is a compromise between fully organic and

conventional system as it does not exclude but encourage safe use of agro-chemicals. Even with full functional organic and GAP systems, however, they do not cover products from traditional farming and as well as any other pesticide-free production regimes which has huge potential in Nepal.

### ***Certification of 'Traditional Production'***

Although modern organic agriculture including formal certification has a relatively short history in Nepal, Traditional farming in the country was always like modern organic farming, ecological farming or permaculture. It can be argued that the traditional agriculture practiced in high-mountains and hills of Nepal for centuries was the astute form of organic agriculture. The products derived from the traditional production system in many areas of country are still free of agrochemicals (Gurung *et al.*, 2016; Parajuli *et al.*, 2016; Palikhey *et al.*, 2016); hence, they are safe for human and environmental health. Majority of traditional farmers in high mountains and hills have not received any benefit from ongoing efforts to promote organic agriculture. In fact, the production derived from traditional production system, which by default organic in nature, is not differentiated and promoted in market. Recently, OAPP has identified 'Traditional' as separate typology within organic agriculture continuum; however, this is not supported by certification practice. However, there is opportunity to differentiate the products derived from traditional production practices, agro-chemicals are largely applied to few field crops like rice, wheat, maize and the high value horticultural crops (Pokhrel and Pant, 2009; Takeshima *et al.*, 2016) mostly for modern varieties in favourable irrigated production pockets of Terai and accessible river valleys in the hills.

It is reasonable to expect that consumers are willing to pay premium price for traditionally recognized products. The traditional products with geographical identity like beans from Humla and Jumla, black gram from Gorkha, traditional varieties of rice from various places (e.g. Marsi from Jumla, Jethobudo from Pokhara, Kalo nuniya from Jhapa, Tilki from Dang, Jorayl from Doti) are sold with higher price in market. There is opportunity to provide price-premium to many traditional, neglected and underutilized crops/varieties grown in high mountains and hills as well as crops/varieties maintained and cultivated by ethnic groups, tribal people and minorities (Gauchan *et al.*, 2020). However, due to lack of proper differentiation and product tracing, there is widespread misinformation and adulteration in marketing of these products. Due to lack of appropriate standards and quality assurance, retailers falsely claim traditional production methods to other products, which gradually reduce the authenticity in the market. The process of organic certification is not suitable for certifying farm products derived from traditional farming practices. The traditional agriculture is bio-diverse and practiced in complex crop-livestock-agroforestry system which involves

diverse crops and heterogeneous production technologies, which makes it very difficult to meet the standards and homogeneity requirement of organic certification (Gauchan *et al.*, 2020; Tibério and Francisco, 2012). In addition, the organic certification process also requires paying high price and need special knowledge which cannot be afforded by smallholders. Therefore, it is reasonable to consider a different process for certifying ‘traditional production’, which needs to be easier and affordable yet giving authenticity to consumers. There are examples of such certification/labelling practices to differentiate traditional production such as Traditional Speciality Guaranteed (TSG) for process and Protected Designation of Origin (PDO) for place in European Union (Tosato, 2013).

### ***Certification of Pesticide-free Production***

Farmers who apply chemical fertilizer but avoid pesticide are also common in Nepal for field crops like rice, wheat and maize, fruits and vegetables. Although chemical fertilizers also have negative environmental impacts, it is not as hazardous to human health compared to pesticide. While ‘organic’ or ‘traditional’ products are the most safe-food, many consumers cannot always afford the price-premium to pay for these products. In a study conducted in Kathmandu valley, it is reported that that only 13% consumers were willing to pay up to 50% premium price whereas majority (58%) were willing to pay 6-20% premium price (Aryal *et al.*, 2009). Another study indicated that consumers in Kathmandu were willing to pay average of about 31% premium price on vegetables (Rai and Adhikari, 2016). High price of organic products is often most reported constraints among the consumers to consume safe food (Bardhan *et al.*, 2019; Bhatta *et al.*, 2009; Sharma *et al.*, 2016). A higher price for organic products is due to lower yield and higher transaction costs (Knapp and Van, 2018; Manida and Nedumaran 2021). In this regard, some suggests that if organic regulations are modified to allow restricted use of mineral nitrogen fertilisers it can increase the yield (Röös *et al.*, 2018). Though it challenges the basic principle of organic farming, products derived from such methods will be safer than conventional system and affordable than organic system. Such products can be marketed with label of ‘pesticide-free’ rather than ‘organic’. A sizable segment of the consumers may be willing to buy the ‘pesticide-free’ products without considering whether it has been produced ‘with’ or ‘without’ inorganic fertilizer. Worldwide, there are examples that countries and companies use the ‘pesticide-free’ label to the food products to assure that the product is produced without use of any pesticide (e.g. ‘Zero Pesticide Residue’ or ZPR Label in France; ‘Certified Pesticide Residue Free’ label (Food Print, 2021) ‘Certified Pesticide Free’ label (Clean Label Project, 2019); ‘Pesticide Free’ label by Greener Choices (Oscar, 2021). Studies have suggested that consumers believe that products labelled ‘Pesticide free’ are with higher quality, greater value and possess

higher purchase intention than those without the label (Greibitus *et al.*, 2018). In Nepal, OAPP has recognised 'Pesticide-Free' typologies which allow use of fertilizer but not pesticide (MoALD, 2020). Therefore, a new 'pesticide-free' label is worth considering providing consumers a reliable choice between organic and unsafe products.

### **Integrated Multi-Level Safe-Food Certification/Labelling Regime**

Considering the potential of promoting traditional agriculture which already has large area coverage in Nepal and pesticide-free label which may be relevant for producing affordable safe-food, it is worthwhile to consider multi-level food-safety certification mechanism where the food products are provided with mandatory labels indicating one production regimes among various levels of food safety. This integrated mechanism can be built on the existing mechanism for organic and GAP certification by including 'traditional production' and 'pesticide-free' labels in the spectrum of safe-food (Figure 1). Different levels of food-safety labels can be assigned by a single authority like DFTQC, which is already regulating organic and GAP certification. Necessary guidelines, standards and mechanism for certification and labelling of traditional system and pesticide-free systems have to be developed and integrated to single multi-label certification system.

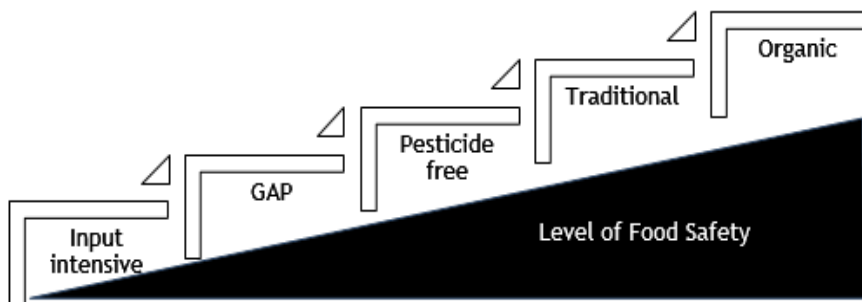


Figure 4 Continuum of multiple labels for different levels of safe food

Such an integrated certification system is aligned with the outlook of national policy framework for food safety. The Food Safety Policy 2019 also plans to establish one independent food safety and quality control authority which establishes horizontal and vertical standards for all food products in coordination with national CODEX committee (Article 11.1.2 & 11.1.3) (MoALD, 2019a). This provision paves the ways for the establishment of multi-level integrated labelling system including different typologies of safe-food production regimes in Nepal. Being a member of CODEX, Nepal has already harmonized some food standards with those laid down by Codex (WHO, 2012). While developing the standards for multi-level food-safety certification system

can be done without compromising CODEX standards. Labelling of pesticide-free and traditional systems can be targeted to national consumers in line with the Participatory Guarantee System (PGS) of quality assurance.

## **CONCLUSION**

The increased consumer awareness on food-safety issues in Nepal has increased the demand for safe-food in country. However, due to low purchasing power of people, consumers are forced to consume unsafe pesticide-laden food products. There are various relatively safer-food production systems with potential to provide safer and affordable food. However, existing food certification and labelling system has limited mid-way choice to consumers. Food derived from traditional and pesticide-free production systems has strong potential to be mid-way choice for consumers. Therefore, this paper discussed on the potential for increasing categories in food labelling system so that consumers can make greater informed choice. By reviewing policies and legal provisions as well as national/international practices, paper makes case for implementation of integrated multi-level food-safety certification and labelling system in Nepal. It makes special emphasis to integrate traditional and pesticide-free regimes as cheaper alternatives for organic and GAP labels to meet dual goals of increasing food production and enhancing food safety. Integration of diverse relatively-safer production system in labelling is proposed for improving affordability for safe-food as well as linking millions of smallholder farmers practicing traditional agricultural systems to market, eventually contributing to both food-safety and sustainable agricultural development of the country.

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