PRIMER

Nature-Positive Agrifood Systems Toolkit

Advancing Climate and Biodiversity Action in Agriculture and Food Systems

November 2025

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1. Introduction

Agriculture and food systems sit at the heart of the world's most pressing challenges – both as a driver of global crises and as a powerful lever for change.

Food systems account for a third of global greenhouse gas emissions, emitting over 17 billion tonnes of carbon dioxide equivalent annually, with agricultural production and land use making up over 70% of food systems' emissions.[1] Rising temperatures, shifting rainfall, evolving pest distributions, and intensifying extreme weather events are reducing crop yields,[2,3,4] degrading nutritional quality,[5] with climate change potentially driving cereal prices up by 50% by 2050.[6]

The impacts of a broken food system fall most heavily on those least able to respond. Marginalized and vulnerable communities – like women, smallholder farmers, fishing communities, Indigenous Peoples, and beyond – often face the highest risks of food insecurity, malnutrition, and related health issues.[7,8] The inequity extends to financing: regions suffering the most acute food insecurity often receive the lowest levels of investment.[9] Funding for food security and nutrition remains highly uneven, leaving many countries without the means to build resilient, sustainable food systems.[10]

Yet transforming food systems offers one of the greatest opportunities to deliver for people, nature, and climate. Reforms that promote regenerative and climate-smart agricultural practices can reduce emissions[11] and build resilience to droughts, floods, and other climate impacts.[12] Minimizing food loss and waste, supporting diversified and healthier diets, and improving agri-food supply-chain transparency can further mitigate emissions while addressing malnutrition and enhancing food security.[13,14] Overall, transforming how we produce, process, and consume food offers one of the most powerful opportunities to reduce emissions, enhance climate resilience, halt biodiversity loss, and improve nutrition and livelihoods.

The time to transform agriculture and food systems is now, and countries need practical support to turn ambition into action.

With global warming soon expected to exceed 1.5°C and multiple climate and ecosystem tipping points at their breaking points,[15] there has never been a more crucial moment to rapidly transform the world's agriculture and food systems – something that is crucial to keep Earth within safe operating limits.[16,17] In In fact, even if fossil fuel emissions were completely eliminated, emissions from the global food system alone would threaten the achievement of the 2°C target by the end of the century.[18] Sustainable agriculture and food systems are also essential to adapt to a

changing climate, with climate-driven disasters having caused the loss of about USD 3.8 trillion worth of crops and livestock over the past 30 years globally.[19] Ultimately, every fraction of a degree of warming that can be curtailed matters greatly,[20] and agriculture and food must be part of the solution.

As governments submit their NDCs 3.0 and advance the implementation of NDCs, NBSAPs, and NAPs, now is the time for them to ramp up ambition and implementation of policies and actions in agriculture and food systems.

Policymakers and stakeholders must prioritize the following key actions when developing and implementing their NDCs, NAPs, and NBSAPs.

1. **Ensure participatory and integrated approaches to governance at all levels in order to address the structural inequities in food systems.**
   - Build processes and policy platforms on principles of transparency, inclusive participation, and shared power. This will ensure policies are driven not only by evidence, but also ethics and public interest.
   - Ensure inclusion of all marginalized groups including Indigenous Peoples, local communities, farmers, women, and youth through multistakeholder approaches in policymaking and implementation.
   - Align national commitments and planning across international conventions and frameworks on climate, biodiversity, land, water, and sustainable development integrating policies both horizontally and vertically to strengthen synergies and minimize trade-offs.

2. **Leverage public and private finance for climate and biodiversity actions in food systems.**
   - Remove subsidies to harmful farming and food consumption practices (such as chemical-intensive and fossil fuel dependent agriculture, intensive livestock production, and monoculture systems), and redirect public and private sector finance toward agroecological approaches to support resilient livelihoods and healthy communities; and increase the production of healthy and sustainable food.
   - Increase climate and biodiversity finance for food systems transformation by promoting collaboration across public, private, philanthropic, and multilateral investments with strong social and environmental safeguards.
   - Leverage private finance to scale and fund local and national food and nutrition security, agroecology, and regenerative agricultural projects.

3. **Ensure an equitable, inclusive, and just transition by accounting for the true costs and benefits of food systems for climate and biodiversity action.**
   - Ensure that mitigation and adaptation interventions do not negatively affect those working in food systems and those most vulnerable to climate impacts, which requires policy processes and platforms built on transparency and robust participation of these groups in climate policy making and implementation.
   - Design and implement locally led and context-specific approaches that contribute to climate mitigation and adaptation as well as biodiversity conservation and restoration while providing a substantial role for local institutions, communities, smallholder farmers, Indigenous Peoples, and women. This approach helps to protect and expand these groups' rights while improving food security and health.
   - Integrate the true cost of food into policy and decision making – including environmental and socio-economic costs of food that disproportionate impact marginalized populations – to ensure a just and equitable transformation of food systems.

4. **A shift to nature-positive food production:**
   - Encourage a more holistic understanding of agriculture – one that is not only a system for producing healthy food but also for ensuring healthy soil, biodiversity conservation, clean water, sustainable landscape management, and resilient livelihoods for communities.
   - Scale sustainable and agroecological practices that enhance the richness and abundance of biodiversity in land and water and rehabilitate the functions of degraded natural systems to deliver a climate-positive future in which people and nature can thrive.
   - Decouple food production from fossil fuels. Energy intensity in food systems is growing due to increased mechanization, growing use of fossil fuel-based inputs, globalized supply chains, growing demand for meat, dairy and ultra-processed foods, and to some extent, new food trends such as alternative proteins. Ensuring these trends do not lead to additional greenhouse gas emissions is crucial for a meaningful transformation of food systems.
   - Shift to renewable-based cooling (i.e., cold storage), heating (i.e., greenhouses) and drying technologies, and renewable energy for food processing and transport.
   - Systematically evaluate water consumption, allocation, and trade-offs in food systems and align water interventions with other food systems interventions to ensure sufficient water of adequate quality, quantity and stability for a transition to nature-positive food systems.

5. **Prioritize reducing and repurposing food loss and waste:**
   - Reduce and repurpose food loss and waste to mitigate climate change as well as deliver ecological, health, economic, and social co-benefits.
   - Invest in supply chain infrastructure and storage facilities, including new equipment and techniques, to reduce post-harvest food loss.
   - Support short supply chain management (e.g., transport to local markets, urban-rural links, and direct connections between food producers and consumers).

6. **Prioritize the transition to nutritious and healthy diets:**
   - Ensure healthy, sustainable diets underpinned by sustainable, diversified food production adapted to local ecosystems and sociocultural contexts is an essential climate mitigation strategy while delivering multiple health co-benefits.
   - Ensure healthy, sustainable, and just food environments that support plant-rich diets and minimally processed foods.
   - Increase availability, affordability, and access to diverse and nutritious food at local levels, including in public institutions such as schools and hospitals, by adopting sustainable food procurement policies at the national and subnational levels and addressing the true value of food.
   - Introduce regulations to incentivize sustainable dietary choices through lower prices and to disincentivize unhealthy and unsustainable foods (e.g., through taxation).

To integrate food systems approaches into national climate and biodiversity commitments – and then, crucially, *implement* those commitments – countries require access to practical tools, guidance, and examples of what works. Fortunately, an expanding array of resources, methodologies, and case studies already exists to help policymakers and practitioners advance sustainable food systems transformation. The challenge is not a lack of solutions but instead ensuring that decision-makers access and apply them.

The new Nature-Positive Agrifood Systems Toolkit provides policymakers and practitioners with practical resources to drive agriculture and food systems transformation that delivers for people, nature, and climate – supporting them in navigating the path from commitment to implementation.

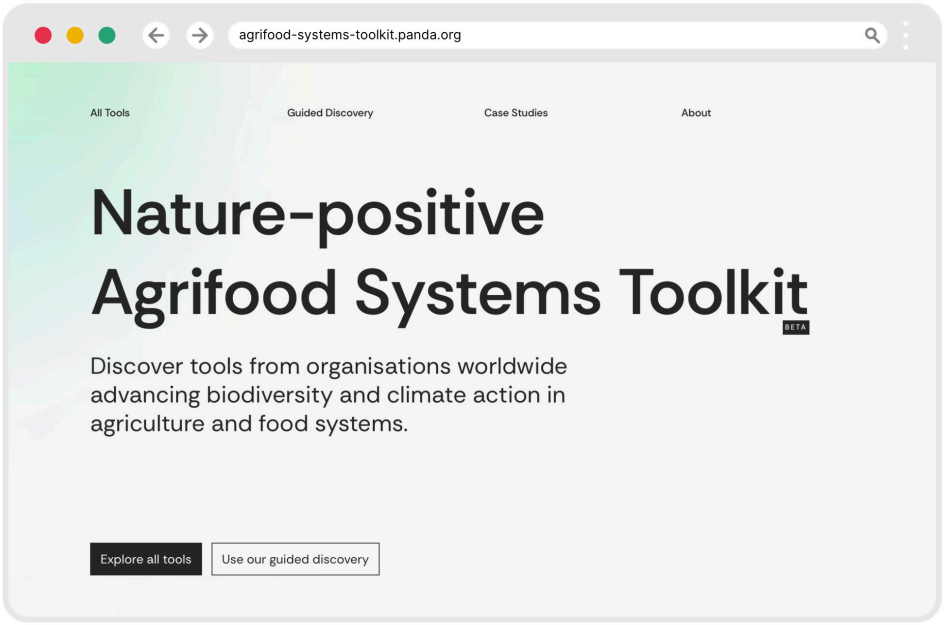
Hundreds of tools, resources, frameworks, and success stories already exist to support sustainable food systems. Yet for many practitioners and policymakers, this landscape may be difficult to navigate to identify the most relevant, credible, or actionable resources for their national context. The Nature-Positive Agrifood Systems Toolkit fills this gap by serving as a practical entry point and helping users to quickly

find and apply the right resources to design and implement effective food systems strategies.

Developed collaboratively by WWF, Climate Focus, Food and Agriculture Organization of the United Nations (FAO), CIAT-Bioversity, the NDC Partnership Support Unit, and partners, earlier versions of the toolkit were launched ahead of COP28 and COP29. The 2025 edition with financial support from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), released ahead of COP30, expands both its scope and functionality, now presented in an interactive online platform. Launching in beta version, the toolkit will continue to evolve with new resources, case studies, and examples added over time. By connecting practitioners, policymakers, and partners to the tools and guidance they need, the toolkit aims to accelerate food systems transformation worldwide by bridging the gap between knowledge and action.

2. What's inside the Toolkit

The new Nature-Positive Agrifood Systems Toolkit offers a resource pool for governments, practitioners, and other stakeholders seeking to accelerate sustainable agriculture and food systems transformation.



The toolkit covers resources specific to a wide range of sectors and themes, including livestock, crops, fisheries and aquaculture, agroforestry, nutrition, food security, forestry and other land use, biodiversity, nature-based solutions and ecosystem services, water, cities, coastal zones and oceans, disaster risk reduction, economic recovery, education, energy, gender equality, health, infrastructure and industry, livelihoods, poverty alleviation, waste, rural development, transport, youth, just transition.

Users can utilize the toolkit to access a curated collection of over 350 resources that can help accelerate a sustainable transformation of agriculture and food systems, including:

- **Guidance and frameworks:** Policy briefs, implementation guides, guidance frameworks, or other stand-alone documents that can help policymakers implement sustainable agriculture and sustainable food systems measures, and strengthen and/or implement their country's NDCs, NAPs, NBSAPs.

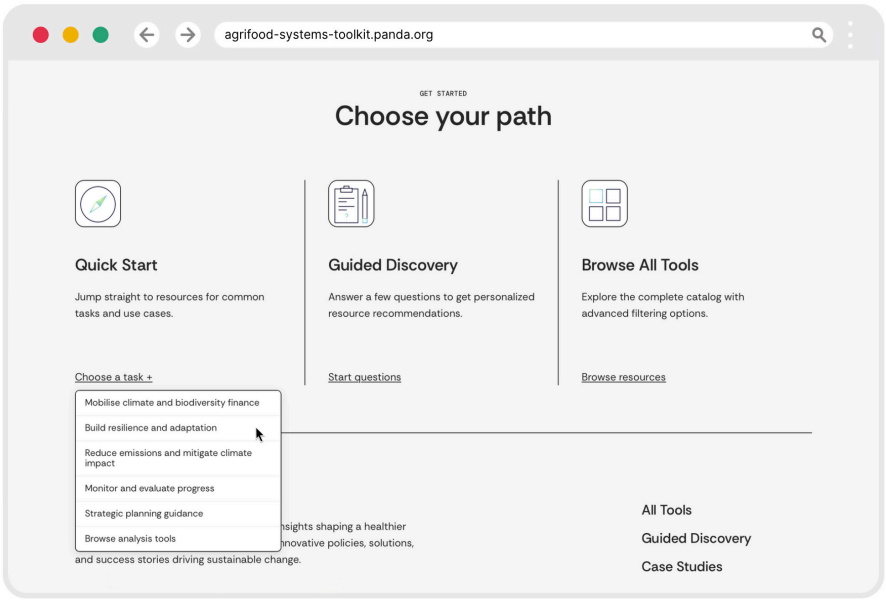
- **Technical tools:** Resources that offer analytical tools for climate, land-use, and biodiversity assessments in the context of food systems. These range from emissions scenario calculators and climate risk screening tools with geospatial data to land-use comparison models, cost-benefit analysis tools for sustainable agriculture transitions, and frameworks for resolving land-use conflicts.
- **Partnerships, platforms, or initiatives:** Organizations, initiatives, dedicated to supporting countries in developing, implementing, and monitoring their NDCs, NAPs, and NBSAPs or otherwise supporting the advancement of sustainable food systems. These initiatives often provide their own tools and resources as part of broader capacity-building programs.
- **Implementation case studies:** Real-world programs, projects, and policies that successfully integrate food systems targets and measures into national climate and biodiversity strategies.
- **National strategy examples:** Specific NDCs, NAPs, and NBSAPs examples with explanations of how they demonstrate agriculture and food systems integration and are developed through inclusive, multi-stakeholder processes.

3. How can you explore the Toolkit?

The Nature-Positive Agrifood Systems Toolkit is designed for anyone working to connect food systems with climate and biodiversity action. Policymakers, technical experts, researchers, development partners, and practitioners working across sectors can utilize the toolkit to help advance their work.

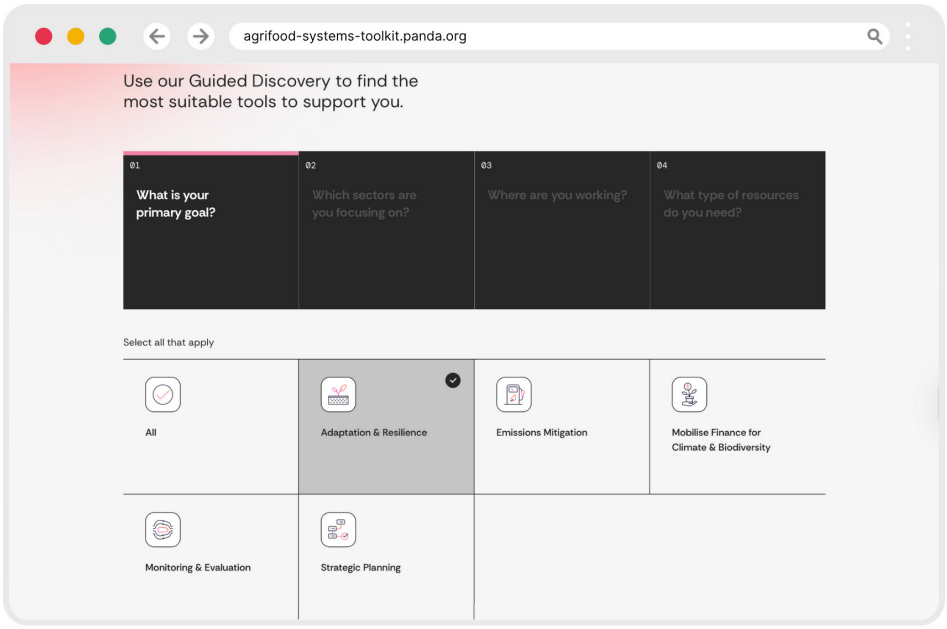
The toolkit offers multiple ways for users to find resources depending on their goals and priorities:

A. **Quick start:** Provides quick access to resource collections organized by common tasks and use cases:

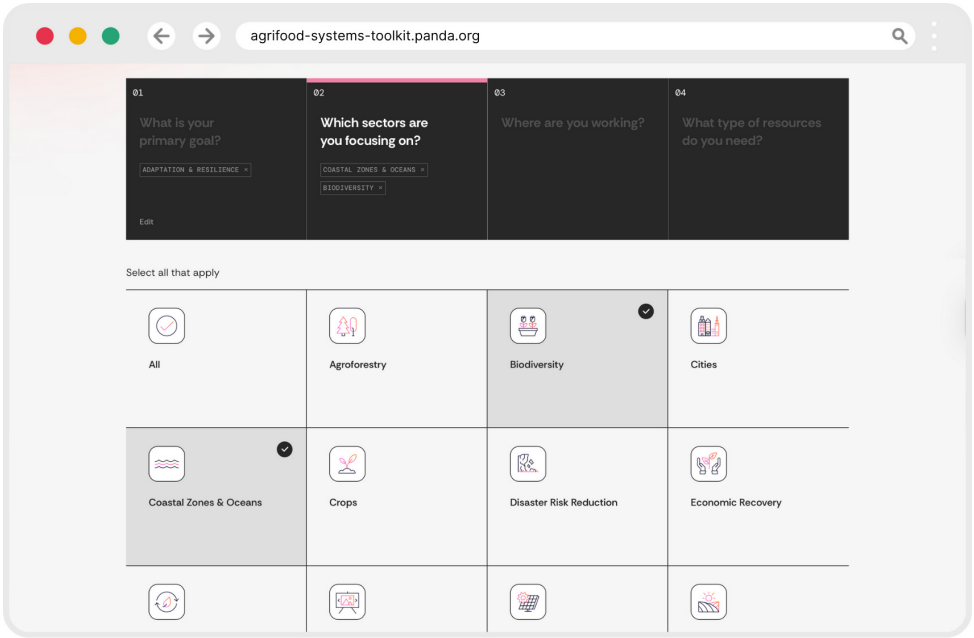


B. **Guided Discovery** walks users through a step-by-step process to identify the most relevant resources for their context. The four-step process includes:

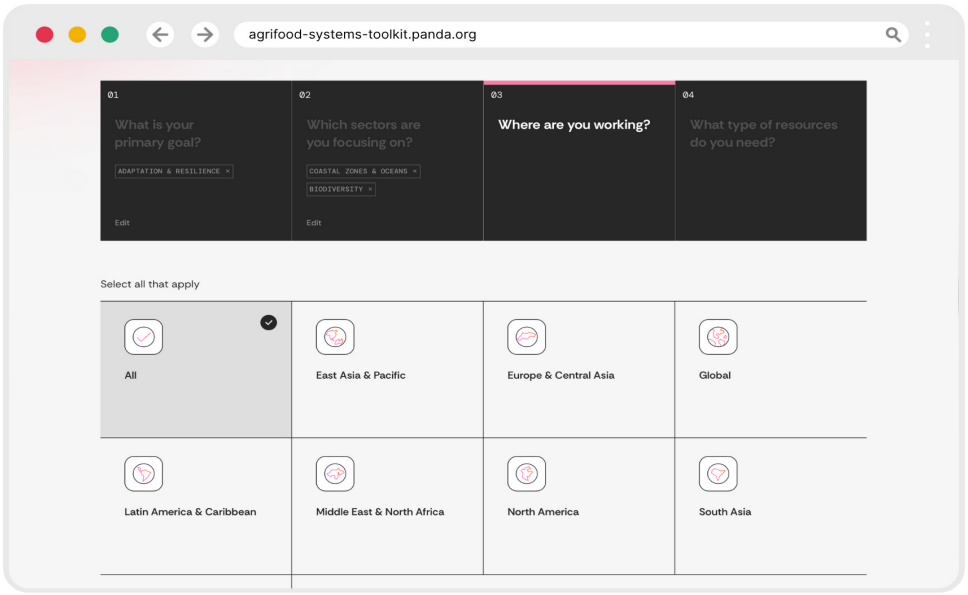
i. Defining their primary goal within the context of agriculture and food systems. These include adaptation and resilience, emissions mitigation, mobilizing finance for climate and biodiversity, monitoring and evaluation, or strategic planning. Do you have multiple goals or aren't sure about your priority yet? You can select multiple goals or choose "All" to explore a wide array of tools and resources.



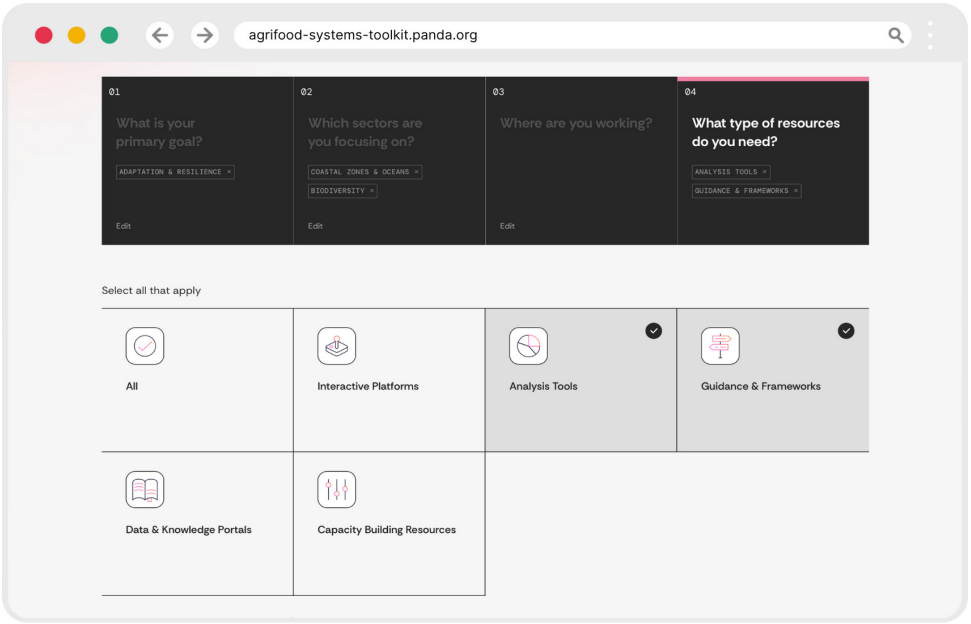
ii. Selecting focus sectors within agriculture and food systems. Users can select from a range of 34 different sectors or focus areas – from agroforestry to biodiversity to transport to waste – or select multiple areas.



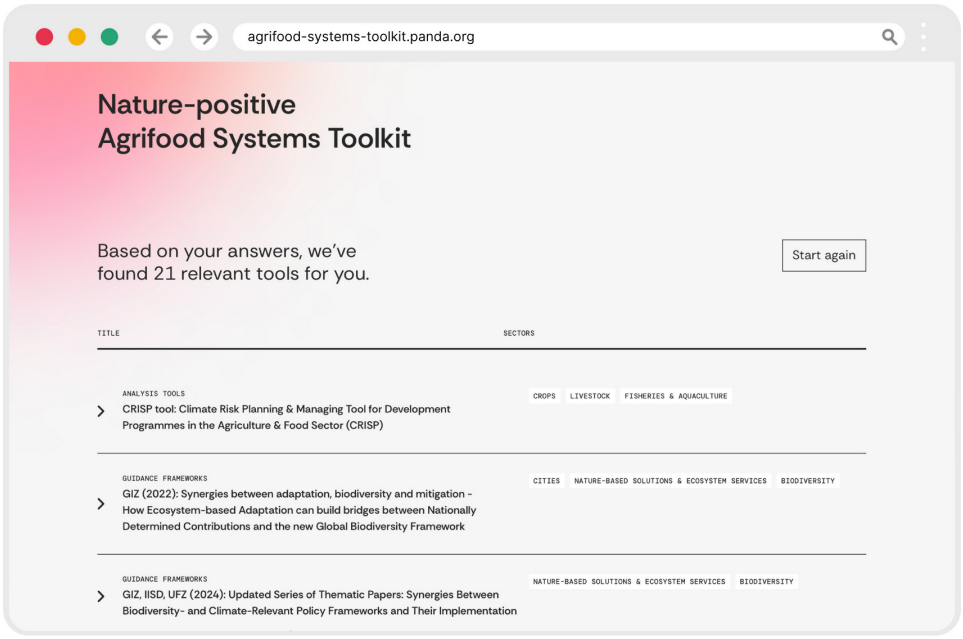
iii. Specifying their geographic context. Are you working in specific region and are looking for resources specific to your geographic context? Use this step to filter by resources tailored to a specific region or select “All” to view the full range.



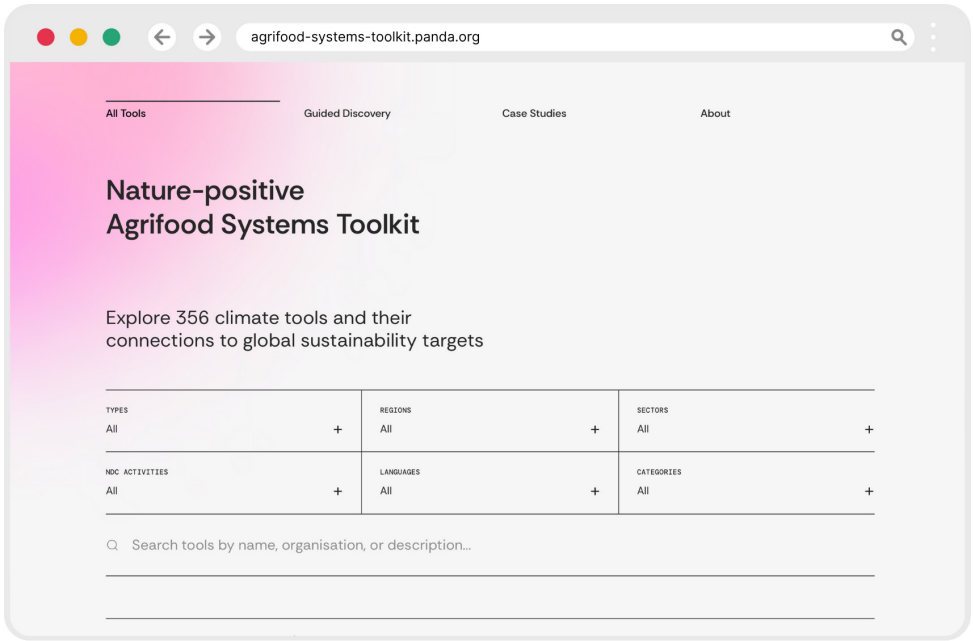
iv. Choosing preferred resource type. In the fourth step of Guided Discovery, users can select the specific type of resource they are seeking – whether guidance documents, technical tools, case studies, or strategy examples.



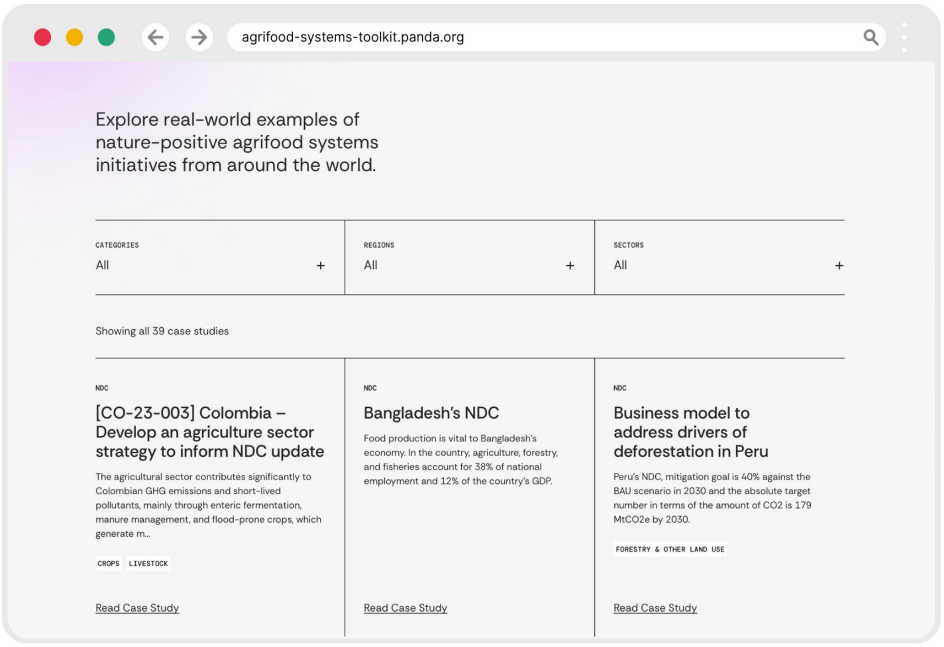
Then, users are presented with personalized recommendations:



C. Browse all resources to explore the complete database of resources. Users can search by keyword or phrase to find specific topics, or apply multiple filters simultaneously – such as resource type, geographic region, sector, language – to narrow results and identify tools that match their context.

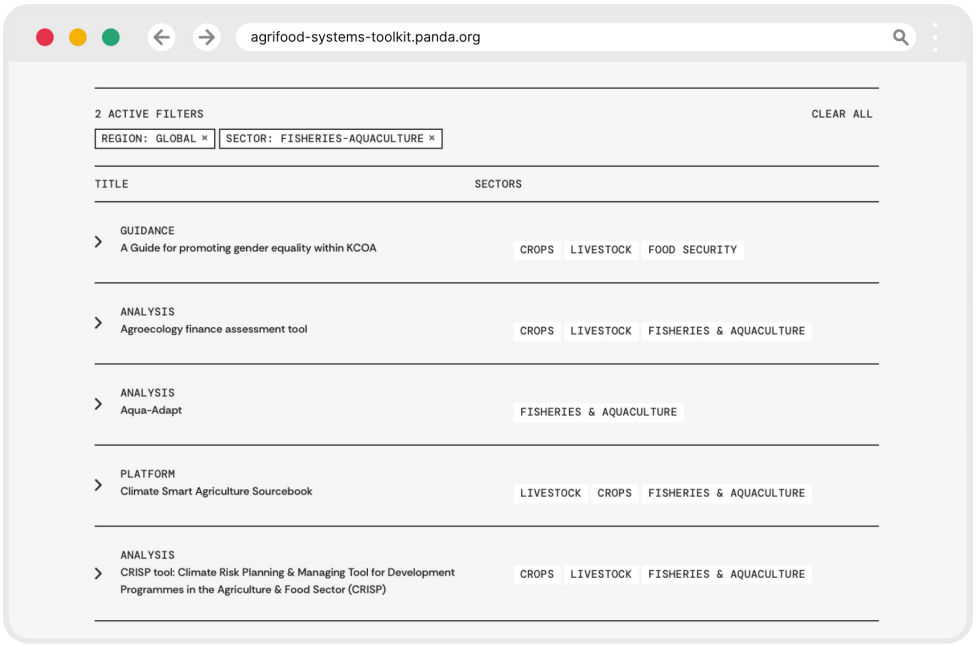


D. Browse case studies to view a list of NDCs, NAPs, and NBSAPs that are notable for some aspect of their inclusion of agriculture and food systems in their national strategies.



No matter which path users take – whether through the guided discovery option, by browsing all available resources, or using the quick start option – they'll ultimately arrive at the core of the toolkit: the resources themselves.

Each resource entry provides users with key information to help them quickly understand and access what they need. For every resource entry, users will find a description outlining its purpose and application, the source or organization behind it, and other important contextual details such as language availability and regional relevance. Each entry also includes a direct link to the external resource, allowing users to navigate to the original tool or reference with a single click.



4. How to engage with the Toolkit?

The Nature-Positive Agrifood Systems Toolkit is launching in beta version and will continue to evolve and be refined over time. As new tools, case studies, and guidance emerge, the toolkit will be updated to reflect the latest resources, innovations, and lessons from around the world.

Continued input from users and partners will help strengthen and expand the toolkit's impact. Users and partners are encouraged to contribute by suggesting additional tools, case studies, or guidance for inclusion using this form.

5. An ongoing effort

This effort is the result of collaboration among a network of development partners, including WWF, Climate Focus, Food and Agriculture Organization of the United Nations (FAO), CIAT Bioversity (Alliance of Bioversity International and CIAT), the NDC Partnership, and GIZ on behalf of BMZ.

With many thanks to the individuals that submitted resources for inclusion in the toolkit, including those from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the UN Environment Programme Finance Initiative (UNEP-FI), Fundación Vida Silvestre Argentina, The Global FoodBanking Network, The Global Alliance for Improved Nutrition (GAIN), Scaling Up Nutrition (SUN) Movement Secretariat, and others.

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