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HARNESSING THE POTENTIAL OF THE 10 ELEMENTS OF AGROECOLOGY TO FACILITATE AGRIFOOD SYSTEMS TRANSFORMATION

FROM VISUAL NARRATIVES TO INTEGRATED POLICY DESIGN



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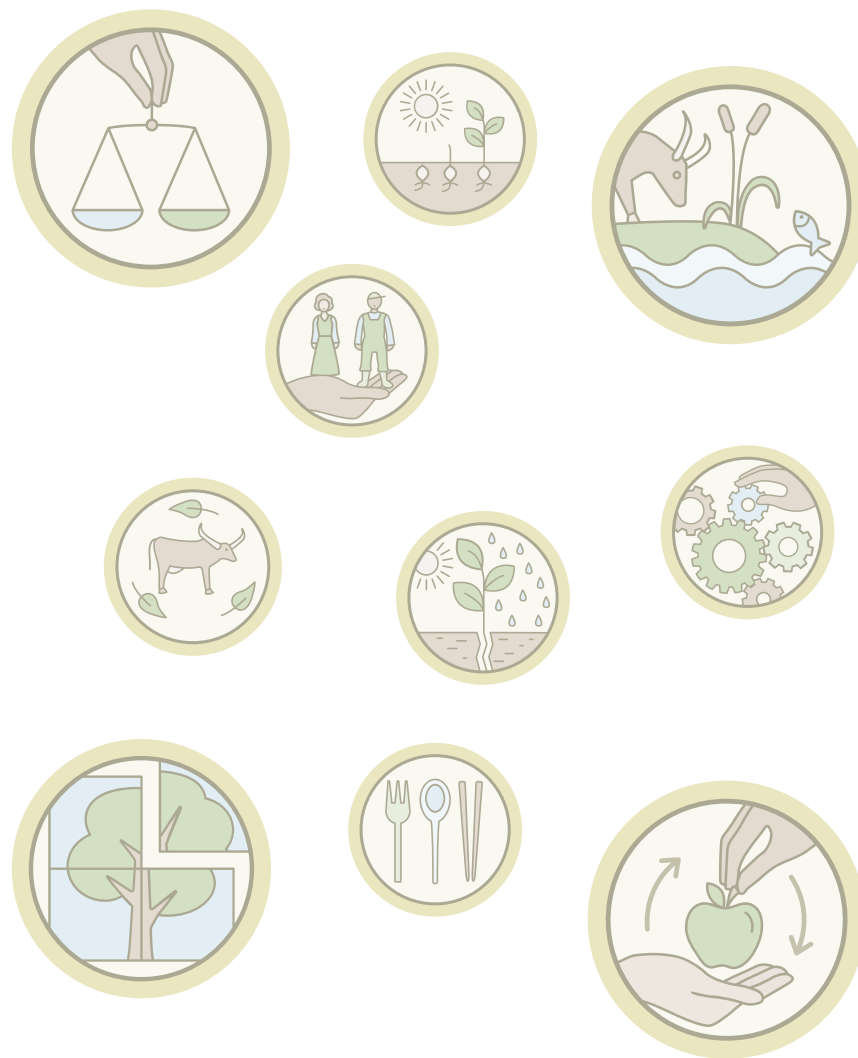
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Abbreviations

CIAT	International Center for Tropical Agriculture (Centro Internacional de Agricultura Tropical)
CIFOR	Center for International Forestry Research
CIRAD	International Cooperation on Agronomic Research for Development (Cooperation Internationale en Recherche Agronomique pour le Developpment)
ICRAF	World Agroforestry
IFAD	International Fund for Agricultural Development
INRAE	French National Institute for Agronomic Research (Institut National de la Recherche Agronomique)
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPES-Food	International Panel of Experts on Sustainable Food Systems
PGS	Participatory Guarantee Systems
PNAE	Brazil's National School Feeding Programme (Programa Nacional de Alimentação Escolar)
SAPEA	Science Advice for Policy by European Academies
SDGs	Sustainable Development Goals
SDG2	Sustainable Development Goal 2: Zero Hunger
UFRGS	Brazil's Federal University of Rio Grande do Sul (Universidade Federal do Rio Grande do Sul)
UNCCD	United Nations Convention to Combat Desertification
UNICEF	United Nations Children's Fund
UNSG	United Nations Secretary General
WCS	World Conservation Society
WFP	World Food Program
WHO	World Health Organization

Key messages

- Visual narratives using the 10 Elements of Agroecology can guide the holistic visioning needed to better understand transformative change and plausible transitions towards sustainable agriculture and food systems. By sharing similar underlying storylines, assumptions and responses to drivers of change, visual narratives may foster the convergence of transitions into typologies that can facilitate the design of response options to face complex sustainability challenges.
- This working paper describes how nexus analyses and visual narratives using the 10 Elements of Agroecology provide a framework for policymakers and stakeholders, including producers and their organizations, researchers, civil society and the private sector, to identify key entry points and plausible trajectories of change for agricultural and food systems transformation. By revealing interdependencies, synergies and trade-offs, visual narratives can facilitate the design of integrated and transformative policy packages.
- This document aims to provide policymakers and stakeholders with guidance and illustrative examples to identify, co-design and combine the most effective policies to unlock transformation in the socioecological and political contexts in which they are operating. Nevertheless, it does not intend to be prescriptive and should be tailored to specific circumstances, national legislation and the unique needs of each food system, following the best judgement of each policymaker and stakeholder involved.

1. Introduction

The task facing policymakers and stakeholders to address today's food systems challenges is daunting – in terms of its magnitude, importance and complexity. Despite global commitments to meet the Sustainable Development Goals (SDGs), particularly SDG 2, “ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture”, as well as the Paris Climate Agreement and the United Nations Convention to Combat Desertification (UNCCD) Land Degradation Neutrality targets, and ongoing Convention on Biological Diversity negotiations and the Post-2020 Global Biodiversity Framework, today's agriculture and food systems continue to simultaneously cause and be affected by a series of severe and interconnected environmental, socioeconomic, and health-related challenges and crises. These include food and nutrition insecurity, climate change, deforestation and biodiversity loss, the degradation of land and marine ecosystems, the prevalence of non-communicable diseases and the emergence and spread of communicable diseases, all contributing to the deterioration of livelihoods (Steffen et al., 2015; UNCCD, 2017; IPBES, 2018; 2019; IPCC, 2019; 2022; FAO et al., 2020). Furthermore, the effects of the COVID-19 pandemic and risks of conflicts and political instability continue to loom large, threatening to raise already high rates of global food insecurity and malnutrition (FAO et al., 2021c).

Whereas food-related challenges have been traditionally interpreted and dealt with by focusing on increasing agricultural production (Kugelberg et al., 2021), contemporary food systems challenges and crises are characterized by greater systemic complexity. These challenges are exacerbated by sectoral and stand-alone approaches, as well as policy incoherence – which can arise when policy objectives are misaligned or when a policy targeting a specific problem without considering the broader context causes unintended spill overs or trade-offs with other policy

objectives (Singh et al., 2021). Against this backdrop, it is now increasingly recognized that agricultural and food systems transformation needs to be supported by the design of policies aligned to the 2030 Agenda for Sustainable Development (Caron et al., 2018). Policy reform is needed to fill the gap represented by the two dimensions of what has been referred to as the missing middle (Veldhuizen et al., 2020), namely, the lack of coupled or coordinated action between food production and consumption, and between globally defined goals and local implementation practices. This can only be achieved by addressing food systems challenges in a more integrated manner, recognizing the complexity, deep interconnections and interdependencies of our economies, societies, and ecosystems.



Policymakers have a leading role to play in bridging the missing middle, by reforming existing policies where necessary, and designing new policy frameworks that establish enabling environments to catalyse food systems transformation. This requires looking beyond isolated interventions and short-term fixes by considering food systems in their entirety and implementing reform through policy packages – the systematic bundling of different policy measures in an integrated and complementary manner, encompassing the different policies affecting food systems, including policies focusing on agriculture, forestry and fisheries, environmental regulations, public procurement, social protection, market rules, economic and fiscal policies, and health (IPES-Food, 2019; Rosenzweig et al., 2020; SAPEA, 2020). Developing integrated policy packages is an important strategy to address cross-cutting challenges such as climate change. While this may require longer policy processes, which can be challenging (e.g. to co-develop policies based on consultation with a wider range of

stakeholders and between different government ministries and agencies), there are several significant benefits from adopting a coherent combination of policies, including greater effectiveness (compared with single interventions) as different policy instruments have their own respective strengths and weaknesses (Camargo et al., 2019; Piñeiro et al., 2020), including the ability to effectively target different groups, such as those that are more vulnerable or excluded (Pedersen et al., 2020).

Recognizing the advantages of integrated policymaking, an increasing number of governments have initiated the development of better-integrated food policies (Candel & Pereira, 2017; Tefft et al., 2020). Policy packaging has been proposed as a valuable strategy to drive food systems transformation by increasing political feasibility of comprehensive policy change (Fesenfeld et al., 2020).

2. The need for integrated approaches to enable food systems transformation

Agroecology is “an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems” (FAO, 2018a), which has increasingly been identified as a crucial enabler for food systems transformation required to meet the SDGs (FAO, 2018b; UNSG, 2021). As a means to achieve long-term social, economic, and environmental resilience, agroecology encourages integration — including the integration of practices and components at the farm scale (e.g. crop–livestock–aquaculture integration) to the integrated management of landscapes and cross-sectoral, participatory governance of food systems (e.g. through territorial approaches, food policy councils, etc.). Agroecology provides a framework to guide the transformation of food systems and their governance, encompassing the whole arrangement of practices “from farm to fork”, hence representing a promising strategy to bridge the missing middle between food production and consumption, and between globally defined goals and local implementation of practices highlighted by Veldhuizen et al. (2020) as a hindrance to progress towards SDG 2.

This working paper applies the 10 Elements of Agroecology framework, approved by the 197 Members of FAO in December 2019 (FAO, 2019). These Elements were defined through an inclusive global multistakeholder consultation process conducted between 2015–2019 and now serve as an analytical tool to operationalize agroecology and support the planning, management, and evaluation of agroecological transitions.¹

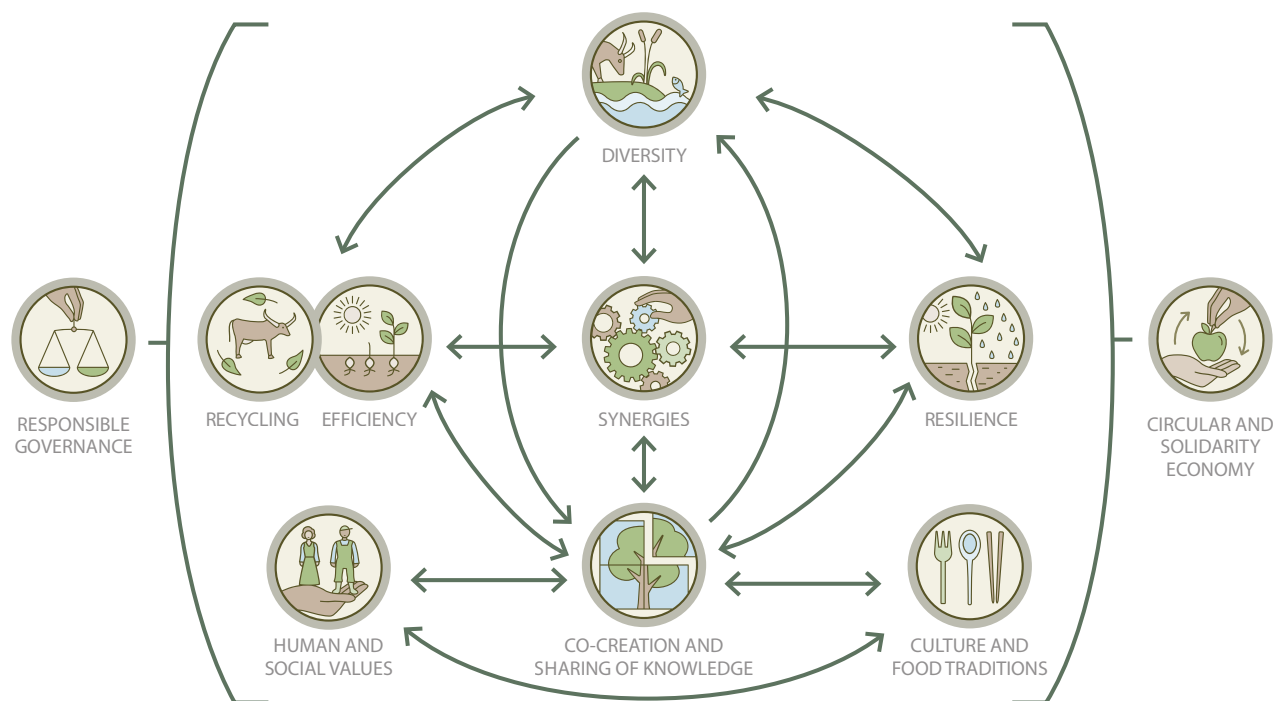
¹ Further details on the 10 Elements of Agroecology development process can be found in Barrios et al. (2020).



The 10 Elements of Agroecology are interlinked and interdependent. They encompass the elements of diversity and co-creation and sharing of knowledge and practices, science and innovation as foundational characteristics of agroecological systems and help to guide diversification choices aimed at building synergies and minimizing trade-offs. The elements efficiency and resilience are emergent properties of systems built upon the above three elements, where recycling is a central practice.

The elements human and social values and culture and food traditions describe context features of agroecological systems, while responsible governance and circular and solidarity economy describe the enabling environment as well as serving as aspirational goals (Figure 1).

Figure 1. Interactions and interdependencies among the 10 Elements of Agroecology

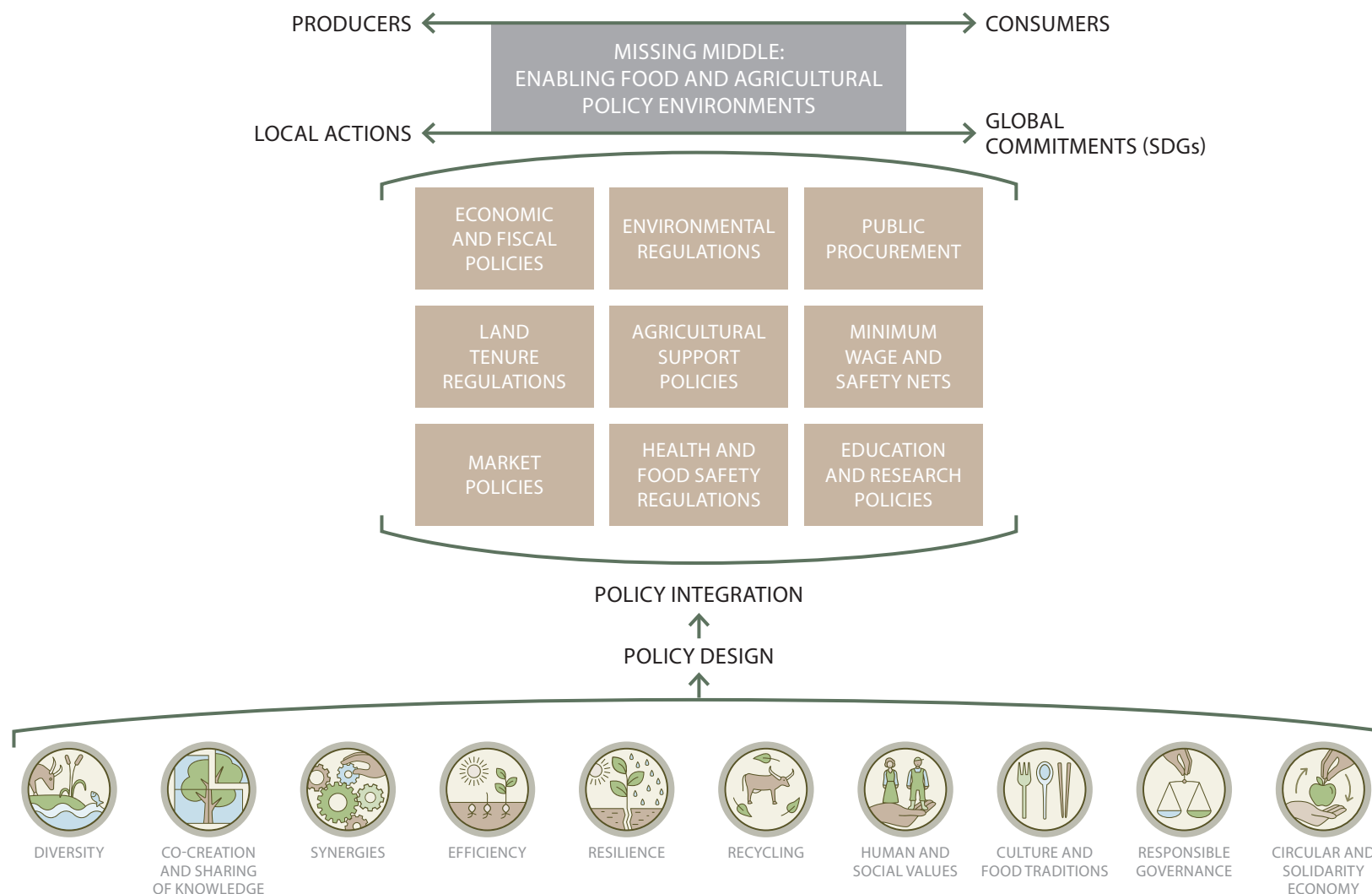


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The 10 Elements of Agroecology provide a useful tool for framing the recognized complexity of food and agricultural systems, into a simplified, yet holistic vision of reality that can facilitate decision-making by policymakers.

This working paper discusses how the 10 Elements framework can be applied to co-design and inspire integrated food policy packages that drive agriculture and food systems transformation (Figure 2).

Figure 2. Adapting the concept of missing middle to food systems public governance (note: non-exhaustive list of policies influencing food systems)



3. Visual narratives as guidance to the design of integrated policy packages

Visual narratives offer a flexible tool to harness the potential of the 10 Elements of Agroecology as a guide to support integrated policymaking and food system transformations. The concept of visual narratives can be applied in food systems policy analysis to highlight promising entry points for policy interventions, identify co-benefit opportunities through nexus analysis, and help to build policy packages to catalyse food systems transformation (Barrios et al., 2020).

By applying a structured stepwise process, visual narratives can be developed and described as follows:

Identifying key entry points: Building on common recommendations derived from the regional seminars on agroecological transitions (FAO, 2018c) and the expert group review publication on key steps for transformation of food systems (Caron et al., 2018) that identified recurring challenges, bottlenecks and opportunities, four key entry points were identified to foster transformative change and transitions towards sustainable agriculture and food systems. Key entry points include biodiversity (Element: Diversity); consumers (Element: Circular and solidarity economy); education (Element: Co-creation and sharing of knowledge); and governance (Element: Responsible governance) (Wezel et al., 2020).

Analysing the nexus between the entry point and other Elements: By identifying interlinkages and interdependencies among sectors and stakeholders, nexuses can be developed, describing the relationships between the entry point and other Elements. Nexus analysis helps to simultaneously identify competing demands, critical trade-offs and potential

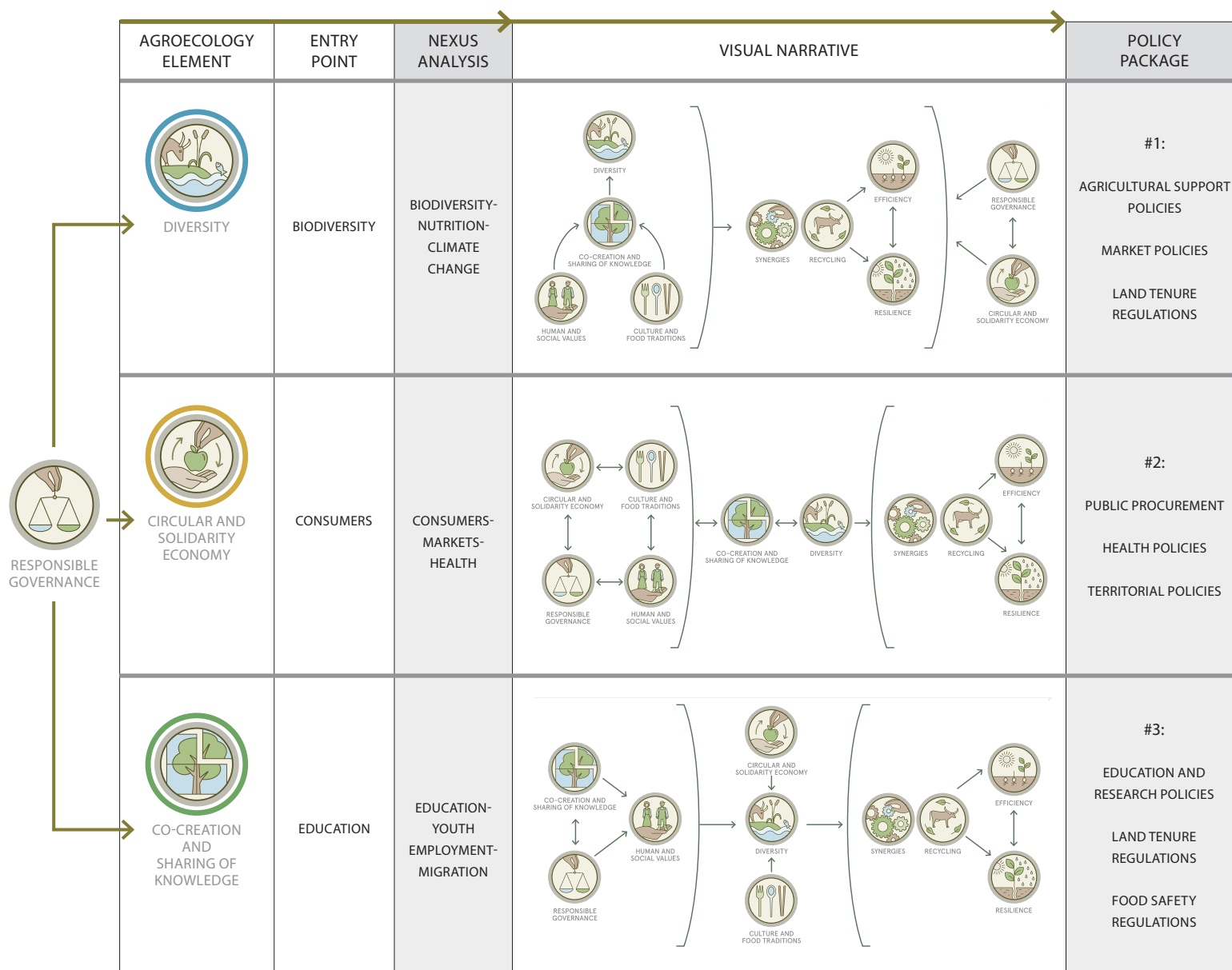
synergies hence facilitating higher resource-use efficiency, policy coherence and integrated policy design (Liu et al., 2018; FAO, 2021).

Developing and describing plausible theories of transformative change: Icons depicting each of the 10 Elements of Agroecology are then used to graphically develop and describe plausible theories of transformative change starting from each entry point and reinforced by compelling narratives.

To demonstrate the potential of visual narratives, this working paper describes in more depth how the biodiversity, consumers and education entry points can interact with the governance entry point to unlock policy change in support of food and agricultural transformation. Figure 3 and the sub-sections below provide illustrative examples of how visual narratives can be used to build integrated policy packages for each of the entry points identified, thus creating an enabling policy environment for agroecological transformation.² The different entry points are not mutually exclusive – indeed, working from multiple entry points simultaneously is a promising strategy to accelerate the process of transformative change (Barrios et al., 2020).

² The illustrative examples described in sections 3.1 to 3.3 are intended as models of potential approaches, including policies that have proven to be effective and could be adapted and applied in new contexts. The policy examples described for each entry point do not represent an exhaustive list and many could be relevant to multiple entry points, depending on the context.

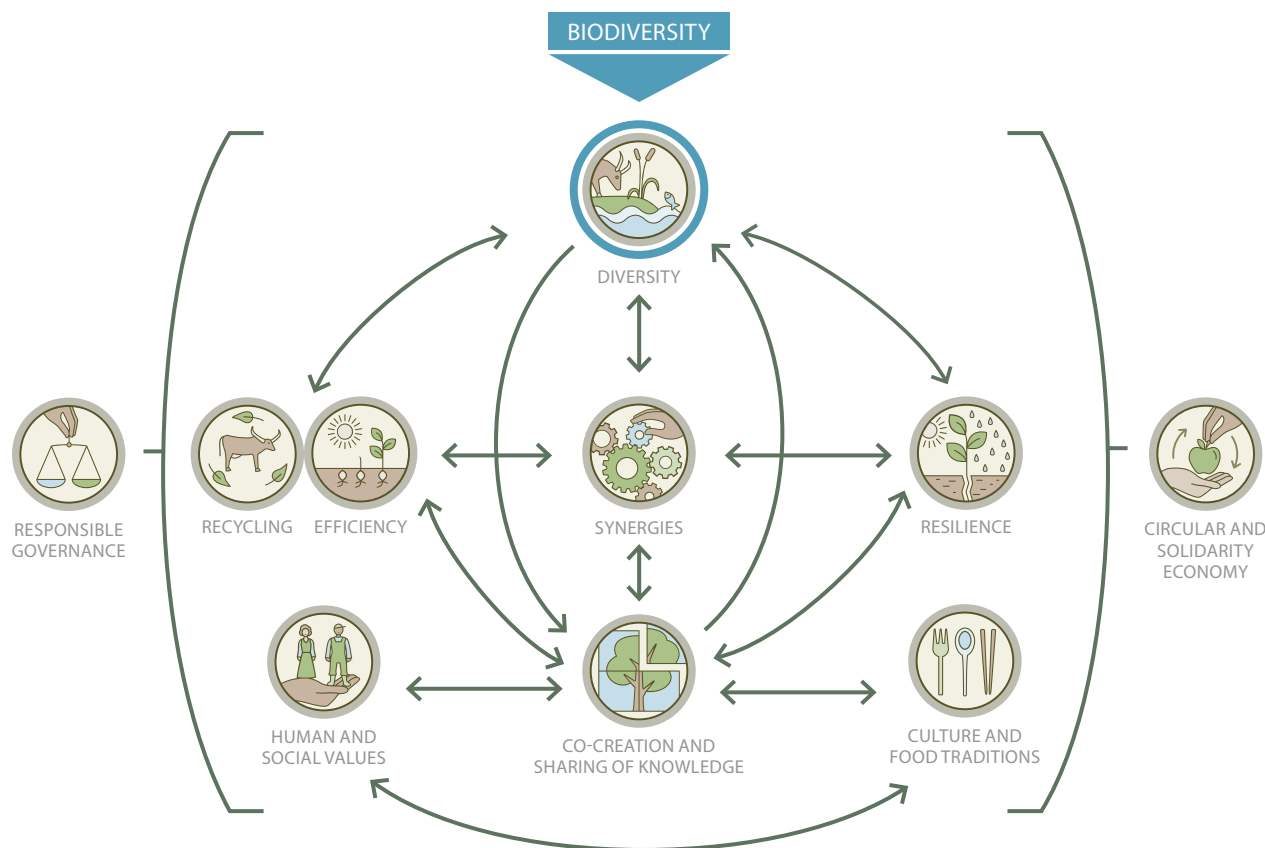
Figure 3. Development path for visual narratives as guidance to the design of integrated policy packages



3.1 The biodiversity–nutrition–climate change nexus policy package

Biodiversity conservation, food security and nutrition, and climate change adaptation and mitigation are food systems challenges that are intimately linked. Diversifying food production systems can produce important co-benefits in terms of yields, food security and nutrition, livelihoods, health and building the adaptive capacity of agricultural systems to climate change (Jones, 2017; Tamburini et al., 2020; Burra et al., 2021). Agroforestry, including

Figure 4. Initiating food systems policy reform through the **biodiversity** entry point



silvopastoral systems, can be considered a key example of agroecology in practice making it a potentially important agricultural production system to explore the biodiversity-nutrition-climate change nexus (Prabhu et al., 2015; Rosenstock et al., 2019). Successful examples of government policies facilitating agroforestry promotion exist in many parts of the world, including the “Grain for Green” policy in China (Lei et al., 2012), the establishment of a National Steering Committee on Agroforestry in Malawi (Kakhobwe et al., 2016), national agroforestry policies in India (Singh, 2016), Nepal (Government of Nepal, 2019) and Belize (Belize National Climate Change Office et al., 2020).

Visual narratives can be used to identify policy opportunities to create an enabling environment for agroforestry mainstreaming. Examples of these policies include: subsidy payments per tree integrated in cropping and grazing systems; transition grants that support producers with the initial planting costs and short-term loss of production; policies that support access to affordable credit; territorial development policies that support the integration of trees in agricultural landscapes; fiscal incentives supporting agroforestry systems that reduce greenhouse gas emissions; policies that facilitate and regulate permit procedures for the harvesting and transport of timber produced on-farm; tax cuts for food produced in agroforestry systems; policies and laws to establish secure tenure rights, enabling longer-term investments such as planting trees in cropping and grazing systems; government-accredited rural advisory services that promote and support the development of agroforestry land-use systems.

The following example illustrates how nexus analysis and visual narratives can be used to identify plausible future pathways of change and to design a supporting policy package to facilitate agroforestry promotion to produce co-benefits along the biodiversity–nutrition–climate change nexus.

Example:

i) Farm diversification: Agricultural systems that are biologically diverse make greater contributions to the stability and variety of ecological functions that sustain productivity and other ecosystem services such as pollination,

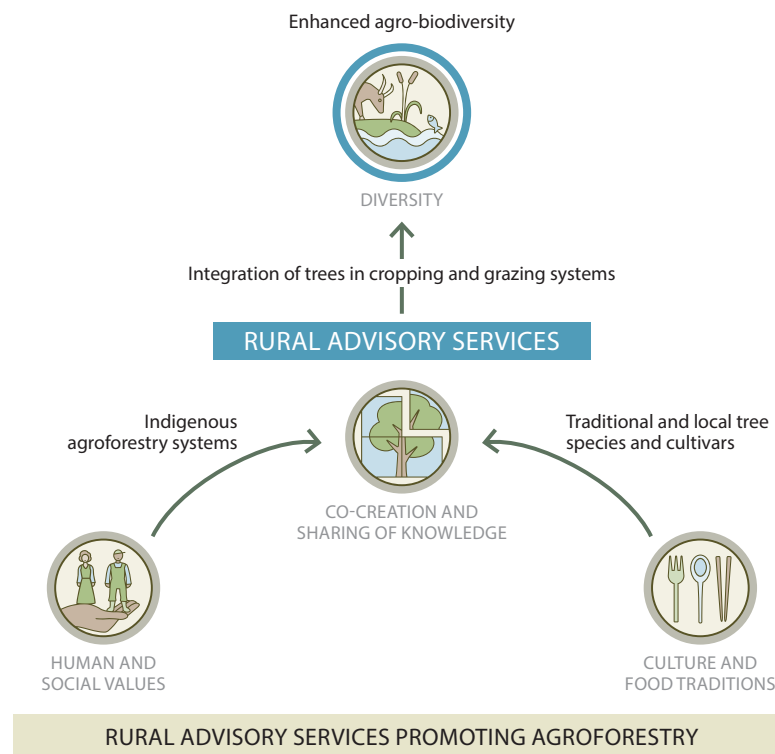
nutrient cycling and biological regulation of pest and diseases (Barrios et al., 2018; Tamburini et al., 2020). Values of inclusiveness and equity promote indigenous knowledge on the use and management of local trees for multiple purposes. Culture and food traditions provide guidance on which components (including trees) could be included in production systems. Through co-creation of knowledge with local farmers and Indigenous Peoples, public rural advisory services can promote and support the integration of trees in cropping and grazing systems (Davis et al., 2018). Shifting advisory



services towards participatory education methods such as farmer field schools has proven effective in building producers' knowledge in agro-ecosystem management as well as social capital to support diversification and scaling up (Pretty, 2018).³ Integrating trees in agriculture may enhance floral and nesting resources for pollinators, as well as foster habitats for natural enemies of pest and disease species which underpin Integrated Pest Management strategies (Pumariño et al., 2015; Potts et al., 2016). Further, enhanced capacity for biological control contributes to minimizing the need for pesticide use, a measure that also benefits pollinators, water pollution and human health. In grazing systems, trees can provide feed resources and shade for animals. The co-development of diversification options has the potential to enhance agrobiodiversity, encourage diversified healthy diets and enhance climate change adaptation and mitigation options through the introduction of multipurpose trees in agricultural systems (Figure 5).

ii) Niche marketing: Policies that promote the consumption of agroforestry products (e.g. labels promoting sustainable honey, nutritious fruits and nuts, and other non-timber products) can create a “pulling” effect from the demand side. Certification and labelling have been shown to influence consumers to increase the demand of healthy and diverse food, opening new markets for agroecological produce (de Haen and Requillart, 2014; Fougilleux and Loconto 2017). Consumers, therefore, can stimulate farm diversification by creating the demand for safer, more diverse and nutritious diets. This demand also encourages producers to re-design and diversify their agricultural systems to minimize pesticide use, promote greater resource-use efficiency and recycling, and optimize fertilizer use adapted to context, all contributing to reduce the need for external inputs (Tittonell, 2014; Pretty, 2018).

Figure 5. Designing a policy package facilitating agroforestry promotion to produce co-benefits along the biodiversity–nutrition–climate change nexus (i)



Source: Authors' own elaboration

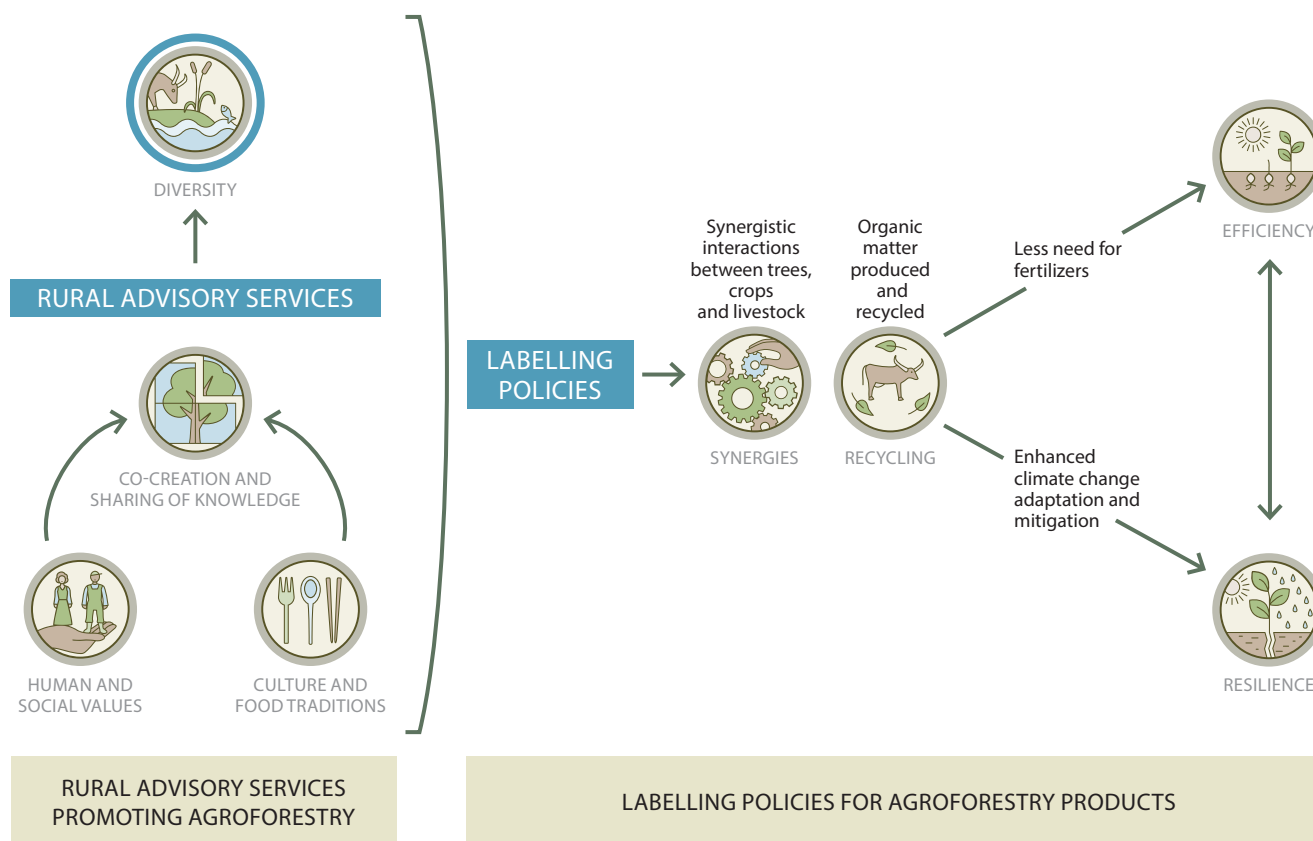
At the farm level, this involves fostering synergistic interactions between trees, livestock and crops that harness opportunities to use nutrients contained in organic matter produced by trees to support more efficient soil nutrient management and crop nutrition (Kuyah et al., 2016). Diets including products produced in agroforestry systems can contribute positively to both climate change mitigation (e.g. through the soil carbon storage contributions from trees) and adaptation (e.g. by reducing soil erosion, temperature, and evaporation while enhancing soil moisture

³ For example, farmer field schools have been an important catalyst for the wide adoption of integrated pest management strategies on an estimated 20 million farms globally, including 130,000 farmers in East Africa adopting “push–pull” systems as one of the most effective examples of agroecological redesign (Pretty, 2018).

retention) (Muchane et al., 2020). At the same time, intercropping with trees can further increase efficiency by improving access to soil nutrients below the crop's rooting zone, which further reduces the need for external nutrient inputs. Possible trade-offs, however, might occur between efficiency and resilience, for example between short-term productivity and the provision of other ecosystem services (Figure 6).

iii) Land tenure and traditional markets: Land tenure insecurity restricts the willingness to invest in practices contributing to agroecological transitions that provide benefits in the medium and long-term – such as introducing trees and perennials into cropping and grazing systems – largely because in the absence of secure land tenure there is no guarantee to reap the benefits of such practices (FAO and ICRAF, 2019; Arslan et al., 2020). Underpinned

Figure 6. Designing a policy package facilitating agroforestry promotion to produce co-benefits along the biodiversity–nutrition–climate changenexus (ii)

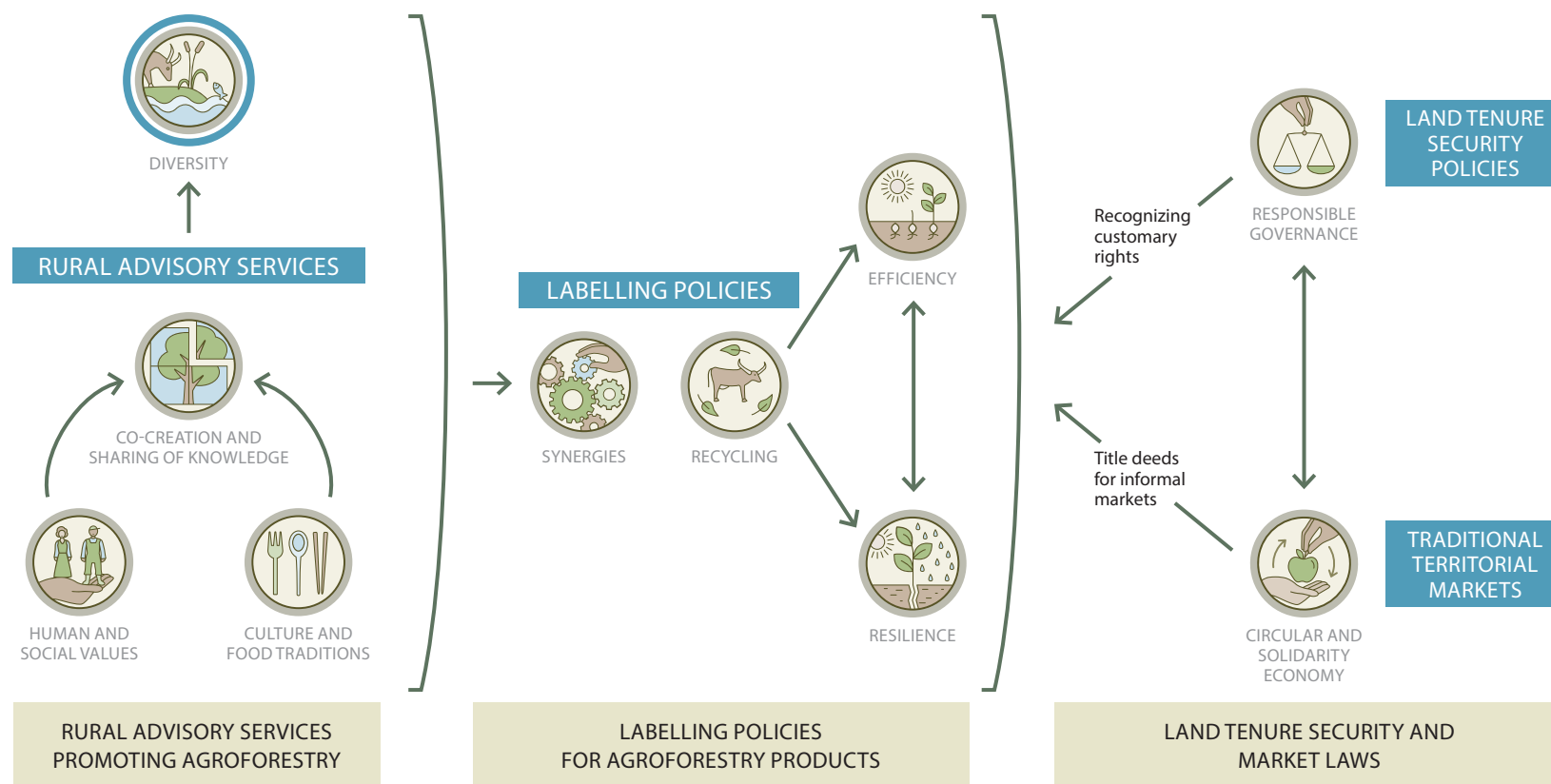


by responsible governance, strengthening or improving land tenure security for local communities contributes to establish an enabling environment for active participation in agroecological transitions. Traditional markets for agroforestry produce are also strengthened through governmental policies (e.g. pricing policies, title deeds for informal markets) supported by the element of circular and solidarity economy that promotes shorter value chains and the reconnection of producers and consumers through local

markets and local economic development (Fouilleux and Loconto, 2017).

The full visual narrative shown in Figure 7 represents a policy package integrating rural advisory services, labelling policies, land tenure security and traditional markets policies. This example helps to visualise a plausible theory of transformative change for agrifood system policies that create an enabling environment for the mainstreaming of agroforestry and delivering of co-benefits along the biodiversity–nutrition–climate change nexus.

Figure 7. Designing a policy package facilitating agroforestry promotion to produce co-benefits along the biodiversity–nutrition–climate change nexus (iii)

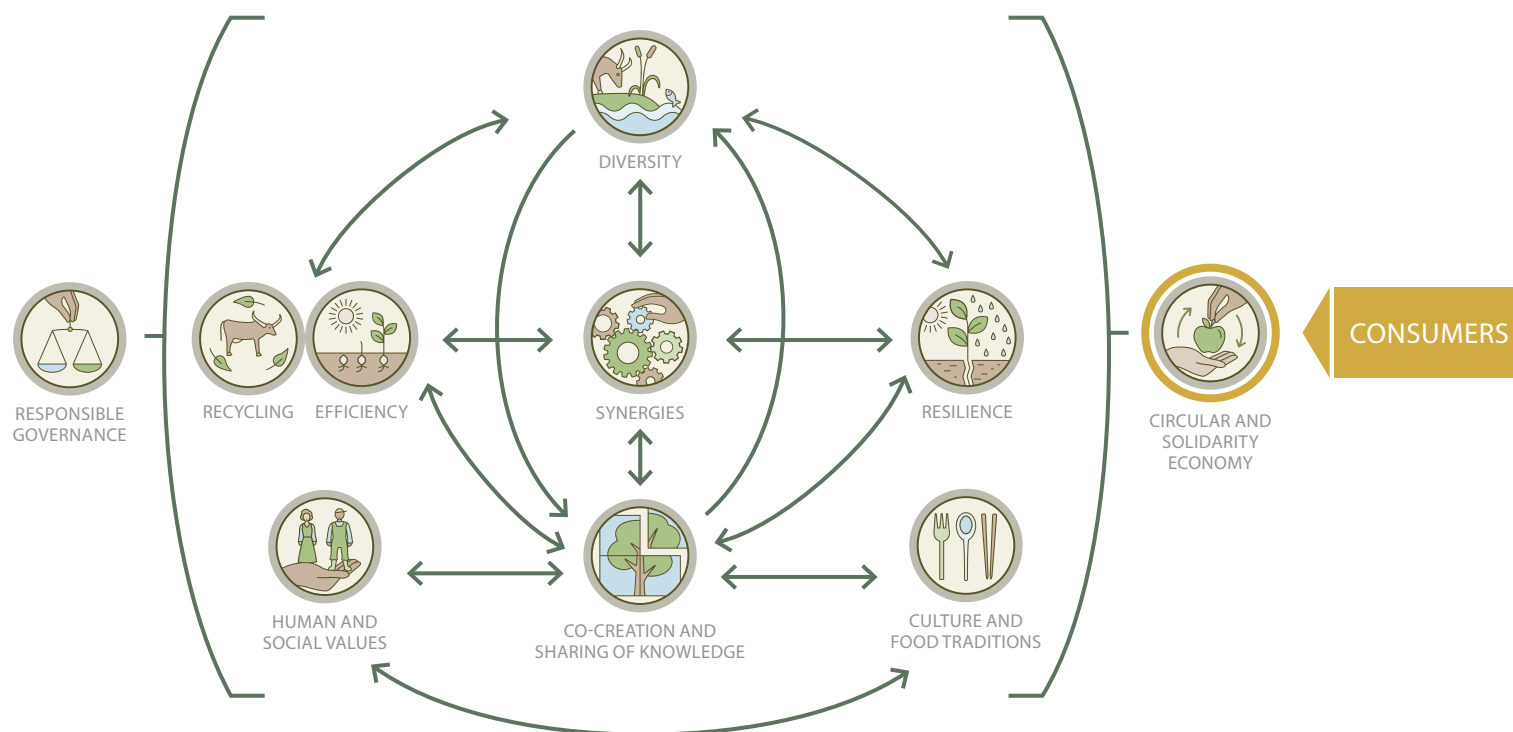


3.2

The consumers–markets–health nexus policy package

The consumers entry point focuses on changing consumption patterns towards nutritious, healthy and sustainable foods and thereby creating a demand for shifting markets and production patterns. Public food procurement has emerged as an effective policy initiative to promote sustainable development, fostering transitions to sustainable production and healthy diets (Swensson et al., 2021). An emblematic case is that of Brazil's

Figure 8. Initiating food systems policy reform through the **Consumers** entry point



National School Feeding Programme (Programa Nacional de Alimentação Escolar; PNAE). By creating a structured demand (i.e. a large-scale and predictable demand) for local, diverse, nutritious and sustainably produced food, the programme successfully encouraged small and larger-scale producers to diversify their production systems, reduce the use of external inputs and adopt agroecological principles and practices (Valencia et al., 2019). The PNAE has further contributed to reducing child malnutrition, improving access to healthy food and reducing school absenteeism (FAO, 2014). Similar public food procurement strategies have proven successful from municipal to national scale and across many different country contexts (FAO et al., 2021a,b). Examples include the midday meal scheme in India (Singh et al., 2014) and the Home-Grown School Feeding models in Ghana (Singh and Fernandes, 2018).



The positive multisectoral impacts of these programmes demonstrate the transformative potential of public food procurement (Verguet et al., 2020). However, public food procurement programmes do not always achieve the same levels of success (Gaddis and Jeon, 2020). Even within Brazil, Santa Catarina has been one of the most successful states in implementing the PNAE with higher levels of infrastructure development likely contributing. In regions and countries without the same level of infrastructure, or without a base of local knowledge on diversified farming practices, it might not be possible to achieve the same results (Valencia et al., 2019).

Visual narratives can be used to identify policy change opportunities to create an enabling environment for public procurement of healthy food produced under sustainable practices. Examples of these policies include: food safety regulations and local markets development; consumer education, including through regulating advertising of food products; public procurement legislation to create an enabling regulatory framework for procurement rules that promote healthy and sustainably produced food; food safety regulations to reduce the use of harmful chemicals on foods; labelling and certification of sustainable products; municipal policies linking local producers with public canteens; participatory guarantee systems (PGS) that enhance access to local markets for agroecological products.

The following example illustrates how nexus analysis and visual narratives can be used to identify plausible future pathways of change and to design a supporting policy package to facilitate sustainable public procurement to produce co-benefits along the consumers–markets–health nexus.

Example:

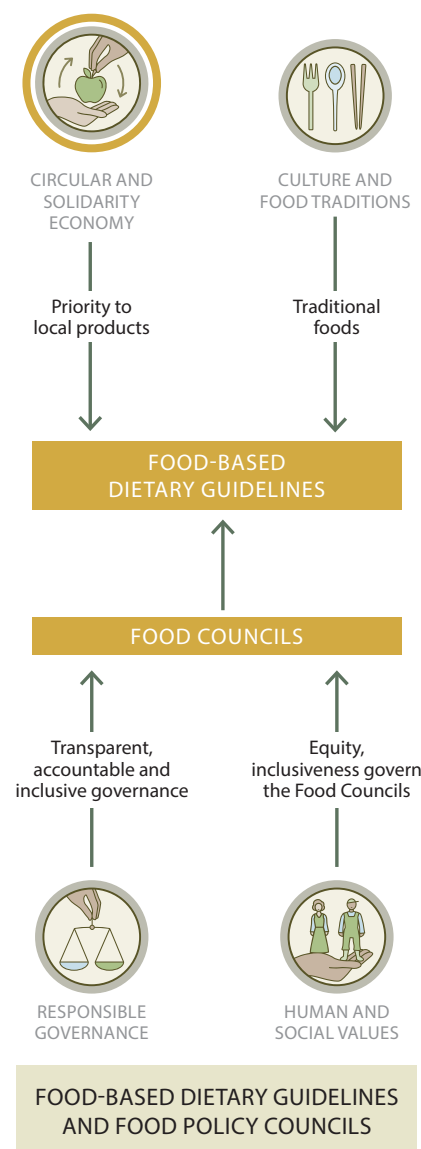
i) Awareness raising and transparency: Food and nutrition education and food-based dietary guidelines can play a key role in raising awareness about the importance of healthy, sustainable and culturally appropriate diets and promoting alternative dietary options, contributing to changes in consumer preferences and public demand for agroecological products

(de Haen and Requillart, 2014; Wezel et al., 2018). Food policy councils and other types of multistakeholder governance mechanisms that involve coalitions of producers and consumers can play an important role in the implementation of public policies (Prové et al., 2019; Tefft et al., 2020). For example, food policy councils could develop guidelines on appropriate public procurement practices at the municipal level. They are also an important instrument to advocate for legislative changes and the improvement of public procurement rules at the national level. Food policy councils can also participate in the design and prioritization of food-based dietary guidelines (Figure 9).

ii) Connecting demand and supply: Through a knowledge co-creation and sharing process, innovations can be co-developed to encourage shorter food supply chains. At the same time alliances between public canteens and local producers can be forged by policies to increase the share of locally produced healthy food in public food procurement (Valencia et al., 2019). Strengthened links between production and consumption at the local level may enhance diversification of food production in the field and also consumer diets (Blesh et al., 2019). Public food procurement programmes create a structured demand for healthy, diverse and culturally appropriate ingredients, while at the same time the type and quantity of foods available in the different seasons will influence meal compositions (Figure 10). This can create opportunities for on-farm diversification aimed at continuous adequate supply of nutritious food throughout the year (Remans et al., 2015; McMullin et al., 2019).

iii) Healthy diets, healthy people and healthy planet: Sustainable public food procurement initiatives can boost local food production by creating synergistic alliances and reconnecting local and smallholder food producers with consumers (Swensson et al., 2021). It can help create a structured demand for agroecological products allowing producers to diversify their production systems and enhance their resilience. In combination with supporting policies (e.g. capacity building), the consistent and large-scale

Figure 9. Designing a policy package facilitating sustainable public procurement to produce co-benefits along the consumers–markets–health nexus (i)

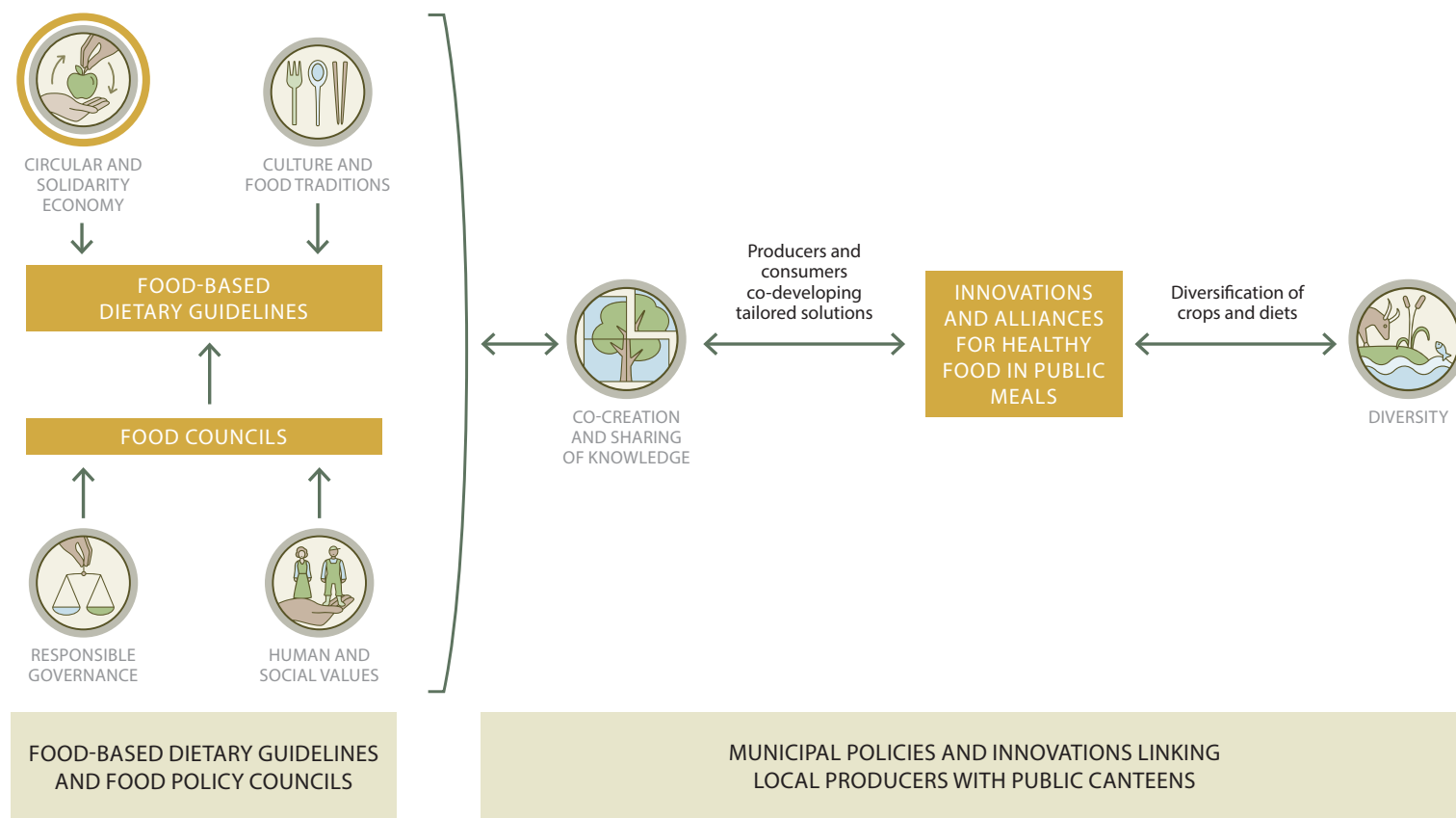


Source: Authors' own elaboration

structured demand allows supply chains to adjust and respond (Valencia et al., 2019). There may be further spill over effects with an increased availability and awareness of diverse agroecological products in local markets. Public canteens (e.g. in schools, universities, national and local government institutions) can further strengthen positive alliances through

the recycling of organic residues (i.e. food waste) to provide local farmers with feed resources or organic matter for composting, thus helping to recycle nutrients back to the soil (Torrijos et al., 2021). Public procurement innovations to strengthen shorter supply chains will produce benefits in terms of less energy required for transport of food and to produce

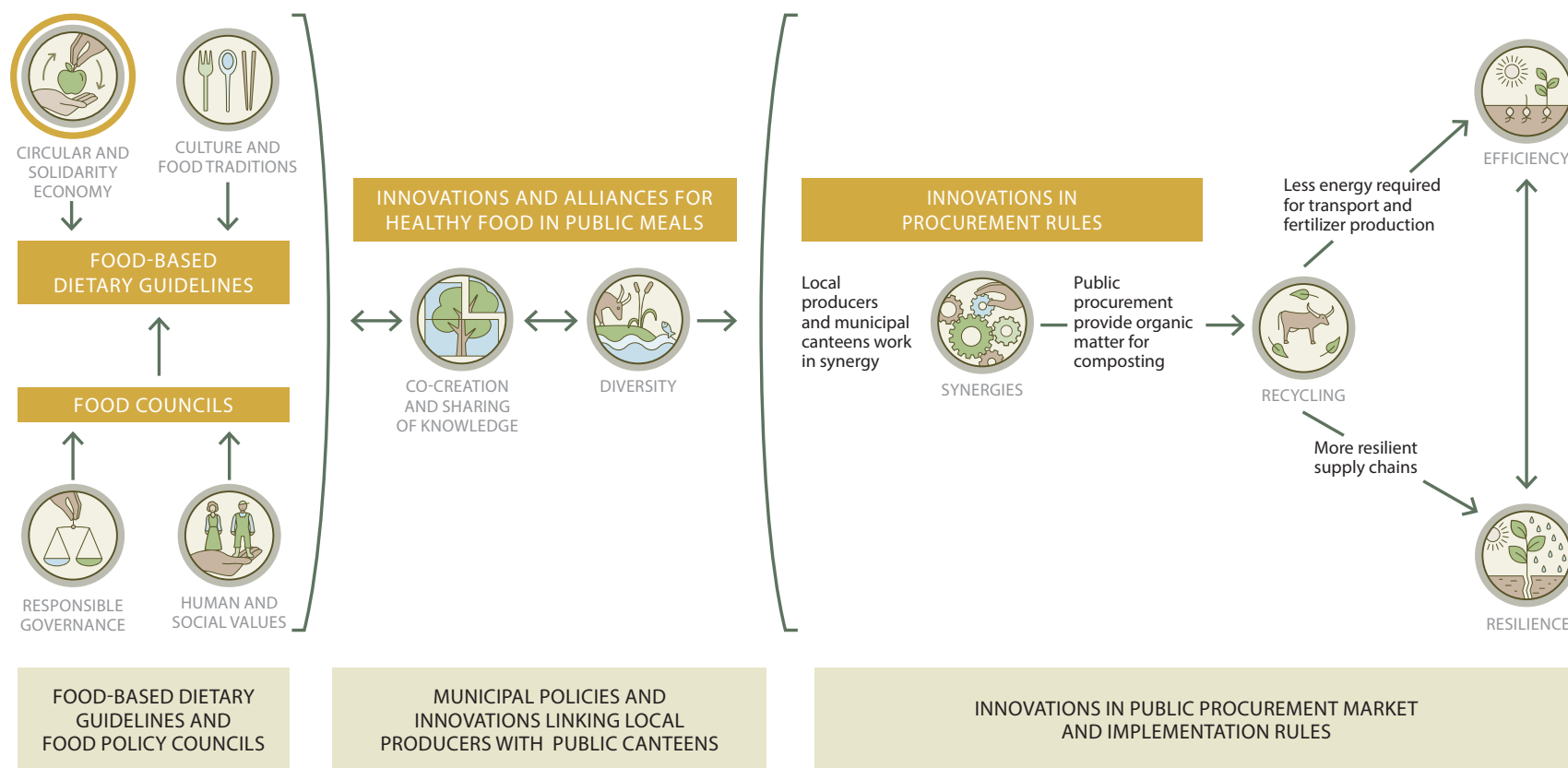
Figure 10. Designing a policy package facilitating sustainable public procurement to produce co-benefits along the consumers–markets–health nexus (ii)



fertilizers. Shorter supply chains also have greater capacity to withstand, respond and adapt to shocks and stresses associated with climate change. The full visual narrative shown in Figure 11 represents a policy package integrating innovations in public procurement rules, the establishment of municipal food policy councils, food-based dietary guidelines, and

innovations and municipal alliances (e.g. public-private partnerships) between local producers and public canteens. This example helps to visualise a plausible theory of transformative change in agrifood system policies facilitating sustainable public food procurement and delivering co-benefits along the consumers-markets-health nexus.

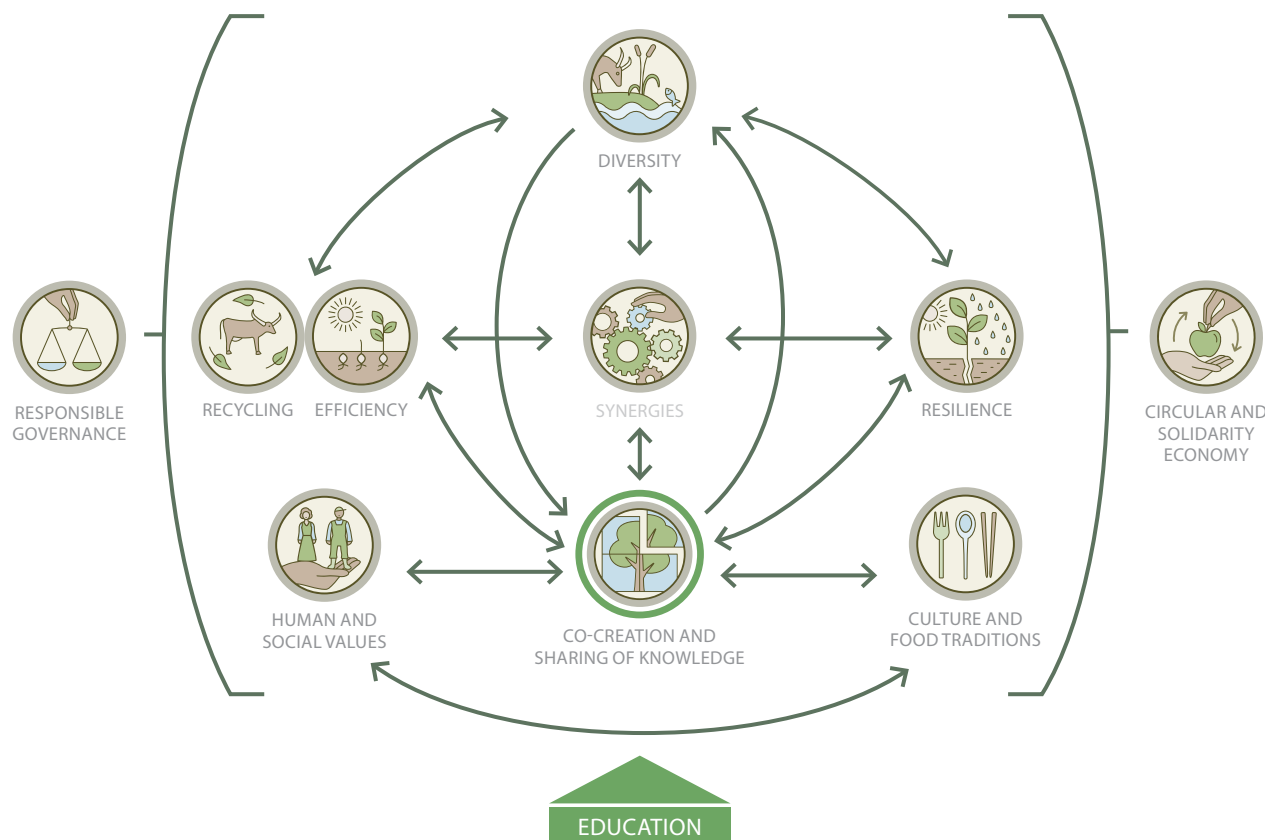
Figure 11. Designing a policy package facilitating sustainable public procurement to produce co-benefits along the consumers–markets–health nexus (iii)



3.3 The education–youth employment– migration nexus policy package

The co-creation and sharing of knowledge and practices, science and innovation is a central element that drives informed decision-making in agroecology. The promotion of agroecology through education systems can create important co-benefits in terms of fostering youth employment in rural areas and consequently in reducing migration towards urban centres often associated with agricultural land abandonment and exacerbation of rural poverty. Successful examples include the improvement of rural advisory services under the National Organic Agriculture Policy of Uganda (Ministry

Figure 12. Initiating food systems policy reform through the Education entry point



of Agriculture, Animal Industry and Fisheries, Republic of Uganda, 2019), public farmer field schools in Belize to promote the increased adoption of the agroecological practices to benefit milpa farmers (Drexler, 2020), and the alliance developed by the Kaydara Agroecology School and the Fimela town government, in Senegal (Jardins d'Afrique, 2023).

Visual narratives can be used to identify policy innovation opportunities to create an enabling environment for co-creation of knowledge through agroecological farmer schools and rural advisory services. These include the revision of secondary and technical schools and university curricula to recognize and highlight the importance of indigenous knowledge to support improved decision-making; the promotion of farmer-to-farmer knowledge sharing; capacity building on agroecology using digital technologies that can make farming more attractive to youth; focusing on agricultural knowledge and innovation systems supporting agroecological transitions; facilitating inclusion of groups historically not well supported by national extension services (e.g. the rural poor, women, Indigenous Peoples, youth); and fostering land tenure security, thus facilitating youth access to land.

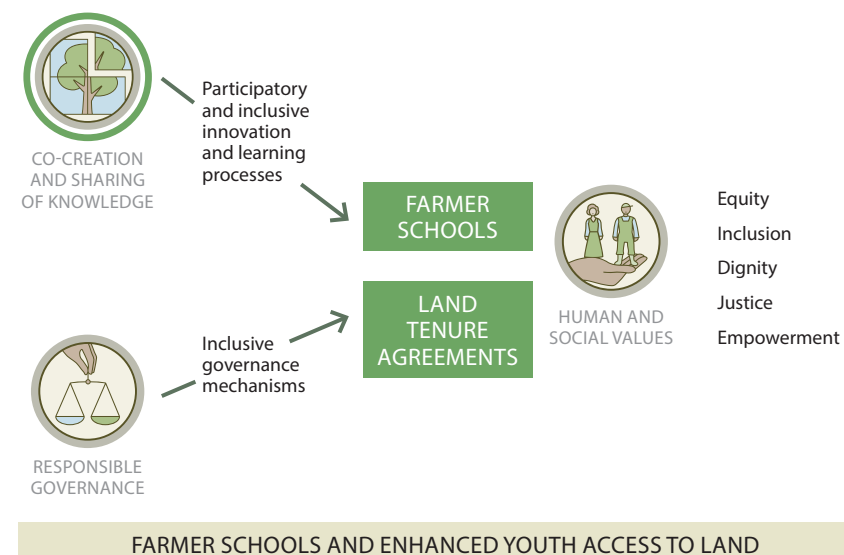
The following example illustrates how nexus analysis and visual narratives can be used to identify plausible future pathways of change and design a policy package to facilitate the development of agroecology schools and rural advisory services to produce co-benefits along the education–youth employment–migration nexus.

Example:

i) Long-term access to resources: Co-creation and sharing of knowledge can underpin the support for agroecology school farms that train the young generation in more regenerative forms of agriculture by fostering participatory and inclusive innovation and learning processes that contribute to sustainable agriculture and food systems (Méndez et al., 2017). Rooted in shared human and social values of equity and inclusion, innovative youth employment models have been developed by building

alliances between agroecology farmer schools and local governments (Barrios et al., 2020). Underpinned by responsible governance, land tenure agreements can be implemented to make land and natural resources more accessible for young farmers graduating from agroecology farmer schools, hence providing business development opportunities to new generations of farmers applying agroecology concepts, principles and practices (Figure 13).

Figure 13. Designing a policy package facilitating the development of agroecology schools and rural advisory services to produce co-benefits along the education–youth employment–migration nexus (i)



Source: Authors' own elaboration

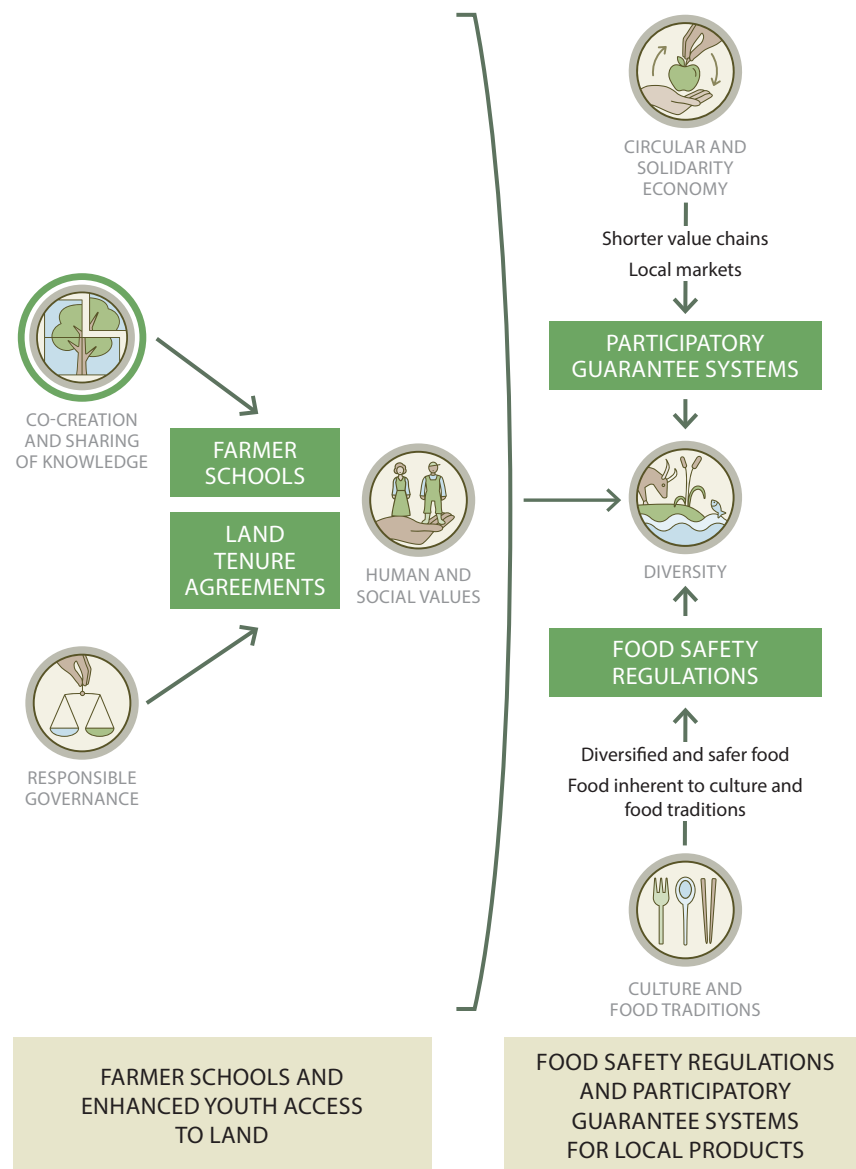
ii) Product quality: Demand for diverse and healthy food products inherent to culture and food traditions can catalyse food safety policy reform. Food safety improvements can be implemented to better adapt regulations to agroecological production models, through differentiated quality control procedures (Humphrey, 2017; Laforge et al., 2017). This will have positive

impacts through easier access to markets for small-scale agroecological producers who often encounter marketing barriers from national food safety regulation shaped upon industrial food production models. This will facilitate the marketing of local and traditional products thus increasing diversity of both production and consumption. Participatory guarantee systems (PGS) — locally focused quality assurance systems — can be co-developed by producers and consumers, based on circular and solidarity economy principles (FAO and INRAE, 2020). By reconnecting producers and consumers, PGS will contribute to enhance the availability of diverse healthy foods (Figure 14).

iii) Agricultural education and innovation: Synergies can be harnessed by strengthening the links between university research and rural communities when embracing participatory and action-oriented approaches to research that benefit both students and local producers. University curricula can be improved to integrate co-creation research processes, as well as multidisciplinary, cross-sectoral and systems-oriented research (Rosado-May, 2017). These can focus on diversification options to build resilience and on the recycling of biomass, nutrients and water, producing positive outcomes in terms of efficiency by farms participating in co-creation processes. The combined effect of this enhanced knowledge generation process adapted to context will strengthen resilience to climate change of the farming systems involved directly or indirectly in the process.

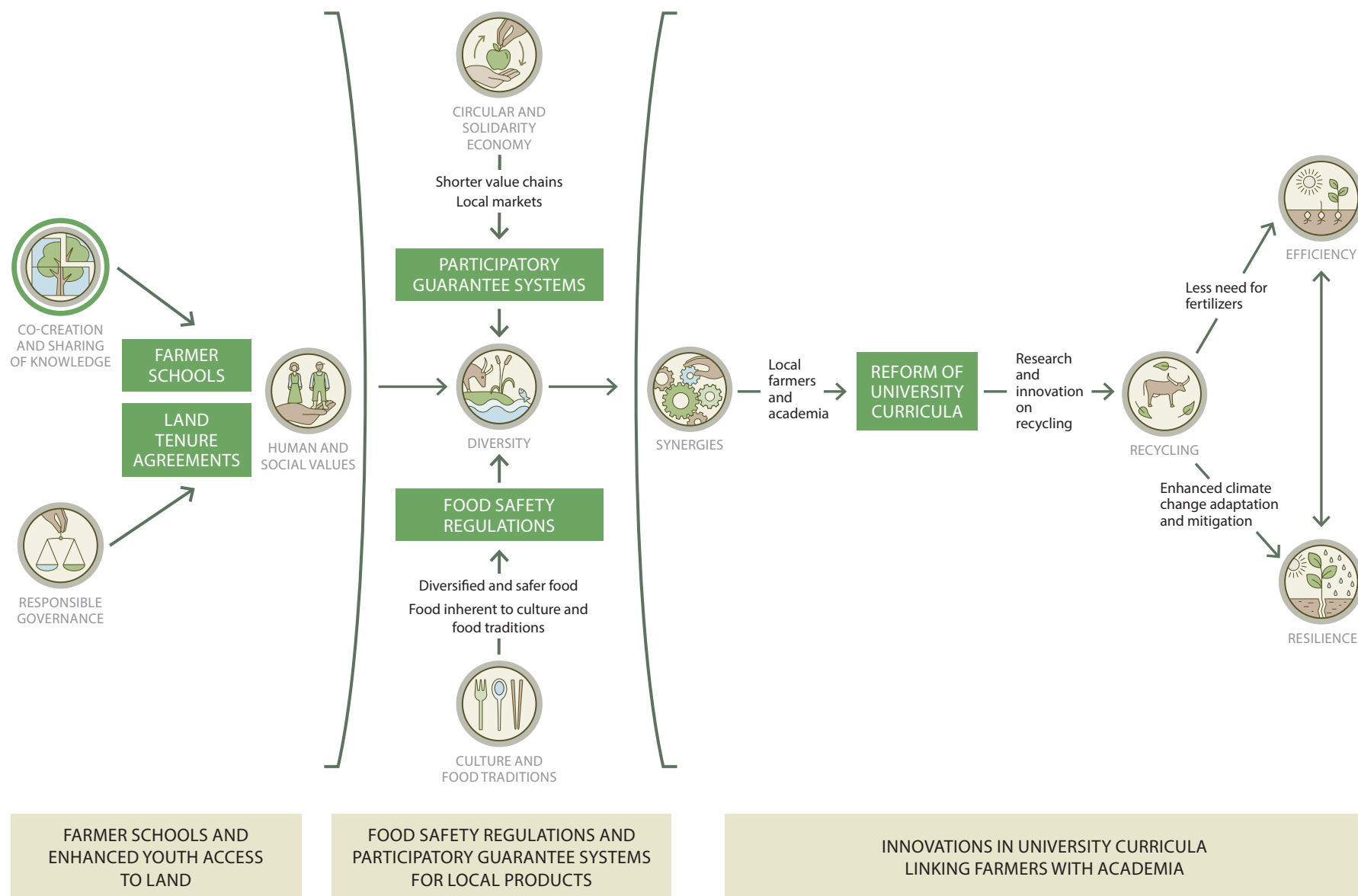
The full visual narrative shown in Figure 15 represents a policy package integrating support to the development of agroecology farmer schools; land tenure agreements for youth adopting agroecological practices to access the land; improvement of food safety regulation; participatory guarantee systems and innovations in university curricula. This example helps to visualize a plausible theory of transformative change for agrifood system policies to generate multiple benefits by reducing migration away from rural communities, creating new agribusiness for young farmers and strengthening local rural economies and food systems.

Figure 14. Designing a policy package facilitating the development of agroecology schools and rural advisory services to produce co-benefits along the education–youth employment–migration nexus (ii)



Source: Authors' own elaboration

Figure 15. Designing a policy package facilitating the development of agroecology schools and rural advisory services to produce co-benefits along the education–youth employment–migration nexus (iii)

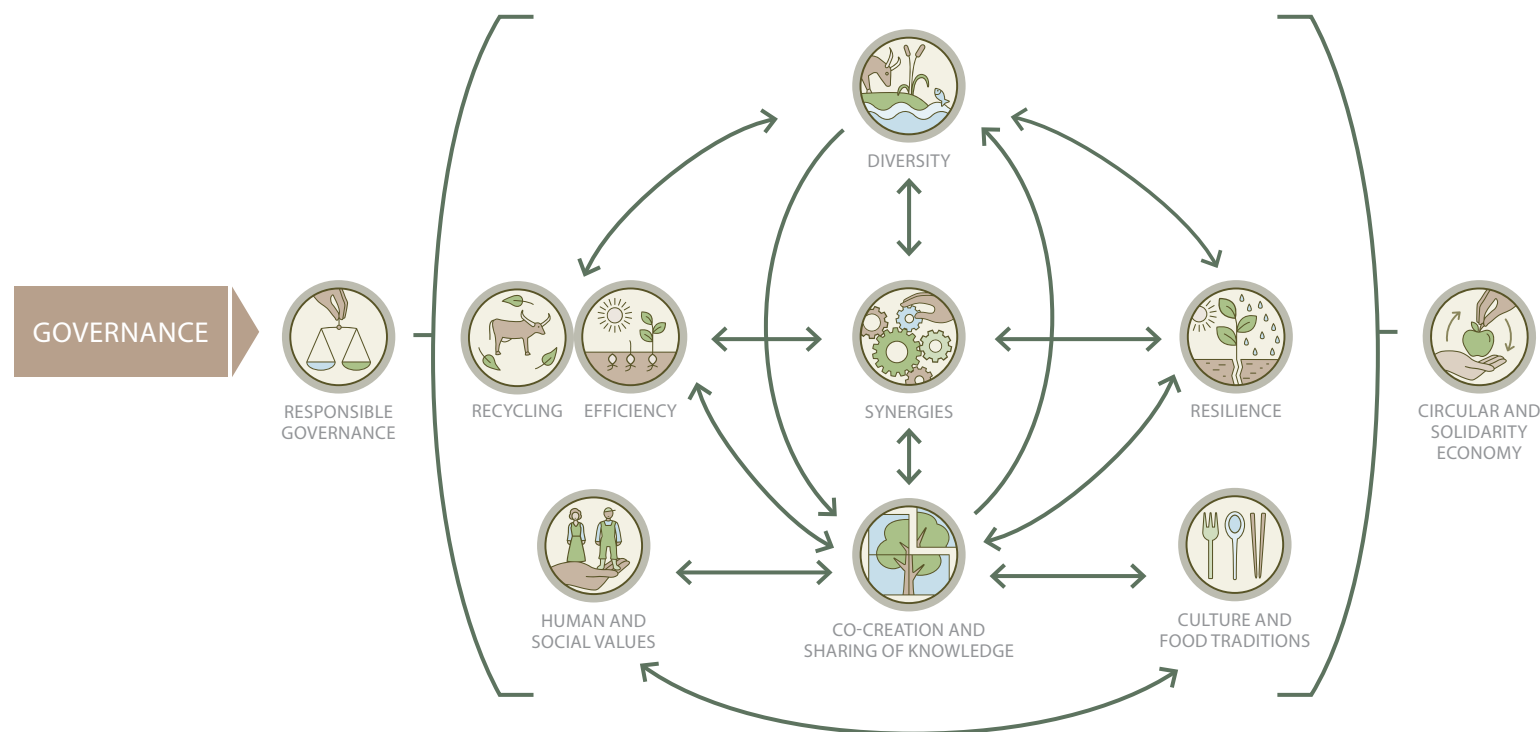


4. A new food systems governance for enabling transition

The importance of governance reform was stressed with the adoption of the 2030 Agenda for Sustainable Development, highlighting the need for effective, accountable and inclusive institutions at all levels (FAO, 2017). Governance — the process of interaction and decision-making among public, private sector and civil society actors involved in addressing collective problems — relates to the structure, roles and tools that institutions and

stakeholders need to develop a shared vision and strategy for action (Tefft et al., 2020). There is increasing interest to replace sectoral policies with integrated policies that enable coherence and consistency between policy goals and policy means aiming at policy outcomes to address context-specific national challenges (Howlett and Rayner, 2013).

Figure 16. Underpinning food systems policy through governance reform



The visual narratives presented in the previous sections highlight the need, but also opportunities, for the development of transparent, accountable, and inclusive governance mechanisms to achieve agriculture and food systems transformation. Visual narratives can help policymakers to address food systems challenges in a more integrated manner.

For example, at the national level, governance innovations to support interministerial collaboration can promote, lead and supervise the reform of the public governance of national food systems. Among others, the ministries of agriculture, livestock, forestry, environment, health, education, economy and fisheries, should work together to put in place synergistic reforms involving all sectors, and advance the transition towards sustainable agriculture and food systems. Parliamentary committees, which manage the discussion on these different policy areas, should also align and better coordinate to reflect integration at the ministerial level, to constitute an intermediary to the process of reform and ensure accountability. Alignment of objectives and resources is also needed between governance levels, coordinating the efforts of national, state and municipal institutions in a coherent and synergistic manner (IPES-Food, 2019).

Sectors that are usually siloed in different ministries at the national level are often more integrated at the municipal and subnational governance levels (Tefft et al., 2020). Several municipal level experiences — including Medellin, Quito, Toronto, Belo Horizonte, Seoul, Nairobi and Shanghai, among others — provide examples of achieving agricultural and food systems transformation through integrated approaches supported by good food systems governance. For example, Belo Horizonte's innovative food security policy and programme, which originated in the 1990s, catalysed an integrated approach to the food system. Rather than addressing “food for hungry students” in a department of education, or “food for needy people” in a department of social assistance, or “food for consumers” in a department of commerce, or “food from family farmers” in a department of agriculture, the policy implemented an integrated approach, aligning all

food systems aspects, components and purposes under interconnected programmes (Tefft et al., 2020).

Moreover, governance reforms should not be limited to improving the functioning of existing institutions. New mechanisms are also required to ensure representation of diverse stakeholders into food system decision making. Transformative change in agriculture and food systems should involve stakeholders at multiple stages of the policy process, from initial design to implementation and monitoring. This could be achieved for example via the creation of food policy councils that enable participatory decision-making processes and the consensus building needed to generate a common agenda (IPES-Food, 2017). Science–policy engagement mechanisms for food systems transformation can help integrating research and data to support multisectoral policies that combine food security and nutrition, public health, environmental sustainability and societal wellbeing (Singh et al., 2021). Holistic, multisector methodologies that cultivate stakeholder agreement on coordinated public and private sector actions, such as the Integrated Agrifood System Initiative methodology, can also generate a shared vision and the design of broadly agreed solutions supported by agrifood system stakeholders (Govaerts et al., 2021).

“Visual narratives using the 10 Elements of Agroecology allow different stakeholders to articulate challenges faced, build consensus towards desired goals, use a common language when sharing information on the status of implementation, and encourage collective action and alignment towards achieving the greatest possible impact.” (Barrios et al., 2020)

In conclusion, agroecology is not merely a set of agricultural practices or one innovation amongst others. It is a paradigm shift in our food systems model towards knowledge-diverse and ecologically intensive agricultural systems. Agroecology is also about changing social relations, empowering farmers, adding value locally and building a new governance supporting transitions towards sustainable agriculture and food systems.

By applying appropriate governance mechanisms, entry points, nexus analysis and visual narratives, policymakers will be better equipped to embrace the full potential of agroecology and translate this commitment into policy reform and integration for transformative change of agriculture and food systems.

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