

Appendix A

Decision-making and action related to food in the institutional sphere. For each analytical focus and question in Table 4 of the main text, the tables below summarize the main elements identified in the consulted literature.

Table A1. Scientific knowledge, data, analysis, expertise, and uncertainties.

Food-system questions	Knowledge, data, and methods	Main uncertainties and limits
Land use change, deforestation, ecosystem impacts, climate interactions	Ecology, soil science, climate science; remote sensing, land-use statistics, inventories; modeling and comparative analysis	Scale mismatches, spatial aggregation, limits in attributing change to specific drivers
Crop and livestock productivity, mixed systems, circular and regenerative practices	Agronomy, animal science, agroecology; field trials, farm surveys; case studies and long-term experiments	Context dependence, limited transferability, uneven coverage
Greenhouse gas emissions, resource use, environmental efficiency	Climate science, environmental assessment; inventories and databases; scenario-based and footprint analyses	Boundary definition, data gaps, monitoring capacity
Diet quality, nutrient adequacy, public health outcomes	Nutrition science, epidemiology; diet surveys, food composition data; comparative and epidemiological analysis	Confounding factors, reductionist indicators
Food security, poverty, rural livelihoods, adoption of practices	Economics, rural sociology; household surveys, interviews; socioeconomic and mixed-method analysis	Context specificity, weak integration across scales
Trade, certification, supply chains, regulation, governance	Political economy, institutional analysis; policy texts, trade data; comparative and narrative analysis	Power asymmetries, implementation gaps
Traditional food systems, biocultural practices, ancestral technologies	Indigenous epistemologies, anthropology; ethnography, oral histories; qualitative synthesis	Under-documentation, marginalization, site specificity
Resilience, transitions, integrated food systems	Systems science, sustainability science; mixed qualitative-quantitative sources; systems frameworks	Conceptual complexity, lack of operational metrics
Research gaps, agenda setting, knowledge biases	Bibliometrics, science and technology studies; publication databases; mapping and synthesis	Geographic and thematic research bias

Table A2. Other perspectives and knowledge fields.

Food-system questions addressed	Knowledge bases and viewpoints	Main limits or tensions
How colonial histories and power relations shape food and agricultural knowledge	Political theory, agrarian studies, history, Indigenous scholarship	Limited operationalization in policy; asymmetries in knowledge authority
How Indigenous and local knowledge relates to scientific expertise	Indigenous epistemologies, anthropology, ethnobiology, agroecology	Under-documentation; marginalization in formal institutions
How food systems are framed through rights and food security	Economics, nutrition, public health, development studies	Weak integration with biophysical and ecological constraints
How standards, certification, and regulation influence food systems	Food law, institutional economics, animal welfare science	Risk of exclusion of informal and small-scale producers
How finance and investment shape sustainability pathways	Agricultural economics, development finance, market analysis	Limited transparency; indirect social impacts
How science, innovation, and policy interact	Innovation studies, institutional analysis, applied research	Ethics and local knowledge weakly integrated
How poverty and livelihoods are prioritized in food-system analysis	Development economics, rural livelihoods research	Environmental concerns subordinated to livelihood outcomes
How markets and high-value chains reshape production priorities	Agribusiness studies, governance, livestock science	Exclusion of non-certified and resource-poor producers
How gender and social roles affect food systems	Rural sociology, gender studies, development research	Often secondary to productivity and efficiency concerns
How food sovereignty frames food-system transformation	Agroecology, political economy, rural development	Limited quantitative assessment; movement-based framing
How multiple disciplines are coordinated to address complexity	Agronomy, ecology, economics, social sciences, policy studies	Integration often descriptive rather than analytical

Table A3. Affected actors.

Food-system domains or questions	Human actors affected	Non-human components
Food access, nutrition, and malnutrition	Poor households, children, women, Indigenous peoples, urban poor, nutritionally vulnerable populations	—
Smallholder and family farming systems	Smallholders, pastoralists, farm households, rural youth	Soils, pastures, local agroecosystems
Indigenous and traditional food systems	Indigenous peoples, campesino communities, women knowledge holders	Agrobiodiversity, seeds, cultivated plants, associated ecosystems
Livestock production and management	Livestock producers, ranchers, dairy farmers	Farm animals, pasture vegetation, grasslands
Labor and rural livelihoods	Farm workers, rural laborers, supply-chain workers	—
Value chains, processing, and markets	Processors, traders, exporters, retailers, cooperatives	Animals at processing stages; ecosystems affected by demand
Certification, trade, and global supply chains	Agribusiness firms, certifiers, auditors, importers, financiers	Forests, biodiversity, climate system
Consumers and food cultures	Consumers, urban societies, global populations	—
Policy, governance, and institutions	Governments, ministries, regulators, international institutions	Land systems, ecosystems
Research and knowledge systems	Researchers, universities, veterinarians, funders	—
Climate change and environmental stress	Rural communities, producers, vulnerable populations	Climate system, water basins, ecosystems
Regenerative and agroecological transitions	Producers, rural communities, households	Soils, grasslands, watersheds, biodiversity
Food safety and biological processes	Producers, consumers, regulators	Microbiological communities, soil biota, microbial ecosystems
Indigenous biotechnologies and fermentation practices	Indigenous communities, food producers	Microbial communities associated with fermentation and soils
Social justice and equity	Indigenous peoples, smallholders, workers, future generations	Territories, ecosystems
Long-term food-system futures	Present and future populations	Earth system

Table A4. Values and principles.

Value or principle	Framing or application	Main limits or tensions
Right to food	Right to adequate, safe, nutritious, and culturally appropriate food; capability to choose food	Requires articulation in relation to biophysical and ecological constraints
Food sovereignty	Autonomy over food systems, land, resources, and governance; culturally appropriate food	Normative and political framing; limited quantitative operationalization
Sustainability (multi-dimensional)	Environmental, social, economic, and technical sustainability of food systems	Procedural framing, with ethical assumptions often implicit
Environmental integrity	Protection of biodiversity, soils, water, forests, and ecosystems	Social equity not always integrated
Climate responsibility	Mitigation, adaptation, resilience, alignment with climate commitments	Climate goals often foregrounded, with social and welfare considerations less explicitly addressed
Biodiversity and agrobiodiversity	Conservation of species, seeds, genetic diversity, and ecosystems	Often framed primarily in functional or utilitarian terms
Cultural integrity	Culturally appropriate diets, culinary traditions, food identities	Difficult to operationalize in policy and assessment
Indigenous knowledge legitimacy	Recognition, respect, safeguarding of ancestral knowledge and worldviews	Marginalization in formal scientific and policy arenas
Social justice and equity	Distributive, procedural, and recognition justice; inequality reduction	Rarely translated into measurable indicators
Poverty reduction and livelihoods	Income security, risk reduction, pro-poor development	Limited explicit treatment of environmental trade-off
Animal welfare	Humane treatment, health, behavioral needs of animals	Addressed primarily through care and standards, not rights claims
Human health and nutrition	Nutritional adequacy, public health protection, reduced exposure to hazards	Cultural diversity sometimes secondary

Value or principle	Framing or application	Main limits or tensions
Food safety	Safe production, residue reduction, consumer protection	Treated mainly as regulatory compliance
Circularity and efficiency	Resource efficiency, waste reduction, nutrient cycling	Labor and justice dimensions often limited
Legitimacy and trust	Transparency, traceability, accountability, institutional trust	Risk of excluding small or informal producers
Inclusion and participation	Stakeholder inclusion, democratic participation, social relevance	Emphasis on participatory procedures without explicit attention to redistribution of benefits or power
Resilience and adaptation	Capacity to withstand shocks and ensure long-term viability	Normative content often implicit
Stewardship	Care for land, ecosystems, and future generations	Not always linked to rights or justice
Quality of life and identity	Farmer identity, traditions, attachment to land	Underrepresented in policy metrics
Market legitimacy	Ethical quality, competitiveness, traceability	Market values may dominate ethical ones
Knowledge integrity	Scientific integrity, respectful dialogue, epistemic justice	Difficult to institutionalize
Justice-centered sustainability	Justice, equity, sovereignty contrasted with efficiency-oriented sustainability	Limited uptake in private mechanisms
Intergenerational responsibility	Responsibility toward future generations	Abstract; weak agency

Table A5. Tensions and trade-offs.

Trade-off or tension	Competing priorities
Export orientation and food sovereignty	Export growth, competitiveness, global markets confronted with local food security, autonomy, culturally appropriate diets
Economic growth and environmental protection	Production expansion and income confronted with biodiversity conservation, land, water, and climate protection
Productivity and reduction of external inputs	Yield and performance confronted with minimization of chemical inputs and treatments
Intensification and ecosystem services	Higher output confronted with soil fertility, biodiversity, water regulation, and ecosystem functions
Reduction of animal-source foods and nutrition/livelihoods	Lower consumption targets confronted with nutrient adequacy, producer livelihoods, and system resilience
Animal welfare and production efficiency	Welfare conditions confronted with efficiency, throughput, and cost control
Chemical pest control and biological control	Immediate pest suppression confronted with ecological risk, uncertainty, and barriers to practical implementation
Climate mitigation ambition and implementation capacity	Mitigation goals confronted with institutional, financial, and monitoring constraints
Certification standards and producer inclusion	Traceability and compliance confronted with participation of poorer producers
Market demand and deforestation risk	Growing demand confronted with forest conservation and legality
Specialization and diversification	Simplified systems confronted with diversified, multifunctional systems
Short-term transition costs and long-term resilience	Immediate costs and learning burdens confronted with future productivity and stability
Circular resource use and productivity	Residue and waste use confronted with feed quality, disease risk, and logistics
Market modernization and cultural integrity	Technification and scale confronted with traditions, identities, and local knowledge
Inclusion and competitiveness	Pro-poor inclusion confronted with high-value market positioning
Research agendas and decision needs	Publication priorities confronted with practical decision-making requirements
Standardized metrics and contextual relevance	Harmonized indicators confronted with local specificity
Data availability and validity	Generic datasets confronted with site-specific accuracy
Centralized policy and Indigenous autonomy	Central control confronted with self-determination and local governance
Profitability and stewardship	Short-term profitability confronted with forest and land conservation
Affordability and sustainability	Low food prices confronted with environmental and welfare costs
Sector growth and equity	Sector expansion confronted with fair benefit distribution
Modern science and Indigenous knowledge	Scientific paradigms confronted with recognition and control of Indigenous knowledge
Convenience and sustainability	Demand for convenient products confronted with ecological and safety constraints
Regulation and feasibility	Oversight and compliance confronted with producer capacity
Single pathways and plural strategies	Universal solutions confronted with context-specific pathways

Table A6. Ethical dilemmas.

Ethical dilemma	Core question
Land and water appropriation	Economic development and agricultural expansion confronted with rights to land, water, and agrobiodiversity of local and Indigenous populations
Exclusion from decision-making	Technocratic efficiency and policy speed confronted with participation, recognition, and procedural fairness
Coexistence of farming pathways	Promotion of specific technologies or models confronted with plural farming styles, livelihoods, and territorial diversity
Animal use and husbandry practices	Productivity and cost control confronted with humane treatment, care obligations, and societal expectations
Restricting animal-source foods	Environmental and health objectives confronted with nutritional adequacy, cultural food practices, and livelihood dependence
Nutrition and poverty reduction	Nutritional needs and poverty reduction confronted with land, water, climate, and ecological limits
Traditional knowledge recognition	Modernization and external interventions confronted with fairness, recognition, and continuity of traditional practices
Knowledge control and validation	Scientific recognition confronted with Indigenous control, recognition, and rights over knowledge
Indigenous autonomy and governance	Public health or food policies confronted with self-determination, autonomy, and cultural governance
Distribution of benefits from livestock growth	Sector expansion confronted with equitable distribution of benefits and protection of vulnerable groups
Exclusion through standards and verification	Market credibility and assurance confronted with inclusion of producers unable to meet compliance requirements
Transition costs and risks	Sustainability transitions confronted with unequal distribution of costs and risks across producers
Development and cultural-ecological heritage	Development investments and technological change confronted with cultural identity, ecological heritage, and stewardship
Universal prescriptions and context sensitivity	Universal rules and targets confronted with local nutritional, ecological, and livelihood realities
Animal welfare and economic viability	Welfare improvements confronted with cost distribution, affordability, and market access
Diet shifts and nutritional equity	Environmentally oriented diet goals confronted with equitable access to nutrients and food security
Pesticide use and health/ecology	Short-term productivity gains confronted with human health protection and ecological integrity
Commercialization and sovereignty	Market integration and value-chain expansion confronted with autonomy and food sovereignty
Transformation legitimacy	Competing claims over who defines desirable food-system futures
Equity in access to sustainability claims	Sustainability labels and claims confronted with fair access for small and less-resourced producers
Ethical acceptability of innovation	Speed and novelty of innovation confronted with cultural integrity, safety, and social acceptability

Table A7. Alternatives and consequences.

Alternative pathway or approach	Description	Anticipated consequences
Agroecological transitions	Adoption of agroecological principles, diversification, reduced external inputs, territorial embedding, and integration of ancestral knowledge	Improved biodiversity, ecosystem services, resilience, and nutrition; outcomes depend on local ecological and social conditions
Integrated crop-livestock systems	Reintegration of crops and livestock through rotations, grazing, pasture recovery, and mixed management	Reduced pollution, improved soil health, potential productivity gains, enhanced resilience; adoption depends on enabling conditions
Silvopastoral and agroforestry practices	Incorporation of trees into grasslands, forest browsing, live barriers, and diversified forage systems	Biodiversity conservation, improved soil and water functions, climate adaptation, maintained livestock production
Regenerative livestock management	Adaptive grazing, pasture restoration, soil-health-oriented practices, reduced reliance on external inputs	Improved soil function and pasture productivity; environmental and income benefits vary by context
Circular feeding and waste use	Use of crop residues, by-products, food waste streams, and improved manure management	Reduced food-feed competition and pollution; logistical and safety constraints noted
Biological pest control and bioinputs	Biological control agents, biopesticides, and integrated pest management	Reduced chemical residues, biodiversity conservation; adoption barriers remain
Alternative dietary patterns	Diet diversification and context-specific shifts toward plant-based foods	Lower environmental pressures; nutritional adequacy depends on design and access
Insect-based foods	Entomophagy and insect-derived ingredients as partial protein alternatives	Lower resource use; outcomes depend on regulation, safety, and acceptance
Welfare-oriented production systems	Husbandry practices, labeling, and certification focused on animal welfare	Improved welfare; higher costs and access issues may arise
Traditional practice safeguarding	Protection and strengthening of traditional and Indigenous food practices	Enhanced food sovereignty and cultural continuity; requires institutional support

Alternative pathway or approach	Description	Anticipated consequences
Governance and policy reform pathways	Regulatory reform, incentives, due diligence, traceability, and enforcement	Improved accountability and environmental outcomes; uneven impacts across producers
Pro-poor inclusion strategies	Integration of small producers through infrastructure, capacity building, and access to technology	Improved livelihoods and food security; outcomes depend on institutional design
Market and value-chain redesign	Short supply chains, cooperatives, alternative contracting, and direct sales	Local value creation and resilience; requires aligned infrastructure
Measurement and assessment alternatives	Development of region-specific data, indicators, and long-term experiments	More accurate representation of social and environmental risks
Process-oriented transformation approaches	Participatory planning, co-creation, narratives, and coalition building	Expanded solution space and legitimacy; impacts discussed qualitatively
Intensification with environmental safeguards	Moderate intensification combined with pasture reform and integrated systems	Higher productivity per area and reduced land pressure
Deforestation-free supply strategies	Standards, traceability, reporting, and international coordination	Reduced deforestation risk; uneven producer impacts
Technology-plus-institution packages	Combined technological, institutional, and policy innovations	Improved performance when governance and incentives align

Table A8. Dialogue and engagement.

Type	Description	Main purpose or function
North-South dialogue	Dialogue between actors from different development contexts, often marked by power and resource asymmetries	Knowledge exchange, coordination, addressing asymmetries
South-South dialogue	Dialogue among countries and actors facing similar challenges	Shared learning, coordination, legitimacy building
Multi-stakeholder dialogue	Interaction among public sector, private sector, civil society, and producers	Consensus building, alignment of commitments
Participatory workshops and consultations	Structured workshops, surveys, interviews, and co-design processes	Co-definition of priorities and shared understanding
Indigenous participation and intercultural dialogue	Meaningful participation of Indigenous and campesino actors and dialogue with scientific institutions	Recognition of knowledge, legitimacy, ethical integration
Science-policy dialogue	Interaction between scientific communities and policymakers	Evidence uptake and policy alignment
Extension, training, and capacity building	Training programs, technical assistance, farmer-to-farmer learning	Knowledge transfer and practice adoption
Knowledge dissemination and communication	Communication of evidence, benefits, risks, and practices	Uptake, social acceptance, trust building
Participatory research and co-production	Collaborative research design and co-learning	Alignment with needs, empowerment
Public deliberation and debate	Open debates, consultations, and arenas of dispute	Transparency and democratic legitimacy
Network-based engagement	Long-term networks, alliances, and advisory systems	Learning, coordination, continuity
Value-chain coordination and dialogue	Coordination and communication along value chains	Alignment of incentives and implementation
Diplomatic and international engagement	Dialogue among countries, trade partners, and international actors	Commitment building and coordination
Participatory policy design	Inclusive planning incorporating local perspectives	Policy relevance and legitimacy
Citizen participation	Engagement of citizens and least-heard voices	Democratic legitimacy and trust
Communication for adoption	Targeted communication to growers and regulators	Accelerating adoption and reducing resistance
Educational and professional engagement	Curricula, professional education, scientific networking	Awareness raising and norm diffusion
Institutional coordination	Engagement through programs and service systems	Policy implementation and service delivery
Dialogue as contested discourse	Debate among competing scientific, policy, and industry narratives	Exposing disagreement and framing conflicts
Transparency-oriented engagement	Reporting, labels, and standards as communication interfaces	Transparency, accountability, trust
Community-level collective action	Local coordination and community planning	Resource management and social cohesion

Table A9. Responsibility and action.

Locus of responsibility	Actors explicitly identified	Type of action expected or implied
Public policy and governance	National governments, ministries, public institutions, regulators	Design, finance, regulate, coordinate, and enforce policies; address inequalities
Regional and international governance	Regional platforms, international organizations, cooperating states	Coordinate strategies, align policies, support regional learning
Research governance	Research institutions, funders, universities	Set research priorities, build capacity, address data and method gaps
Scientific communities	Researchers, academic networks	Produce evidence, improve methods, inform policy
Extension and advisory systems	Extension services, advisors, technical assistance providers	Disseminate knowledge, support adoption, adapt practices locally
Farmers and producers	Smallholders, family farmers, livestock producers	Implement practices, manage land and animals, adapt management
Supply-chain actors	Processors, traders, retailers, brands, exporters, importers	Implement standards, traceability, and due diligence
Private sector leadership	Agribusiness firms, industry leaders	Invest, innovate, redesign value chains
Finance and investment actors	Banks, investors, development finance institutions	Provide capital aligned with sustainability goals
Certification and standards bodies	Certifiers, auditors, standard-setting organizations	Define criteria, ensure credibility, support compliance
Indigenous and local institutions	Indigenous authorities, community institutions, women's groups	Stewardship of land and knowledge; co-design governance
Civil society and NGOs	Advocacy groups, social movements	Advocacy, accountability, facilitation
Media and public discourse actors	Media, communicators	Support accurate and nuanced public debate
Multi-actor partnerships	Public-private partnerships, alliances	Coordinate action and co-design solutions
Consumers and citizens	Consumers, societies at large	Demand signals, informed choices, social pressure
Monitoring and information systems	Statistical offices, data platforms	Measurement, reporting, monitoring
Territorial governance	Local authorities, territorial institutions	Context-specific planning and adaptive management
Development institutions	Development agencies, donors	Capacity building, infrastructure, inclusive investment
Bridging organizations	Platforms, intermediaries	Convene actors, broker knowledge
Shared societal responsibility	State, private sector, civil society collectively	Build sustainable and just food systems

Appendix B

Decision-making and action related to food in the personal sphere. For each analytical focus and question in Table 4 of the main text, the table below summarizes the main elements derived from the consulted literature.

Analytical focus	Question	Elements to consider
Knowledge and uncertainty	What knowledge should I seek to understand how my food-related choices (e.g., what I eat, buy, waste, or avoid) affect the Earth system and other people, and what uncertainties should I acknowledge?	– How my food choices affect the environment, including land, water and energy use, greenhouse gas emissions, biodiversity loss, pollution, and waste. – How food production systems, particularly intensive livestock farming and industrial agriculture, contribute to environmental degradation, animal welfare issues, and human health risks. – How food loss and waste occur across the supply chain and in my household, and the associated environmental impacts. – How different types of food are linked to health outcomes such as obesity, malnutrition, chronic diseases, and food safety concerns. – How animal-sourced foods relate to climate change, deforestation, water pollution, zoonotic diseases, and ethical concerns about animal suffering. – How plant-based, traditional, Indigenous and other historically rooted peoples and groups foods support nutrition, food security, cultural heritage, and local knowledge systems. – How my food choices impact farmers, food workers, and communities, especially small-scale producers, Indigenous and other historically rooted peoples and groups. – How cultural traditions, social norms, gender roles, identity, price, convenience, time constraints, and access shape the food choices realistically available to me. – How trustworthy food-related information is, including labels, certifications, sustainability claims, and media messaging. – How gaps arise between my values or intentions and my daily food practices, and how the complexity of food systems makes fully informed choices challenging.
Other fields and perspectives	What perspectives beyond my own (scientific, cultural, social, ethical, or experiential) should inform my reflection on this food-related situation?	– How cultural traditions, local cuisines, personal identity, and social background shape what I consider acceptable, desirable, and meaningful food. – How family practices, social expectations, and gender roles influence my eating habits and responsibilities related to food. – How ethical perspectives frame food choices around fairness, care, responsibility, and respect for people, animals, and cultures. – How economic conditions, such as income, food prices, and time availability, constrain or enable my everyday food decisions. – How political and institutional contexts, including food policies, labels, certifications, and public debates, influence which foods are offered, promoted, and valued. – How the lived experiences of others, such as farmers, food workers and people in vulnerable situations, offer perspectives that differ from my own. – How my everyday practices of shopping, cooking, eating, and sharing food shape how I perceive and evaluate food choices.

Analytical focus	Question	Elements to consider
Affected actors	Who may be affected by my food choices, directly or indirectly, including farmers, food workers, communities, vulnerable groups, future generations, animals, and other non-human components of the Earth system?	– Farmers and food producers, especially small-scale, family, Indigenous and other historically rooted peoples and groups, whose livelihoods depend on how food is produced, valued, and traded. – Food workers across processing, transport, retail, and food services, whose incomes, health, and working conditions are shaped by food systems. – Rural and urban communities whose environments, economies, and social relations are influenced by food production and consumption patterns. – Vulnerable populations, including low-income households, women, children, and people in informal or marginalized settings, who often face limited access to safe, nutritious, and sufficient food. – Future generations, who will bear the long-term environmental, health, and social impacts of today's food systems. – Animals raised or captured for food, whose welfare is directly affected by production practices and consumption choices. – Non-human elements of the Earth system, such as soils, water, ecosystems, and biodiversity that are indirectly affected by what and how food is produced and consumed.
Values and principles	What values, principles, and rights are at stake, and how do they reflect my ethical commitments (e.g., right to food and water, ...)?	– The importance I place on health and wellbeing, for myself and for others, in my food choices. – My sense of responsibility toward the environment and future generations, including stewardship of natural resources and long-term sustainability. – My concern for fairness and justice in food systems, particularly how farmers, workers, and communities are treated. – My ethical position on animals and the role of animal welfare in my food decisions. – The value I assign to cultural heritage, traditions, and food practices of local, Indigenous and other historically rooted peoples and groups. – My commitment to food security and the principle that everyone should have access to safe, sufficient, and nutritious food. – How I balance personal priorities (taste, convenience, pleasure, affordability) with collective responsibilities (sustainability, solidarity, accountability). – My recognition that everyday food choices express moral values, even when driven by habit, constraint, or necessity rather than conscious ethical reflection.
Tensions and trade-offs	Where do tensions arise between these values, such as between convenience, affordability, personal preferences, social justice, and care for the Earth system?	– Tensions between convenience, affordability, and short-term personal benefits, and healthier, ethically informed, and environmentally sustainable food choices. – Trade-offs between personal tastes, habits, and cultural preferences, and concerns related to health, animal welfare, and environmental impacts. – Conflicts between the demand for abundant, diverse, and low-cost food and the social and environmental costs of intensive and globalized production systems. – Tensions between supporting local and traditional food practices and relying on global food systems that offer greater availability and lower prices. – Tensions between individual responsibility for food choices and structural constraints such as income, access, marketing, and policy, alongside the long-term collective consequences for society and the Earth system.

Analytical focus	Question	Elements to consider
Ethical dilemmas	What ethical issues or dilemmas emerge when balancing values, interests, duties, and responsibilities in my food-related decisions?	– The tension between supporting food systems that offer affordable and convenient food and recognizing their links to environmental harm, poor labor conditions, and animal suffering. – The ethical conflict between choosing what is easiest or cheapest and acknowledging the negative impacts these choices may have on others, particularly vulnerable groups and future generations. – The challenge of making ethical decisions when information is incomplete, unclear, or contradictory, making it difficult to determine which option causes less harm. – The dilemma of consuming animal products despite awareness of animal suffering, health risks, and environmental impacts, in the context of cultural habits, social norms, and personal preferences. – The ethical tension between valuing traditional, local, or cultural foods confronted with the need to transform unequal social and environmental relations within those practices – The challenge of balancing personal responsibility for food choices with structural constraints such as income, access, time, marketing, and policy. – The risk that ethical or sustainable food choices become accessible mainly to those with greater resources, potentially reinforcing social inequalities or creating moral pressure on others.
Alternatives and consequences	What alternative actions are realistically available to me (e.g., product choices, sourcing, dietary patterns, waste reduction), and what consequences might each entail for others and for the Earth system?	– Choosing among product types (e.g., fresh vs. ultra-processed, animal- vs. plant-based), recognizing that each carries distinct health, environmental, and social trade-offs. – Deciding whether to favor local, traditional, or small-scale foods over standardized global products, balancing support for local livelihoods and food cultures against possibly higher costs or limited availability. – Reducing household food waste through planning, storage, and reuse, while acknowledging that this addresses only part of broader food-system inefficiencies. – Moderating portion sizes and consumption frequency, particularly of resource-intensive foods, to reduce pressure without fully altering dietary identity. – Using labels, certifications, and origin information as guidance, while recognizing their possible limitations, inconsistencies, and potential to mislead. – Supporting alternative food practices or initiatives (e.g., local markets, community projects, ethical supply chains) when accessible. – Making household-level changes (such as cooking more, sharing food, and valuing leftovers) that enhance awareness and care, even if their wider impacts are limited.
Dialogue and engagement	How can I remain open to dialogue, learning, and self-reflection regarding food choices and practices, including listening to others and revising my habits when warranted?	– Being open to learning from diverse sources, including scientific knowledge, cultural traditions, and the lived experiences of people across food systems, and remaining willing to revise my food choices as my knowledge, values, and circumstances evolve. – Listening respectfully to perspectives different from my own, particularly those of farmers, food workers, Indigenous and other historically rooted peoples and groups, and people in vulnerable conditions. – Critically reflecting on my own food habits and assumptions, rather than treating them as neutral or purely personal. – Engaging in conversations about food choices in everyday settings (family, friends, communities, schools) as opportunities for shared learning rather than moral judgment. – Recognizing that changing food practices is a gradual, imperfect process that involves uncertainty, mistakes, and compromise.

Analytical focus	Question	Elements to consider
Responsibility and action	What responsibilities am I willing and able to assume as a consumer, household member, or citizen, and how can my food-related actions contribute, however modestly, to social justice, human well-being, and Earth-system integrity?	– Recognizing that I am not solely responsible for solving food-system problems, while understanding that my everyday choices still matter within broader social and environmental systems. – Taking responsibility for reducing food waste in my household through planning, proper storage, and mindful consumption. – Moderating excessive or unnecessary consumption, particularly of animal-sourced and ultra-processed foods, when feasible. – Valuing food as the product of human labor, natural resources, ecosystems, and cultural knowledge, rather than treating it as disposable. – Supporting food choices, when possible, that respect animal welfare, environmental limits, and the dignity of farmers and food workers. – Acknowledging the limits of my actions due to income, time, access, culture, or information, and avoiding guilt-based or perfectionist expectations. – Being mindful of how my daily practices of shopping, cooking, eating, and discarding food indirectly affect others. – Remaining open to learning, gradual improvement, and change, rather than expecting immediate or total transformation of my habits. – Engaging as a citizen with food-related information, dialogue, community initiatives, and public debate when possible. – Supporting collective and policy-based solutions that advance social justice, human well-being, and environmental sustainability, rather than placing responsibility solely on individual consumers.

Additional references

The references listed below were used in addition to those of the main text for preparing the tables in Appendix A and Appendix B.

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