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## How can the hidden costs and benefits of agrifood systems be effectively incorporated into decision-making for transformation ?

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### **Back ground :**

Agriculture is such an important thing. The human race cannot be without it. It is essential for birds, mice, cats, insects and grasshoppers. For us human beings, our civilization cannot be found without agriculture. We cannot survive without food. Today, we know that due to the increasing population in the world, due to climate change, due to uneven distribution of land, due to excessive exploitation of natural resources, the human race has to face difficulties in agriculture.

The price of every commodity is directly linked to agriculture. It is associated with food, whether it is drinking material, bran fed to cattle, manure. Whether it is the coal that runs the train, whether it is the oil that flies the airplane, whether it is the engine of the motor vehicle that runs on that fuel, there is a hidden cost in each of them. The issue of cost reduction in agriculture is important in itself. How to reduce costs in agriculture? It is important to pay attention to what kind of agriculture can reduce costs.

Even today there are more developing countries than developed countries. There is lack of education, health and employment in those countries. There is a large population and small farmers in that country. In such countries, the state should not

be able to provide land. Even the minimum irrigation needed by the farmers is not available. There is no proper management of the food system when agriculture is dependent on sky water.

“कृषि जैविक विविधता, हाम्रो अमूल्य सम्पदा,  
संरक्षण एवं दिगो उपयोग, हाम्रो प्रतिवद्धता”

# दोस्रो राष्ट्रिय कृषि जैविक विविधता सप्ताह

ठोसा नगरपालिका-४, घापासी हाइट, काठमाडौं  
१-७ माघ, २०८०

## 2<sup>ND</sup> NATIONAL AGROBIODIVERSITY WEEK

15-21 January, 2024



“गार्लेको उत्पादन छहटमा, देशले खाजा पट्टयमा”

### **Need for small farmer friendly agriculture programs to reduce costs:**

Less developed countries have more population than developed countries. There is also a shortage of industrial factories. Small and medium scale agricultural business can be taken as the main source of livelihood. According to the study, small farmer friendly agricultural programs are always weak in countries with less land.

However, the standard of living of farmers in countries where land is managed by the government is much higher. Availability of free land, management of irrigation, management of market, overall agricultural production system can be found to have improved. This also helps in making the cost less expensive.

### **Lack of management of agricultural infrastructure:**

The living soil has been made dead due to chemical fertilizers and chemical pesticides. As a result, the fertility of the soil has decreased. As the part of the soil becomes salty and the acid part increases, the micro-organisms in the soil become almost dead. On the one hand, when the fertility of the soil deteriorates, the production of agricultural crops decreases. On the other hand, the annual floods and landslides are cutting the soil of the farmlands.

the means of keeping the soil alive and not allowing the soil level and soil surface to decrease is the use of organic fertilizers, which can be prevented only by the organic matter of the soil surface and productive crops.

### **Emphasis on the promotion of organic fertilizers as a special priority :**

When agriculture goes back to ancient times, it is necessary to review the topic of how the agricultural system started by our ancestors and how agriculture developed. Looking at the exorbitant cost of modern agriculture reminds us of the complete system of agriculture. Because neither chemical fertilizers nor chemical pesticides were used at that time, not only in our country Nepal, chemical fertilizers were not used 30 years ago.

In Nepal in the 1960s, DTD drugs were used in the Terai for eradication. Over time, it was used in agricultural crops in the name of killing insects in food.

The science that has developed over time cannot be denied, but in the name of increasing production, sensitive items like food are considered harmful to human health by the use of chemical drugs and chemical fertilizers.

Due to not being able to properly manage the methods of use, it is not only destroying the biological power of the soil, it is destroying the entire environment.

Today we have seen the danger in the reproduction of the bees that roam around us. With the use of chemical drugs, millions of domestic bees and hives die either

due to a crisis. Even the honey they collect has become poisonous. As a result, affecting human health, it has also created a crisis in human reproduction.

The use of pesticides and fertilizers, which play with the health of the human race, has started to create a situation where no products are produced. This is sad for us. While raising the issue of cost reduction in agriculture, spending a quarter of the budget allocated for the purchase of chemical fertilizers worth billions of rupees, on animal husbandry and developing biological pesticides will benefit the overall organism and the world. We still have a history of using organic fertilizers and using domestic medicines to give us double the yield that we get. And many countries, including Europe, have started adopting biological diversity-based agriculture and ecological agriculture.

### **Reduction of chemical fertilizers and chemical medicines:**

Production cannot be increased without agricultural effort. Agricultural technology is a sure way to reduce costs. The problem has come from looking at agriculture from a commercial point of view. Their own position that they should become self-sufficient in agriculture is correct. It is also a human duty to provide support by sending the agricultural food produced in one place to another place, which sustains human life.

There can be no doubt that production can be increased by using agricultural chemical fertilizers and pesticides. Production increases. But without thinking about the long-term effects, the entire agricultural system is about to fall into crisis. We neither have enough land to improve it, nor can the soil be regenerated in 2-4 years. Billions of rupees are spent on chemical fertilizers and pesticides. If those billions of rupees are invested in organic agriculture, it is not impossible.

### **Interventional Role of Government Need for Policy Regulation:**

In Nepal, now 2024 January 15, the Ministry of Agricultural Development of the Government of Nepal, Center for Crop Development and Biodiversity Conservation, Tokha Municipality, Raithane Agro Products and other agricultural organizations related to the agricultural market and production are celebrating "**Biodiversity Day 2024**" throughout the week.

In the program, there was an in-depth discussion on how to reduce the cost of organic agricultural products, how to bring healthy products to the common consumers, and how to provide fair prices to the farmers.

Everyone was worried about how to make the federal government, province government, and local government advance in the promotion of organic agriculture by taking the opportunity of Biodiversity Day. The idea of how to make food healthy by giving food free of toxins went very well.

Happily, the Director General of the United Nations Agriculture Organization, Dr. Qu Dongyu, attended the opening ceremony as a guest at the Kathmandu **"International Policy Dialogue on Future Smart Corp"** program on January 11, 2024, and expressed the idea of advancing Nepal's agricultural production with interest.



Demand for organic foods is partially driven by consumers' perceptions that they are more nutritious. However, scientific opinion is divided on whether there are significant nutritional differences between organic and non-organic foods, and two recent reviews have concluded that there are no differences. Many of these compounds have previously been linked to a reduced risk of chronic diseases, including CVD and neurodegenerative diseases and certain cancers, in dietary intervention and epidemiological studies. Additionally, the frequency of occurrence of pesticide residues was found to be four times higher in conventional crops, which also contained significantly higher concentrations of the toxic metal Cd. Significant differences were also detected for some other (e.g. minerals and vitamins) compounds. There is evidence that higher antioxidant concentrations and lower Cd concentrations are linked to specific agronomic practices (e.g. non-use of mineral N and P fertilisers, respectively) prescribed in organic farming systems. In

conclusion, organic crops, on average, have higher concentrations of antioxidants, lower concentrations of Cd and a lower incidence of pesticide residues than the non-organic comparators across regions and production seasons.

### **Challenges and Future Directions :**

Despite the potential of TCA, there are challenges in its implementation. These include the difficulty of quantifying certain costs and benefits, the need for comprehensive data, and resistance from stakeholders accustomed to the status quo. Further research and development of methodologies for TCA are necessary to overcome these challenges.

In conclusion, effectively incorporating the hidden costs and benefits of agrifood systems into decision-making is a complex but essential task. It requires a holistic approach, encompassing environmental, social, and economic aspects. By adopting True Cost Accounting and engaging various stakeholders in this process, it is possible to transform agrifood systems into sustainable models that benefit both people and the planet. The journey towards this transformation will involve challenges, but the potential rewards - a sustainable, equitable, and healthy food system immense.

A holistic approach should be used because there are several ways to effectively incorporate the hidden costs and benefits of agrifood systems into decision-making for transformation. One of these ways is to conduct a cost-benefit analysis including the hidden costs and benefits, for example, environmental and social impacts. Second way is to use a decision-making framework by incorporating these factors, such as the triple bottom line or the sustainability triple helix. And lastly, it is also important to involve stakeholders in the decision-making process, including farmers (small holders inclusive), consumers, and local communities. By incorporating these hidden costs and benefits into the decision-making process, agrifood systems can be transformed in a more sustainable and equitable way. This means that decisions about food production, distribution, and consumption will take into account the environmental, social, and economic impacts of agrifood systems. This transformation will help to ensure that food is produced in a way that is environmentally friendly, provides fair compensation for farmers, and promotes healthy and affordable food for consumers. It will also help to ensure that the benefits of agrifood systems are shared more equitably across all stakeholders mentioned above.

Effectively incorporating the hidden costs and benefits of agrifood systems in Pakistan, particularly in Khyber Pakhtunkhwa (KP), into decision-making for transformation requires a comprehensive and multi-stakeholder approach. Here are key steps to achieve this:

1. Comprehensive Cost-Benefit Analysis (CBA):

- Conduct a thorough CBA that goes beyond direct economic impacts. Include environmental, social, and health-related costs and benefits associated with agrifood systems.

- Assess the positive externalities, such as ecosystem services, biodiversity conservation, and cultural values linked to traditional agricultural practices.

## 2. Stakeholder Engagement:

- Involve diverse stakeholders, including farmers, local communities, researchers, policymakers, and representatives from the private sector, in the decision-making process.

- Understand the perspectives and priorities of different stakeholders to ensure a holistic view of the hidden costs and benefits.

## 3. Data Collection and Research:

- Invest in research to gather region-specific data on hidden costs and benefits. This should include environmental degradation, health impacts, and socio-economic factors.

- Collaborate with research institutions and local organizations to enhance the quality and relevance of data.

## 4. Technology Integration:

- Leverage technology for data collection and monitoring. Remote sensing, IoT devices, and data analytics can provide real-time information on environmental impacts and agricultural productivity.

- Use digital platforms to disseminate information and gather feedback from farmers and communities.

## 5. Policy Integration:

- Integrate findings from comprehensive CBAs into policy frameworks at local, provincial, and national levels.

- Advocate for policies that incentivize sustainable and regenerative agricultural practices while internalizing the hidden costs associated with conventional methods.

## 6. Capacity Building:

- Build the capacity of local communities and farmers to understand and adopt sustainable practices.

- Provide training on modern and sustainable farming techniques that reduce hidden costs and enhance overall system resilience.

## 7. Climate-Resilient Agriculture:

- Develop and promote climate-resilient agricultural practices that consider the changing climate patterns in the region.

- Invest in research and technology that enables farmers to adapt to climate-related challenges, reducing the vulnerability of agrifood systems.

## 8. Incentivize Sustainable Supply Chains:



–Work with supply chain actors, including retailers and processors, to create and implement sustainability standards.

–Reward and incentivize adherence to environmentally friendly and socially responsible supply chain practices.

#### 9. Community-Based Initiatives:

–Encourage and support community-based initiatives that focus on sustainable agriculture and food production.

–Facilitate the establishment of local cooperatives and farmer groups to share knowledge and resources.

#### 10. Green Financing:

–Explore opportunities for green financing and investment in sustainable agriculture.

–Collaborate with financial institutions to create financial instruments that support eco-friendly farming practices.

#### 11. Policy Innovation:

–Foster innovation in policy-making by exploring novel approaches to address hidden costs and benefits.

Pilot programs and policy experiments to test the effectiveness of new strategies before scaling up.

#### 12. Adaptive Management:

–Implement adaptive management strategies that allow for continuous learning and adjustments based on evolving conditions.

–Establish feedback mechanisms that involve stakeholders in the ongoing improvement of policies and practices.

#### 13. Crisis Preparedness:

–Develop contingency plans and strategies to address agrifood system challenges during crises, such as pandemics or extreme weather events.

–Ensure that transformation initiatives are resilient to shocks and can quickly recover from disruptions.

#### –14. Research and Development:

–Allocate resources for ongoing research and development to stay abreast of emerging issues and opportunities in agrifood systems.

–Support innovation that leads to the development of sustainable and technologically advanced farming practices.

#### 15. Policy Advocacy:

–Engage in policy advocacy at various levels to create an enabling environment for sustainable agriculture.

–Collaborate with NGOs, think tanks, and advocacy groups to amplify the impact of the transformation agenda.

#### –16. International Certification:

- Work towards obtaining and maintaining internationally recognized certifications for sustainable and organic agriculture.
- Access global markets by aligning with international standards, fostering economic opportunities for local farmers.
- By incorporating these strategies, policymakers and stakeholders can navigate the complexities of agrifood systems in Pakistan, with a specific focus on Khyber Pakhtunkhwa, and make informed decisions that lead to transformative and sustainable outcomes.

**Summary :**

Agriculture is not for Trade, It should be produced for human necessary's fulfilled. Pakistan giving some important 16 components. Some necessary suggestions Nepal also agree with those of providing solutions method of Pakistan. If The agriculture sectors investment and farmers involved matters its seeming the clues of problem it may help to find the reduce problems of hidden cost.

Dhanbahadur magar