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## Transforming Food, Embracing Inclusivity: Nepal's Journey towards Sustainable Food Systems

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### Abstract

*This study explored Nepal's dynamic food practices, examining the interplay between traditional rural and evolving urban contexts. The country's food system harmoniously integrates age-old agricultural wisdom with the changing demands of urbanization. In rural landscapes, communities craft a resilient tapestry using diverse crops, agroecological practices, and a profound respect for nature, ensuring steadfast food security even in challenging environments. Conversely, urbanization introduces convenience through supermarkets and processed foods, albeit with associated costs such as escalating health issues, food waste, and social inequalities. To bridge these disparities, a focus on inclusivity and resilience is imperative. Strategies include empowering rural women, investing in infrastructure, and safeguarding traditional knowledge for sustainable food security. Urban food policies should emphasize local markets, encourage healthy choices, and minimize waste. In essence, navigating Nepal's food system transformation necessitates a delicate balance between tradition and adaptation, aspiring towards a future where comprehensive food security and well-being flourish for all.*

**Keywords:** sustainable food system, inclusivity, transformation

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### Introduction

Nepal's economy still relies primarily on agriculture that employs over 60% of the workforce generating about 25.83% of nation's Gross Domestic Product (National Planning Commission [NPC], 2019). Cereal consumption has declined over the past two decades, while consumption of vegetable oil, animal products, starchy roots, milk, vegetables, and fruits has increased (Central Bureau of Statistics [CBS], 2016). Nepal has made significant steps in developing new crop varieties to meet food demands and address specific challenges. As of 2021, 723 varieties of 80 different crops are listed on the national register, with 294 released and 429 registered (Seed Quality Control Center [SQCC], 2021). Drought is a major constraint for rice production, with projections suggesting that 15-20 million hectares of irrigated rice fields could face water scarcity by 2025 (Bouman et al., 2007). To address this challenge, Nepal has developed 11 Stress Tolerant Resistant Varieties (STRVs) specifically for rain fed areas and vulnerable farmers (Gauchan et al., 2014). The National Seed Board has recently released seven new varieties consisting desirable qualities, such as high yield, superior grain quality, and resilience to pests and diseases. (Seed Quality Control Center, 2021). These advancements offer farmers more choices and improve the resilience of the food system.

Nepali households have an average Food Consumption Score (FCS) of 71.6, where rural households hold low FCS compared to urban households consumption (76.5%). Urban households (76.5%) score higher than rural households. The FCS has shown a positive trend over the years, increasing from 65.2 in Annual Household Survey (AHS) III to 66.5 in AHS V (CBS, 2016). The Dietary Diversity Score (DDS) for Nepali households also indicates a slight improvement, rising from 6.4% in AHS IV to 6.9% in AHS V (CBS, 2016). However, the

average DDS remains higher in urban areas (7.1) compared to rural areas (6.7), suggesting that urban households consume a wider variety of foods. The constitution of Nepal 2015 guarantees every citizen the right to food, food security, and food sovereignty as the basic human right (Kyle & Resnick, 2016). Article 36 guarantees the right to food and protection from life-threatening food shortages, while Article 42 emphasizes social justice and the participation of disadvantaged groups in agricultural production systems (Constitution of Nepal, 2015). These rights are further clarified and steps to guarantee food security for all citizens are outlined in the Right to Food and Food Sovereignty Act, 2075. The legislation addresses concerns related to obtaining sufficient and healthy food, protection from hunger, and support for vulnerable individuals and families (Shrestha, 2023). The Agriculture Development Strategy (ADS) aims to transform Nepal's agriculture sector and achieve self-reliance, sustainability, inclusivity and competitiveness. The strategy focuses on four key components: effective governance, increased productivity, successful commercialization, and enhanced competitiveness (Agriculture Development Strategy [ADS], 2015). Inclusivity refers to the practice of ensuring that all individuals, regardless of background or circumstances, have equal access to resources, opportunities, and participation in decision-making processes. Embracing inclusivity in food systems involves incorporating diverse perspectives, cultures, and dietary preferences, which fosters resilience and innovation. By valuing inclusivity, food systems can better address the needs of diverse populations, promote social equity, and enhance long-term sustainability by creating more adaptable and resilient food networks. By encouraging inclusivity, sustainability, along with private sector development, the ADS seeks to strengthen the food system and improve the livelihoods of Nepalese people. Nepal's food system faces complex challenges but also holds immense potential for growth and transformation. Technological advancements, improved food security policies, and a focus on sustainable practices can contribute to a more resilient and equitable food system for all.

The food system in Nepal mirrors the diversity of its landscape, encompassing everything from the majestic snow-covered Himalayan peaks to the rich, fertile plains of the Terai region. Farming serves as the foundation of the economy, with 66% of the population involved in agricultural activities (Food and Agriculture Organization [FAO], 2019). In rural areas, traditional practices and cultural influences dominate, with families cultivating staple crops like rice, maize, and millet alongside vegetables and livestock (Magar et al., 2020). Food in these communities acts as a social bond, woven into festivals and celebrations, reflecting the deep connection between culture and sustenance (Rajbhandari, 2013). Rapid urbanization is reshaping Nepal's food landscape. As people migrate to cities in search of better opportunities, food habits are shifting. Supermarkets and convenience stores replace local markets, offering processed and readily available options that deviate from traditional diets (Tull, 2018). While urban residents enjoy greater access to diverse food choices, concerns arise regarding nutritional quality and the environmental impact of these changing patterns. This study aims to review aspects of food system transformation in terms of inclusivity and sustainability in various contexts.

### **Method**

A thorough literature review was conducted to establish a theoretical framework, drawing on academic journals, government reports, and publications from international organizations. Quantitative data, including agricultural and economic indicators, were gathered from official reports such as NPC and CBS. Qualitative insights, crucial for understanding cultural nuances and societal changes, were obtained through literature review. Policy was analyzed focusing key documents such as the Constitution of Nepal (2015), the Right to Food

and Food Sovereignty Act, 2075, and ADS 2015 to 2035. Those policies were analyzed linked with sustainable development goals (SDGs).

### **Results**

All individuals, including those with limited financial resources, were benefitted from the inclusive food systems, ensuring their access to affordable, safe, and nutritious foods (Van Berkum et al., 2018). It is possible to disrupt the cycle of poverty, hunger, and malnutrition that spans across generations by employing inclusive food systems (Blay-Palmer, 2016; Ericksen, 2008; Fan & Swinnen, 2020). Granting women greater decision-making authority regarding household income and control over assets led to enhanced agricultural productivity. This, in turn, improved household food security, dietary quality, and the nutrition of mothers and children (Raney et al., 2011). In addition, recent investigation involving over a thousand companies across 35 countries revealed that, in nations where cultural appreciation for diversity was high, companies with gender diversity tended to exhibit greater financial productivity (Zhang, 2020), thereby boosting profits.

Inclusion, intricately linked to the societal aspirations for fairness and diversity, was an action-oriented concept. Promoting inclusion was considered a tangible approach for individuals, private entities, institutions, policymakers, and governments to ensure that marginalized individuals have access to services and opportunities. The significance of these benefits' quality was underscored; for instance, women contributed significantly to the labor in food systems but frequently faced restrictions on land ownership. In this context, inclusion was founded on the principle of equity, providing all individuals with the necessary resources to lead healthy and satisfying lives.

In Nepal, the Agricultural Development Strategy (ADS) aimed to enhance agricultural growth by focusing on four strategic elements: marketing, efficiency, competitiveness, and governance. Additionally, it sought to promote inclusivity and sustainability in the sector. In this phase, the ADS aimed to grow private and cooperative sectors and ensure business infrastructure connectivity. The strategy was formulated to take account of the need for economic change, from one that was mainly focused shifting from an economy primarily reliant on agriculture to one driven by services and industry, while concurrently modernizing the agricultural sector. This shift was expected to greatly affect Nepal's people by changing how they produce and distribute food, developing rural areas, improving productivity, influencing trade balance, impacting employment and youth migration, defining women's roles in agriculture, and managing natural resources amidst worsening climate change. Analyzing policies such as Nepal's Constitution of 2015, the Right to Food and Food Sovereignty Act of 2075, and the Agricultural Development Strategy (ADS) 2015 to 2035 reveals their alignment with key Sustainable Development Goals (SDGs). These documents directly address SDG targets such as zero hunger (SDG 2), poverty reduction (SDG 1), sustainable agriculture (SDG 12), and inclusive development (SDG 10). They emphasize food security, sustainable agricultural practices, and social equity, contributing to Nepal's commitment to achieving the SDGs and fostering long-term sustainable development. Following contexts of inclusivity were found significant to the food system in Nepal.

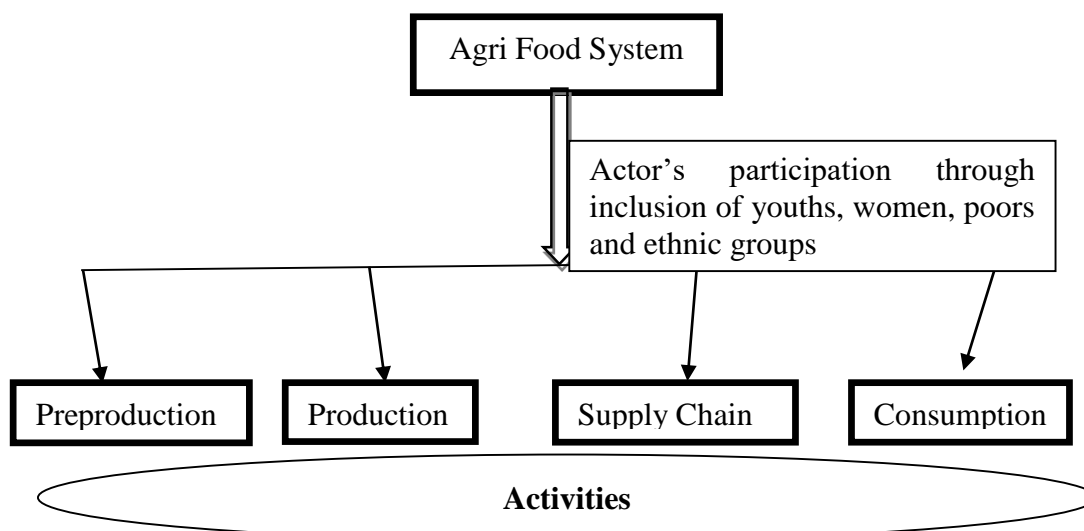
### **A multi-layered approach to Nepal's food system transformation**

Nepal's National Food Systems Transformation Pathway (NFSTP), as outlined by the National Planning Commission (NPC) in 2021, was initiated as a beacon of coordinated governance and stakeholder engagement. Embracing a three-tiered approach, the initiative saw efforts synergized by the federal, provincial, and local governments to drive meaningful change (NPC, 2021). This tiered model, elucidated by the UN Food Systems Coordination Hub in

2023, delineated specific roles for each level of governance, ensuring a comprehensive and inclusive strategy (UN Food Systems Coordination Hub, 2023). At the federal level, a leadership role was assumed by the government, spearheading policy frameworks and strategic planning processes to guide the overarching direction of the NFSTP (NPC, 2021). This centralized guidance provided essential coherence and direction, anchoring the initiative in a unified vision. Conversely, provincial governments, as highlighted by the UN Food Systems Coordination Hub (2023), leveraged their contextual understanding to align national strategies with local nuances. This alignment was crucial, as it empowered provincial authorities to provide tailored support to local governments, thereby facilitating effective implementation on the ground (UN Food Systems Coordination Hub, 2023). Local governments, entrusted with the pivotal task of executing actionable plans within their jurisdictions, emerged as the frontline actors in the NFSTP implementation process (NPC, 2021). This bottom-up approach, emphasized by the NPC (2021), ensured responsiveness to local needs and fostered community ownership and engagement. Through their direct involvement, local authorities were able to adapt strategies to suit the specific challenges and opportunities present within their regions, thereby enhancing the overall resilience and efficacy of the NFSTP (NPC, 2021).

Facilitating this multi-level collaboration was the Food Systems Steering Committee, established by the NPC in 2021 (NPC, 2021). Comprising representatives from various governmental bodies, development partners, private sectors, and civil society organizations, this committee served as a platform for inclusive dialogue, knowledge exchange, and resource mobilization (NPC, 2021; Chaudhary, 2019). By bringing together diverse stakeholders, the committee not only promoted collective ownership of the NFSTP but also fostered a culture of collaboration and mutual support, essential for navigating the complex landscape of food system transformation (Chaudhary, 2019). Nepal's NFSTP represented a paradigmatic example of effective governance and stakeholder engagement in driving systemic change. By embracing a three-tiered approach and fostering collaboration across government levels and sectors, Nepal laid a robust foundation for sustainable food systems transformation. Moving forward, continued commitment to inclusive decision-making, local empowerment, and stakeholder participation would be essential to sustaining the momentum and realizing the full potential of Nepal's food system transformation journey.

*Figure 1 Framework for Inclusive Transformation of Agri-food System*



*Note.* Author's estimation.

Transforming our food systems to be inclusive and sustainable requires active participation from everyone, especially those who have traditionally been excluded. This framework outlines a path for achieving this by focusing on four key components namely preproduction, production, supply chain, and consumption. The Agri-Food System framework, as depicted in Figure 1, represents a comprehensive model for inclusive transformation across various components. At the pre-production stage, marginalized groups like youths, women, the poor, and ethnic minorities' voice should be concerned in decision-making processes, resource allocation, as well as sharing their knowledge from the initiation phase. During production, equitable access to land, water, and other resources is crucial. By empowering marginalized groups to actively participate in farming, livestock rearing, and aquaculture, we can increase productivity and food security for all. The supply chain should also be inclusive, providing fair prices to producers and offering marginalized groups opportunities to participate in market activities. This can involve helping small-scale farmers, advocating local food systems, and ensuring transparency in pricing and trade practices. Finally, consumers play a crucial role in instigating change by making informed decisions about the food they purchase and by supporting sustainable and ethical practices; they can send a powerful message to the entire agri-food system.

### **Discussion**

The rural food system in Nepal was a vibrant tapestry woven with threads of ancient agricultural practices and profound respect for nature. Diverse crops like rice, maize, millets, and buckwheat stood as resilient shields against unpredictable weather patterns, echoing the wisdom embedded in traditional farming practices (Gioli et al., 2019). These agroecological systems, adapted to the region's varied terrain and microclimates, ensured food security even in the face of changing weather patterns (Gautam & Andersen, 2017). Livestock rearing, deeply ingrained in the fabric of rural life, nourished communities with protein and fueled economic resilience (Thapa, 2018). Guided by generations-old knowledge passed down through families, these practices ensured sustainable land management and resource utilization, striking a delicate balance between nature and cultivation (Biggs & Messerschmidt, 2003). The tapestry of rural Nepal's food system extended beyond the cultivated fields. Integration of wild plants into daily life revealed a nuanced understanding of nature's offerings. Wild fruits, vegetables, and mushrooms supplemented daily meals and held economic potential through community-driven collection and sale (Gurung et al., 2021). This intricate relationship with nature, where communities depended on and respected the resources around them, aligned with the FAO's call for promoting biodiversity and ecological sustainability.

As urbanization took hold, Nepal's urban food system underwent a transformation. Supermarkets, fast-food chains, and processed foods became the dominant players, bringing convenience and variety. However, this shift often came at a cost. Processed foods, staples of urban diets, often lacked essential nutrients, contributing to the rising tide of obesity, diabetes, and non-communicable diseases (Tull, 2018). The challenges extended beyond health concerns. Food waste, a byproduct of the "throwaway culture," raised both environmental and ethical questions. The stark contrast between unsold produce discarded by supermarkets and the struggles faced by residents in informal settlements and "food deserts" underscored the need for inclusive food policies to address the diverse needs of Nepal's urban populations.

Addressing these evolving challenges demanded a comprehensive transformation aligned with the FAO's principles of inclusivity and resilience. Investing in rural infrastructure and agricultural development was key, enhancing productivity, diversifying markets, and empowering rural communities, particularly women, who played an essential role in agricultural production and ensuring that households have enough food to meet their needs

(Rajbhandari, 2015). Preserving traditional farming practices and agro-biodiversity ensured not only food security but also environmental sustainability, aligning with the ten components of agroecology outlined by the Food and Agriculture Organization (FAO) (Barrios et al., 2020). In urban areas, fostering local food markets became pivotal in providing alternatives to processed foods. Educational campaigns promoting healthy food choices and initiatives like urban agriculture contributed to improving access to nutritious food. Tackling food waste required innovative solutions, such as better inventory management, food banks, and technological advancements in food processing and preservation, minimizing environmental impact and maximizing resource utilization.

Traditional frameworks for food security focused on ensuring enough food was available and accessible to all. However, growing concerns about fairness and ecological impact demand a broader approach. The 2017 "Shaping the Future of Global Food Systems" report outlines four key objectives that reframe food security for a sustainable future: inclusiveness, sustainability, efficiency, and nutritious diets. Achieving these goals necessitates innovation across the entire food chain, from production to consumption (Bilali, 2018). Social innovation emerges as a critical driver of this transformation. It operates within a complex social-material context, involving diverse actors, their relationships, and the institutions that govern them. It aims for transformative change, fundamentally altering societal values and structures to achieve social justice (Bilali, 2018). This change encompasses socio-economic, socio-cultural, and political dimensions, unfolding simultaneously across various locations. Understanding the role of social innovation requires studying real-world cases where transformative change is evident. Often, this change involves institutional shifts, altering the established rules that govern how we interact. These institutions encompass families, organizations, and communities, shaping our understanding of the world and guiding our actions. Social innovation can modify, reinforce, or replace existing institutions, driving the food system towards a more sustainable, inclusive, and efficient future. By integrating these broader objectives and embracing social innovation, we can move beyond simply ensuring access to food and create a food system that nourishes people and planet alike.

### **Conclusions**

Nepal's journey towards sustainable food systems involves navigating the complex interplay between traditional practices and modern challenges. The rural-urban divide underscores the need for inclusive strategies that respect both the deep-rooted traditions of rural communities and the evolving dynamics of urban areas. Embracing sustainable agricultural practices, preserving biodiversity, and promoting inclusive policies are crucial steps in ensuring food security, health, and environmental sustainability for all Nepalese citizens. As the nation continues to transform its food systems, a holistic and participatory approach, incorporating the diverse voices of its people, will be key to achieving a resilient and equitable future. By harnessing traditional knowledge, investing in local capacities, and embracing innovations, Nepal can ensure food security, preserve its unique cultural heritage, and contribute to a healthier and more sustainable future for its people and the planet.

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