Integrating Food Security into Impact Assessment

A Primer

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Purpose of this Primer

This primer provides International Association for Impact Assessment (IAIA) members and others with guidance on how to incorporate food security assessment in impact assessment (IA). The project supports IAIA's vision for "a just and sustainable world for people and the environment" by spotlighting food security—a globally important policy issue—and the role IA can play in addressing it. Food security assessment in IA serves vulnerable populations (often Indigenous), underscoring their rights to survival, dignity, and well-being as they face the mounting pressures of large-scale drivers such as urban and industrial development and climate change.

How to use this Primer

- **Just starting out and want to build your understanding of food security?** Section 1 provides an overview of food systems, the importance of food security and special considerations for food security in developing countries.
- **Want to learn more about how food security currently fits into impact assessment?** Section 2 provides an overview of food security in IA discourse, including Health Impact Assessment and Strategic Environmental Assessment.
- **Seeking guidance on how to incorporate food security in the standard stages of IA?** Section 3 provides practical suggestions about how to integrate food security in scoping, impact assessment, mitigation, and follow-up.
- **Want to help progress research and practice in this area?** Section 4 outlines next steps for members of the IA research and practice community and Section 5 lists a number of key resources to help advance your learning.
- **Only have five minutes to understand the key issues in addressing food security in IA?** Check out the IAIA FasTips "Food Security in Impact Assessment" at https://www.iaia.org/uploads/pdf/Fastips_24-Food-security_1.pdf and come back to explore this primer when you have more time.

Acronyms

CEA	Cumulative Effects Assessment
EIA	Environmental Impact Assessment
FAO	United Nations Food and Agricultural Organization
HIA	Health Impact Assessment
IA	Impact Assessment
RA	Regional-scale Assessment
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment

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1. What is Food Security?

Food security is widely defined as a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."[1] Importantly, food security consists of four dimensions: availability, access, utilization and stability.

Availability	The quantity of food that is available to a population or to individuals.
Access	Financial, physical and social access to food; the ability to acquire preferred food in a socially and culturally acceptable, legitimate, and empowering manner.
Utilization	Food use and related outputs and outcomes including nutrition, health, and ability to participate in cultural practices surrounding food use (preparation, ceremonial, consumption, etc.).
Stability	Resiliency and sustainability of the previous three dimensions of food security over time.

The definition of food security is the result of decades of dedicated scholarly inquiry. While each element is essential independently, food security is only achieved when all four pillars are sufficiently met. Food insecurity occurs when any one or more of the above elements is missing in policy or practice.

Unfortunately, the comprehensive nature of food security is often misunderstood. Attempts to address food security are often fragmented and incomplete. For example, agricultural productivity may be foundational to a population's food security, but "availability" of food is just a single element of the four pillars. A comprehensive, multi-dimensional approach to food security is essential for successful and effective food security assessment, evaluation or intervention. It is important to avoid prioritizing one element of food security over another, as this may ultimately result in a misdiagnosis of food security or the intensification of food insecurity.

Food security manifests differently across regions and cultures. The specific factors that contribute to food security in one region are often very different from those in another. While one population may rely heavily on country/traditional foods or a specific form of food harvest to ensure food security, another population may not. "Country foods"—often produced through a community-wide seasonal round of harvest activities and exchanged and bartered—are considered anchors to cultural and personal wellbeing and essential to nutritional and social health.

Food Systems

A food system is an important concept when discussing food security. A **food system** is the set of activities, actors, drivers, and processes involved in food production to consumption: from "source to mouth."

Primary food system activities include food production, harvest, processing, packaging, transportation, marketing, and consumption. All inputs and outputs associated with supporting any of these activities would be considered part of a food system. A food system is influenced by the social, cultural, political, economic, and natural environment—or context—in which it is situated. Therefore, the food system supporting one population is inherently different from that supporting another. Considering a population's food system alongside the four dimensions of food security is essential to understanding a food security situation. Figure 1 depicts a basic food system and its socio-economic and natural environmental drivers.

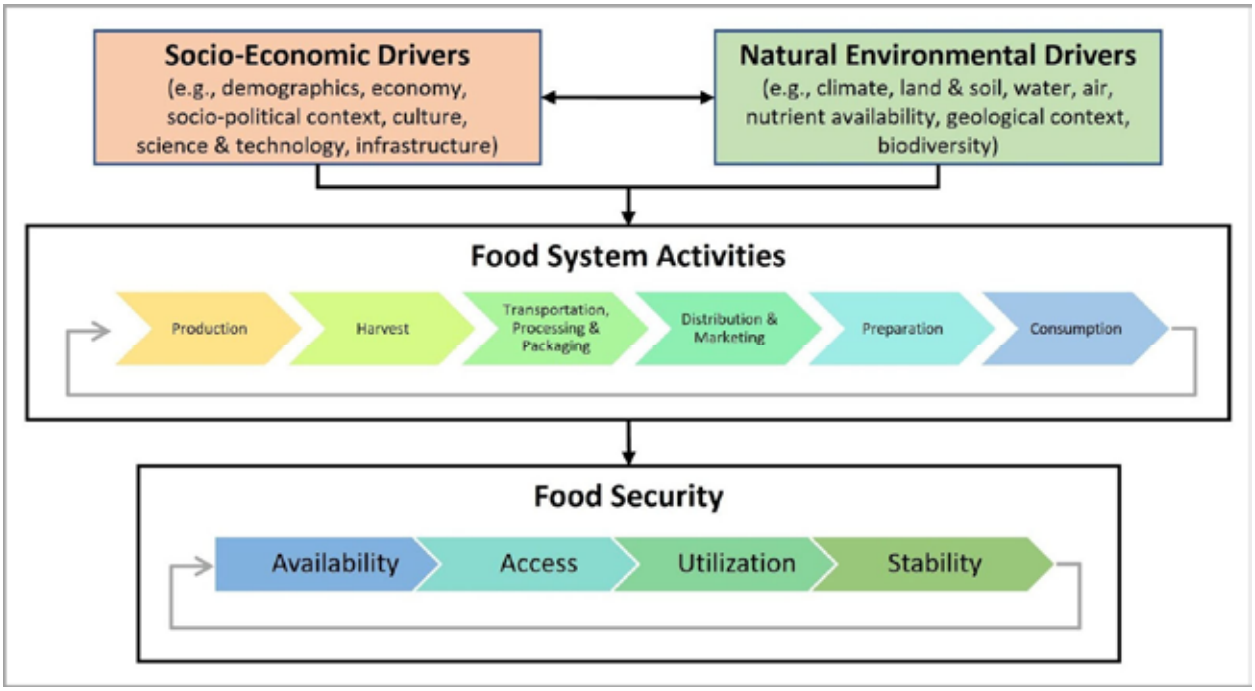

Figure 1. The food system and its drivers. Adapted from Ericksen (2008).[2]

Climate change and socio-political turmoil, as just two of the key socio-economic and environmental drivers, are important aspects of any food security discussion. However, such topics are beyond the scope of this primer. In any global context, food security is ultimately made possible via a successful and sustainable food system. For example, in many coastal communities, the local population has a food system that heavily relies on fish. Here, the productive capacity and health of the coastal marine ecosystem would be critical to achieving food security (availability and access). Within the ecosystem, the health and sustainability of a number of specific food species would be significant. Avoiding contamination and ensuring the health of food fish species would be important (utilization).

Cast fishing may be an historically and culturally important method of obtaining food. Thus, access to and the ability to harvest food through cast fishing would play a fundamental role in achieving food security (access and utilization). Facilitating processes and practices for fish processing and consumption may additionally play a fundamental role in the population's food security (utilization). Overall, conservation and sustainability of food fish species would be fundamental to long-term food security (availability, access and stability).

Importance of Food Security

Food security is essential to achieving a just and sustainable world for people and the environment and can be framed as a human rights issue. Unfortunately, the number of people living in food insecurity has been growing steadily over the last few decades. Current estimates suggest that over two billion people in the world—over one-quarter of the world's population—experience some degree of food or nutritional insecurity.[3] The prevalence of food insecurity continues to grow despite global efforts to address the problem, including the prioritization of food security in the United Nations' sustainable development goals (SDGs) and the creation of the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP). Food security is also addressed as part of the Convention on the Rights of the Child (CRC).

Food security is linked to physiological, psychological, and socio-cultural health, whereas its absence can lead to cultural disintegration, severe stress, and undernourishment which in turn negatively impacts education levels, mortality rates, and so on. The burden placed on health care systems as a result of food insecurity is profound. For instance, a study investigating the connection between household food insecurity levels and annual health care expenses in Ontario, Canada, using data from 2005 to 2010, found

that compared to food secure households, health care costs were 23% higher for households with marginal food insecurity, 49% higher for those with moderate food insecurity, and 121% higher for those with severe food insecurity.[4]

Severe food insecurity most commonly affects developing countries and deserves urgent attention and intervention; however, health impacts associated with marginal food insecurity are also immense. A study published in 2013 found that health outcomes for those experiencing marginal food insecurity much more closely resemble health outcomes for those experiencing severe food insecurity, compared with those who enjoy food security.[5] A more recent study published in 2022 found that food insecurity in developed countries demands considerably more attention than it has garnered in the past.[6]

Food security is threatened by myriad environmental, political and socioeconomic factors, and food insecurity can happen anywhere. Discussion of food security in scientific and governance circles has therefore become widespread over the past few decades, especially following the global food price crisis of 2007-2008.[7] Rising food prices resulted in a rapid increase in food insecurity, leaving many of the world's poor in dire and desperate health conditions, and sparking riots and political upheaval in dozens of countries. The recent global COVID-19 pandemic has further intensified food insecurity as a result of widespread income reductions, food chain supply disruptions, and soaring food prices even more severe than those of the 2007-2008 food price crisis.[8]

Food Security in Developing Countries

In Latin America and the Caribbean, as well as in Africa and Asia, food insecurity is an issue affecting populations evidenced in both rates of malnutrition and the prevalence of obesity. In these regions, climate change will increase the dependency of developing countries on food imports and the adverse health impacts will fall disproportionately on the poor. In short, climate change will affect all four dimensions of food security.[9]

There are other issues beyond climate change that are affecting food security in developing countries such as the conflict between Ukraine and the Russian Federation, causing the United Nations Food and Agriculture Organization (FAO) to start a program in 2022 to assess food security impacts in 50 countries worldwide due to the conflict.[10] Two other important features affecting food security are urbanization and aging within developing countries, the population effects of which are significantly different from those in developed countries.[11]

Developing countries are especially vulnerable to the environmental effects of development activities. Regions with the highest index of poverty worldwide (Africa, Asia and Latin America and The Caribbean)—as tracked by the United Nations Development Programme Global Multidimensional Poverty Index for example—have different food security contexts than regions within the most developed countries (Europe and North America). Even though the FAO's four food security pillars are applicable to every country or region, the elements that constitute each pillar vary from country to country.

For example, Latin American countries could enhance food security by improving coordination across sectors including agriculture, social protection, health, nutrition, and civil society, as well as by improving household food (in)security monitoring through indicators such as experience-based food security scales (EBFSSs).[12] That said, in the case of Mexico, measuring food security across different scales was found to be too complex. Instead, the recommendation is to measure food security on smaller scales to allow consideration of the particularities within municipalities or regions in the country, still based on the four food security pillars.[13] Section 2 explores food security in impact assessment.

2. Food Security in Impact Assessment

Impact assessment (IA) processes help advance sustainable development agendas and, accordingly, there is an opportunity to enhance food security through IA. If a proposed development could weaken a community's food security situation (i.e., intensify food insecurity) or if a proposed development could potentially enhance food security, then food security should be considered within an IA process. Food security can be addressed within any form of IA, including project-based IA, cumulative effects assessment (CEA), Social Impact Assessment (SIA), Health Impact Assessment (HIA) and Strategic Environmental Assessment (SEA). Regional-scale IA is particularly well-suited to addressing food security, as food systems are often regional in scale.

Food Security in IA Discourse and Practice

The topic of food security is nascent in IA discourse and practice. Although the international IA community is showing increasing interest in food security, as demonstrated by the growing presence of the topic in IA conferences and academic literature, it has not yet become a prominent aspect of IA research and practice, based on a recent review of relevant publications.[14] When research connects food security and IA it is typically focused on a single issue, such as agricultural productivity, farming, or contamination of a key food species: it is rare to find IA research that treats food securely in a holistic, four-pillar fashion.[15, 16]

Despite this, good examples of holistic treatment of food security exist in IA practice. Canada, where consideration for food security in IA has received some attention, provides one such early example. The Mackenzie Valley pipeline inquiry, directed by the Honorable Justice Thomas Berger in northern Canada in the 1970s, set a precedent for holistic consideration of social and economic impacts when planning for natural resources development, including food security. Emphasis was placed on considering Indigenous rights to pursue traditional livelihoods, which includes regional food harvest and use. Partly stemming from this, in addition to the settlement of land claims agreements, co-management arrangements between Indigenous populations and the Canadian federal government responsible for overseeing IA processes were developed. The Mackenzie Valley Environmental Impact Review Board (MVRMA), the Nunavut Impact Review Board (NIRB), and the Yukon Environmental Impact Review Board (EIRB) remain committed in the present to evaluating Indigenous food security in IA processes, through attention to wildlife harvesting and protecting traditional livelihoods.

Nepal's IA for the Upper Trishuli-1 Hydropower Project is also noteworthy. This IA was used to evaluate potential impacts on agricultural lands, fishery resources, and livelihoods, and proposed mitigation measures to both minimize disruption to local food systems and support the affected communities in maintaining their food security.[17] Generally, though, food security considerations in IA are still relatively limited in Nepal and other developing countries. Initiatives like the Upper Trishuli-1 Hydropower Project IA demonstrate the potential for more nuanced and holistic consideration of food security within IA practice, paving the way for future improvements in this domain.

Today, IA practitioners are expected to utilize a broad understanding of the environment, and to evaluate the potential cultural and socio-economic impacts of development, not just biophysical impacts. Accordingly, topics inherently connected to food security are increasingly included in IA discourse, research, and practice. Human health considerations, social wellbeing, the SDGs, ecosystem services, public participation, and traditional knowledge are all now widely considered important to effective IA practice and are also relevant to effective evaluation of food security.

Food Security in HIA and SEA

Consideration of food security in HIA is much more common than other forms of IA. A study published in 2008 examining 27 HIAs conducted within the United States found that food security was routinely considered.[18] A scan of literature for this primer found a large number of HIA research articles discussing food security and food-related issues.[19] In HIA research, food safety is the most frequently addressed food security-related topic,[20, 21, 22] followed by food sufficiency or supply.[23, 24] However, the scan of literature reveals that a holistic, four-pillar approach to food security in HIA research and practice still remains rare; food safety and sufficiency are often the primary focus when "food security" is explicitly mentioned. For example, a 2021 study investigating the potential of using HIA for more effective food system planning in India found that health and food security-related considerations were not systematically incorporated into project conceptualization or government policies. As a result, the four-pillars approach to food security is not widely adopted in HIA research in India as yet.[25]

Although HIA can address food security in project IA, other forms of IA may have greater potential to influence food security outcomes far beyond individual projects. SEA is arguably more commonplace in IA regulatory regimes, and it was specifically developed to influence project IAs and related project approvals and conditions.

SEA examines the potential impacts of policies, plans, programs, and initiatives "upstream" of project IAs, and this enables more proactive and strategic decision-making. SEA of development programs allows exploration of alternative development scenarios and how they perform against various goals, objectives, and performance standards. Food security, amongst other complex social and environmental issues such as poverty reduction, labor conditions, water security and climate change, is ideally examined in programmatic, regional-scale SEA due to its future-focused, proactive approach to identifying a preferred development path. Food systems are characteristically regional and impacts from development programs often extend beyond local spatial and temporal scales. Food security evaluation is much more difficult in project IA, which considers the potential impacts of a single project at a time.

The first of its kind, a study completed in 2021 explored consideration of food security in Canadian SEA practice based on 17 SEA reports for offshore petroleum exploration.[26] In the study a holistic, four-pillar definition of food security was adopted as an evaluative framework, but no explicit consideration of food security was found in any of the SEAs. There was a notable lack of transparency regarding public participation practices, failure to deeply engage with vulnerable populations at risk of food insecurity, and limited characterization of the socio-economic and socio-political environment as context for the food system.

However, some elements of food security were indirectly considered in the SEAs. For example, regarding food availability, the SEAs paid considerable attention to regionally important species through detailed biological characterizations. These assessments included information on species abundance and distribution, habitat characteristics, food web positioning (including predators and prey), lifecycle processes and requirements, and migration routes and patterns. Additionally, the SEAs considered fisheries species contamination, a crucial aspect of food utilization, relatively well. This study—though limited to a single country and a single sector—suggests that similar to HIA, attention to food security in SEA practice is also at an early stage.

Food Security in IA in Developing Countries

Beyond what is outlined above, there is little empirical evidence of attention to food security or food systems in IA in developing countries. In Kenya, in 2011, some recommendations were made for the integration of food security within the country's IA process.[27] For example, suggestions included promoting inter-institutional collaboration, building capacity for IA practitioners, addressing community food security in project backgrounds, categorizing food insecurity risks, proposing food access solutions within Environmental Management Plans, and considering the inclusion of a "Food Security Impact Assessment" in the IA process.

Since then, a number of other illustrative examples have emerged among developing countries in the European Union, for example: SEA of the Sustainable Development Strategy with Coca-Cola for Bolivia (2019), SEA of the Strategic Planning Framework for Fisheries in Cambodia (2017), SESA of the Nutrition and Food Security Programme in Burkina Faso (2012), SEA of the Agricultural Sector in Rwanda (2012), and SEA of the 11th EDF Programme's Focal Sector Agriculture in Swaziland (2016).[28]

The application of SEA in developing countries is not

systematically handled. The context of each country defines the use of IA tools within their IA systems if there are any. Most of the examples of IA and SEA, including regional-scale IA, are related to the intervention of foreign development organizations or multilateral banks. Often, when the intervention comes to an end, so does the use of IA tools. It is important that certain institutional features are maintained in developing countries to facilitate the sustained use of IA tools and achieve substantial positive outcomes through their application.

Regarding IA generally and food security specifically, capacity-building must be urgently attended to. There is broad recognition in developing countries about the impacts caused by development projects on the environment, and acknowledgment of the benefits IA tools can provide to mitigate such impacts. More consistent and widespread use of both HIA and SEA can help foster the opportunities to develop food security plans in regions or countries and understand related impacts to the world food supply-chain. Section 3 outlines how to begin to integrate food security in IA.

3. How to Integrate Food Security in IA

General recommendations to effectively integrate food security in IA include:

1. Assess food security in a fulsome, "four-pillar" manner, avoiding piecemeal application.
2. Adopt a multi-disciplinary approach that emphasizes collaboration.
3. Gather local knowledge and perspectives on food security: this is critical. Provide ample opportunities for public participation in all stages of the IA process. Efforts should focus on consulting marginalized and vulnerable populations, and those most reliant on the development region for food security.

The typical stages of an IA are outlined in Figure 2. Three of the six stages of IA—Scoping, Impact Prediction, and Monitoring and Feedback—are particularly important to the integration of food security. Public engagement occurs through every stage of IA.

Screening

- Initial project description
- Preliminary characterization of project environment and potential impacts
- Determination of need for assessment

Scoping

- Key environmental issues and valued components are identified
- Baseline study, including characterization of environmental conditions and trends
- Spatial and temporal boundaries for the assessment are established

Impact Prediction

- Potential impacts are predicted, both positive and negative
- Or, potential impact scenarios are developed and explored

Mitigation and Follow-Up

- Mitigation options are identified (avoid, minimize, restore, offset)
- Significance determination
- Follow-up and monitoring program is developed

Monitoring and Feedback

- Project implementation, accompanied by ongoing monitoring and evaluation to provide feedback, in partnership with communities. Adjustment of project implementation and application of adaptive management, as needed.

Figure 2. Typical stages of Impact Assessment. Adapted from UNEP (2008)[29] and World Health Organization (n.d.).[30]

Scoping

Food security should be included as a valued component when a project or development program may impact the food security of a population in the project region. Characterizing the regional food system and food security situation is an important first step in the early scoping stages of IA.

Public participation in scoping is necessary to inform the characterizations and should further understanding of the following: current and historical state of food security/insecurity, regional components of the food system, threats and risks to a community's food security, culture and social values and food practices, the socio-political environment, and temporal and seasonal issues.

Depending on the region, existing research and databases may be available to inform food security characterizations. For example, Yukon Territory in Canada has dedicated tremendous resources to improving the food security of its Indigenous population. In some regions, reports and strategic plans have been published that provide an abundance of information about the food system components necessary for food security. These types of resources can help reduce costs associated with obtaining primary data. Information gathering will vary by context, but should reflect the four-pillar approach. Examples of relevant data include:

Availability

- Culturally and socially important foods (plants or animals); food preferences
- Foods produced or harvested
- Agroecosystem productivity
- Clean water supply

Access

- Physical Access
  - Geographical areas/zones of importance for food harvest/production
  - Transportation routes (i.e., transport of food to communities)
  - Access to clean water sources
- Financial Access
  - Community economic profile and vulnerability profile, including household-level details (e.g., income, assets and wealth, employment, labor force characteristics, housing, etc.)
- Social Access
  - Preferred acquisition methods of culturally and socially important food species (e.g., cast fishing)
  - Social barriers to access (e.g., poverty, prejudice, policies, case law, legislation, formal institutions that may bolster or hinder access, government supports, community cohesion, historical but lasting social conflict)
  - The historical food system and social impacts of changes to it (e.g., colonialism)

Utilization

- Nutritional Utilization and Food Safety
  - Role of country foods or regionally-available foods in the nutritional profile of a population's diet
  - Human health profile (e.g., prevalence of malnutrition, somatic disease, mental health, and other food-related diseases)
- Economic Utilization
  - Participation in regional food economy (i.e., foods derived from the surrounding region)
  - Products, profits and livelihoods (e.g., processing, sales, transport, etc.)
- Cultural Utilization
  - Cultural diet/culinary practices involving country food/regional food
  - Ceremonies or celebrations involving country food/regional food

Stability

- Institutions, policies, programs, strategies in place to conserve and nurture socially and culturally important practices surrounding acquisition and use of country food/regional food
- Food system vulnerability profile (e.g. political, economic, environmental, health, social risks and vulnerabilities)

In most cases, IA baseline studies will not reveal a food secure situation. Food security characterizations should therefore include a discussion of what contributes to or impedes the food security of surrounding communities. For example, caribou may be important to the food security of a community, but a community may be unable to harvest it because of social barriers, current ecological conditions, physical impediments, or other factors.

Impact Assessment, Mitigation, and Follow-up

Good practice IA considers both direct and indirect impacts, short-term and long-term implications, and cumulative effects. A development project may lead to direct impacts on food production due to land use changes, potentially disrupting the local farming community and regional food supply. Indirect impacts might include changes in water quality or soil health that could affect food production in the long term. Moreover, the cumulative effects of multiple projects in the region should also be considered, as these might exacerbate food insecurity over time.

The importance of a thorough socio-economic characterization in the baseline phase of IA, particularly when considering food security, cannot be overstated. With this in mind, the IA will ideally include consideration of the potential impacts of a proposed development program or project on the regional food system and selected indicators of food security, and implications for affected populations. This involves systematically predicting potential effects on food security indicators and gauging the significance of any adverse residual effects once proposed mitigation strategies are accounted for.

The determination of significance is a complex process that requires a deep understanding of the local context, including the socio-economic conditions, cultural practices, and health situation of the community. It also involves considerations of equity, as certain groups may be disproportionately affected by the impacts.

To illustrate, consider a scenario where a certain species of catfish plays a critical role in all activities within a community's regional food system (harvest, transportation, processing, distribution, preparation, use, and consumption) and all four pillars of food security. An IA in this situation should thoroughly investigate and predict any potential effects on the catfish species at every stage in the regional food system. This would include assessing whether the ecosystem can continue to support the prevalence of the catfish species, considering factors such as water temperature, nutrient availability, and other ecosystem characteristics. It would also include evaluating the potential impact on the health of the fish species, a vital source of nutrients such as vitamin B12 and omega 3-fatty acids for the reliant populations. Furthermore, the assessment should ensure that traditional harvesting methods are preserved, transportation routes to harvest areas remain viable, and the species continues to be accessible for social, cultural, and commercial purposes. In this context, the method of "pathway analysis" can be particularly useful in tracing potential impacts through the food system, helping to illuminate how and where these impacts may be registered.

Continuing with the catfish example, if a proposed development potentially threatens the catfish population or its habitat, the IA stage would predict the extent of this impact, suggest appropriate mitigation measures, and assess the significance of any residual impacts for the community's food security. This could involve changes to the project development plan to protect critical habitats, the introduction of conservation programs for the catfish, or the development of alternative food sources for the community, if acceptable to the communities affected. In this way, the impact prediction stage is crucial for balancing development and food security objectives in the IA process.

The findings of impact prediction and significance determination should then inform the decision-making process and guide project implementation, monitoring, and feedback. The aim is to ensure that the proposed development aligns with the objectives of sustainable development and food security for the region. IA is not just about predicting potential impacts but also about making strategic decisions to manage these impacts effectively.

Also important in any community's regional food system is its role as an importing or exporting area for food worldwide. Recent examples include the Russia-Ukraine war and its impact on world food security, as both countries have a significant role in the production and distribution of wheat, corn, sunflower oil, and fertilizers; another case is the increase in the price of olive oil due to lower production, a result of intense drought in producing countries. The impact prediction stage should include this role review as it may lead to a change in the significance of the impacts caused by proposed developments, plans, or programs, and thus a change in the mitigation measures and monitoring strategies.

Monitoring and Feedback

Integrating food security considerations into IA requires a comprehensive approach that considers the contextual complexities of food systems and diverse factors influencing food security. Monitoring and feedback (follow-up) programs to reduce impacts and enhance food security will therefore always be context dependent. Activities should be developed with

meaningful participation from the public, especially vulnerable populations whose food security may be most affected.

Appropriate follow-up programs should be constructed from a combination of scientific, local and Indigenous knowledge and should reflect community priorities. Following up could include measures to conserve and enhance food system components crucial to the affected population's food security. If so, these strategies should be tailored to the specific circumstances of the community and region and designed to promote sustainable practices supporting long-term food security. In many regions, mitigation options should extend to include agricultural innovation to address impact of droughts, floods and high temperatures, in addition to deforestation activities.

Overall, the goal is to minimize any negative impacts on food security and ideally enhance it where possible. The use of adaptive management strategies, where mitigation measures are adjusted based on monitoring program results and community feedback, can ensure effective responses to unfolding impacts and quick identification and resolution of any unanticipated impacts. Section 4 outlines some next steps to progress research and practice.

4. Next Steps in Research and Practice

The Role of IA in Enhancing Food Security

The prevalence of global food insecurity is extraordinary and unacceptably high. Food security is threatened by a wide variety of large-scale environmental and socio-economic factors, especially human development and climate change. Many of the infrastructure developments that trigger IAs have been proven to negatively, and sometimes severely, impact the food security of nearby communities. IA has, therefore, the potential to play a crucial role in addressing global food insecurity. As a tool to support environmental planning and governance processes, various forms of IA are being implemented to evaluate the potential impacts of policies, plans, programs, and projects. Very often, the goal of these exercises is to enhance sustainable development, including consideration for the health, social and cultural wellbeing of affected communities. Food security evaluation is a natural fit with IA, particularly in regional-scale and strategic applications.

This primer offers foundational knowledge to assist in integrating food security into IA frameworks and practices. It is an introductory step toward understanding the intricate and beneficial relationship between IA and food security. In the future, principles, methodologies, and best practices will continue to evolve and be refined through future research, practical applications, and information exchange. The global IA community must work together to build capacity in this area.

Progressing Research

1. **Identification and optimization of best practices.** Further research is needed to pinpoint best practices for addressing food security within the spectrum of IA types, various development sectors, and diverse national and regional contexts. This will help to refine the approach to IA in relation to food security across different scenarios.

2. **Case studies and comparative analysis.** Conduct case studies of successful applications of food security evaluation in IA and develop comparative analyses to identify best practices and areas of improvement in both developed and developing countries. Among the cases analyzed, strive to understand food security evaluation at the local, community, national, and regional levels: best practices may differ for each.

3. **Policy and regulation research.** Investigate how policy and regulatory changes can encourage the integration of food security considerations into IA.

4. **Identification of key regions for global food security.** It is important to identify key regions in food supply chains, both terrestrial and marine, that are critical to food security around the world. This will help to ensure safeguards for those regions and mitigate risks to food security.

5. **Enhanced efficacy of food security in IA.** Investigate how food security efforts can be coordinated across different IAs (legislation, policy, plan, program, and project) with a tiered approach. This will help to avoid duplicity in information, as well to maximize use of resources (e.g., time and funds).

Progressing Practice

1. **Training and capacity building.** Develop training programs for IA practitioners to understand and apply the four-pillar approach to food security in their assessments. Also, focus on capacity building in developing countries to ensure equitable access to frameworks and tools.

2. **Public engagement.** Ensure meaningful engagement with all relevant stakeholders, including vulnerable or marginalized populations, in IA processes. Their insights can provide invaluable information about local food security issues.

3. **Proactive and strategic decision making.** Encourage the use of SEA to proactively identify potential impacts to food security and encourage decision makers to take strategic decisions to mitigate them.

4. **Transparent communication.** Encourage transparency in IA practices to ensure stakeholders are well-informed, particularly groups whose food security may be potentially impacted by the proposed development(s).

5. **Modifying legal and IA frameworks.** Encourage the necessary changes in current legal and IA frameworks to ensure the consideration of food security within IAs.

5. Further Learning

The following resources are suggested to deepen the reader's understanding of food security and the integration of food security in IA.

Food Security

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