



# Multifunctional Landscapes Program

## Full design document

November 15, 2024

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## List of acronyms

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AI	Artificial intelligence
AoW	Area of Work
ARI	Agricultural research institute
CA	Comparative advantage
CAPRI	Collective Action and Property Rights
CBA	Cost-benefit analysis
CBO	Community-based organizations
CWANA	Central and West Asia and North Africa
DST	Decision support tools
FLW	Food, land and water (systems)
GESI	Gender equity and social inclusion
GHG	Greenhouse gas
GTA	Gender-transformative approach
IA	Impact assessment
ILC	International Land Coalition
IOC	Intermediate Outcome
IP	Indigenous people
ISFAA	Intersectoral Forum for Agrobiodiversity and Agroecology
LAC	Latin America and the Caribbean
LMIC	Low- and middle-income countries
M&E	Monitoring and evaluation
MEL	Monitoring, evaluation and learning
MELIA	Monitoring, evaluation, learning and impact assessment
MFL	Multifunctional landscape
MSP	Multistakeholder platform
NAPs	National Adaptation Plans
NARES	National agricultural research and extension system
NDCs	Nationally Determined Contributions
OP	Output
RECs	Regional Economic Communities
SA	South Asia
SDG	Sustainable Development Goals
SMEs	Small-medium enterprises
ToC	Theory of Change

# 1. Executive Summary

Agriculture and food systems have contributed to significantly altering over 75% of the world's land surface, polluting over two-thirds of the world's oceans, damaging over 85% of wetlands, and threatening more than one billion plant and animal species for extinction.<sup>1</sup> Restoring land ecosystems while reducing environmental degradation, greenhouse gas emissions, and biodiversity loss could generate an annual economic return of US\$125–140 trillion, 50% more than the 2021 global GDP of US\$93 trillion.<sup>2</sup> In addition, the estimated value of marine ecosystem services is \$49.7 trillion annually.<sup>3</sup>

The Multifunctional Landscapes Program will apply transdisciplinary approaches and work with all Programs and Accelerators building on well-established partnerships<sup>4</sup> and forging new ones to co-identify, co-design, and co-implement interventions that harmonize environmental sustainability with human development goals<sup>5</sup> and help develop biodiverse, productive, resilient, and low emissions land and aquascapes. It integrates agricultural, ecological, aquatic, and other ecosystems from 'source to sea.' The major research questions include:

1. How can multifunctional landscapes be effectively managed to address global challenges while enhancing the well-being of people and nature?
2. Which inclusive solution bundles most effectively enhance productivity, biodiversity, resilience, and social inclusion while minimizing trade-offs?
3. What institutional frameworks and governance models best support sustainable landscape management and promote multifunctionality?
4. How can fair and inclusive markets and business models be developed to attract finance and incentivize the equitable generation of multiple ecosystem services for diverse users?
5. What cost-effective, fair, and appropriate tools can measure the risks, impacts, trade-offs, and synergies of system-level interventions for multiple ecosystem services in near real-time?
6. How best should the Multifunctional Landscapes Program align its outputs with larger investment programs and partnerships to achieve impact at scale?

These questions are addressed through seven Areas of Work (AoWs):

1. Solutions and Innovations: Agroecology, Nature-Positive, Regenerative, and Nutrition-Sensitive
2. Landscape Planning and Governance
3. Markets and Business Models
4. Institutions and Policies
5. Gender Equality, Social Inclusion and Fairness
6. Performance Assessment and Evidence Generation
7. Global Engagement and Learning

Multifunctional Landscapes builds on existing CGIAR Initiatives (Agroecology;<sup>6</sup> Nature-Positive Solutions;<sup>7</sup> Livestock and Climate<sup>8</sup>), the Environmental Health and Biodiversity Impact Platform,<sup>9</sup> and their successful partnerships while pioneering new integrated approaches to landscape management. It employs a systems approach to synergistically link to achieve social, economic, and ecological benefits.

By 2030, Multifunctional Landscapes aims to achieve five major outcomes:

1. Landscape stakeholders apply technological, socioecological, policy, and institutional innovations that enhance food production, ecosystem restoration and gains, biodiversity conservation and protection, social cohesion and resilience, and healthy diets in multifunctional landscapes.
2. Landscape stakeholders implement multifunctional land-, and natural-resource use, planning, and landscape governance.
3. Governments, market, and finance sector actors implement inclusive policy processes and institutional and market innovations that support the transition to sustained multifunctional landscapes.
4. Communities equitably benefit from transformed eco-agrifood systems.
5. National, regional, and global actors use scientific evidence on multifunctional landscapes to engage in global and regional agenda-setting and policy discourse.

These outcomes result from high-level outputs, including baskets of solutions for multifunctional landscape management, land, and water use plans, market systems and business models, policy options, frameworks for performance assessments, and gender-equitable approaches.

Multifunctional Landscapes work spans priority countries identified for their potential to generate high impacts. It will pilot demand-led and integrated solutions with local stakeholders in Living Landscapes that will be continued from Initiatives or identified through participatory prioritization and visioning exercises. Advances in data science will be key components of the Multifunctional Landscapes Program action research.

A bottom-up partnership strategy will foster the continuity and expansion of in-depth local engagement processes. International research centers such as CIFOR-ICRAF, CIRAD, and universities will be co-leading participatory research and innovation based on their expertise and presence in prioritized countries. Collaboration with other Programs and Accelerators will optimize Program delivery.

<sup>1</sup> Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES). 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Diaz, J. Settele, E. S. Brondizio, H. T. Ngo, M. Guèze, J. Agard, A. Arneeth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat, Bonn, Germany. 56 pages. <https://doi.org/10.5281/zenodo.3553579>

<sup>2</sup> WWF. 2020. Living Planet Report 2020 - Bending the curve of biodiversity loss. Almond, R.E.A., Grooten M. and Petersen, T. (Eds). WWF, Gland, Switzerland. [https://www.wwf.org.uk/sites/default/files/2020-09/LPR20\\_Full\\_report.pdf](https://www.wwf.org.uk/sites/default/files/2020-09/LPR20_Full_report.pdf)

<sup>3</sup> Organisation for Economic Co-operation and Development (OECD). 2019. Biodiversity: Finance and the Economic and Business Case for Action, report prepared for the G7 Environment Minister's Meeting, 5-6 May 2019. OECD Publishing, Paris. <https://doi.org/10.1787/a3147942-en>.

<sup>4</sup> Agroecology Initiative (2024, April 3) Partnerships that drive the Agroecology Initiative impact pathway. <https://www.cgiar.org/news-events/news/partnerships-that-drive-the-agroecology-initiative-impact-pathway/>

<sup>5</sup> UNCCD (2022, April 26) <https://www.unccd.int/news-stories/press-releases/chronic-land-degradation-un-offers-stark-warnings-and-practical>

<sup>6</sup> CGIAR. 2024. CGIAR Initiative on Agroecology <https://www.cgiar.org/initiative/agroecology/>

<sup>7</sup> CGIAR. 2024. CGIAR Initiative on Nature-Positive Solutions <https://www.cgiar.org/initiative/nature-positive-solutions/>

<sup>8</sup> CGIAR. 2024. CGIAR Initiative on Livestock and Climate <https://www.cgiar.org/initiative/livestock-and-climate/>

<sup>9</sup> CGIAR. 2024. CGIAR Environmental Health and Biodiversity Impact Platform <https://www.cgiar.org/research/cgiar-portfolio/environmental-health-biodiversity/>

## 2. High-level vision in response to challenges and megatrends

### 2.1. Challenges and megatrends

Six of the nine planetary boundaries have been breached and ecosystem services are in unprecedented decline.<sup>10,11</sup> Under current unsustainable production and consumption patterns, global food production must increase by up to 70% to feed approximately 9.8 billion people by 2050, causing additional losses to ecosystems and biodiversity.<sup>12,13</sup> The rapidly growing young population risks exacerbating widespread unemployment and social unrest, especially in Africa,<sup>14</sup> posing additional challenges to vulnerable socio-agroecological systems. Climate change remains a key challenge.<sup>15,16</sup> Environmental degradation impacts 40% of global land and nearly half the world's population, with ecosystem services losses valued at US\$6.3 to US\$10.6 trillion annually.<sup>17,18,19</sup> About 10 million hectares of forest are cut down each year.<sup>20</sup> Biodiversity loss affects 34% of plant and 48% of animal species, causing global economic shocks costing over US\$5 trillion.<sup>21</sup> Changing consumption patterns, including low dietary diversity, are generating serious health consequences. All-pervading gender and social inequalities undermine inclusive development. All these further stretch the planetary boundaries.

The Multifunctional Landscapes Program leverages opportunities by taking advantage of expanding knowledge, evidence, investments, technological advancements, and payment for environmental services to achieve its high-level vision.

### 2.2. High-level vision

In response to global challenges such as land degradation, climate change, biodiversity loss, water scarcity, and food insecurity, the Multifunctional Landscapes Program envisions vibrant, diverse, and healthy landscapes that are managed holistically to support sustainable and diverse eco-agrifood systems, resilient livelihoods, and healthy diets while remaining within planetary boundaries. In this vision, landscapes are co-created and managed by diverse stakeholders who co-generate technological, socioecological, policy, and institutional innovations, underpinned by inclusive governance and effective planning.

Multifunctional Landscapes facilitates inter- and transdisciplinary research to develop actionable knowledge and scalable solutions, transforming food, land, and water systems from an integrated landscape perspective. By fostering collaborative engagement, governments, market actors and the finance sector will adopt inclusive policies and innovations that drive this transformation. Indigenous Peoples, local communities, women, youth, and socially excluded groups are integral participants in and beneficiaries of the restoration, conservation, and sustainable management of landscapes.

An evolution of the current Initiative Portfolio is proposed (Agroecology, Nature-Positive Solutions, Livestock and Climate, and the Environmental Health and Biodiversity Impact Platform) which will open new areas of research that are required to achieve this vision in prioritized countries. The Multifunctional Landscapes Program will capitalize on established partnerships and trustful relationships as well as priorities and visions already formulated by stakeholders during the Initiative and Center bilateral engagements. It will offer a global science platform for action for all CGIAR Programs and Accelerators to integrate and contribute to CGIAR's mission and impact ambition of improving environmental health and biodiversity, enhancing food and nutrition security, and enhancing gender equality, youth, and social inclusion. It also actively contributes to global agreements and promotes integrated solutions that benefit both people and the planet, fostering synergies across global sustainability frameworks.

### 2.3. What is new in this program?

Multifunctional Landscapes' emerging work includes harmonizing conservation, restoration, and sustainable production objectives through integrated systems and landscape approaches, including more prominently aquaculture, polyculture aquatic, and agroforestry. It integrates agricultural, ecological, and aquatic ecosystems from 'source to sea'. It couples landscape- and plot/farm-level processes to understand interactions and co-design complementary solutions with multiple gains (AoW 1). It tests and integrates eco-agrifood system solutions and strengthens research on polycentric governance and inclusive land-use planning (AoW 2). It deepens research on valorizing biodiversity and ecosystem services, shaping consumer behavior, sustainable business models, incentives, and innovative financing to inform market- and non-market mechanisms. It opens perspectives in terms of blockchain technology<sup>22</sup> and incentives, ensuring transparency and accountability along the sustainable use, conservation, and restoration value chains (AoW 3). The Multifunctional Landscapes Program engages in analyzing enabling institutions, co-developing policy options, incentives, and coordination mechanisms to drive policy processes (AoW 4). It promotes transformative approaches, behavioral change, gender equity, food sovereignty, and social inclusion to improve quality of life, empower youth and Indigenous Peoples, and address inequalities (AoW 5). It applies advanced technologies such as generative AI and Digital Twin landscape.<sup>23</sup> to virtually represent real-world landscapes to bundle solutions, model interactions, build scenarios, assess ecosystem health, and generate performance evidence in near real-time. It will use a Dynamic Spatial Decision Support System<sup>25, 26, 27</sup> to leverage real-time data and predictive analytics to provide actionable insights for defining priority areas of intervention, optimizing tailored land and water use and management solutions, and monitoring evidence of performance (AoW 6). Feedback-loop-oriented adaptive management will adjust research priorities in response to shifting megatrends and the evolving needs of landscape actors, fostering innovative solutions for socioecological resilience.

<sup>10</sup> Steffen, W. et al. (2015). Planetary boundaries: guiding human development on a changing planet. *Science*, 347, 1–15.

<sup>11</sup> Diaz, S. et al. (2019). Pervasive human-driven decline of life on Earth points to the need for transformative change. *Science*, 366 (6471), 1–10.

<sup>12</sup> Alexandratos, N. and J. Bruinsma. 2012. World agriculture towards 2050/2050: the 2012 revision. ESA Working paper No. 12-03. Rome, FAO. <https://www.fao.org/4/ap106e/ap106e.pdf>

<sup>13</sup> Hunter, Mitch & Smith, Richard & Schipanski, Meagan & Atwood, Lesley & Mortensen, David. (2017). Agriculture in 2050: Recalibrating Targets for Sustainable Intensification. *BioScience*, 67, 10.1093/biosci/bix010.

<sup>14</sup> Africa Union (2023). Ten-Year Review of the Addis Ababa Declaration on Population and Development in Africa beyond 2014. AU, Addis Ababa. [https://au.int/sites/default/files/documents/43782-doc-Final\\_AADPD10\\_Continental\\_Report\\_Nov\\_2023.pdf](https://au.int/sites/default/files/documents/43782-doc-Final_AADPD10_Continental_Report_Nov_2023.pdf)

<sup>15</sup> Romanello, D., Di Napoli, C., Drummond, P., Green, C., Kennard, H., Lampard, P., Scamman, D., Arnell, N., Ayeb-Karlsson, S., Ford, L.B., Belesova, K., Bowen, K., Cai, W., Callaghan, M., Campbell-Lendrum, D., Chambers, J., van Daalen, K.R., Dalin, C., Dasandi, N., Dasgupta, S., Davies, M., Dominguez-Salas, P., Dubrow, R., Ebi, K.L., Eckelman, M., Ekins, P., Escobar, E., Georgeson, L., Graham, M., Gunther, S.H., Hamilton, I., Hang, Y., Hämmänen, R., Hartinger, S., He, K., Hess, J.J., Hsu, S.C., Jankin, S., Janart, L., Jay, D., Keimann, I., Kiesewetter, G., Kinney, P., Kjellström, T., Kniveton, D., Lee, J.W., Lemke, B., Liu, Y., Liu, Z., Lott, M., Batista Mui, Lowe, R., McGuire, F., Sewe, M.O., Martinez-Urtaza, J., Maslin, M., McAlister, L., McGushin, A., McMichael, C., Mi, Z., Milner, J., Minor, K., Mirza, M., Moradi-Lakeh, M., Morrison, K., Munzert, S., Murray, K.A., Neville, T., Nilsson, M., Obradovich, N., O'Hare, M.B., Orszczyn, T., Otto, M., Owi, F., Pearman, O., Rabbaniha, M., Robinson, E.J., Rocklöv, J., Salas, R.N., Semenza, J.C., Sherman, J.D., Shi, L., Shumake-Guillemet, J., Silbert, G., Sofiev, M., Springmann, M., Stowell, J., Tabatabaee, M., Taylor, J., Triñanes, J., Wagner, F., Wilkinson, P., Winning, M., Yglesias-González, M., Zhang, S., Gong, P., Montgomery, H., Costello, A. The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. *Lancet*. 2022 Nov 5;400(10363):1619–1654. doi: 10.1016/S0140-6736(22)01540-9. Epub 2022 Oct 25. Erratum in: *Lancet*. 2022 Nov 12;400(10364):1680. doi: 10.1016/S0140-6736(22)02169-9. Erratum in: *Lancet*. 2022 Nov 19;400(10365):1766. doi: 10.1016/S0140-6736(22)02314-5. PMID: 36306815.

<sup>16</sup> UN DESA. 2023. Highlights 2022–2023. Towards Sustainable Development For All. <https://www.un.org/en/desa/highlights-report-2022-2023>

<sup>17</sup> ELD Initiative (2015). The value of land: Prosperous lands and positive rewards through sustainable land management. Available from [www.eld-initiative.org](http://www.eld-initiative.org)

<sup>18</sup> FAO. (2020). Global Forest Resources Assessment 2020 – Key findings. Rome. <https://doi.org/10.4060/ca8753en>

<sup>19</sup> UNCCD. (2022). Summary for Decision Makers. Global Land Outlook, second edition. United Nations Convention to Combat Desertification, Bonn. [https://www.unccd.int/sites/default/files/2022-04/GLO2\\_SDM\\_low-res\\_0.pdf](https://www.unccd.int/sites/default/files/2022-04/GLO2_SDM_low-res_0.pdf)

<sup>20</sup> FAO. (2020). Global Forest Resources Assessment 2020 – Key findings. Rome. <https://doi.org/10.4060/ca8753en>

<sup>21</sup> Center for Global Commons (2023). Financing nature: a transformative action agenda. A discussion paper. University of Tokyo, Japan. [https://cgc-ri.u-tokyo.ac.jp/wp-content/uploads/2023/12/CGC\\_NatureFinanceReport\\_compressed.pdf](https://cgc-ri.u-tokyo.ac.jp/wp-content/uploads/2023/12/CGC_NatureFinanceReport_compressed.pdf)

<sup>22</sup> Frigg, E., J. Gorman, T. Schneider, S. Smith, J. Paul, T. Neeff, F. Marietti, L. Vairy, A. Zosel-Harper. 2023. "Traceability and transparency in supply chains for agricultural and forest commodities: A review of success factors and enabling conditions to improve resource use and reduce forest loss." Report. Washington, DC: World Resources Institute. Available online at [doi.org/10.46830/wriprj.22.00156](https://doi.org/10.46830/wriprj.22.00156).

<sup>23</sup> National Academies of Sciences, Engineering, and Medicine. 2024. Foundational Research Gaps and Future Directions for Digital Twins. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26894>.

<sup>24</sup> Fangqi Tan and Cheng Y (2024). A digital twin framework for innovating rural ecological landscape control. *Environmental Sciences Europe* 36:59 <https://doi.org/10.1186/s12302-024-00888-8>

<sup>25</sup> Wen, R., Li, S. Spatial Decision Support Systems with Automated Machine Learning: A Review. (2023). *ISPRS Int. J. Geo-Inf.* 12, 12. <https://doi.org/10.3390/ijgi12010012>

<sup>26</sup> Keenan, P.B., Jankowski, P. (2019). Spatial Decision Support Systems: Three Decades On. *Decis. Support Syst.* 116, 64–76.

<sup>27</sup> Wahab, M.N.A., Nefli-Meziani, S., Atyabi, A. A. (2015). Comprehensive Review of Swarm Optimization Algorithms. *PLoS ONE*, 10, e0122827.

### 3. Evidence-based and demand-led prioritization

Three billion people could not afford healthy diets in 2022<sup>28</sup> and 10% of the world population, mainly in low- and middle-income countries (LMICs), lives on less than US\$ 2.15 per day (i.e., under the extreme poverty line).<sup>29</sup> Also, environmental degradation, climate change, and population pressure are exacerbating the global food and dietary crisis. Food systems are responsible for 34% of global greenhouse gas (GHG) emissions,<sup>30</sup> 72% of freshwater withdrawal,<sup>31</sup> and 90% of deforestation.<sup>32</sup> Global initiatives such as the Sustainable Development Goals (SDGs) are underway to address some of these problems. CGIAR, in collaboration with its partners, is contributing to these efforts through its science portfolio.

Creating ecologically sustainable, economically viable, and socially inclusive landscapes calls for a strategic focus on geographies, where the Multifunctional Landscapes Program's implementation can have the most significant impact. The national, regional, and global engagement, science-based advocacy, and cross-regional learnings, along with scaling initiatives, will lead to impacts at scale. Multifunctional Landscapes will be piloted in priority geographies integrating national and local needs and building on ongoing efforts. Those countries can then serve as springboards for scaling.

We have conducted a preliminary prioritization process by considering the Program's capabilities and the comparative advantages combining quantitative (cluster analysis) and qualitative (expert-based) techniques to identify and cluster target countries. While the ultimate objective is to exclude none, the means for implementation and the enabling environment call for informed choices. The first step in prioritization defined a preliminary list of potential countries applying different criteria such as existing Initiatives research (Agroecology, Nature-Positive, and the Livestock and Climate), partnerships, bilateral projects, CGIAR Center presence, the existence of international development organizations, availability of human and physical capacities, and whether there is a commitment by countries with respect to landscape restoration and management. Based on these criteria, the Writing Team identified an initial list of 38 countries (Table 1) that can be considered as initial geographies for the Multifunctional Landscapes Program.

The second step involved determining a set of Program-relevant indicators (linked to the Program vision) that resonate with i) the priority countries using the list of base indicators identified across the five CGIAR Impact Areas, ii) donor feedback, iii) partners, and stakeholders (consultation processes), and iii) the institutional environment. Food and nutrition security, poverty, social equity, climate, environmental health, and biodiversity challenges are likely to be similar across regions. However, these vary in magnitude, along with the variable number of influencing factors and associated drivers across regions and countries. For instance, across Central and West Asia and North Africa (CWANA), water availability is a critical limiting economic development factor for agriculture. With rainfall ranging from 100 to 400 mm (about 4–16 inches) a year,

rainfed agriculture is a limited option. Water scarcity, particularly economic water scarcity, affects several multifunctional landscape geographies, but the CWANA region is the most vulnerable.<sup>33</sup> Forest and pasture degradation, flash floods, a short growing season, and high and rising temperatures are some of the environmental and climatic challenges affecting Latin America and the Caribbean.<sup>34</sup> CWANA is characterized by contrasting environments including the wet and forested coastal areas with hot and short-raining seasons, and the Sahel with episodes of deadly dry spells during growing seasons as well as frequent serious droughts.<sup>35</sup> Southeast Asia and the Pacific regions are mainly dominated by regular floods, typhoons, rising sea levels, and salinization,<sup>36</sup> while South Asia is mainly affected by rising temperatures and sea levels, erratic rains, and floods.<sup>37</sup> East and Southern Africa are characterized by volatile climate conditions including shorter and unreliable growing seasons affected by deadly alternation of drought and floods.<sup>38</sup> The priority countries will be stratified based on these regional disparities to optimize cross-regional learning. The set of indicators was therefore clustered into four components:

- 1. Environmental sustainability** focuses on ecosystem health and resilience: Issues addressed by Multifunctional Landscapes include forest area loss; declining plant and animal species richness; excessive freshwater withdrawals for food production; nutrient mining or loss to the environment; land (including rangeland) degradation; environmental pollution (land, soil, and water) and reduction of ecosystem productivity (land, water, soil, crop, trees, livestock, and aquatic food).
- 2. Food security and nutrition** encompasses the ability of individuals and populations to access and consume sufficient, diverse, safe, and nutritious food. Billions of people cannot afford a healthy diet due to either unavailability (i.e., low ecosystem productivity) or inability to pay (level of poverty). Understanding and addressing the root causes of food and nutrition insecurity at the landscape level will be one of the Program's top priorities.
- 3. Poverty reduction, livelihood, and social equity:** Market trends and employment opportunities within and beyond a given landscape are likely to reflect the socioecological resilience of the landscape. Over 10% of the world's population lives below the extreme poverty line. Multifunctional Landscapes will assess and address the root causes of extreme poverty and boost ecosystem resilience, food and nutrition security, and livelihoods, partly through gender and social equity lenses.
- 4. Institutional environment:** Multifunctional Landscapes will assess the external conditions that facilitate or hinder the Program's implementation. By identifying catalyzing and inhibiting factors, the Program will develop strategies to overcome challenges and leverage opportunities. This will include issues related to quality of governance and the enabling conditions for sustainable development; gender equity and social inclusion and the effectiveness of governance and institutions. Addressing these issues provides a comprehensive understanding of the factors influencing sustainable development and human well-being.

<sup>28</sup> FAO, IFAD, UNICEF, WFP and WHO. (2022). In Brief for the State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable. Rome, FAO. <https://doi.org/10.4060/ta0640en>

<sup>29</sup> Agullar, R.A.C., Diaz-Bonilla, C., Fujs, T., Lakner, C., Nguyen, M.C., Viveros, M., Baah, S.K.T. (2024, 17 August). March 2024 global poverty update from the World Bank: first estimates of global poverty until 2022 from survey data. World Bank Blogs

<sup>30</sup> Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F.N., Leip, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, 2, 198-209

<sup>31</sup> IWMI. (2023). Unlocking the power of water: Seven interventions to transform food systems. <https://www.iwmi.cgiar.org/news/unlocking-the-power-of-water-seven-interventions-to-transform-food-systems/>

<sup>32</sup> Sylvester, J.M., GutiérrezZapata, D.M., PérezMarulanda, L., VanegasCubillos, M., Bruun, T.B., Mertz, O., and CastroNunez, A. (2024). Analysis of food system drivers of deforestation highlights foreign direct investments and urbanization as threats to tropical forests. *Nature Portfolio, Scientific Reports*, <https://doi.org/10.1038/s41598-024-65397-3>

<sup>33</sup> Abumoghli, I. and Goncalves, A. (2019). Environmental challenges in the MENA region. UNEP Faith for Earth Initiative.

<sup>34</sup> Fernández, A., Franchini, M., Aragão, L., Carte, L., Pacheco, D., Ochoa, L.M.O., Mohan, P.S., do Amaral Cunha, A.M.M., Yglesias-Gonzalez, M. (2023). Facing climate change across Latin America and the Caribbean. *Nature Climate Change*, 13, 1014–1019. <https://doi.org/10.1038/s41558-023-01820-3>

<sup>35</sup> AU, ECA, AfDB, UNDP. (2022). Building back better from the coronavirus diseases (COVID-19) while advancing the full implementation of the 2030 agenda for sustainable development. Africa Sustainable Development Report 2022 (retrieved 17 August 2024)

<sup>36</sup> ESCAP (2018, September 12). Key environmental issues, trends and challenges in the Asia-Pacific region. Economic and Social Commission for Asia and the Pacific Committee on Environment and Development. United Nations, Economic and Social Council. [https://www.unescap.org/sites/default/files/CEDS\\_1E\\_0.pdf](https://www.unescap.org/sites/default/files/CEDS_1E_0.pdf)

<sup>37</sup> Hasnat, G.N.T., Kabir, M.A., Hossain, M.A. (2018). Major Environmental Issues and Problems of South Asia, Particularly Bangladesh. In: Hussain, C. (eds) Handbook of Environmental Materials Management. Springer, Cham. [https://doi.org/10.1007/978-3-319-58538-3\\_7-1](https://doi.org/10.1007/978-3-319-58538-3_7-1)

<sup>38</sup> AU, ECA, AfDB, UNDP. (2022). Building back better from the coronavirus diseases (COVID-19) while advancing the full implementation of the 2030 agenda for sustainable development. Africa Sustainable Development Report 2022 (retrieved 17 August 2024)

The third step was to use a cluster analysis to categorize the 44 identified countries into three priority groups (Figure 1). The Writing Team used expert-based assessments and the criteria below to define the level of prioritization for separate countries.

**Scope for impact:** This factor considers the geographic and thematic areas that the Program will focus on. It helps to identify the most potentially impactful countries, regions, and landscapes for the Program’s interventions.

**Continued efforts** consider countries and landscapes where the Program has already established a presence, demonstrated initial success, or built strong relationships with stakeholders. This approach recognizes the value of sustained investment and ongoing support to consolidate achievements and maximize long-term impact.

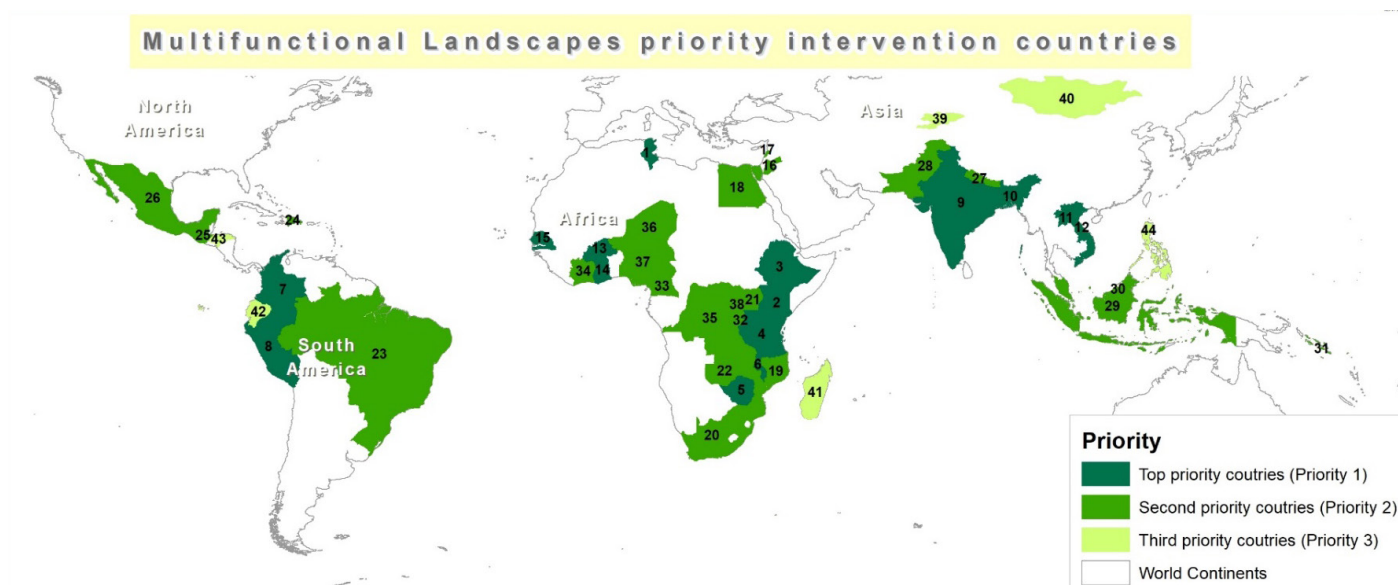
**High-level outputs:** This factor evaluates the potential outcomes and benefits that the Program can realistically achieve. By prioritizing outputs that align with the Program’s goals and address critical needs, the Program can maximize its impact.

**Stakeholder demand:** This factor considers the interest, support, and involvement of various stakeholders in the Program. By consulting stakeholders and understanding their needs and priorities, the Program can ensure its relevance and sustainability.

The first group includes 15 countries characterized by a high scope of impacts, continued efforts, stakeholder demand, and high-level outputs. The second group includes 23 countries characterized by a more moderate scope of impacts, continued efforts and high-level outputs, and high stakeholder demand. The third group includes six countries characterized by a moderate scope of impacts, high-level outputs, low continued efforts, and high stakeholder demand.

The final step determined the actual landscapes for operations in Priority 1 countries (see Section 7.2) based on ongoing activities of Initiatives or bilateral projects. Early 2025, Multifunctional Landscapes will identify and prioritize additional landscapes in the three priority groups of countries to transition gradually to adjustments that will be recommended by the Inception Phase to consolidate achievements and co-align across Programs and Accelerators in a participatory manner.

**Figure 1.** Clusters of Priority 1, 2, and 3 countries using expert assessments and recent experience based on Initiatives, bilateral projects, and base indicators



## 4. Comparative advantage

CGIAR uses its human capital to address complex, interconnected challenges across agriculture, food security, and environmental sustainability through global, inter- and transdisciplinary approaches. Its social capital lies in partnerships with many national and international partners. CGIAR's work on multifunctional landscapes is strategically aligned to deliver a series of high-level outputs related to sustainable landscape management. Below, we outline the sources of comparative advantage for CGIAR and existing and new potential partners to maximize the impact our Program has on local communities and countries. We do this through 10 high-level outputs (OPs) that have been aggregated from over 30 AoW-specific outputs for the Program-level theory of change.

- OP1.1: Multifunctional Living Landscapes
- OP1.2: Co-created Basket of Solutions and Strategies for Multifunctional Landscape Management
- OP2.1: Multilayered Land Use Plans, Governance, and Coordination Mechanisms
- OP3.1: Analysis of Market and Non-Market Systems, Consumer Preferences
- OP3.2: Business Models and Financing Mechanisms for Ecosystem Gains
- OP4.1: National and Subnational Policy Options and Enacting Strategies
- OP5.1: Multiscale Fair, GESI, and Behavioral Change Approaches
- OP6.1: Frameworks and Decision Support Tools for Performance Assessment Based on New Data Science
- OP7.1: Engagement and Advocacy Framework
- OP7.2: Capacity Sharing Programs and Resources

Details are provided in the Appendix.

### 1. Human capital

**CGIAR's expertise in scientific knowledge and research:** CGIAR's **transdisciplinary approach** allows it to leverage its human capital in steering collaborative research with partners, such as local governments, NARES, and universities. The expertise in areas such as biodiversity, ecosystem services, and food security enables CGIAR to co-develop inclusive models that benefit communities, enhance nutrition security, and conserve biodiversity. For example, its scientific expertise helps co-create solutions for managing multifunctional landscapes that balance ecological, economic, and social goals, as demonstrated in the co-design of models for sustainable land use. Partnering with NARES and academia within and across countries increases the scientific evidence base and impact and supports just knowledge sharing.

**Development of decision support tools:** CGIAR has vast experience in creating data science frameworks and decision support tools that allow for real-time monitoring of landscape interventions, providing human capital in both developing and applying tools for adaptive management. Close cooperation with scientists from academia and NARES, NGOs, and development organizations, and working with and through local, regional, and national governments will increase the efficiency of the tools and facilitate dialogue.

### 2. Social capital

**Networks and partnerships:** CGIAR's global reach and extensive partnerships with local governments, NARES, NGOs, and the private sector represent its social capital. These partnerships enable CGIAR to act as a convener, ensuring all actors are involved in the co-design and implementation of innovations. For example, CGIAR collaborates with regional agricultural organizations, INGOs, and community-based organizations (CBOs) to integrate gender equity, social inclusion (GESI), and advocacy frameworks.

**Co-created solutions:** CGIAR has built strong social capital through its collaborations in prioritized countries, ensuring partners continue to be engaged in the co-creation and scaling of innovations. By leveraging these networks, CGIAR helps integrate diverse actors, such as technology companies and land managers, into sustainable landscape management efforts. By partnering with national organizations, NGOs, and local organizations that have built strong relationships with landscape actors, CGIAR can increase its reach and build trust to support co-creation and scaling.

### 3. Biophysical capital

**Access to landscapes and biophysical infrastructure:** It is mostly partners, including **land managers** and technology companies, that have the sources for comparative advantage through their **biophysical capital**. This includes access to testing landscapes and the infrastructure required for ecosystem management, restoration, and the evaluation of multifunctional landscapes.

**Landscape-level performance assessments:** CGIAR supports landscape-level assessments by integrating ecological, social, and economic indicators. In partnership with local and subnational governments, CGIAR can help develop **multilayered land-use plans** that align with legal frameworks for sustainable landscape management. The means for monitoring is provided by partners, this includes remote sensing by organizations such as NASA and in situ sensors by NARES, local governments, and NGOs.

### 4. Incentives

**Creating public goods and innovations:** CGIAR together with government partners is creating public goods and innovations with high social values and positive effects on the different Impact Areas. The private sector, although generally profit-oriented can be a strong partner in scaling up innovations and implementing new business models.

**Policy development and incentives:** CGIAR works with national governments and policymakers to create the enabling conditions for scaling sustainable business models. National and subnational governments are integrating policies with local regulatory frameworks, ensuring enforcement of land-use plans and biodiversity conservation.

**Market-based incentives:** CGIAR also focuses on aligning market and non-market systems with environmental goals. By analyzing consumer preferences and working with the private sector, CGIAR helps translate market signals into profitable and scalable investments. The private sector is a key partner in operationalizing these investments and supporting sustainable business models, while CGIAR facilitates the co-design of financing mechanisms that incentivize ecosystem services and restoration efforts.

## 5. Program-level theory of change

While supporting the livelihoods of millions, eco-agrifood systems' current trajectories also contribute to inequalities, planetary boundary transgressions, and poor dietary health. Multifunctional Landscapes will develop innovative, context-specific yet integrated system-based solutions based on agroecology, nature-positive, regenerative, and nutrition-sensitive approaches that provide multiple benefits to multiple users across scale. Solutions will enable the transition toward more biodiverse, sustainable, healthy, and equitable landscapes.

Multifunctional Landscapes will address the following questions:

- How can MFLs be effectively managed to address global megatrends and challenges while enhancing the well-being of people and nature?
- Which inclusive solution bundles most effectively enhance productivity, biodiversity, resilience, and social inclusion while minimizing trade-offs?
- What institutional frameworks and governance models best support sustainable landscape management and promote multifunctionality?
- How can fair and inclusive markets and business models be developed to attract finance and incentivize the equitable generation of multiple ecosystem services for diverse users?
- What cost-effective, fair, and appropriate tools can measure the risks, impacts, trade-offs, and synergies of system-level interventions on multiple ecosystem services in near real-time?
- How best should the Multifunctional Landscapes Program align its outputs with larger investment programs and partnerships to achieve impact at scale?

Our Program implementation strategy is to work within selected territories (Living Landscapes) to design and evaluate solutions with partners taking the findings to country and regional levels. We will work with stakeholders across diverse landscapes, from source to sea, including forests, agroforestry systems, rural and urban areas, mountains, grasslands, savannas, deserts, rangelands, rivers, lakes, islands, riparian zones, floodplains, and wetlands. We will consider the interconnectedness of water, land, and people to address food security, biodiversity, climate, and livelihood challenges holistically.

**Landscape stakeholders** include (a) (smallholder) farmers, such as crop producers, pastoralists, aquatic food producers, forest users, and large-scale landholders; (b) value chain actors engaged in food processing, storage, distribution, marketing, and selling; (c) consumers (rural, peri-urban, and urban); (d) scientists from academia and NARES; (e) extensionists and other technical support providers; (f) suppliers of inputs and machinery, those who support maintenance; (g) the private sector; (h) NGOs, development organizations, land-use organizations; (i) local, regional, national governments and authorities, civil society who plan, execute, and monitor the agriculture/environment sector; (j) local communities living in landscapes; (k) international landscape organizations; international fora engaged in the conservation-human health-development space; (l) the financial sector.

To address the research questions, we developed seven Areas of Work (AoWs) which build on components of the Agroecology and Nature-Positive Solutions Initiatives, the Environmental Health and Biodiversity Impact Platform, and components of the Livestock and Climate Initiative, adding new elements resulting from integrating these Initiatives' approaches into a broader integrated landscape management framework.

In our theory of change (Figure 5.1), the AoW will co-develop high-level outputs:

- Living Landscapes as physical spaces to undertake collaborative research (AoW 1-OP1.1).
- Basket of solutions, innovations, and strategies for MFL management (AoW 1-OP1.2).
- Multilayered land-use plans, governance, and coordination mechanisms (AoW 2-OP2).
- Business models and financial mechanisms for ecosystem services gains (AoW 3-OP3.2) based on market and non-market systems approaches and consumer preference (AoW 3-OP3.1).
- National and subnational policy options and enabling strategies (AoW 4-OP4).
- Multiscale fair, GESI, and behavioral change approaches (AoW 5-OP5).
- Performance assessment frameworks and DST based on new data science (AoW 6-OP6).
- An engagement and advocacy framework (AoW 7-OP7.1).
- Capacity-sharing programs and resources (AoW 7-OP7.2).

We will achieve Program-level 2030 outcomes through five interconnected pathways:

Co-creating solutions for enhanced food production, ecosystem restoration and gains, biodiversity conservation and protection, and healthy diets.

- **2030 OC-1:** Landscape stakeholders apply technological, socioecological, policy, and institutional innovations that enhance food production, ecosystem restoration and gains, biodiversity conservation and protection, social cohesion and resilience, and healthy diets in multifunctional landscapes.

Enhancing multistakeholder decision-making, inclusive land-, and natural resource use, planning, and governance.

- **2030 OC-2:** Landscape stakeholders implement multifunctional land-, and natural resource use, planning, and landscape governance.

Increasing consumer access to, and demand for ecosystem goods and services resulting from Multifunctional Landscapes Program innovations.

- **2030 OC-3:** Governments, market and finance sector actors implement inclusive policy processes and institutional and market innovations that support the transition to sustained MFLs.

Co-creating opportunities for vulnerable groups, Indigenous People and Local Communities, women, and youth through transforming eco-agrifood systems, and restoration and conservation of landscapes.

- **2030 OC-4:** Indigenous Peoples and local communities, women, youth, and other socially excluded groups participate in and benefit from the transformation of eco-agrifood systems and the restoration and conservation of landscapes.

Engaging and learning based on scientific evidence.

- **2030 OC-5:** National, regional, and global actors use scientific evidence on MFLs to engage in global and regional agenda settings and policy discourse.

**Several factors will help achieve the desired outcomes:** First, we will expand and scale outputs of ongoing Initiatives, and bilateral project activities. Second, we will focus on priority countries with comparative advantages. Third, we will continue in-depth partnership engagement and collaborative research to co-design interventions based on landscape stakeholder priorities, harnessing opportunities offered by: (a) biodiversity and natural resource base in target countries which offers high potential; (b) the growing young population in LMIC; (c) existing CGIAR and partner knowledge on nature-positive and agroecology approaches; (d) new data-driven technologies; and (e) current local and global stakeholders' interest in creating sustainable, healthy, and equitable landscapes and food systems. Multifunctional Landscapes will offer a global science platform for action, integrating these approaches in diverse contexts, and allowing learning across socioecological landscapes.

This research will contribute significantly to the Program impact of *landscapes providing more equitable, prosperous, and resilient livelihoods, secure, safe, and nutritious foods, and conserving and enhancing biodiversity and ecosystem services.*

Because of its integrated approach, Multifunctional Landscapes will contribute to all CGIAR Impact Areas, by increasing the (a) resilience of MFL communities subject to climate shocks and other crises, (b) the productivity and environmental benefits provided by MFLs, (c) consumer awareness and preferences for goods and services that enhance MFLs, (d) the collaboration of MFL actors and stakeholders, and (e) climate finance investment in MFLs. It will contribute to (f) improving livelihoods, well-being, and health of MFL communities, and (g) decreasing land-use conflicts.

**Gender and social inclusion issues** are incorporated in the impact pathways as a dedicated AoW, which will work across the Program, collaborating closely with the Gender Equality and Inclusion Accelerator.

The bottom-up partnership strategy will be based on the continuity and expansion of local engagement processes with strong research, demand, and scaling partners on the ground possessing knowledge of the social, economic, and cultural context and needs. They provide access to strong local networks of private actors which are key for innovation and scaling. At the subnational and national levels, collaborative research will build on existing Living Landscapes involving NARES, ministries, governments, the private sector, civil society, and when possible existing land user organizations, among others. Collaboration between AoW teams and specific partnership arrangements depends on the key landscape innovations and related priority action research defined by stakeholders.<sup>39</sup> International research centers such as CIFOR-ICRAF or CIRAD and universities will be leading participatory research and innovation based on their expertise and presence in selected countries. Collaboration with CGIAR Programs and Accelerators will optimize high-level outputs and outcomes.

<sup>39</sup> Bergamini, N.; Navarrete-Cruz, A.; Triomphe, B.; Vall, E.; Piroux, M.; Rudiger, U.; Sibanda, T.; Gadzirayi, C.; Fuchs, L.E.; Douangsavanh, S.; Tristán M.C.; Singh, S. (2023) Vision to Action for agroecological transitions in the living landscapes: A cross-country progress report on methodological approaches, 2023 results, and way forward. 55 p.

**Table 5.1.** AoW partnerships

**5.1.1. High-level outputs**

ToC element	Statement	Contributing AoWs	Partners and roles
OP1.1	Living Landscapes co-established	2, 5	<ul style="list-style-type: none"> <li>• Scientists from academia, agricultural research institutes (ARIs), and NARES – co-define criteria</li> <li>• The private sector, NGOs, and development organizations – co-define criteria</li> <li>• Local, regional, and national governments and authorities, civil society, and local communities – co-define criteria</li> <li>• International landscape networks – co-define criteria</li> <li>• AoW 2 – leads the establishment of Living Landscapes</li> <li>• AoW 5 – supports approaches to improve Fairness and GESI in multifunctional landscapes</li> </ul>
OP1.2	Basket of solutions and strategies for multifunctional landscape (MFL) management co-created	1, 2, 3, 4,5, 6	<ul style="list-style-type: none"> <li>• (Smallholder) farmers, value chain development actors, scientists from academia, ARIs, NARES, extensionists, other technical support providers, and local communities – co-design, test, and evaluate solutions</li> <li>• The private sector, NGOs and development organizations, local, regional, national governments and authorities, civil society, local communities – express their needs and co-assess the scalability of solutions</li> <li>• AoW 1 – leads the co-creation process</li> <li>• AoW 2, 3, 4 – interact on implications of solutions on market, policy, and land-use planning</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in multifunctional landscapes</li> <li>• AoW 6 – leads process of defining performance assessment indicators and measurement processes</li> <li>• Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition and Breeding for Tomorrow and Genebanks – orient and participate in research design and methodologies</li> </ul>
OP2	Multilayered land-use plans, governance, and coordination mechanisms co-created	2, 1, 3, 4, 5	<ul style="list-style-type: none"> <li>• Farmer and community representatives, land user organizations, scientists from academia, ARIs, NARES, the private sector, NGOs and development organizations, local, regional, national governments and authorities, civil society – engage in land-use planning exercises</li> <li>• International landscape networks – orient and engage</li> <li>• AoW 2 – leads the co-development of the mechanisms</li> <li>• AoW 1 – provides solutions of relevance for land-use planning</li> <li>• AoW 3 - interact on implications of mechanisms on market systems</li> <li>• AoW 4 – provide policy options and institutional coordination mechanisms for the implementation of land-use plans and governance &amp; coordination mechanisms</li> <li>• AoW 5 – supports approaches to improve Fairness and GESI in multifunctional landscapes</li> <li>• Sustainable Farming, Sustainable Animal and Aquatic Foods, and Climate Action Programs and Digital Transformation Accelerator – orient and participate in research design and methodologies</li> </ul>
OP3.1	Market and non-market systems approaches based on consumer preferences developed	3, 1, 2, 3, 4, 5	<ul style="list-style-type: none"> <li>• Local producer organizations and value chain actors – participate in training activities</li> <li>• Market actors, scientists from academia, ARIs, NARES, NGOs, development organizations, and financial sector – engage in the development of business model developments, financial mechanisms and ecosystem services schemes</li> <li>• Food Frontiers and Security Program – orients and participates in research design and methodologies</li> <li>• AoW 3 – leads the co-development of the approaches</li> <li>• AoW 1 – provides solutions of relevance for the development of market and non-market approaches</li> <li>• AoW 2 – interacts on the implication of approaches on land-use plans, governance, and coordination mechanisms</li> <li>• AoW 4 – provide policy options and institutional coordination mechanisms for the implementation of market and non-market system approaches</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in multifunctional landscapes</li> </ul>

ToC element	Statement	Contributing AoWs	Partners and roles
OP3.2	Business models, financial mechanisms co-developed	3, 1, 4, 5	<ul style="list-style-type: none"> <li>Market actors, scientists from academia, ARIs, NARES, NGOs, development organizations, and financial sector – engage in the development of agroecological business models, financial mechanisms to foster landscape sustainability, and innovative ecosystem services schemes</li> <li>AoW 3 – leads the co-development of the business models and financial mechanisms</li> <li>AoW 1 – provides solutions of relevance for the business models and financial mechanisms</li> <li>AoW 4 – provide policy options and institutional coordination mechanisms for the implementation of business models and financial mechanisms for Multifunctional Landscapes AoW 5 – supports with approaches to improve Fairness and GESI in multifunctional landscapes</li> </ul>
OP4	National and subnational policy options and enacting strategies co-developed	4, 1, 2, 3, 5	<ul style="list-style-type: none"> <li>Scientists from academia, ARIs, and NARES – participate in policy analysis</li> <li>The private sector, NGOs, and development organizations international fora engage in the conservation-human health-development space, and the financial sector – engage in policy dialogue</li> <li>Local, regional, national governments and authorities, civil society – engage in policy dialogue, participate in coordination and enacting</li> <li>International landscape networks – engage in policy dialogue, and participate in coordination</li> <li>Policy Innovations Program – orients and participates in research design and methodologies</li> <li>AoW 4 – leads the co-development of national and subnational policy options and enacting strategies</li> <li>AoW 1 – provides solutions of relevance for the development of policy options and enacting strategies</li> <li>AoW 2 – interacts on the implication of policy options on land-use plans, governance, and coordination mechanisms</li> <li>AoW 3 - interacts on the implication of policy options on market and non-market systems</li> <li>AoW 5 – supports with approaches to improve Fairness and GESI in multifunctional landscapes</li> </ul>
OP5	Multiscale fair, GESI, and behavioral change approaches co-developed	5, 1, 2, 3, 4, 6, 7	<ul style="list-style-type: none"> <li>Smallholder farmers, local communities, value chain development actors, scientists from academia, ARIs, NARES, NGOs, and development organizations – participate in dialogues, designing, testing, and evaluation of Fair, GESI, and behavioral change approaches</li> <li>Scientists from academia, ARIs, NARES, NGOs and development organizations, local, regional, national governments and authorities, civil society, and the private sector – participate in dialogues and development of strategies for change in institutions and policies</li> <li>AoW 5 – leads the co-development of multiscale fair, GESI, and behavioral change approaches</li> <li>All other AoW – incorporate fair, GESI, and behavioral change approaches</li> <li>Gender Equality and Inclusion Accelerator – orients and participates in research design and methodologies</li> </ul>
OP6	Frameworks and DST for holistic performance assessment based on new data science co-developed	6, 1, 2, 3, 4, 5	<ul style="list-style-type: none"> <li>Scientists from academia, ARIs, NARES, NGOs, and development organizations – co-design, and evaluate the assessment frameworks</li> <li>Smallholder farmers, venture capital, and extensionists – participate in testing the assessment frameworks, and share results</li> <li>Digital Transformation Accelerator – orients and participates in research design and methodologies</li> <li>AoW 6 – leads the co-development of the frameworks and the performance assessments</li> <li>All other AoWs – support the indicator development, collection, and sharing of results</li> </ul>
OP7	Engagement and advocacy framework co-developed	7,4	<ul style="list-style-type: none"> <li>Local, regional, national governments and authorities, civil society – participate in dialogues</li> <li>International fora and conventions – provide feedback</li> <li>AoW 7 – leads the development of the engagement and advocacy framework</li> <li>AoW 4 – co-develops the framework</li> <li>Policy Innovations Program – co-develops framework and participates in its promotions</li> </ul>
OP8	Capacity-sharing programs and resources co-developed	7, 1, 2, 3, 4, 5, 6	<ul style="list-style-type: none"> <li>Scientists from academia and NARES, NGOs, and development organizations – co-create programs and resources, and participate in knowledge exchange programs</li> <li>Universities and academia – provide opportunities for MSc and PhD students</li> <li>AoW 7 – leads co-development of programs and resources</li> <li>All AoW – contribute with needs assessments, opportunity identification, and resource sharing</li> <li>Gender Equality and Inclusion, Digital Transformation, and Capacity Sharing Accelerators – orient and co-develop programs and resources</li> </ul>

### 5.1.2. Intermediate Program-level Outcomes

ToC element #	Statement	Contributing AoWs	Partners (including internal) and roles	Assumption
I-OC1.1	Living Landscape stakeholders prioritize and co-design multifunctional landscape innovation bundles.	1, 2	<ul style="list-style-type: none"> <li>• Farmers; land user organizations, scientists; NGOs, extensionists, and advisory services; value chain actors and private sector – prioritize, co-design, test, and evaluate innovation bundles</li> <li>• Governments; Civil society and development organizations; financial sector – participate in the analysis of innovation bundles</li> <li>• AoW 2 – facilitates the interaction of co-designed innovations with land and water use planning and coordination</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in MLFs</li> <li>• AoW 6 – assesses the performance of innovation bundles</li> <li>• Sustainable Farming; Climate Action; Sustainable Animal and Aquatic Foods; Better Diets and Nutrition; Policy Innovations Programs; Digital Transformation; Gender Equality and Inclusion; Capacity Sharing Accelerators – share tools, approaches, knowledge and resources</li> </ul>	Landscape stakeholders engage in forming a living landscape or in engaging within an existing multistakeholder platform (MSP). Innovation bundles address stakeholder’s gaps (organizational, institutional, economic and socioecological).
I-OC1.2	Living Landscape stakeholders use co-designed innovation bundles to enhance synergies reduce trade-offs, and optimize landscape functionality.	1, 2, 5, 6	<ul style="list-style-type: none"> <li>• Smallholder farmers, local communities, extensionists, and other technical support providers – implement options on the ground</li> <li>• Scientists from academia, ARIs, and NARES – guide implementation</li> <li>• The private sector, NGOs, and development organizations – engage in testing</li> <li>• Local, regional, and national governments and authorities, civil society – manage implementation</li> <li>• AoW 2 – facilitates the interaction of co-designed innovations with land and water use planning and coordination</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in MLFs</li> <li>• AoW 6 – assesses synergies and trade-offs</li> <li>• Sustainable Farming; Climate Action; Sustainable Animal and Aquatic Foods; Better Diets and Nutrition; Policy Innovations Programs; Digital Transformation; Gender Equality and Inclusion; Capacity Sharing Accelerators – share tools, approaches, knowledge, and resources when appropriate</li> </ul>	The shared vision and action plan developed with landscape stakeholders spells out clearly potential synergies and trade-offs to optimize landscape functionalities.
I-OC1.3	Program partners and stakeholders (extension agents, NGOs, and private sector actors) anchor, share, and scale evidence-based and validated solutions.	1, 2, 5, 6, 7	<ul style="list-style-type: none"> <li>• Scientists from academia, ARIs, and NARES – share lessons and guide scaling</li> <li>• Local communities, extensionists, and other technical support providers – facilitate scaling</li> <li>• Suppliers of inputs and machinery – provide necessary inputs to facilitate scaling</li> <li>• NGOs and development organizations – guide and facilitate scaling</li> <li>• Local, regional, national governments and authorities, and civil society – facilitate experience sharing, and support scaling</li> <li>• The financial sector – incentivizes success, and promotes scaling</li> <li>• AoW 2 – facilitates the interaction of co-designed innovations with land and water use planning and coordination</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in MLFs</li> <li>• AoW 6 – assesses synergies and trade-offs</li> <li>• AoW 7 – supports the development of training resources and knowledge-sharing processes</li> <li>• Sustainable Farming; Climate Action; Sustainable Animal and Aquatic Foods; Better Diets and Nutrition; Policy Innovations Programs; Digital Transformation; Gender Equality and Inclusion; Capacity Sharing Accelerators – share tools, approaches, knowledge and resources</li> </ul>	The MFL stakeholders articulate their efforts effectively to co-design, develop, implement, and scale market and financial innovations. All involved actors are willing to share and learn from the process and information.

ToC element #	Statement	Contributing AoWs	Partners (including internal) and roles	Assumption
I-OC2	Living Landscape stakeholders share capacities and use science-based processes and tools to define their landscape governance, management, and coordination based on a shared vision of integrated solutions.	2, 1, 5, 6, 7	<ul style="list-style-type: none"> <li>• Smallholder farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – share capacities and use Program processes and tools to define their governance, management, and coordination</li> <li>• Scientists from academia and NARES, NGOs and development organizations, local, regional, and national governments – capacity sharing and use of tools to define their governance, management, and coordination</li> <li>• AoW 1 – facilitates the interaction of land and water use planning and coordination with co-designed innovations</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in the planning, governance, and coordination processes of MFLs</li> <li>• AoW 6 – assesses synergies and trade-offs with landscape stakeholders</li> <li>• AoW 7 – supports the development of training resources and knowledge-sharing processes</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs; Digital Transformation; and Gender Equality and Inclusion Accelerators – share tools, approaches, knowledge, and resources, collaborate in research</li> </ul>	<p>Landscape stakeholders co-develop or have a shared vision and action plan for their landscape development.</p> <p>Science-based processes and tools address stakeholder gaps related to landscape governance, management and coordination.</p> <p>Program partners can effectively engage with and influence decision-makers to leverage landscape coordination.</p>
I-OC3	Living Landscape market actors use the co-created knowledge of markets and consumer preferences to develop inclusive business models and financial mechanisms for sustained MFLs.	3, 2, 5, 6, 7	<ul style="list-style-type: none"> <li>• Scientists from academia, ARIs, and NARES – co-develop business models and financial mechanisms</li> <li>• Venture capital, consumers – define their needs and preferences to account in business model</li> <li>• The private sector – define their needs and preferences to account in business model</li> <li>• NGOs and development organizations – support business model development</li> <li>• Local, regional, national governments and authorities, and civil society – support business model development for finance</li> <li>• The financial sector – provides guidance on business models, and supports finance for sustained implementation and scaling</li> <li>• AoW 2 – facilitates the interaction of co-designed innovations with land and water use planning and coordination</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in the planning, governance, and coordination processes of MFLs</li> <li>• AoW 6 – assesses synergies and trade-offs with landscape stakeholders</li> <li>• AoW 7 – supports the development of training resources and knowledge-sharing processes</li> <li>• Food Frontiers and Security Program: shares tools, approaches, knowledge, and resources, and collaborate in research</li> </ul>	<p>Private and public sector actors and stakeholders are willing to participate in participatory value chain and business models analyzes and commit to supporting business model development in each landscape.</p> <p>Business models and financial mechanisms meet the needs of value chain actors and respond to consumer preferences.</p>
I-OC4	National governments and local policy actors in target countries use evidence produced from collaborative research for their policy processes and prioritization of incentives.	4, 5, 6	<ul style="list-style-type: none"> <li>• National governments and authorities, and civil society – facilitate enabling conditions, enact policy processes, and incentivize success</li> <li>• International fora engage in the conservation-human health-development space – support policy implementation and incentivizing</li> <li>• The financial sector – supports incentivizing success</li> <li>• NGOs and development organizations – support implementing policy and incentivizing success</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in the planning, governance, and coordination processes of MFLs</li> <li>• AoW 6 – assesses synergies and trade-offs with landscape stakeholders</li> <li>• Policy Innovations Program – support policy implementation and prioritizing incentives</li> </ul>	<p>Policymakers at national and subnational scales, and across various sectors, are motivated to participate actively in the co-development, coordination and promotion of policy processes.</p> <p>Prioritized incentives empower farmers and other food system actors to adopt, participate in, and scale multifunctional landscape approaches.</p>

ToC element #	Statement	Contributing AoWs	Partners (including internal) and roles	Assumption
I-OC5	Living Landscape stakeholders integrate Fairness and GESI principles and approaches into processes and practices for MFLs.	5,1, 2, 3, 4, 6, 7	<ul style="list-style-type: none"> <li>• (Smallholder) farmers, value chain development actors, and local communities - be aware of gender-responsive actions and values</li> <li>• Scientists from academia, ARIs, and NARES – develop guidelines and awareness creation fora to install GESI principles</li> <li>• Extensionists and other technical support providers – take note of GSI principles and accommodate inclusiveness</li> <li>• The private sector – is conscious of GESI and gender-responsive principles and act</li> <li>• NGOs and development organizations – implement gender-responsive options</li> <li>• Local, regional, national governments and authorities, and civil society – play key roles in implementing GESI principles and measures</li> <li>• International fora engage in the conservation-human health-development space – accommodate GESI and be gender-responsive in their actions</li> <li>• The financial sector – incentivizes those who accommodate and implement GESI principles and gender-responsive solutions</li> <li>• AoWs 1, 2, 3, 4, 6, 7 – integrate Fairness and GESI principles and approaches into processes and practices for MFLs</li> <li>• Gender Equality and Inclusion Accelerator – creates awareness, and build capacity to promote GESI principles and Fairness</li> </ul>	<p>Landscape stakeholders are responsive to include Fairness and GESI objectives in their vision and action plans.</p> <p>Research partners can use evidence on agency and behavior change to affect uptake and mainstreaming of solutions, business models and financial mechanisms, and policies.</p> <p>Decision-makers (policy, and market systems actors) are willing to make structural and behavioral strategy changes that benefit the agency and behavior options of other actors (e.g., producers, consumers).</p>
I-OC6	Living Landscape stakeholders use performance assessment frameworks to monitor their MFLs and develop incentives.	6, 1, 2, 3, 4, 5	<ul style="list-style-type: none"> <li>• Local, regional, national governments and authorities and civil society, local communities (use results to better manage) – use results to better plan and manage</li> <li>• Scientists from academia, ARIs, and NARES – co-develop tools and methods</li> <li>• Extensionists and other technical support providers – provide tools and platforms to monitor</li> <li>• The private sector – provides tools and sensors to monitor</li> <li>• NGOs and development organizations – support monitoring and assessments</li> <li>• International fora engaged in the conservation-human health-development space – support cross-country exchange of information)</li> <li>• AoWs 1, 2, 3, 4, 5 – contribute to assessment framework development and apply it</li> <li>• Digital Transformation Accelerator – co-develops tools and methods</li> </ul>	<p>New and existing assessment frameworks, trade-off analysis, and performance assessments are articulated with partners.</p> <p>Indicators for monitoring and assessment correspond to the needs and vision of landscape stakeholders.</p>
I-OC7	Science, development and policy actors within and outside of CGIAR Programs share and strengthen their capacity for sustainable MFL management.	7, 2, 3, 4, 5, 6	<ul style="list-style-type: none"> <li>• Scientists from academia, ARIs, and NARES – share science-based performance evidence for learning</li> <li>• NGOs and development organizations – share lessons and experiences at appropriate fora</li> <li>• Local, regional, national governments and authorities, and civil society – strengthen their capacity in the use of ‘tools’ available for performance monitoring in near real-time; use the tools to guide reporting their commitments as well as negotiate for environmental payments</li> <li>• International fora engaged in the conservation-human health-development space – appreciate lessons and experiences gained, and support in raising funds to scale</li> <li>• The financial sector – provides financial incentives for evidence-based success</li> <li>• AoWs 2, 3, 4, 5, 6 – identify opportunities for high-level capacity-sharing resource development, training, and engagement</li> <li>• Policy Innovations Program – supports awareness creation through policy briefs, policy engagement, and advocacy</li> <li>• Capacity Sharing Accelerator – orients and co-develops tools and methods</li> </ul>	<p>CGIAR provides a space and conditions for engagement across Programs to develop a shared vision and advocacy framework.</p> <p>Program Areas of Work (teams and partners) engage in the development of high-level capacity-sharing opportunities and resources.</p>

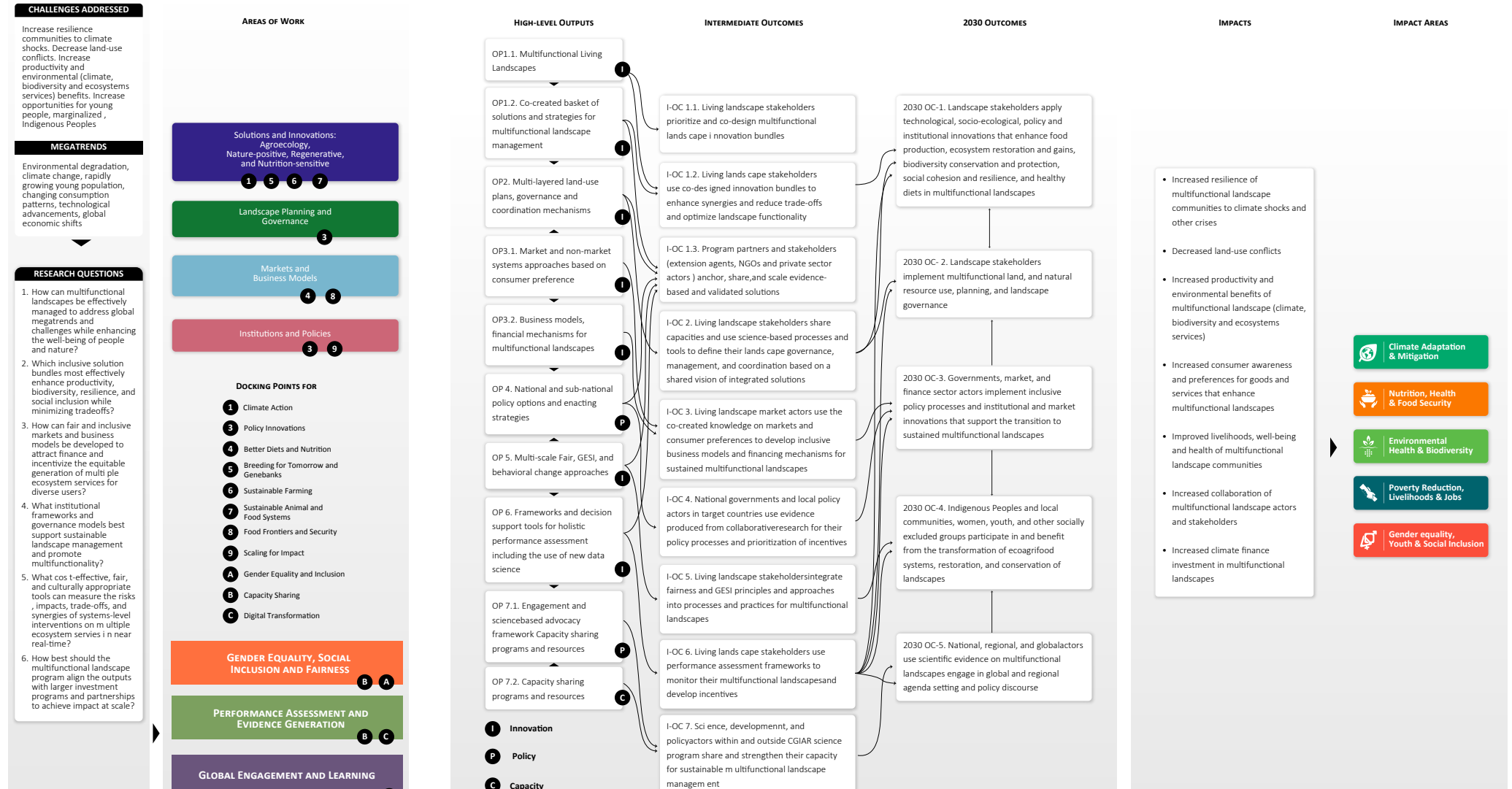
### 5.1.3. 2030 Program-level Outcomes

ToC element #	Statement	Contributing AoWs	Partners (including internal) and roles	Assumption	Targets
2030 OC1	Landscape stakeholders apply technological, socioecological, policy, and institutional innovations that enhance food production, ecosystem restoration and gains, biodiversity conservation and protection, social cohesion and resilience, and healthy diets in multifunctional landscapes.	1, 2, 3, 4, 5, 6, 7	<ul style="list-style-type: none"> <li>• Farmers, local communities, extensionists, and other technical support providers – adopt solutions bundles and share their experiences</li> <li>• Scientists from academia, ARIs, NARES, NGOs, and development organizations - share tailored solutions and guidelines for implementation and monitoring</li> <li>• Suppliers of inputs and machinery - offer required inputs</li> <li>• The private and financial sectors - offer and use financial schemes to incentivize success</li> <li>• Regional, national governments and authorities, and civil society - use available user-friendly knowledge and resources and enact policies and provide guidelines</li> <li>• Scaling for Impact Program – supports awareness creation and scaling</li> <li>• AoW 1 – co-develops the technological, socioecological, policy, and institutional innovations</li> <li>• AoW 2 – incorporates innovations in landscape plans, governance structures, and coordination mechanisms</li> <li>• AoW 3 – co-develops and contributes with business models and financial mechanisms</li> <li>• AoW 4 – co-develops and contributes with institutional coordination mechanisms and policy options</li> <li>• AoW 5 – assure GESI and Fairness approaches are incorporated</li> <li>• AoW 6 – provides insights and recommendations on the performance of co-developed solutions and innovations</li> <li>• AoW 7 – develops high-level capacity-sharing resources and opportunities, as well as an engagement framework</li> <li>• Sustainable Farming; Climate Action; Sustainable Animal and Aquatic Foods; Better Diets and Nutrition; and Policy Innovations Programs; Digital Transformation; Gender Equality and Inclusion; and Capacity Sharing Accelerators – share tools, approaches, knowledge, and resources when appropriate</li> </ul>	The Program articulates its efforts effectively with national and regional stakeholders and networks beyond living landscapes to scale innovations (in collaboration with the Scaling for Impact Program).	(a) Reach 6 million farmers in 15 countries with farm-level bundled solutions, (b) Conserve >98% of current agrobiodiversity in targeted landscapes, (c) Sustainably use 8 million hectares of keystone landscapes (peat- and rangelands, forests, protected areas), (d) Restore 4 million ha of degraded land by 2030.
2030 OC2	Landscape stakeholders implement multifunctional land-, and natural resource use, planning, and landscape governance.	2, 1, 5, 6	<p>Academia, ARIs, NARES – guide implementation of land-use plan and governance</p> <p>NGOs and development organizations – support the implementation of land-use plans and governance</p> <p>Regional, national governments and authorities, and civil society – implement land-use plans and governance, create enabling conditions, coordinate efforts, and incentivize success</p> <p>AoW 5 – assure GESI and Fairness approaches are incorporated</p> <p>AoW 6 – provides insights and recommendations on the performance of co-developed solutions and innovations</p> <p>AoW 7 – develops high-level capacity-sharing resources and opportunities, as well as an engagement framework</p> <p>Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs; Digital Transformation; and Gender Equality and Inclusion Accelerators – share tools, approaches, knowledge, and resources collaborate in research</p>	Science-based processes and tools can be adapted to fit the needs of stakeholders beyond living landscapes. Program partners can effectively engage with and influence decision-makers at national and regional levels.	Improved multifunctional land and water use planning and governance across more than 15 million hectares of land and water bodies by 2030.

ToC element #	Statement	Contributing AoWs	Partners (including internal) and roles	Assumption	Targets
2030 OC3	Governments, market and finance sector actors implement inclusive policy processes and institutional and market innovations that support the transition to sustained MFLs.	3,4,5	<ul style="list-style-type: none"> <li>• MFL stakeholders – co-produce knowledge, engage local and national actors, co-develop tools, and advocate for policy alignment</li> <li>• CGIAR partners – conduct policy research, institutional analyses political economy analysis, support capacity strengthening, and co-develop decision support tools</li> <li>• Government – facilitate policy alignment between national and subnational levels, implement policies, and support cross-sectoral coordination</li> <li>• NARES and Academia – Collaborate in policy research to inform policy reforms and toolkit development</li> <li>• Customary institutions – Integrate local practices into policy strategies and support social learning for behavioral change</li> <li>• Scientists from academia and NARES – support implementing policy and market innovations</li> <li>• The private sector – implements market innovations, engages in partnership building and policy discourse, and collaborates on investment strategies</li> <li>• NGOs and development organizations – support policy implementation and institutional coordination, engage in advocacy, build capacity, support stakeholder consultations, and collaborate in policy and behavioral change research</li> <li>• Regional, national governments and authorities, and civil society – implement policy, market innovations, generate evidence, and incentivize success</li> <li>• The financial sector – incentivizes success</li> <li>• AoW 3 – socializes and facilitates the uptake of business models and financial mechanisms</li> <li>• AoW 4 – socializes and facilitates the uptake of institutional coordination mechanisms and policy options</li> <li>• AoW 5 – accompanies the implementation of GESI and Fairness in the socialization and facilitation process</li> <li>• Policy Innovations Program – support policy implementation and prioritizing incentives</li> </ul>	Program partners can effectively engage with and influence decision-makers at national and regional levels.	(a) Empower communities, producer organizations, consumers, and other landscape actors in 8 MFLs, through improved market mechanisms and strategies to enhance multifunctionality; (b) improve access to food and non-food products for 8 MFLs; c) monetize ecosystem services in 8 MFLs; (d) develop scalable business models that will support enhanced access to sustainable finance – payments for environmental services, carbon credit, biodiversity finance) in at least 8 MFLs.
2030 OC4	Indigenous Peoples and local communities, women, youth, and other socially excluded groups participate in and benefit from the transformation of eco-agri-food systems, the restoration and conservation of landscapes.	5, 1, 2, 3, 4, 6, 7	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES – develop strategies that facilitate the active participation of locals</li> <li>• The private sector – be considerate of locals when planning and executing solutions</li> <li>• NGOs and development organizations – support the implementation of solutions that consider the needs and priorities of locals</li> <li>• Regional, national governments and authorities, and civil society – create enabling environments, policies, and incentives that consider the needs and priorities of locals</li> <li>• International fora engaged in the conservation-human health-development space – play advocacy roles that support gender-transformative approaches</li> <li>• The financial sector – incentivizes those who engage in supporting the needs and priorities of local communities</li> <li>• AoW 5 - socializes and facilitates the uptake of findings on GESI and Fairness approaches</li> <li>• All AoWs – facilitate and document the integration of Fairness and GESI principles and approaches into processes and practices for MFLs</li> <li>• Gender Equality and Inclusion Accelerator – supports the promotion and scientific discussion of the achieved outcome</li> </ul>	Participation of Indigenous Peoples (IPs) and local communities, women, youth, and other socially excluded groups can be assured around the issues of quality of life, gender-transformative approaches (GTAs), social equity, and food sovereignty. Their needs can be jointly identified, and the co-developed solutions enable them to act.	Create more inclusive, gender equitable, and fair MFLs where at least 35% of decision-making bodies are made up of actively participating women. 500,000 million youth benefit from decent employment earning income

ToC element #	Statement	Contributing AoWs	Partners (including internal) and roles	Assumption	Targets
2030 OC5	National, regional, and global actors use scientific evidence on MFLs to engage in global and regional agenda settings and policy discourse.	7, 4, 5, 6	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES – communicate the performances of interventions using appropriate mediums</li> <li>• NGOs and development organizations – provide witness about the performances of solutions to create awareness and enable scaling</li> <li>• Regional, national governments and authorities and civil society – apply science-based monitoring tools, communicate performance results, and negotiate for environmental payments</li> <li>• The financial sector – review success cases and develop mechanisms to incentivize</li> <li>• AoW 7 – leads the engagement agenda</li> <li>• All AoWs – provide scientific evidence and broaden the engagement</li> <li>• Policy Innovations Program – support policy implementation and prioritizing incentives</li> <li>• Capacity Sharing Accelerator – co-develops methods, and provides opportunities for capacity sharing</li> <li>• Gender Equality and Inclusion Accelerator – creates awareness, and build capacity to promote GESI principles and Fairness</li> </ul>	Capacity-sharing resources and activities are user-centered and based on scientific evidence (other AoW). CGIAR and Program stakeholders engage in the proposed knowledge-sharing process to strengthen their influence in agenda settings and policy discourse.	Cumulative 15 policy changes at country, regional, and global scales; cumulative 5 financing agencies (donors and financing institutions) integrate MFL indicators in financing development projects; zero net deforestation; land degradation neutrality; water use efficiency improved by 20% in irrigated farming systems; reduction of economic water scarcity in at least five landscapes in LMICs; the 4Rs (right source, right rate, right time and right place) nutrient stewardship adopted in at least 10 landscapes in LMICs including low and high nitrogen inputs systems; conservation of genetic resources in situ and ex situ improved in at least 10 landscapes in LMICs.

Figure 2. Overall ToC diagram



## 6. Areas of work

This section describes our seven complementary Areas of Work (AoW) to be concurrently implemented across targeted landscapes to achieve resilient livelihoods, more and better food, and ecosystem services gains. Note that the AoWs are closely linked, and the order of presentation does not mean one precedes the other.

### 6.1. AoW 1: Solutions and Innovations: agroecology, nature-positive, regenerative, and nutrition-sensitive

AoW 1 envisions landscape stakeholders applying eco-agrifood system solutions including technological, socioecological, organizational, and institutional innovations that enhance food production, ecosystem restoration and gains, biodiversity conservation and protection, climate adaptation and mitigation, and healthy diets in MFLs. AoW 1 will employ human-centered design and transdisciplinary approaches to harness local knowledge and strengthen stakeholder efforts and participatory co-innovation strategies to develop basic, advanced, and cutting-edge solutions and innovations that are socially inclusive and gender-transformative. The solutions and innovations are co-developed to optimize sustainable use and stewardship of agricultural landscapes, terrestrial and aquatic agroecosystems and their agrobiodiversity, forests, rangelands, water bodies, peatlands, and native genetic resources. AoW 1 will address the needs of landscape users and surrounding areas, while sustainably safeguarding natural resources and ecosystem services. The eco-agrifood system solutions and innovations will be bundled under AoW 2 to optimize landscape multifunctionality.<sup>40</sup>

Each targeted landscape will adapt tailored solutions toward enhanced production and other ecosystem services; decent employment and income generation; healthy diets and safeguarding common pool resources and protected areas. High-level outputs include validated practices, technologies, and tools to a) enhance farm-level productivity, climate resilience, and sustainability within landscapes; b) optimize management of common pool resources and derived ecosystem services; c) protect resources degradation and restore degraded areas to enhance ecosystem benefits; d) streamline protected area management with local livelihood benefits; e) enhance nutrition; and f) apply advisory and training innovations to widely disseminate validated solutions.

The following questions need to be addressed to achieve the above:

- Which agroecology, nature-positive, regenerative, and nutrition-sensitive solutions implemented across different scales have the potential to maximize synergistic gains, and balance biodiversity, nutrition, livelihood, and ecosystem outcomes while reducing trade-offs and negative externalities?
- What are the most effective climate adaptation and mitigation strategies to achieve resilience and socially inclusive compensation in multifunctional landscapes?
- What key stewardship solutions will strengthen common pool resources within the landscape while triggering maximum ecosystem service benefits?
- Which incentive mechanism and solution clusters are most effective in delivering environmental outcomes across multiple ecosystem services?

- How can spatial and temporal landscape features be leveraged to support access to, and availability of nutritious quality foods?
- Which *barriers* need to be lifted and what enabling factors will trigger the greatest biodiversity and ecosystem service returns at landscape scales through local action?
- What enables actors to replicate and scale evidence-based solutions within and between landscapes?

CGIAR's major comparative advantages are its capacity to provide and integrate impactful solutions through specialized and interdisciplinary expertise and its global partnership network and cumulative global experience in sharing innovations and best practices at scale. Partners (NARES) can have better capacity to facilitate engagement, piloting, and scaling. Along with national and regional partners, AoW 1 will collaborate with various Programs, including Sustainable Farming; Climate Action; Sustainable Animal and Aquatic Foods; Better Diets and Nutrition; Policy Innovations, and all three Accelerators.

Emerging areas include citizen science and eDNA for agrobiodiversity monitoring, biodiversity and carbon credits, seed security schemes, improved crop-grassland fallows, territorially adapted dietary guidelines, blockchain approach for traceability and incentives, and food procurement, among others.

AoW 1 has five Sub-Areas of Work for achieving outcomes aligned with the needs and opportunities linked to different landscapes:

#### 6.1.1. Agroecology, nature-positive and regenerative practices, and innovations for sustainable landscape design and management.

Sub-AoW 1.1 will co-design context-specific solutions by integrating science-based experimentation and learning with local knowledge to co-create innovation bundles (in AoW 2) for landscape-level agroecological transitions. Local stakeholders will prioritize activities, involving participatory action research, innovative learning, on-farm trials, and farmer networks including farmer-to-farmer scaling networks. Sub-AoW 1.1 will develop farm- and farming-system-level solutions involving: (a) in situ agrobiodiversity conservation, (b) integrated seed systems, (c) soil conservation and management, (d) agroforestry, (e) livestock management, (f) fish farming, (g) water harvesting and irrigation, and (h) ecological crop and animal management, among others.

#### 6.1.2. Conservation, management, and restoration to enhance the regenerative use of common pool resources.

Sub-AoW 1.2 will co-create, test, and implement solutions to strengthen the collective stewardship of natural resources and innovations essential for sustainable multifunctional landscape management and productive livelihoods. Activities will align with concerted landscape-level land-use strategies and will build solutions at the common pool resource level involving: (a) participatory forest, range- and peatland management and restoration, (b) recycling and circularity of resource streams, (c) watershed and waterbody management, (d) sustainable aquatic food production, (e) biodiversity conservation, (f) valuing benefiting from carbon stocks and other ecosystem services, (g) conservation credit schemes, among others, (h) self-governance; (i) environmental peacebuilding using natural resources management to increase social cohesion across multiple groups.

<sup>40</sup> Remans R, Zornetzer H, Mason-D'Croz D, Kugler C, Thornton P, Pedersen C, Cattaneo F, Samantaryay D, Brouwer ID, Bosch D, Bekele TH, Martinez S, Ivanova Y, Sanchez-Choy J, Mockshell J, Bergamini N, Tibebe D, Balcha Y, Ebrahim M, Misiko M, Sainepo B, Magesa R, Aynekulu E and Herrero M. (2024). Backcasting supports cross-sectoral collaboration and social-technical innovation bundling: case studies in agri-food systems. *Front. Sustain. Food Syst.* 8:1378883. <https://doi.org/10.3389/fsufs.2024.1378883>

### 6.1.3. Nature-positive solutions to integrate protected area management with livelihood options.

Sub-AoW 1.3 will advance shared solutions that balance conserving protected areas within the landscape with the local population’s needs. It will optimize ‘common ground’ (conservation-use) objectives through engaging different landscape actors in a shared vision and management plan. Sub-AoW 1.3 will co-design activities with buffer-zone inhabitants, park authorities, and conservation actors that integrate tenure arrangements, local potential, and concerted action plans. They include (a) ecotourism, (b) wildlife corridors, (c) beekeeping and pollination, (d) optimization and trade-off analysis, (e) payment for ecosystem services, (f) co-designing transboundary mechanisms to reduce conflict over shared natural resources.

### 6.1.4. Optimizing dietary diversity and healthy diets within landscapes.

Sub-AoW 1.4 will deploy nutrition-sensitive innovations that enhance dietary quality for the most vulnerable inhabitants within target landscapes. It will actively involve health workers, nutrition programs, and change-actors. Activities will build on local food security and nutrition plans while exploring nutrition innovations at the landscape level such as (a) food patrimony mapping including seasonal food availability; (b) valuing local and indigenous foods

and practices; (c) adapted dietary guidelines; (d) short circuit public procurement; (e) incorporating agrobiodiversity in school nutrition; (f) awareness raising and behavior change communication, innovative recipe development, among others.

### 6.1.5. Actor-centered advisory and training to anchor and scale solutions.

Sub-AoW 1.5 will involve public/private extension agents and advisory services to share tested solutions that are ready to scale. Activities will be contextualized for information services, connectivity, and social networks present within each landscape. These may involve (a) farmer-farmer scaling networks; (b) digital tools and advisory systems; (c) farmer-fisher-pastoralist field schools; (d) development communications; (e) training of trainers; (f) multistakeholder platforms; (g) design, use and evaluation of experiential learning tools (such as games), and other innovative learning approaches, among others.

### Partnerships

The full R&D cycle to co-design and develop solutions will be completed in close partnership with NARES, academia, NGOs, base organizations, and the private sector to leverage impact for landscape stewards, particularly women, youth, and Indigenous Peoples. Table 6.1. provides information on partners and responsibilities.

Table 6.1. Partnerships

#### AoW outputs and intermediate AoW outcomes

Statement	Partners and roles
OP1.1. Bundles of robust and highly adapted practices, technologies, and tools to enhance farm-level productivity, resilience, and sustainability within landscapes/	<ul style="list-style-type: none"> <li>• (Smallholder) farmers – prioritize, test, evaluate, and use solutions.</li> <li>• Value chain development actors – test and mainstream solutions.</li> <li>• Scientists from academia, ARIs, and NARES – trial, co-develop and promote solutions.</li> </ul>
OP1.2. Climate-smart adaptation and mitigation strategies and recommendations for climate-integrated landscape management/	<ul style="list-style-type: none"> <li>• Extensionists and other technical support providers – diffuse and scale solutions.</li> </ul>
OP1.3. Bundles of validated practices, technologies, and tools for the optimal management of common pool resources and derived ecosystem services/	<ul style="list-style-type: none"> <li>• Suppliers of inputs and machinery – commercialize and promote solutions.</li> <li>• The private sector – test and mainstream solutions.</li> </ul>
OP1.4. Bundles of innovations that enhance protected area management with local livelihood benefits/	<ul style="list-style-type: none"> <li>• NGOs, land users, and development organizations – trial, co-develop, and promote solutions.</li> </ul>
OP1.5. Bundles of available, desirable, and affordable practices and innovations for enhanced nutrition/	<ul style="list-style-type: none"> <li>• Local, regional, and national governments and authorities, civil society – trial, co-develop and promote solutions.</li> <li>• Local communities – prioritize, test, evaluate, and use solutions.</li> </ul>
OP1.6. Bundles of adapted advisory and training innovations to widely disseminate validated solutions/	<ul style="list-style-type: none"> <li>• The financial sector – provides incentives to mainstream solutions.</li> <li>• CGIAR Program on Sustainable Farming – co-design of farm-level interventions.</li> </ul>
AoW-IOC1.1. Living Landscape stakeholders identify, test, and validate robust agroecology, nature-positive, regenerative, and nutrition-sensitive practices, technologies and approaches/	
AoW-IOC1.2. Living Landscape stakeholders widely share and enhance their capacities to apply adapted agroecology, nature-positive, regenerative, and nutrition-sensitive practices, technologies, and approaches/	

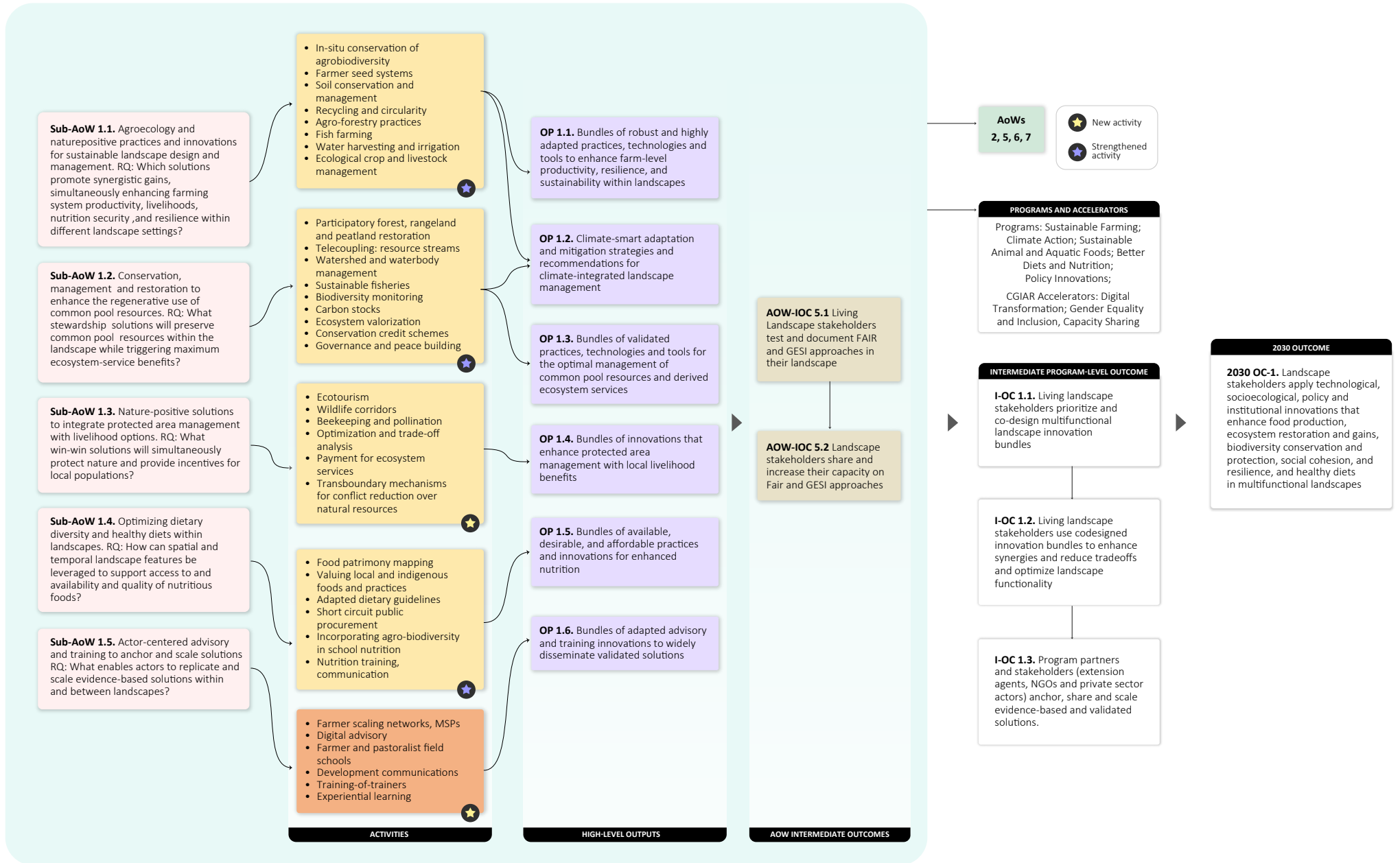
## Intermediate program-level outcomes and 2030 outcomes

Statement	Partners and roles	Assumption
<p>I-OC 1.1. Living Landscape stakeholders prioritize and co-design multifunctional landscape innovation bundles/</p>	<p>Farmers; land-user organizations, scientists; NGOs, extensionists, and advisory services; value chain actors and private sector – prioritize, co-design, test, and evaluate innovation bundles</p> <p>Governments; Civil society and development organizations; financial sector- participate in the analysis of innovation bundles</p> <ul style="list-style-type: none"> <li>• AoW 2 – Facilitates bundling of solutions based on multistakeholder visioning and land-use planning</li> <li>• AoW 5 - supports with approaches to improve Fairness and GESI in MLFs</li> <li>• AoW 6 - Assesses the performance of innovation bundles</li> </ul>	<p>Landscape stakeholders engage in forming a living landscape or in engaging within an existing MSP. Stakeholders can collaborate within the grassroots development agenda through active participation, trust building, and on-the-ground presence.</p> <p>Innovation bundles address stakeholder gaps (organizational, institutional, economic, and socioecological).</p>
<p>I-OC 1.2. Living Landscape stakeholders use co-designed innovation bundles to enhance synergies, reduce trade-offs, and optimize landscape functionality/</p>	<p>Farmers; land user organizations; scientists; NGOs, extensionists, and advisory services; value chain actors, and private sector – use and apply innovation bundles.</p> <p>Governments; Civil society and development organizations; financial sector – participate in the analysis of innovation bundles.</p> <ul style="list-style-type: none"> <li>• AoW 3 - Analyzes markets, market strategies, consumer preferences, and business model opportunities.</li> <li>• AoW 2 – Facilitates bundling of solutions based on multistakeholder visioning and land-use planning</li> </ul>	<p>The shared vision and action plan developed with landscape stakeholders spells out potential synergies and trade-offs to optimize landscape functionalities.</p>
<p>I-OC 1.3. Program partners and stakeholders (extension agents, NGOs and private sector actors) anchor, share and scale evidence-based and validated solutions</p>	<p>Farmers; land user organizations scientists; NGOs, extensionists, and advisory services; value chain actors and private sector – discuss, share, and scale solutions</p> <p>Governments; Civil society and development organizations; financial sector- participate in scaling and dissemination of solutions.</p> <ul style="list-style-type: none"> <li>• AoW 4 - institutional analysis to foster an enabling environment</li> <li>• AoW 7 - Supports the co-development and sharing of learning resources for landscape stakeholders; partners with academia to co-develop and share scientific evidence and train scientists; Organize and participate in global and regional dialogues</li> </ul> <p>Scaling for Impact Program – collaboration with the enabling environment lab and support in unlocking finance and scaling partnerships</p>	<p>The Program articulates its efforts effectively with national and regional stakeholders and networks beyond living landscapes to scale innovations (in collaboration with the Scaling for Impact Program).</p>

## 2030 Outcome

Statement	Partners and roles	Assumption	Indicators and targets
<p>2030 OC-1. Landscape stakeholders apply technological, socioecological, policy and institutional innovations that enhance food production, ecosystem restoration and gains, biodiversity conservation and protection, social cohesion and resilience, and healthy diets in Multifunctional Landscapes.</p>	<ul style="list-style-type: none"> <li>• Farmers, local communities, extensionists, and other technical support providers – adopt solutions bundles and share their experiences</li> <li>• Scientists from academia, ARIs, NARES, NGOs, and development organizations - share tailored solutions and guidelines for implementation and monitoring</li> <li>• Suppliers of inputs and machinery - offer required inputs</li> <li>• The private and financial sectors - offer and use financial schemes to incentivize success</li> <li>• Regional, national governments and authorities, and civil society - use available user-friendly knowledge and resources and enact policies and provide guidelines</li> <li>• Scaling for Impact Program - supports awareness creation and scaling</li> <li>• AoW 1 – co-develops the technological, socioecological, policy, and institutional innovations</li> <li>• AoW 2 – incorporates innovations in landscape plans, governance structures, and coordination mechanisms</li> <li>• AoW 3 – co-develops and contributes with business models and financial mechanisms</li> <li>• AoW 4 – co-develops and contributes with institutional coordination mechanisms and policy options</li> <li>• AoW 5 – assure GESI and Fairness approaches are incorporated</li> <li>• AoW 6 – provides insights and recommendations on the performance of co-developed solutions and innovations</li> <li>• AoW 7 – develops high-level capacity-sharing resources and opportunities, as well as an engagement framework</li> <li>• Programs on Sustainable Farming; Climate Action; Sustainable Animal and Aquatic Foods; Better Diets and Nutrition; Policy Innovations; Digital Transformation; Gender Equality and Inclusion; and Capacity Sharing Accelerators – share tools, approaches, knowledge and resources when appropriate</li> </ul>	<p>Multifunctional Landscapes articulates its efforts effectively with national and regional stakeholders and networks beyond living landscapes to scale innovations (in collaboration with the Scaling for Impact Program).</p>	<p>(a) Reach 2 million farmers in 15 countries with farm-level bundled solutions, (b) Conserve &gt;98% of current agrobiodiversity in targeted landscapes, (c) Sustainably use 8 million hectares of keystone landscapes (peat- and rangelands, forests, protected areas), and (d) Restore 4 million ha of degraded land by 2030.</p>

**Figure 3.** AoW 1: Solutions and Innovations: Agroecology, nature-positive, regenerative, and nutrition-sensitive



## 6.2. AoW 2: Landscape planning and governance

AoW 2 envisions stakeholders planning and governing MFLs by integrating bundled eco-agrifood system solutions and a layered mosaic of land uses to optimize sustainable food production, climate-resilient livelihoods, and environmental gains including biodiversity benefits while balancing land-use synergies and trade-offs.

Achieving this will require addressing competing and conflicting landscape uses that compromise optimal food system productivity, sustainability, and outputs, and weaken land users' resilience, livelihoods, and security. The Multifunctional Landscapes Program will collaborate with partners to resolve emerging planning, management, and governance 'wicked problems'<sup>41</sup> and support the development and strengthening of effective, participatory multilayered land-use planning, eco-agrifood system solution integration and governance that is inclusive, optimizes land-sharing and land-sparing strategies and promotes multifunctionality through enhancing connectivity.

In response, the AoW 2 high-level outputs will be the establishment of Living Landscapes (OP2.1) within which multiple stakeholders will co-develop a vision for MFLs integrating bundles of eco-agrifood system solutions strengthened and developed in AoW 1 (OP2.2) and a multilayered land and water use plan (OP2.3) supported by appropriate inclusive governance, management, and coordination structures (OP2.4).

Key research questions that form the backbone of AoW 2 are:

- How can collective action and agency in Living Landscapes be optimized for beneficial outcomes?
- What are the optimal integrated bundles of eco-agrifood system solutions [drawing from AoW 1] for maximizing inclusive landscape multifunctionality in different contexts?
- What trade-offs and synergies arise during optimizing bundles of eco-agrifood system solutions and how can these be best managed to maximize benefits?
- What are the most effective structures, tools, methodologies, and processes for multiscale, inclusive, and adaptive land and water-use planning, integration, and governance?
- How can flexibility to adapt to current and emerging climatic, environmental, socioeconomic, and other global, national, and local challenges and trends be woven into MFLs to ensure sustainability?

Our comparative advantage is anchored in more than a decade of land-related research and learning under CGIAR flagship projects Collective Action and Property Rights (CAPRI) and CGIAR Research Program on Policy, Institutions, and Markets' Natural Resources Governance among others. Additionally, CGIAR Research Initiatives and bilateral projects are developing a portfolio of research, tools, and approaches that can be drawn from, including participatory land-use planning, collective land tenure and governance, cognitive and institutional decision-making, scenario modeling and analysis, women's land access and rights, land and resource political economy, and policy influencing. CGIAR's wealth of interdisciplinary scientists will be an asset for implementing AoW 2 together with

newly established partnerships with key stakeholders including national governments and others such as the International Land Coalition (ILC) which CGIAR joined in 2023.

**Emerging Areas of Work** include polycentric governance; collective action and agency, including in peacebuilding; cost-benefit analysis of land-use change; and applying digital tools for landscape-level land-use and ecosystem optimization (e.g., Digital Twin Landscapes) in collaboration with the Digital Tools Accelerator.

AoW 2 activities will be implemented under the following five Sub-AoWs, drawing from other AoWs, particularly AoW 1, where solutions are developed and the models and assessment tools designed in AoW 6. Table 6.2 and Figure 6.2 summarize key activities and outputs.

### 6.2.1. Co-establishment of Living Landscapes and priority areas of investment.

Expanding those established under the Agroecology Initiative, Living Landscapes will be co-established as MFL action-learning sites. Within these, appropriate locations for prioritizing MFL investments and bundling of solutions (from AoW 1) will be identified. Participatory approaches and geospatial tools will be used to define Living Landscapes and identify priority areas where investment should be prioritized. Criteria for prioritization will be co-defined with local communities and other landscape actors. This will encourage MFL stakeholders to co-purpose and ownership and facilitate co-designing solutions (AoW 1). Collaboration with AoW 5) will encourage inclusive decision-making processes and activities. An example output will be Living Landscapes established across the Program intervention areas and priority areas of investment identified.

### 6.2.2. Holistic assessment and visioning of each MFL.

Holistic assessments to characterize landscapes, socioeconomic and institutional conditions, and stakeholder and relationship (agency, power, political economy) analysis will be undertaken. These assessments will guide the co-development of the Program vision for maximum benefits. Citizen science, remote sensing, socioeconomic surveys, and geospatial analysis tools will be used to undertake the socioecological characterization and visioning exercise. Associated political economy and other influencing factors, key stakeholders and their relations, interaction points (e.g., MSPs), and engagement incentives will be considered.

### 6.2.3. Optimization and bundling of sustainable landscape use and management solutions.

Building on CGIAR experiences and newly developed approaches such as optimal landscape configuration,<sup>42</sup> Sub-AoW 2.3 will facilitate MFL stakeholders to prioritize and bundle solutions (AoW 1 eco-agrifood system solutions) reflecting land use and land management priorities, using option by context, to optimize landscape multifunctionality. Dimensions of stakeholder behavior change will be considered using serious games to enhance learning, simulating land-use scenarios, and enabling stakeholders to explore trade-offs between agriculture, biodiversity, and ecosystem services. 'What-if' scenarios will be used to assess potential changes in MFL services and associated benefits. Tools such as FABLE (Food, Agriculture, Biodiversity, Land and Energy),<sup>43</sup> adapted for subnational and landscape-level analyses will be used to develop pathways, guide

<sup>41</sup> Meyfroidt, Patrick; de Bremond, Ariane; Ryan, Casey M.; Archer, Emma; Aspinall, Richard; Chhabra, Abha; Camara, Gilberto; Chowdhury, Rinku Roy; Corbera, Esteve; DeFries, Ruth; Diaz, Sandra; Dong, Jinwei; Ellis, Erle C.; Erb, Karl Heinz; Fisher, Janet A.; Garrett, Rachael D.; Golubiewski, Nancy E.; Grau, H. Ricardo; Grove, J. Morgan; Haberl, Helmut; Heinemann, Andreas; Hostert, Patrick; Jobbagy, Esteban G.; Kerr, Suzi; Kuemmerle, Tobias; Lambin, Eric F.; Lavorel, Sandra; Lelle, Sharachandra; Mertz, Ole; Messerli, Peter; Metternicht, Graciela; Munroe, Darla K.; and Nagendra, Harini. "Ten facts about land systems for sustainability" (2022). *Geography*. 566. [https://commons.clarku.edu/faculty\\_geography/566](https://commons.clarku.edu/faculty_geography/566)

<sup>42</sup> Boesing AL, Klaus WJ, Neyret M, Provost GJ, Peter S, Fischer M, Manning P. (2024). Identifying the optimal landscape configuration for landscape multifunctionality. *Ecosystem Services* 67, 101630. <https://www.sciencedirect.com/science/article/pii/S2212041624000366?via%3Dihub>

<sup>43</sup> The Food, Agriculture, Biodiversity, Land-Use, and Energy (FABLE) Consortium. 2017. <https://fableconsortium.org/>

scenario analyses, and support reporting commitments. Modeling will optimize production-conservation objectives by integrating land-sharing and land-sparing strategies under a landscape connectivity lens. The main output will be bundled solutions optimized for different land-use types and socioeconomic settings.

#### 6.2.4. Multistakeholder participatory landscape plans.

Building on the above assessments and reflecting on the agreed vision and investments, inclusive scale-appropriate land- and water-use and management plans will be facilitated by adapting existing tools and methodologies. Biophysical, socioeconomic, market, institutions, and other variables will be integrated to develop suitable land- and water use plans. Water-allocation tools will optimize water use and healthy river basins. Depending on the landscape type, these processes may be led by the government, Indigenous Peoples, land users, or other stakeholders. Wherever possible, collective action and agency will be built including targeted interventions to resolve land-use conflicts and build peace. The main output will be comprehensive scale-appropriate MFL land and water-use plans.

#### 6.2.5. Building and strengthening MFL governance and coordination.

To implement the MFL land and water use plans, Sub-AoW 2.4 will support multi-level, inclusive governance, management, and

coordination of institutions, structures, and processes working with authorities as appropriate. These governance structures may be polycentric in nature. They will likely rely on collective action and agency that may need strengthening. AoW 5 will support pre-implementation capacity building for those who need it to improve their participation and non-discrimination principles will be applied. In working with the government at multiple scales and building on previous CGIAR work. Sub-AoW 2.5 will explore approaches to improve tenure security across spatially differentiated landholding units and nested hierarchies of governance and use units. The broader landscape-level governance is more likely to be focused on coordination, and at lower levels (sub-units) on decision-making, rules, regulations, and management. The main outputs are multilayered land-use plans, governance, and coordination mechanisms.

#### Partnerships

Engaging and co-designing with all land users is key for sustainability. We will continue to work closely with national and local governments, and land-user organizations and support research and extension services to ensure successful land and water use planning and implementation. National and international land-focused actors will play supporting roles. AoW 2 is the arena where our other AoW come together, as well as components of other CGIAR Programs and Accelerators.

**Table 6.2.** Partnerships

#### AoW outputs and intermediate AoW outcomes

Statement	Partners and roles
OP2.1. Living Landscapes strengthened or established.	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – co-assess and establish Living Landscapes and facilitate learning</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs – linking with their interventions, particularly in same or close sites</li> <li>• AoW 2 – integrates bundles of eco-agrifood systems solutions developed and strengthened in AoW 1</li> </ul>
OP2.2. A multistakeholder vision for each multifunctional landscape and broad landscape sub-units.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – develop an MFL shared vision and broad landscape sub-units</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – facilitate a shared MFL vision and sub-units</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; Climate Action Programs, and Digital Transformation; and Gender Equality and Inclusion Accelerator – material flows and interactions from farm to landscape, integration of climate adaptation and mitigation, use of digital tools, and capacity building on GESI</li> <li>• AoW 2 – use visionary and assessment tools developed in AoW 6 and draw from land-use needs identified in other AoW</li> </ul>
OP2.3. An integrated multilayered land and water use plan for each multifunctional landscape.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital actors, consumers, the private sector, local, regional, and national governments, and local communities – develop a multilayered land and water use plan</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – facilitate the development of a multilayered land and water use plan</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs – linking with their interventions, particularly in close or same sites Gender Equity and Inclusion Accelerator – capacity building on GESI</li> <li>• AoW 2 – draw from the development of GESI and gender-transformative tools and approaches developed in AoW 6 to ensure women and marginalized groups actively participate in the planning process The land and water use plan produced will guide interventions in the other AoW</li> </ul>
OP2.4. Appropriate inclusive governance, management, and coordination structures.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities - develop a shared MFL vision and broad landscape sub-units</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments - facilitate a shared MFL vision and sub-units</li> <li>• Sustainable Farming and Sustainable Animal and Aquatic Foods Programs – linking with their interventions, particularly in close or same sites Gender Equity and Inclusion Accelerator – capacity building on GESI and scaling of approaches linking to Scaling Accelerator</li> <li>• AoW 2 – draw from the development of GESI and gender-transformative tools and approaches developed in AoW 6 to ensure women and marginalized groups actively participate in governance, management, and coordination structures</li> </ul>

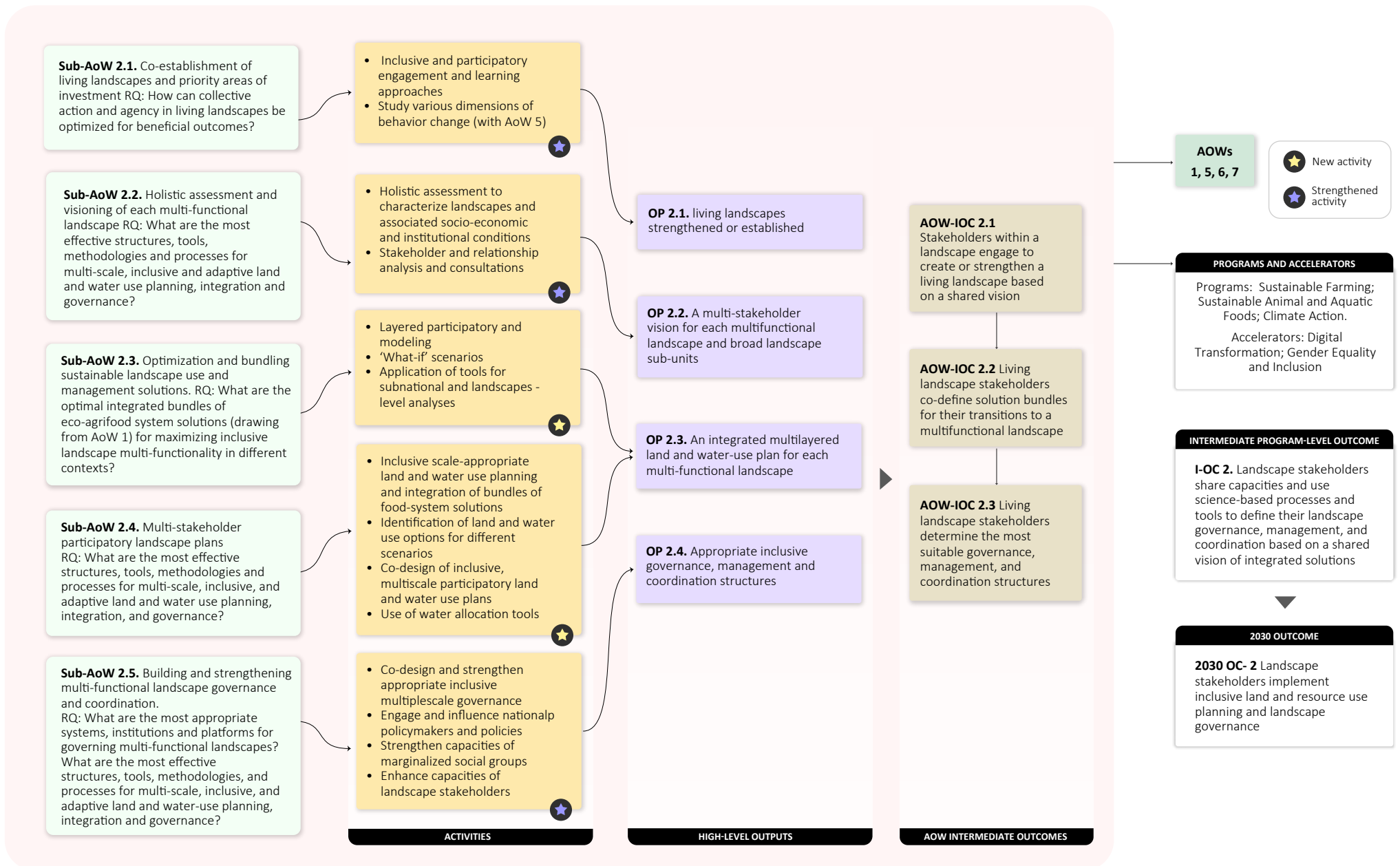
## Intermediate Program-level outcomes and 2030 outcomes

Statement	Actors and roles	Assumptions
AoW-IOC 2.1. Stakeholders within a landscape engage to create or strengthen a Living Landscape based on a shared vision.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, local communities – develop an MFL shared vision and broad landscape sub-units and participate in Living Landscape learning</li> <li>• Scientists from academia and NARES, NGOs and development organizations, local, regional, and national governments – co-assess and establish Living Landscapes and facilitate a shared MFL vision and sub-units</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs – link with their interventions particularly in the same or close sites</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders are able to reach a consensus.</p>
AoW-IOC 2.2. Living Landscape stakeholders co-define solution bundles for their transitions to MFLs.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital actors, consumers, private sector, local, regional, and national governments, and local communities - co-define solution bundles</li> <li>• Scientists from academia and NARES, NGOs and development organizations, local, regional, and national governments – facilitate the co-defining of solution bundles</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs; Digital Transformation; and Gender Equity and Inclusion Accelerator – material flows and interactions from farm to landscape, integration of climate adaptation and mitigation, use of digital tools, and capacity building on GESI</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders are able to reach a consensus.</p>
AoW-IOC 2.3. Living Landscape stakeholders determine the most suitable governance, management and coordination structures.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, local communities – determine and participate in suitable governance, management, and coordination structures</li> <li>• Scientists from academia and NARES, NGOs and development organizations, local, regional, and national governments – facilitate the co-defining of solution bundles</li> <li>• Sustainable Farming and Sustainable Animal and Aquatic Foods Programs – linking with their interventions, particularly in close or same sites Gender Equity and Inclusion Accelerator – capacity building on GESI</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders reach a consensus.</p> <p>Government provides the enabling policy framework for suitable governance, management, and coordination structures.</p>
I-OC 2. Living Landscape stakeholders share capacities and use science-based processes and tools to define their landscape governance, management and coordination based on a shared vision of integrated solutions.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, local communities – share capacities and use Program processes and use tools to define their governance, management, and coordination</li> <li>• Scientists from academia and NARES, NGOs and development organizations, local, regional, and national governments – capacity sharing and use of tools to define their governance, management, and coordination</li> <li>• Sustainable Farming and Sustainable Animal and Aquatic Foods Programs – link with their interventions particularly in close or same sites Gender Equality and Inclusion Accelerator – capacity building on GESI</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders’ capacities are built to a degree that they can use tools and processes.</p>

2030 Outcome

#	Statement	AoW	Partners and roles	Assumption	Indicator and target
2030 OC- 2.	Landscape stakeholders implement multifunctional land-, and natural resource use, planning, and landscape governance.	2, 5, 6, 7	<ul style="list-style-type: none"> <li>• Academia, ARIs, NARES – guide implementing land-use plan and governance</li> <li>• NGOs and development organizations – support the implementation of land-use plan, governance, and coordination</li> <li>• Regional, national governments, and authorities, and civil society – implement land-use plan and governance, create enabling conditions, coordinate efforts, incentivize success</li> <li>• AoW 5 – assure GESI and Fairness approaches are incorporated</li> <li>• AoW 6 – provides insights and recommendations on the performance of co-developed solutions and innovations</li> <li>• AoW 7 – develops high-level capacity-sharing resources and opportunities, as well as an engagement framework</li> <li>• Sustainable Farming; Sustainable Animal and Aquatic Foods; and Climate Action Programs; Digital Transformation; and Gender Equality and Inclusion Accelerators – share tools, approaches, knowledge and resources, collaborate in research</li> </ul>	<p>Science-based processes and tools can be adapted to fit the needs of stakeholders beyond living landscapes.</p> <p>Program partners can effectively engage with and influence decision-makers at national and regional levels.</p>	Improved multifunctional land and water use planning and governance across more than 15 million hectares of land and water bodies by 2030.

Figure 4. AoW 2: Landscape Planning and Governance



### 6.3. AoW 3: Markets and business models

AoW 3 envisions market actors co-creating knowledge on markets and consumer preferences and co-developing inclusive business models and financial mechanisms for the MFL solutions co-developed under AoW 1. It supports visions toward resilient livelihoods (as identified under AoW 2) by focusing on the financial and economic viability of landscape approaches. AoW 3 achieves its vision through improved market and non-market incentives with innovative financing schemes to enhance landscape multifunctionality and improve access to sustainable food and non-food products. AoW 3 will co-promote territorial markets<sup>44</sup> as key retail hubs/outlets for accessing fresh and healthy diets. It will further work with stakeholders to create green business opportunities and income-generating activities by monetizing ecosystem services.

AoW 3 activities, combined with AoW 4 solutions on enabling policy and institutional environment, will leverage market incentives for MFL development by (a) building on AoW 1 to identify and assess livelihood, market, and value chain opportunities that strengthen community-led initiatives and (green/circular) entrepreneurship; (b) influencing consumer choices and stimulating societal demand for ecosystem services through market-based mechanisms; and (c) co-designing innovative financial mechanisms and incentives to reward sustainable land use, conservation and restoration practices.

AoW 3 will address the following research questions:

- What innovative market mechanisms can be co-designed and implemented, and in what ways can they harness consumer preferences for nutritious biodiversity-based goods and services while promoting agroecology, landscape restoration, and sustainable livelihoods?
- What are the most effective ways of strengthening the organizational capacity of farmers, foresters, herders, and aquatic food producers, and what targeted investments are needed to empower these communities/organizations to build resilient livelihoods?
- How can ecosystem services' economic and non-economic values be measured and captured through market mechanisms and policy instruments to ensure their equitable distribution and inform sustainable landscape management?
- What are the environmental, social, and economic trade-offs associated with scaling biodiversity-based markets, and how can these be mitigated to ensure sustainable outcomes for landscapes and communities?

AoW 3 recognizes that some of the previous questions overlap with other Programs. It will thus work with AoW 2 of the Policy Innovations Program to focus on market-driven transformations and investments and refine general frameworks for ecosystem service valuation. AoW 4 of the Scaling for Impact Program addresses financing and partnerships, which AoW 3 will further develop for multiple landscape actors and biodiversity restoration.

Emergent and unique Areas of Work of this AoW will thus include: (a) innovative market mechanisms for biodiversity-based goods and services; (b) inclusive restoration-business models and their incubation; (c) economic and financial valuation of ecosystem services and disservices (d) scenario planning and impact assessment

of trade-offs related to scaling biodiversity-friendly market mechanisms; and (e) practical protocols for the co-design and implementation of sustainable business model with stakeholders.

AoW 3 is organized into four Sub-AoWs. Table 6.3 and Figure 6.3 summarize key activities and outputs.

#### 6.3.1. Strengthening producer organizations, communities, and other local actors in entrepreneurship and management

Sub-AoW 3.1 will (a) engage with communities to envision and identify livelihood opportunities, assess capacities, and prioritize needs; (b) co-create and co-design vision-to-action strategies to strengthen communities, producer organizations within landscapes through back-casting approaches; (c) support the implementation of *ad hoc* organizational innovations based on diagnostics and priorities; (d) continue Initiatives engagement with regional and national platforms to support developing business models for multifunctional landscapes; and (e) engage in business events and facilitate partnerships with business and other private actors and entrepreneurs. As an output, capacity-strengthening plans will be co-produced and delivered for producer organizations and other key stakeholders per landscape to operate feasible businesses or conservation operations. These will (a) boost the capacity and performance of farmer and aquatic food producer groups and other MFL stakeholders; and (b) enable communities, aquatic food producers and farmers' organizations, and landscape stakeholders to harness markets for MFLs.

#### 6.3.2. Analyzing markets, market strategies, consumer preferences, and business model opportunities.

Sub-AoW 3.2 activities will include (a) developing market analyses of agroecological products and services in the target landscapes, selecting high-potential products, and conducting complementary analyses to identify challenges and opportunities; (b) analyzing local, regional, and international consumers' preferences, behaviors, and characteristics related to nutritious landscape products; (c) analyzing the relevance and potential impact of innovative market strategies to promote a diversity of landscape products; (d) testing and analyzing the impact and feasibility of these innovative market strategies, including producers' preferences for adopting core sustainable practices related to landscape restoration; (e) identifying, strengthening and co-implementing sustainable business models for production, processing, and marketing, and promoting inclusive market linkages with producer groups and institutional buyers. Expected outputs include tools and methods for (a) market analyses for key multifunctionality options at the landscape level; (b) annotating consumers' profiles and preferences for key ecosystem goods and services; and (c) assessing innovative market mechanisms and non-market incentives; (d) opportunities for youth entrepreneurship and or employment of youth in SMEs created.

#### 6.3.3. Assessing and capturing the economic value of ecosystem services.

Sub-AoW 3.3 activities include (a) assessing the value of the most relevant and promising ecosystem services generated in the target landscapes; (b) identifying inclusive market mechanisms that allow monetizing environmental and capturing social values derived from the sustainable practices; (c) identifying non-market mechanisms and institutional arrangements that allow capturing environmental and social value derived from sustainable practices; (d) determining the feasibility of the most promising identified market mechanisms, and piloting them in different contexts; (e) determining the

<sup>44</sup> FAO (2013). Mapping of territorial markets - Methodology and guidelines for participatory data collection. Third edition. Rome. <https://doi.org/10.4060/cb9484en>

contribution of the ecosystem service compensations to stakeholders' livelihoods; and (f) analyzing adoption (and scaling) potential by assessing how many livelihoods can be supported by adopting specific practices and assessing the carrying capacity of the target landscapes. Expected outputs include (a) sustainable agricultural systems and other management practices analyzed with a market lens; (b) tools developed and value of major ecosystem services quantified; and (c) inclusive market mechanisms for monetizing ecosystem services developed and co-implemented.

### 6.3.4. Financial mechanisms to support landscape transformation.

Sub-AoW 3.4 activities include (a) conducting cost-benefit (CBA) and risk analyses, and developing enabling environments and incentives for sustainable agricultural systems and other management practices (e.g., landscape restoration); (b) analyzing the financial ecosystem and potentially suitable financial instruments and services at landscape and subnational levels (collaborate with CGIAR Hub for Sustainable Finance); (c) co-design/adapt or link financial mechanisms with MFL stakeholders, and (d) analyzing the scaling potential of practices in the

target landscapes (in the form of policy brief). Expected outputs include (a) the financial ecosystem for each MFL assessed, and promising innovative options identified; (b) partnership agreements established with financial institutions; (c) pilots conducted for new financial services or products linked with MFL actors; and (d) operational guidelines and a toolbox developed to support training and scaling.

### Partnerships

AoW 3 brings together producer groups, financial institutions, NGOs and governments to co-design, implement, and support sustainable business through training, market analysis, and valuation of ecosystem services. To this end, CGIAR, together with universities and ARIs, will take the lead in generating scientific knowledge, developing tools, and creating innovative financial mechanisms that link ecosystem services to sustainable landscape management. CGIAR's unique strength lies in integrating research with practical solutions, enabling impact at scale while complementing other actors by co-developing knowledge, fostering and catalyzing partnerships, and building local capacity without duplicating efforts.

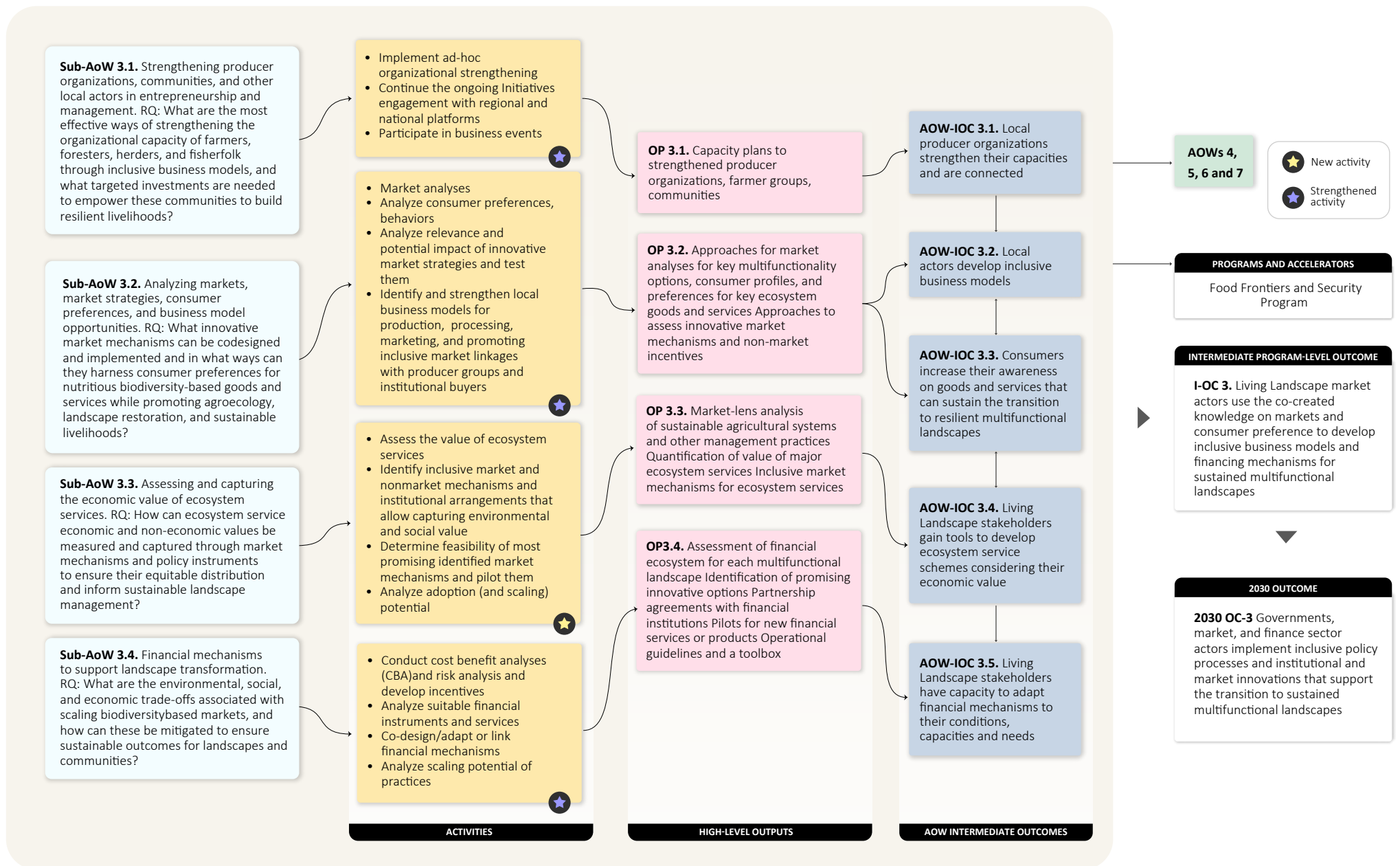
**Table 6.3.** Key partners and associated areas of collaboration to achieve defined outputs

Statement	Partners (including internal) and roles
OP3.1. Reports of producer organizations per landscape that were strengthened and conduct feasible businesses or conservation operations; Farmer groups capacity and performance assessments; Training packages and trainings.	<ul style="list-style-type: none"> <li>• Producer organizations, farmer groups, and businesses – participate in training, co-design, and develop business models</li> <li>• Financial institutions – support producer organizations or other key actors in the territory in developing feasible and inclusive businesses</li> <li>• Government, NARES – create enabling conditions for businesses to thrive</li> <li>• NGOs, and development organizations – support farmer groups and cooperatives to promote their business</li> <li>• ARIs, and universities – support co-developing business models develop training materials, packages, guidelines, and conduct trainings</li> <li>• AoW 7 – supports the co-development and sharing of learning resources, partners with academia to co-develop and share scientific evidence, and trains scientists</li> </ul>
OP3.2. Market analyses for key multifunctionality options at the landscape level; Consumer profile and preferences for key ecosystem goods and services; Assessment of innovative market mechanisms and non-market incentives.	<ul style="list-style-type: none"> <li>• Producer organizations, farmer groups, and businesses – avail quality (nutritional and environmental) products for consumers by combining market information</li> <li>• Financial institutions – support producer organization's production of quality products</li> <li>• Government, NARES, – create enabling conditions for market and non-market incentives</li> <li>• NGOs and development organizations – influence consumer preferences on ecosystem services and create market linkages</li> <li>• CGIAR, ARIs, and universities – provide consumers with info about ecosystem services and create market linkages</li> </ul>
OP3.3. Assessment of the economic value of ecosystem services in the MFL; Pilots of innovative financial mechanisms linked with MFL actors; Operational guidelines and toolbox.	<ul style="list-style-type: none"> <li>• Producer organizations, farmer groups, and businesses – have information about the ecosystem services they generate and what it means in monetary value</li> <li>• Financial institutions – support farmers, and producer organizations in accessing payment for environmental services</li> <li>• Government, NARES – support ecosystem valuation and awareness creation and piloting financial mechanisms, operationalize implementation guidelines</li> <li>• NGOs and development organizations – support the valuation of ecosystem services and piloting financial mechanisms</li> <li>• CGIAR, ARIs, and universities – support the valuation of ecosystem services and financial mechanisms, develop toolbox/DST that values ecosystem services and monitors over time, and develop operational guidelines</li> </ul>
OP3.4. Scientific knowledge; partnership and financial agreements with institutions; operational guidelines and toolbox.	<ul style="list-style-type: none"> <li>• Government, NARES – access and use scientific knowledge to promote and prioritize investments, maximize gains, and sign partnership agreements with relevant actors in the areas of sustainable landscape management and eco-agrifood system transformation, operationalize tools using guidelines related to financial mechanisms</li> <li>• NGOs and development organizations - support the application and dissemination of scientific knowledge in the areas of market and financial mechanisms to support sustainable landscape management and eco-agrifood system transformation</li> <li>• CGIAR, ARIs, and universities – co-create and manage knowledge related to market and financial mechanisms to support sustainable landscape management and eco-agrifood system transformation, and facilitate key transformative partnerships</li> </ul>

Statement	Partners (including internal) and roles	Assumption
<p>AoW-IOC 3.1. Local producer organizations strengthen their capacities and are connected.</p>	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, producer organizations, farmer groups, cooperatives, consumers, and local communities – utilize their connections to share experiences and to get market info</li> <li>• Private sector – connect actors to markets and other essential services, facilitate financial mechanisms</li> <li>• Local, regional, and national governments – strengthen the capacities of market actors and create enabling conditions for financial incentives and market access</li> <li>• Financial institutions – provide viable and accessible market incentives</li> <li>• Government, NARES – create an enabling environment for market actors</li> <li>• NGOs and development organizations - build capacity, and facilitate connection and interaction between actors</li> <li>• Scientists from academia, ARIs – develop information on market opportunities</li> </ul>	<p>MFL stakeholders are willing to collaborate and share experiences.</p> <p>MFL stakeholders can reach a consensus.</p> <p>Government provides the enabling policy framework to incentivize these activities.</p>
<p>AoW-IOC 3.2. Local actors develop inclusive business models.</p>	<ul style="list-style-type: none"> <li>• Private sector – co-develop inclusive business models</li> <li>• Local, regional, and national governments, NARES – support operationalizing business models by creating enabling conditions</li> <li>• Financial institutions – provide incentives to operationalize business models</li> <li>• NGOs and development organizations – create awareness and support operationalizing business models</li> <li>• Scientists from academia, and ARIs – co-develop tailored business models, generate evidence of performance, and communicate success for learning and scaling</li> </ul>	<p>Stakeholders involved are engaged in the design and development of the activities.</p>
<p>AoW-IOC 3.3. Consumers increase their awareness of goods and services that can sustain the transition to resilient MFLs.</p>	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, producer organizations, farmer groups, cooperatives, consumers, and local communities – produce quality products combined with market information</li> <li>• Private sector – establish linkages between ‘demand and supply’ for goods and services</li> <li>• Local, regional, and national governments, NARES – support linking farmers and other market actors with consumers</li> <li>• Financial institutions – incentivize those who produce sustainable and inclusive goods and services</li> <li>• NGOs and development organizations – support linking demand and supply</li> <li>• Scientists from academia, ARIs – develop evidence of ‘eco-friendly’ production methods and means to link with consumers</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>All involved actors are willing to share and learn from the process and information.</p>
<p>AoW-IOC 3.4. Living Landscape stakeholders gain tools to develop ecosystem services schemes considering their economic value.</p>	<ul style="list-style-type: none"> <li>• Producer organizations, farmer groups, extensionists, and local communities – gain information about the ecosystem services they generate and what it means in monetary value</li> <li>• Financial institutions – support farmers, and producer organizations in accessing payment for environmental services or other related products</li> <li>• Government, NARES – support ecosystem valuation and awareness creation and piloting financial mechanisms, operationalize implementation guidelines</li> <li>• NGOs and development organizations – support the valuation of ecosystem services and piloting financial mechanisms</li> <li>• CGIAR, ARIs, and universities – support the valuation of ecosystem services and financial mechanisms, develop toolbox/DST that values ecosystem services and monitors over time, and develop operational guidelines</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders’ capacities involved are built to a degree that they can implement these tools.</p> <p>Government provides the enabling policy framework to develop and implement the ecosystem services schemes.</p>
<p>AoW-IOC 3.5. Living Landscape stakeholders have capacity to adapt financial mechanisms to their conditions, capacities, and needs.</p>	<ul style="list-style-type: none"> <li>• Producer organizations, farmer groups, and local communities – have financial support to deliver goods and services</li> <li>• Financial institutions – incentivize market actors to engage in sustainable eco-agrifood system transformation</li> <li>• Government and NARES – create an enabling environment</li> <li>• NGOs and development organizations – facilitate adaptation of tailored financial mechanisms</li> <li>• CGIAR, ARIs, academia – design guidelines for sustainable finance</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders have enough capacity to implement financial mechanisms.</p> <p>Government provides the enabling policy framework to develop and implement these mechanisms.</p>
<p>I-OC 3. Living Landscape market actors use the co-created knowledge of markets and consumer preferences to develop inclusive business models and financing mechanisms for sustained MFLs.</p>	<ul style="list-style-type: none"> <li>• Private sector – co-develop inclusive business models and financial mechanisms</li> <li>• Local, regional, and national governments, NARES – support operationalizing business models by creating enabling conditions</li> <li>• Financial institutions – provide incentives to operationalize business models or other market mechanisms</li> <li>• NGOs and development organizations – create awareness and support operationalizing organizations and business models</li> <li>• Scientists from academia, and ARIs – co-develop tailored business models, generate evidence of performance, and communicate success for learning and scaling</li> </ul>	<p>The MFL stakeholders articulate their efforts effectively to co-design, develop, implement, and scale market and financial innovations.</p> <p>All involved actors are willing to share and learn from the process and information.</p>

#	Statement	AoW	Partners and roles	Assumption	Indicator and target
2030 OC-3.	Governments, market and finance sector actors implement inclusive policy processes and institutional and market innovations that support the transition to sustained MFLs.	3,4,6	<ul style="list-style-type: none"> <li>• Scientists from academia, ARIs, and NARES – co-develop business models and financial mechanisms</li> <li>• Venture capital actors and consumers – define their needs and preferences to account for the business model</li> <li>• The private sector – define their needs and preferences to account in business model</li> <li>• NGOs and development organizations – support business model development</li> <li>• Local, regional, national governments, authorities, and civil society – support business model development for finance</li> <li>• The financial sector – provides guidance on business models, and supports finance for sustained implementation and scaling</li> <li>• AoW 2 – facilitates the interaction of co-designed innovations with land and water use planning and coordination</li> <li>• AoW 5 – supports with approaches to improve Fairness and GESI in the planning, governance, and coordination processes of MFLs</li> <li>• AoW 6 – assesses synergies and trade-offs with landscape stakeholders</li> <li>• AoW 7 – supports the development of training resources and knowledge-sharing processes</li> <li>• Food Frontiers and Security Program – shares tools, approaches, knowledge, and resources, and collaborates in research</li> </ul>	<p>Program partners can effectively engage with and influence decision-makers at national and regional levels.</p> <p>Inclusive market mechanisms and policy processes will result in scalable and sustainable multifunctional landscapes.</p>	(a) Empower communities, producer organizations, consumers, and other landscape actors in 8 MFLs, through improved market mechanisms and strategies to enhance multifunctionality; (b) improve access to food and non-food products for 8 MFLs; (c) Monetize ecosystem services in 8 MFLs; (d) develop scalable business models which will support enhanced access sustainable finance (PES, carbon credit, biodiversity finance) in at least 8 MFLs.

Figure 5. AoW 3: Markets and Business Models



## 6.4. AoW 4: Institutions and policies

AoW 4 envisions national governments and local policy actors in target countries using evidence from collaborative research for policy processes and investment prioritization. This AoW arises from the need to (a) support high-level coordination among public landscape actors (in collaboration with AoW 2) to further enable ecosystem service valuation (in collaboration with AoW 3 and AoW 6); (b) foster effective frameworks for polycentric governance (in collaboration with AoW 2) that redresses power imbalances and social exclusion (in collaboration with AoW 5) at landscape level; (c) improve policy effectiveness and coherence and prioritize public investments in nature, such as biodiversity and other natural resources; and (d) recognize property rights through different tenure systems, paying attention to socially excluded groups, gender, and youth within the mosaic of tenure types (private and collective) and landscape elements.

AoW 4 will achieve the vision through activities that co-produce demand-driven evidence and tools for use by subnational and national policy actors, governments, and other decision-makers. It will continue to inform inclusive, multiscale policies, strategies, and investments that sustainably support the transition to MFLs. It will work with the Policy Innovations Program (particularly AoW 3 on political economy and governance) and with policy actors to demonstrate how policies and institutions can deliver improved development and growth outcomes in line with their priorities.

AoW 4 will address the following research questions:

How do existing national policies, strategies, programs, incentives and investments support or hinder MFLs and the adoption of agroecology, nature-positive and regenerative approaches? How can policies be improved by addressing gaps (e.g., resource tenure security), inconsistencies, or barriers (e.g., power imbalances)?

- What ex ante and ex post impact assessment evidence can be co-generated to improve the effectiveness of and reduce trade-offs associated with alternative policy or investment options for integrating landscape components?
- What are key subnational incentives and political economy barriers that influence policymaking and implementation related to MFLs, agroecology, and nature-positive outcomes? How can relevant subnational stakeholders be effectively engaged to address local priorities and support the overall policy change process from their local perspective?
- What institutional arrangements and coordination mechanisms, across sectors and levels of government, can improve collaborative efforts for effective policy design for sustainable MFL implementation, and M&E at national and subnational levels?

AoW 4 responds to global calls for stronger policy foundations and evidence to advance and stimulate agroecology and restoration approaches. There is a growing interest in agroecology policy, highlighting the need for consistent policy outcome frameworks and impact measurement to guide future policy making, evaluation, and change.

**Emerging Areas of Work** include stakeholder mapping, power mapping, political economy analysis<sup>45</sup> of policy landscapes and processes, and ex ante and ex post impact assessment of alternative policy or investment options. These will help identify what needs to change, how to change, and options for change and potential effects on outcomes. The results will be used by governments, donors, and civil society. New research will assess the performance and trade-offs of alternative policy and investment options when integrating landscape components.

CGIAR's global research capacity as the largest agricultural innovation network, coupled with strong national presence and partnerships, provides a strong comparative advantage to influence existing policy, investment, and policy research agendas at the national and landscape levels. Multifunctional Landscapes Program is well placed to respond to these issues given the experience and expertise of the contributing Initiatives already supporting policymakers in institutional and political economy analyses, evidence-based policy formulation and implementation, policy engagement, and capacity strengthening. For the particular case of landscape transformations, AoW 3 and AoW 4 of the Multifunctional Landscapes Program will collaborate with Sub-AoW 2 of the Policy Innovations Program to examine how policies can shape market incentives for sustainable landscape uses.

Working with other AoWs (particularly AoW 2, 3, and 6), AoW 4 research will provide insights into what policy and institutional changes are needed to support and advance MFLs.

AoW 4 is organized into three Sub-AoWs.

### 6.4.1. Policy analysis and evidence to inform policy changes.

Sub-AoW 4.1 will conduct policy analysis; co-generate evidence to inform policy change; assess alternative policy or investment options and identify priorities and entry points for change. Activities include research on policy effectiveness and coherence, institutional barriers, ex ante trade-off analysis, and true-cost accounting, aligned with agroecology and nature-positive outcomes, process evaluation, and impact assessment. Outputs include (i) evidence to inform policies in different contexts, ensuring consistency with AoW 1 restoration and conservation approaches and AoW 5 Fairness, gender equality and social inclusion; (ii) guidance for large-scale strategies, incentive mechanisms and investment programs for MFLs; (iii) recommendations for national policies and institutional development strategies supporting MFLs; (iv) strategies for policy reform and implementation based on political economy and institutional analyses; and (v) multi-criteria decision support tools and approaches for prioritizing MFL investments.

### 6.4.2. Engagement, coordination, and capacity to drive MFL policy processes.

Sub-AoW 4.2 aims at strengthening policy engagement and cross-sectoral coordination, improving the capacity of actors at different levels to engage in policy dialogue and decision-making, and empowering local actors to advocate for, implement, and assess MFLs and related policies. Activities include (i) conducting joint policy process research and political economy analysis of landscape transformation; (ii) facilitating science-policy dialogues, platforms,

<sup>45</sup> Mockshell, J.; Resnick, D.; Omulo, G.O.; Blanco, M.; Nicol, A. (2023). Political Economy and Policy Analysis (PEPA) Sourcebook. A guide to generating evidence for National Policies and Strategies (NPS) for food, land, and water systems transformation. Cali (Colombia): International Center for Tropical Agriculture (CIAT), Washington DC (USA): International Food Policy Research Institute (IFPRI), 60 p.

and broad partnership building; (iii) strengthening capacity for policy engagement and advocacy and coordination for MFLs. Outputs include (i) evidence-based recommendations for driving MFLs policy processes; (ii) strategies and platforms for engaging local and subnational actors within policy change processes and enhancing coordination across sectors and scales; (iii) action plans or roadmaps for policy change and partnerships; and (iv) toolkits for localized policy implementation and advocacy.

### 6.4.3. Institutional and structure analysis.

Sub-AoW 4.3 focuses on examining which institutions at the (sub)national level can best support diverse functions and actors within landscapes for promoting agroecology, regenerative agriculture and nature-positive solutions. The analyses focus on identifying institutional challenges and opportunities (such as property rights), and linkages with national policy processes, to deliver landscape transformation at scale. Additional analyses will identify coordination mechanisms and other institutional structures that help advance MFLs at national and subnational levels. Activities include (i) implementing institutional analyses of multiple landscapes to understand the opportunities and gaps in existing institutions in terms of their contribution to MFLs; (ii) identifying alternative/improved institutions and structures that

overcome coordination barriers and enhance coordination; (iii) piloting experimental approaches to test elements of institutions (e.g., choice experiments and other behavioral experiments), and (iv) strengthening capacity of MFL actors and supporting behavioral change through novel interventions such as experiential learning. Outputs include (i) institutional analyses including insights on drivers and factors that influence incentives for MFLs; (ii) recommendations for improved institutions supporting MFLs such as MSPs; (iii) co-developed strategies for scalable institutions for MFLs; and (iii) tools, approaches and guidebooks for strengthening capacity on MFL institutions and supporting behavioral change.

### Partnerships

To create an enabling environment for MFLs to thrive and scale, we will continue or build partnerships with national and subnational governments, NARES, local or regional policy bodies, academia, and civil society in target countries to co-create evidence-based recommendations for policies, investments, institutions, tools and approaches for capacity strengthening, coordination, policy implementation, engagement, and advocacy. AoW 4 will collaborate with the Policy Innovations Program (particularly AoW 3 and AoW 5), taking advantage of the state-of-the-art analytical tools and policy engagement platforms for research and capacity sharing.

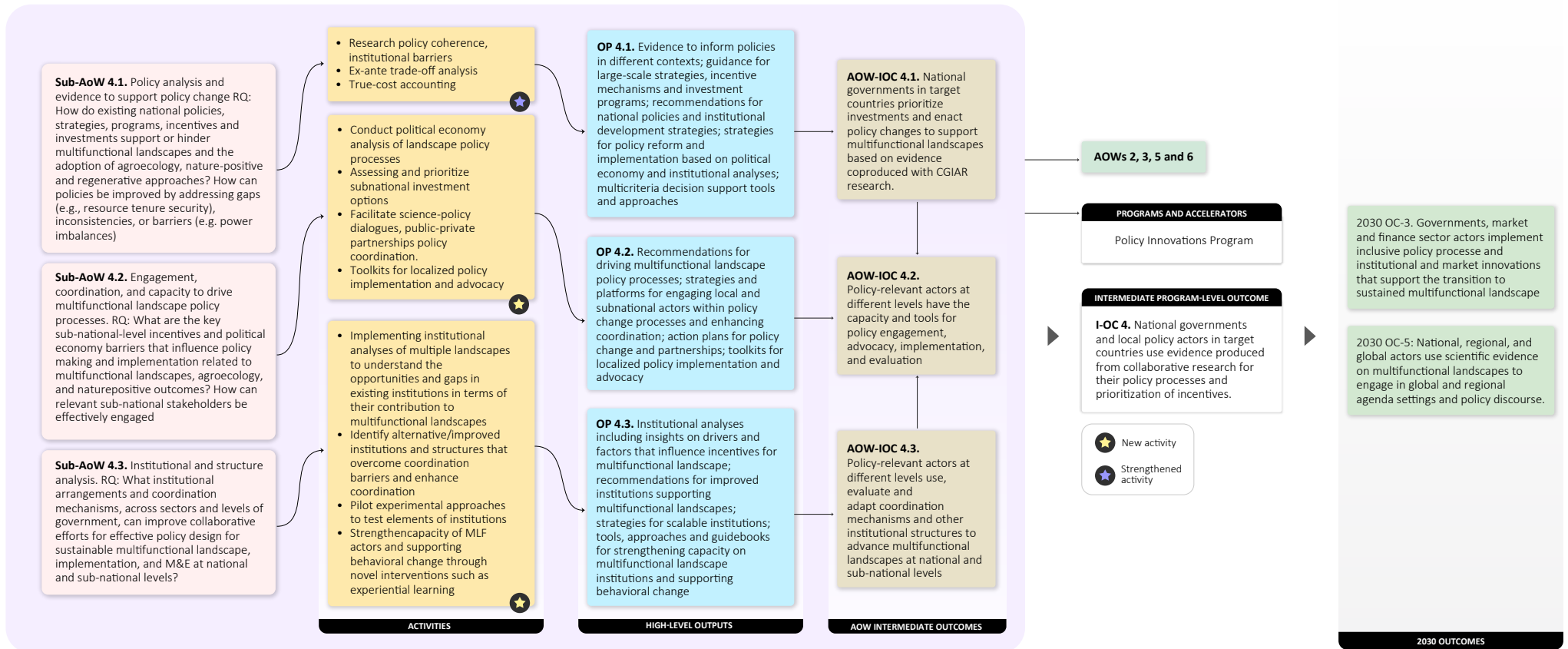
**Table 6.4.** Key partners and associated areas of collaboration to achieve defined outputs

Statement	Partners (including internal) and roles
OP4.1. Evidence to inform policies in different contexts; guidance for large-scale strategies, incentive mechanisms, and investment programs; recommendations for national policies and institutional development strategies; strategies for policy reform and implementation based on political economy and institutional analyses; multi-criteria decision support tools and approaches.	<ul style="list-style-type: none"> <li>• MFL stakeholders – Co-produce knowledge, facilitate engagement between local and national actors and engage in policy advocacy</li> <li>• CGIAR partners – Conduct policy research (e.g., through collaboration with the Policy Innovations Program), political economy analysis, and co-develop decision support tools</li> <li>• Government, NARES, and academia – Co-generate policy evidence; collaborate in political economy and institutional analyses and tools development</li> <li>• NGOs – Facilitate community engagement, stakeholder consultations, and capacity strengthening, build successful cases toward evidence and policy change, and provide support for policy adoption and institutional arrangements</li> </ul>
OP4.2 Recommendations for driving MFL policy processes; strategies and platforms for engaging local and subnational actors within policy change processes and enhancing coordination; action plans for policy change and partnerships; toolkits for localized policy implementation and advocacy.	<ul style="list-style-type: none"> <li>• Government – Engage and collaborate in research on policy processes, implementation, and coordination</li> <li>• NGOs – Support advocacy and engagement with policy actors; facilitate capacity building</li> <li>• Private sector – Engage in partnership building; provide input on investment and legal frameworks needs and opportunities; collaborate on policy and investment strategies</li> <li>• NARES and Academia – Conduct policy analysis and research to inform policy implementation and toolkit development</li> </ul>
OP4.3: Institutional analyses including insights on drivers and factors that influence incentives for MFLs; recommendations for improved institutions supporting MFLs; strategies for scalable institutions; tools, approaches, and guidebooks for strengthening capacity on MFL institutions and supporting behavioral change.	<ul style="list-style-type: none"> <li>• MFL stakeholders – Engage in co-development and validation of tools and provide feedback and rationale for alignment of sectoral policies with landscape objectives</li> <li>• Government – Collaborate in institutional analyses, capacity strengthening, and behavioral change research</li> <li>• Local and regional policy bodies – Ensure that local and customary institutions are integrated into policy analyses and support social learning toward positive behavioral changes</li> <li>• NGOs – Facilitate stakeholder engagement and collaborate on developing tools and approaches for capacity strengthening and behavior change</li> </ul>

Statement	Partners (including internal) and roles	Assumption
AoW-IOC4.1. National governments in target countries prioritize investments and enact policy changes to support MFLs based on evidence co-produced with CGIAR research.	National governments, NARES, and Policy Innovations Program	Governments are receptive to joint research evidence and willing to adapt policies based on findings.
AoW-IOC4.2. Policy-relevant actors at different levels have the capacity and tools for policy engagement, advocacy, implementation, and evaluation.	Subnational governments, NARES, and Policy Innovations Program	Policy actors at different levels have a role to play in support of national policy advocacy and implementation.
AoW-IOC4.3. Policy-relevant actors at different levels use, evaluate, and adapt coordination mechanisms and other institutional structures to advance MFLs at national and subnational levels.	National and subnational governments, NARES, and Policy Innovations Program	Policy actors recognize the importance of cross-sectoral alignment and are motivated and willing to adapt their own mechanisms to MFL principles.

#	Statement	AoW	Partners and roles	Assumption	Indicator and target
2030 OC-3.	<b>I-OC 4</b> National governments and local policy actors in target countries use evidence co-produced from collaborative research for their policy processes and prioritization of incentives.	1,2,36	<ul style="list-style-type: none"> <li>• MFL stakeholders – co-produce knowledge, engage local and national actors, co-develop tools, and advocate for policy alignment</li> <li>• CGIAR partners – conduct policy research, institutional analyses political economy analysis, support capacity strengthening, and co-develop decision support tools</li> <li>• Government – facilitate policy alignment between national and subnational levels, implement policies, and support cross-sectoral coordination</li> <li>• NARES and Academia – collaborate in policy research to inform policy reforms and toolkit development</li> <li>• Customary institutions – integrate local practices into policy strategies and support social learning for behavioral change</li> <li>• Scientists from academia and NARES – support implementing policy and market innovations</li> <li>• The private sector – implements market innovations, engages in partnership building and policy discourse, and collaborates on investment strategies</li> <li>• NGOs and development organizations – support policy implementation and institutional coordination, engage in advocacy, build capacity, support stakeholder consultations, and collaborate in policy and behavioral change research</li> <li>• Regional and national governments and authorities and civil society – implement policy, market innovations, generate evidence, and incentivize success</li> <li>• The financial sector –incentivizes success</li> <li>• AoW 3 – socializes and facilitates the uptake of business models and financial mechanisms</li> <li>• AoW 4 – socializes and facilitates the uptake of institutional coordination mechanisms and policy options</li> <li>• AoW 5 – accompanies the implementation of GESI and Fairness in the socialization and facilitation process</li> <li>• Policy Innovations Program – support policy implementation and prioritizing incentives</li> </ul>	<p>Governments are receptive to research evidence and willing to adapt policies based on our findings.</p> <p>Local policy actors are empowered and supported to engage in policy advocacy and implementation.</p> <p> Policymakers recognize the importance of cross-sectoral alignment. They are actively adapting mechanisms to MFL principles.</p> <p>MFL stakeholders are willing to collaborate and cooperate in generating evidence from research to influence policy and behavior change.</p>	<p><b>Indicators:</b> Number of governance and coordination structures established.</p> <p>Number of local policy actors engaged in policy advocacy and implementation; Number of policy changes or investments prioritized by national governments based on CGIAR research.</p> <p><b>Targets:</b> By 2030, (a) 10 MFLs will have documented and agreed-upon multistakeholder visions for MFLs; (b) sustainable land and water use plans developed and operational in eight target landscapes; (c) inclusive governance structures established in 6 MFLs; (d) 50 local policy actors across five target countries have enhanced capacity for advocacy and implementation; (e) policy coordination mechanisms established and adapted to align with MFL principles in four countries; and seven policies in target countries are influenced by evidence from collaborative research.</p>

Figure 6. AoW 4: Institutions and Policies



## 6.5. AoW 5: Gender equality, social inclusion and fairness

AoW 5 envisions landscape stakeholders integrating GESI and Fairness principles and approaches into processes and practices for MFLs. Inequalities between women and men or on the basis of other dimensions of identity (caste, ethnicity, etc.) and the exclusion of particular social groups from accessing resources or from participating in processes of decision-making, are hampering individual and collective well-being and obstructing rural development in MFLs. Higher levels of Fairness, equality, and social inclusion in MFLs, from the household to the landscape level, will raise the quality of life in rural communities and the overall capacity of populations to innovate and to build and maintain resilient livelihoods and landscapes. We will achieve this vision by leading and exploring innovative and strategic social science research that prioritizes equality and contributes to making MFLs just and inclusive.

AoW 5 research questions include:

- What intersectional gender and social norms impede social inclusion including of women and youth, participation, and leadership across MFL scales?
- What transformative approaches, strategies, and opportunities can reverse such impediments and enhance fair and GESI agrifood systems and MFLs for all stakeholders including women and youth, stimulating innovation and investment for improved livelihoods and resilience to shocks and stresses, considering different trade-offs?
- How can transformative approaches, strategies, and opportunities and strategies be scaled while optimizing fair and GESI principles?
- What are MFL perceptions of 'quality of life' and how can these be best manifested through bundles of eco-agrifood system solutions and supporting interventions?
- How do landscape stakeholders experience 'food sovereignty' and how can this be strengthened across scale, and as a contribution to improving social equities?

CGIAR comparative advantage is the wealth of experience and expertise in gender, social inclusion, and agrifood system development. This Program will work closely with the Gender Equality and Inclusion Accelerator co-identifying, prioritizing, and tailoring processes, practices, technologies, policies, and tools that consider the needs, priorities, and aspirations of women, youth, and indigenous communities and address the structural causes underlying inequality and exclusion.

AoW 5 will work across all AoWs integrating its ambition into all activities and outputs. It will draw from four **emerging research** topics, methods, and approaches:

- 1. Quality of Life.** This is an emerging research topic, that has been shown to influence why some societies, together with their landscapes and food systems, thrive and others do not. A starting point is to understand what 'quality of life' means to the diverse landscape stakeholders, the linkages to actors within and beyond the landscape including rural-urban, and the challenges and opportunities that MFL eco-agrifood systems bundles of solutions provide for improving the quality of life.
- 2. Gender-Transformative Approaches (GTAs).** Based on lessons, GTAs will be adapted, strengthened, and integrated into MFL contexts and associated agrifood system approaches to address and challenge gender inequalities and exclusion of women. It will be supported from household to community to MFL scales.

### 3. Social Equity (particularly youth and Indigenous Peoples).

Building on the Initiatives' work, AoW 5 will build social equity throughout the target MFLs to better understand social equity principles and dynamics, and how they can be best addressed. Particular attention will be paid to youth limited by many structural and youth-specific constraints.

- 4. Food Sovereignty is an emerging topic** responding to global and local challenges that communities face in relation to controlling and accessing their food systems and resources upon which they rely, to support more locally made decisions for boosting food and nutrition security. Food sovereignty is an important condition for equitable and just agrifood systems. Under this AoW the aim is to understand the intersectional and gendered disparities that govern who have influence and decision-making power over different elements (e.g., food products, seed) of current agrifood systems and to co-design strategies to enhance food sovereignty in MFLs.

Change will be achieved through three Sub-AoWs.

#### 6.5.1. Understanding and assessing the potential of Fairness and GESI.

Sub-AoW 5.1 focuses on understanding the current Fairness and GESI situation in each MFL. Activities include: (a) developing or strengthening participatory research tools and methodologies for understanding the context, history, causes, and influences of Fairness and GESI in each MFL, (b) undertaking studies with community members and other stakeholders, (c) reflecting on the results through different platforms and approaches. Outputs include (a) Tools and methodologies for Fairness and GESI analysis in MFLs, (b) Data on Fairness and GESI in MFLs, (c) Community conversations and other stakeholder consultations reflecting on study results.

#### 6.5.2. Innovations and interventions to improve Fairness and GESI in MFLs.

Sub-AoW 5.2 activities include: (a) working with other AoWs to co-design and strengthen quality of life, GTAs, Social Equity and Food Sovereignty innovations and interventions to improve Fairness and GESI for different social groupings in MFLs which target change at different scales (household, community, organizational) including rural-urban linkages, (b) co-implementing innovations and interventions, regularly reflected upon and adaptively managed as necessary, (c) Designing, strengthening and implementing gender-transformative approaches. Outputs include (a) Fairness and GESI innovations (tools, approaches, methodologies, processes) appropriate for MFL and agrifood system solutions, and (b) documentation on the application of Fairness and GESI innovations.

#### 6.5.3. Learning, capacity sharing and scaling.

Sub-AoW 5.3 will focus on scaling tools and approaches in different contexts and using necessary steps. Activities include (a) evaluation and documentation of results of interventions, impact, and lessons learned, including any trade-offs of the approaches on different social groupings; (b) training relevant stakeholders, (c) developing and implementing a strategy for influencing uptake and scaling of these approaches in MFLs. Outputs include (a) Documentation of Fairness and GESI application in MFLs and agrifood system solutions, (b) Guidelines on integrating Fairness and GESI in MFLs, (c) Fairness and GESI approaches scaled.

#### Partnerships

This AoW will be closely with the other AoWs within the Program and the Gender Equality and Inclusion Accelerator. It will also collaborate with partners and women as well as youth organizations, and incubators. Table 6.5 provides details.

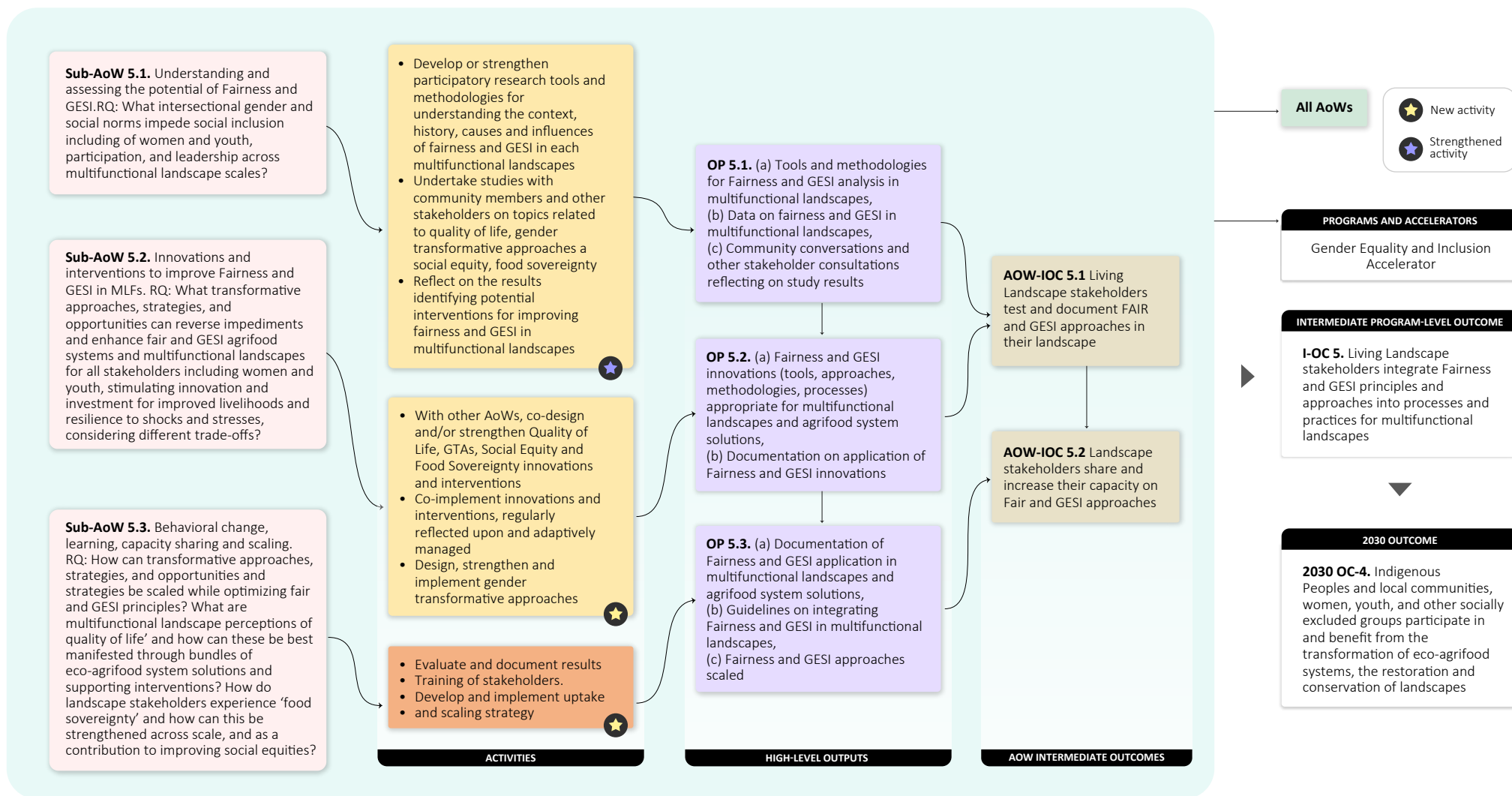
**Table 6.5.** Key partners and associated areas of collaboration to achieve defined outputs

Statement	Partners and roles
OP5.1: Fair and GESI approaches tested, strengthened, and implemented in MFLs at different scales.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – implement fair and GESI approaches in MFLs at different scales</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – test and strengthen fair and GESI approaches and support the implementation of MFLs at different scales</li> <li>• CGIAR Gender Equality and Inclusion Accelerator</li> </ul>
OP5.2: Documented evidence of the benefits of co-designed and implemented fair and GESI approaches in MFLs.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – reflect on documented evidence of GESI approaches</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – document evidence of the benefits of co-designed and implemented fair and GESI approaches</li> <li>• CGIAR Gender Equality and Inclusion Accelerator</li> </ul>
OP5.3: Capacity sharing and learning on the integration of fair and GESI approaches in MFLs.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – participate in capacity sharing and learning activities on fair and GESI approaches</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – organize capacity sharing and learning in the integration of fair and GESI approaches</li> <li>• CGIAR Gender Equality and Inclusion Accelerator</li> </ul>

Statement	Partners and roles	Assumption
AoW-IOC 5.1 Living Landscape stakeholders test and document fair and GESI approaches in their landscapes.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – test and document fair and GESI approaches</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – support the testing and documenting of fair and GESI approaches</li> <li>• CGIAR Gender Equality and Inclusion Accelerator</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders see the value in fair and GESI approaches.</p>
AoW-IOC 5.2 Landscape stakeholders share and increase their capacity on fair and GESI approaches.	<ul style="list-style-type: none"> <li>• Farmers and large-scale landholders, venture capital, consumers, private sector, local, regional, and national governments, and local communities – participate in capacity sharing and learning activities on fair and GESI approaches</li> <li>• Scientists from academia and NARES, NGOs and development organizations, and local, regional, and national governments – support capacity sharing and learning in the integration of fair and GESI approaches</li> <li>• CGIAR Gender Equality and Inclusion Accelerator</li> </ul>	<p>MFL stakeholders are willing to collaborate.</p> <p>MFL stakeholders see the value in fair and GESI approaches.</p> <p>MFL stakeholders have capacity building to a level where they can share</p>

ToC Element #	Statement	Contributing AoW #	Partners (including internal) and roles	Assumption	Targets
2030 OC-4.	Indigenous Peoples and local communities, women, youth, and other socially excluded groups participate in and benefit from the transformation of eco-agri-food systems, the restoration and conservation of landscapes.	1, 2, 3, 4, 5, 6, 7	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES – develop strategies that facilitate the active participation of locals</li> <li>• The private sector – be considerate of “locals” when planning and executing solutions</li> <li>• NGOs and development organizations – support the implementation of solutions that consider the needs and priorities of “locals”</li> <li>• Regional, national governments, and authorities, and civil society – create enabling environments, policies, and incentives that consider the needs and priorities of “locals”</li> <li>• International fora engaged in the conservation-human health-development space – play advocacy roles that support gender-transformative approaches</li> <li>• The financial sector – incentivizes those who engage in supporting the needs and priorities of local communities</li> <li>• AoW 5 - socializes and facilitates the uptake of findings on GESI and Fairness approaches</li> <li>• All AoW – facilitate and document the integration of Fairness and GESI principles and approaches into processes and practices for MFLs</li> <li>• CGIAR Program on Gender Equality and Inclusion - supports the promotion and scientific discussion of the achieved outcome</li> </ul>	Participation of IPs and local communities, women, youth, and other socially excluded groups can be assured around the issues of quality of life, GTAs, social equity, and food sovereignty. Their needs can be jointly identified, and the co-developed solutions enable them to act.	Create more inclusive, gender equitable and fair MFLs where at least 35% of decision-making bodies are made up of actively participating women. 500,000 youth benefit from decent employment earning income.

Figure 7. AoW 5: Gender Equality, Social Inclusion and Fairness



## 6.6. AoW 6: Performance assessment and evidence generation

AoW 6 envisions MFL stakeholders (research, academia, government, private sector, development organizations, donors) using performance assessment frameworks to monitor their MFLs and develop incentives for their sustained transformation.

Research questions:

1. What frameworks, methods, and tools are available to assess interventions' performance and cascading effects in different dimensions across farm to landscape?
2. What cost-effective, fair, and appropriate mechanisms, tools, approaches, or methods can be used to measure the risks and impact of farm and landscape systems-level interventions on multiple ecosystem services in near real-time?
3. What key indicators and thresholds can be used to assess the performance of solution bundles of agroecology, nature-positive, and other practices in generating multiple ecosystem services on different temporal and spatial scales?
4. What trade-offs and synergies are associated with various pathways and interventions for achieving equitable landscape multifunctionality? How can progress toward local objectives be monitored in ways useful for informing local decisions?
5. What are the costs and benefits of individual and bundled eco-agri-food system transformation solutions implemented to develop multifunctional landscapes?

AoW 6's main outputs will include (a) a set of indicators and thresholds to guide assessment and evaluation of performance; (b) holistic data collection and monitoring tools that can be used by CGIAR, NARES, and local and national administrations; (c) improved existing and new assessment frameworks to assess trade-offs and modeling approaches that explore different planning scenarios suited for application at multiple spatial levels, including Digital Twin Landscapes; and (d) up-to-date information about the performances of interventions across scales. This AoW contributes to all 2030 Program-level Outcomes. Please refer to the ToC table in Section 5.

CGIAR's **sources of comparative advantage** lie in the availability of interdisciplinary teams of experts to support data collection, management, and analytics covering different themes across scales. The 'Digital Team' available under the various Centers can also support the components that require advanced digital solutions. The Digital Transformation Accelerator will also be instrumental in contributing to efforts associated with data science. The Sustainable Farming, Climate Action, and Sustainable Animal and Aquatic Foods Programs will also be linked with the AoW. Satellite and drone data will be solicited from our global partners.

**Emerging Areas of Work** include (a) the application of artificial intelligence, the wider use of citizen science approaches in data collection and analyses, and (b) community-supported monitoring approaches to allow near-real-time provision of data to assess and evaluate interventions. It will use 'integrated spatiotemporal modeling approaches' to assess the role of nature on humans and vice-versa to determine optimal interaction pathways. It will also develop an automated dashboard for real-time monitoring of ecosystem health, allowing landscape actors to receive continuous updates.

The AoW is organized into four Sub-AoWs.

### 6.6.1. Metrics, Indicators, and Thresholds for Evaluating Multifunctional Landscape Performance.

AoW 6 will build on existing sets of indicators (e.g., nutrient use efficiency, diversified production, habitat diversity, presence of pollinators and beneficial species, water use efficiency, and carbon sequestration) to assess and evaluate the performance of solutions across temporal and spatial scales. Literature review, modeling, scenario analysis, and meta-analysis will be used to develop indicators. Thresholds will be defined for each specific landscape and its associated ecosystems. Sub-AoW 6.1 will synthesize existing knowledge on indicators and thresholds that have proven relevant and useful and develop new ones where necessary.

### 6.6.2. Data collation, collection, harmonization, and management system.

To explore the "linkages and feedback" between different system components, including the social, economic, and ecological implications of different natural or anthropogenic factors on the provision of ecosystem services, the sub-AoW will gather data from different sources, using various methods. Sub-AoW 6.2 will build on existing data collection and monitoring tools such as literature review, meta-analysis, modeling, citizen science approaches, and community-supported observations as well as remote sensing, Internet of Things, and artificial intelligence to support and speed up data collection, collation, harmonization, and management. The data will then be organized and managed with an automated process to harmonize with new datasets and holistically analyze multiple, interconnected datasets and factors. Lessons and experiences associated with Collaborative GARDIAN Labs (CGLabs) will be used to automate the data management system (extract, transform, load).

### 6.6.3. Performance assessment across scale using integrated modeling approaches.

AoW 6 will use and further develop existing nested frameworks and tools to conduct multiscale ecosystem health assessments and associated benefits across spatial and temporal scales and develop new ones where necessary. The AoW will use multidimensional, inter-, and transdisciplinary approaches to evaluate performances while considering synergies and trade-offs in agroecology, nature-positive and other practices. It will among others operationalize and adapt the social-ecological assessment framework and integrate modeling approaches, including Digital Twin Landscapes. Holistic assessments will be performed using the Holistic Localized Performance Assessment (HOLPA) and the framework for the Evaluation of Management Systems using Indicators (MESMIS) tool to assess material flows and understand interactions to facilitate designing complementary solutions that maximize gains across scale with limited trade-offs.

We will use serious games and multiagent-based modeling as tools to better represent human agency in farming systems and land-use analyses and as a tool to blend people's perceptions with scientific knowledge, discuss challenges and opportunities, and find new solutions. This will also allow the exploration of "What-If" scenarios to support planning (AoW 2), ultimately contributing to global biodiversity, climate change, and food security agendas.

In collaboration with AoW 1 and 2, optimization and trade-off and with AoW 3 cost-benefit analysis will be integrated into the evidence-generation exercise. These can support guiding investment, supporting reporting commitments, and facilitating negotiation for PES, carbon credits, and biodiversity financing.

#### 6.6.4. Web-based visualization dashboard for near real-time monitoring.

A user-friendly dashboard will be used to organize, harmonize, and visualize data, integrating data from various sources, including remote sensing, geospatial analysis, and process-based models, and provide a comprehensive overview of farm and landscape health and performance. Key indicators such as climate resilience, biodiversity, ecosystem services, and socioeconomic benefits will be dynamically visualized at multiple scales, allowing stakeholders to track changes, analyze trends, and assess trade-offs in farm and landscape management. By incorporating data-driven insights and interactive features, the dashboard will support adaptive management, guide investment decisions, and facilitate reporting on sustainability goals. It will aid in negotiations for payments for ecosystem services, carbon credits, and biodiversity financing. The tool will be designed

to accommodate the needs of diverse users, from local communities to policymakers, enhancing collaborative decision-making and fostering sustainable practices in landscape management.

#### Partnerships

Several landscape actors such as government ministries, NARES, extension, development organizations, NGOs, IARs, Universities, all CGIAR Centers, and farmers will be engaged across the 'data ecosystem' - data collection/collation-management-analytics. CGIAR Centers, global partners in the area of geo-information and AI, the Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, and Policy Innovations Programs, and the Digital Transformation and Gender Equality and Inclusion Accelerators will play pivotal roles in data sharing, standardization, and analysis. Table 6.6 highlights the major partners and roles.

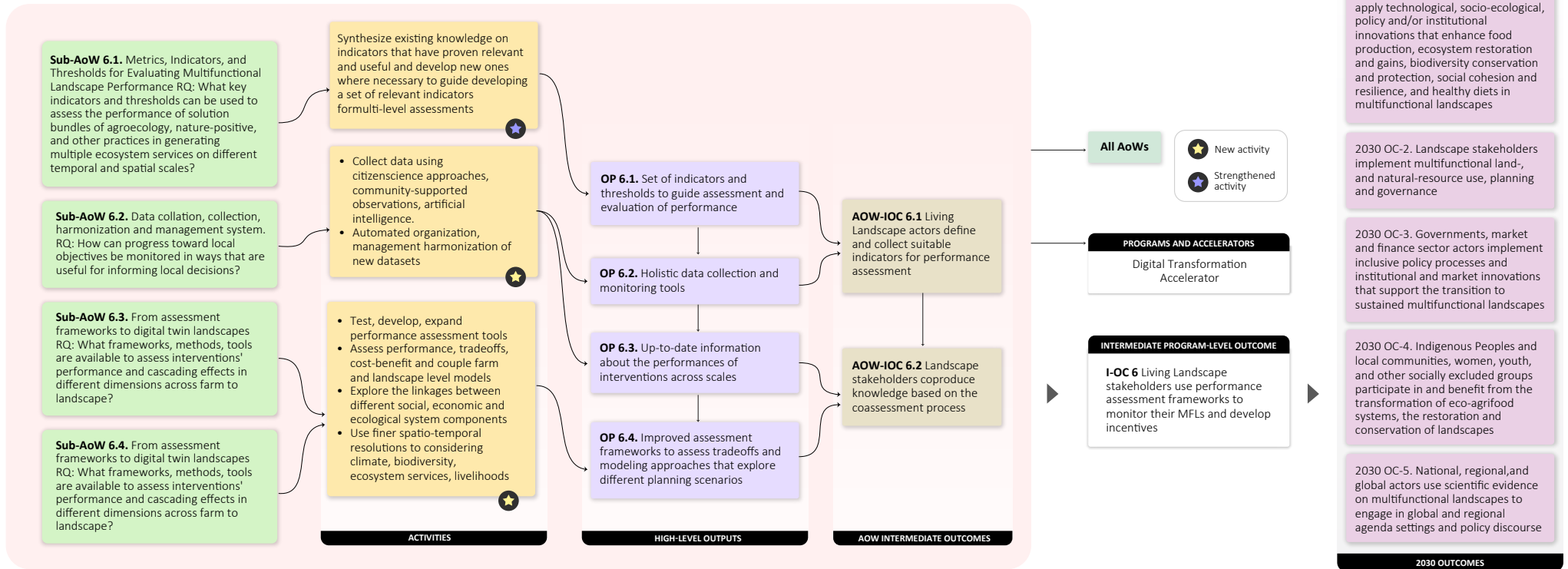
**Table 6.6.** Key partners and associated areas of collaboration to achieve defined outputs

Output statement	Partners and roles
OP6.1. Set of indicators and thresholds to guide assessment and evaluation of performance.	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES – human capital local communities living in landscapes - social capital, incentives</li> <li>• AoW 1–5 – indicator selection</li> <li>• All Science Programs – human and social capital</li> </ul>
OP6.2. Holistic data collection and monitoring tools.	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES, including AoW 1-5 – human capital, conducting monitoring and developing methods and tools</li> <li>• The private sector – biophysical capital, tools, platforms</li> <li>• Local communities living in landscapes – human and social capital, supporting monitoring</li> <li>• NGOs and development organizations – human social and biophysical capital, supporting monitoring</li> <li>• Digital Transformation Accelerator – human and biophysical capital, supporting tool and method development</li> </ul>
OP6.3. Up-to-date information about the performances of interventions across scales.	<ul style="list-style-type: none"> <li>• AoW 1-5, All CGIAR Centers, international fora engaged in the conservation-human health-development space – human, social, and biophysical capital incentives, information exchange</li> <li>• AoW 1 and 2 – optimization and trade-off analysis</li> <li>• AoW 3 – cost-benefit analysis will be integrated into the evidence-generation exercise</li> <li>• All Science Programs – human capital</li> </ul>
OP6.4. Improved assessment frameworks to assess trade-offs and modeling approaches that explore different planning scenarios.	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES – human capital, development of methods</li> <li>• Local, regional, national governments, and authorities who plan, execute, and monitor the agriculture/ environment sector, including planners and policymakers, and civil society – human, social and biophysical capital, incentives, providing platforms to run the assessments and using results for implementing planning</li> <li>• All Science Programs – human capital</li> </ul>

Outcome statement	Partners and roles	Assumptions
AoW-IOC 6.1. Living Landscape actors define and collect suitable indicators for performance assessment.	<ul style="list-style-type: none"> <li>• Local communities living in landscapes –human and social capital, supporting indicator development and monitoring)</li> <li>• Digital Transformation Accelerator – human and biophysical capital, supporting indicator development</li> <li>• All Science Programs – human capital, supporting monitoring</li> </ul>	Local communities living in landscapes are engaged in the design, and development of the activities.
AoW-IOC 6.2. Landscape stakeholders co-produce knowledge based on the co-assessment process.	<ul style="list-style-type: none"> <li>• Local communities living in landscapes - human and social capital, co-produce knowledge</li> <li>• Scientists from academia and NARES - human capital, co-produce knowledge</li> <li>• All Science Programs – human capital, co-produce knowledge</li> </ul>	Local communities living in landscapes are engaged in the design, and development of the activities.  All involved actors, including communities, NARES, academia, local and national governments, and CGIAR are willing to share and learn from the process and information.
I-OC 6. Living Landscape stakeholders use performance assessment frameworks to monitor their MFLs and develop incentives.	<ul style="list-style-type: none"> <li>• Local communities living in landscapes (human, social capital, and incentives, using results for better planning and management), local, regional, national governments and authorities who plan, execute, and monitor the agriculture/ environment sector, including planners and policymakers, and civil society (human, social and biophysical capital, incentives, - use the results for implementing planning and management</li> </ul>	Local communities and local and regional governments will benefit from monitoring and assessing the performance of activities to adjust and improve them.

AoW 6 contributes to all 2030 OC. Refer to the overall ToC table in section 5.2 for the full list of 2030 OCs.

**Figure 8.** AoW 6: Performance Assessment and Evidence Generation



## 6.7. AoW 7: Global engagement and learning

Sustainable impacts require global strategic thinking and enhanced capacities of all landscape actors through strengthening and sharing experiences. AoW 7 is a support area focusing on engagement and learning that adaptively informs and reshapes research priorities based on feedback loops. AoW 7 will use knowledge management, capacity sharing, communications, engagement, and feedback-loop strategies to enhance the update of the scientific evidence generated by the Multifunctional Landscape's AoW 6 while adapting research priorities to the evolution of megatrends and shifting demands of the landscape actors at national, regional and global scales. Strong collaboration with the Scaling for Impact and Policy Innovations Programs and the Capacity Sharing Accelerator is obvious to elevate the multifunctional landscape agenda. The main objectives of AoW 7 include:

- 1. Increase capacities** on landscapes' multifunctionality through knowledge management and sharing of cutting-edge science within and beyond CGIAR based on the meta-analysis of CGIAR data repositories (e.g., CGSpace) and external big databases, applying artificial intelligence to identify knowledge gaps and options to overcome them. Life-cycle capacity development, strengthening, and sharing among landscape actors are critical for the sustainability of the action.
- 2. Design a common vision and roadmap** based on appropriate metrics, use of evidence (i.e., collaboration with AoW 6), and fostering global critical thinking, around MFLs, to identify high-impact research-investment areas on biodiversity, land, soil, and water. The vehicle will be engagement in and facilitation of existing communities of practice involving national, regional, and global landscape actors.
- 3. Elevate CGIAR's external profile** by engaging in and shaping global and regional policy discourse using synthesized, state-of-the-art, scientific evidence to influence the synergies and cooperation of the three Rio Conventions (biodiversity, climate, and desertification) and applying a feedback loop for innovative research to remain at the cutting-edge of the MFL science.

The major **comparative advantage** of CGIAR stems from its state-of-the-art research infrastructure, particularly in low and middle-income countries and a highly diverse, multidisciplinary, and transdisciplinary workforce to co-create high-quality scientific evidence for several targets of the 17 UN SDGs, in strong collaboration with national, regional and global partners with shared research for development objectives.

This AoW will play a pivotal role in communicating products at global, regional, and national fora to create awareness and facilitate scaling. Importantly, it allows CGIAR to innovate and remain on the top list of science providers in low- and middle-income countries by adopting and applying a strong culture of feedback loops to effectively adapt research priorities to shifting megatrends and landscape actors' demands for innovative solutions for socioecological resilience.

The AoW is organized into three Sub-AoWs to achieve its objectives.

### 6.7.1. Evidence-based capacity sharing.

Sub-AoW 7.1 will collaborate with all AoWs to compile, analyze, synthesize, and share the scientific evidence required to (a) engage landscape stakeholders in the use of innovations for sustainable multifunctional landscape management and (b) inform policy negotiations and formulation. Activities include co-developing and sharing learning resources for all AoWs. Participants of the 2023

CGIAR "Listening sessions" have globally re-emphasized the need for access to easily usable resources that allow the use of evidence-based tools and methods. These resources will be co-designed together with stakeholders based on the identified knowledge gaps related to governance, socio-technical innovations, markets, policies, and impact indicators. Landscape stakeholders will be trained, and degree and non-degree training opportunities will be created. The Program will work closely with the three Accelerators and the Scaling for Impact Program, including joint planning to align priorities based on shared objectives. **Outputs** will consist of a knowledge base (in line with CGIAR data & information and knowledge management processes, databases and tools): (a) a synthesis of science-based evidence related to the multifunctionality of landscapes, including innovations and impact indicators (emerging topic) and (b) a capacity-sharing and learning agenda based on knowledge opportunities and gaps (emerging topic).

### 6.7.2. Knowledge management for shared vision of CGIAR and close partners.

Sub-AoW 7.2 will engage with all Programs and Accelerators to foster a common vision of robust environmental health, biodiversity, and ecosystem functions and services. This will embrace co-benefits and trade-offs, and adoption of common tools, standards for knowledge management, metrics, indicators, and assessment approaches, in collaboration with AoW 6. Activities include creating an MFL community of practice and thematic working groups for scientists and experts within and outside of CGIAR Programs and Accelerators with shared objectives on multifunctional landscapes for active engagement in decision-making processes to facilitate the achievements of CGIAR multifunctional landscape agenda and related UN SDGs. Outputs will consist of a shared vision for CGIAR and close partners that will be developed, regularly updated and promoted by a community of practice and thematic working groups for science and practitioner actors inside and outside the Multifunctional Landscapes (established topic).

### 6.7.3. Engagement in regional and global policy arena.

Sub-AoW 7.3 will engage with and inform global and regional policy discourses, using scientific evidence and applying feedback loops from lessons learned to shape CGIAR research priorities on multifunctional landscapes. Linkages with the Policy Innovations and Scaling for Impact Programs are outlined in Section 8.2. The key assumption is that adaptation of global and regional policies on environmental health, biodiversity, and ecosystem functions and services at national and subnational levels is paramount in sustainably transforming food, land, soil, and water systems. An example is the case of the Kunming-Montreal Global Biodiversity Framework, adopted during the 15th conference of the parties in Montreal (Quebec) Canada in December 2022, and how it has been informing and reshaping the national biodiversity strategy and action plans. This includes the gradual understanding of the synergies between the three Rio Conventions (biodiversity, climate, and land degradation neutrality). Activities include participating in organizing global and regional dialogues on MFLs for sharing experience and knowledge and identifying knowledge and innovation gaps to reshape research priorities and innovation systems. Outputs include a framework and agenda for engagement and advocacy on MFLs endorsed by CGIAR leadership (emerging topic).

### Partnerships

Details on high-level partnerships are reflected in Table 6.7. and Section 7.2. In a nutshell, in addition to CGIAR Programs and Accelerators, all key actors to the three Rio Conventions (biodiversity, climate, and desertification with a particular focus on land degradation neutrality and drought) at the national, regional, and global levels are critical for this AoW, and they will be mobilized in the community of practice.

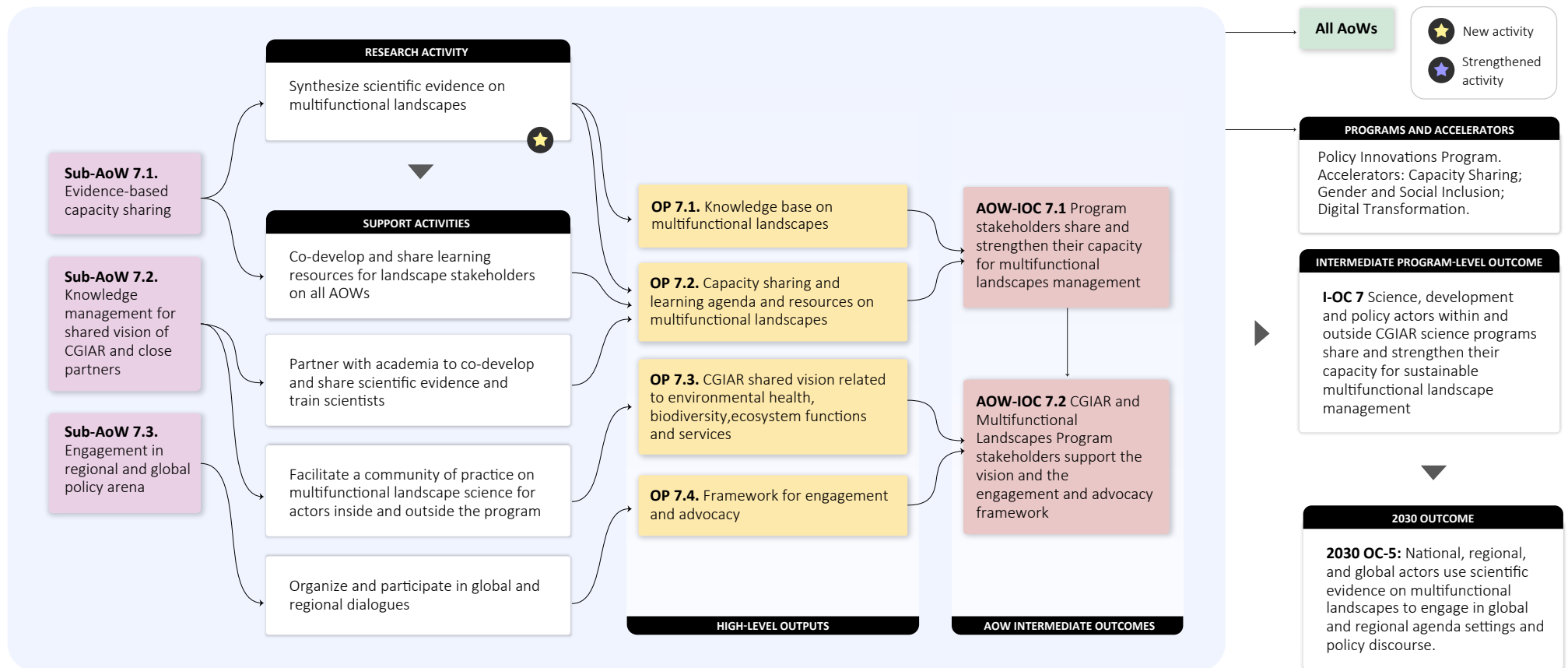
**Table 6.7.** Key partners and associated areas of collaboration to achieve defined outputs

ToC element #	Statement	Partners and roles
OP7.1	Capacity sharing and learning agenda and resources on MFLs.	<ul style="list-style-type: none"> <li>CGIAR Center focal points; All CGIAR Programs and Accelerators – co-create performance indicators and contribution of expertise</li> </ul>
OP7.3	CGIAR and close partners shared vision related to environmental health, biodiversity, ecosystem functions, and services.	<ul style="list-style-type: none"> <li>CGIAR Center focal points; All CGIAR Programs and Accelerators; CGIAR close partners – contribute expertise and contexts for the shared vision</li> </ul>
OP7.1	A knowledge base: Synthesis of science-based evidence related to the Program’s Area of Work on the multifunctionality of landscapes.	<ul style="list-style-type: none"> <li>CGIAR Center focal points; All CGIAR Programs and Accelerators – Literature review and innovation analysis</li> </ul>
OP7.4	Framework and agenda for engagement and advocacy.	<ul style="list-style-type: none"> <li>CGIAR Partnership and Advocacy, Communication and Outreach and Innovative Finance and Resource Mobilization; CGIAR Center focal points; All CGIAR Programs and Accelerators – gather and share intelligence</li> </ul>

ToC element #	Statement	Partners (including internal) and roles	Assumption
AoW-IOC 7.1	Program stakeholders share and strengthen their capacity for MFL management.	<ul style="list-style-type: none"> <li>NARES; academia, all CGIAR Programs, Accelerators and assets focal points – peer-review of knowledge products</li> </ul>	Willingness and availability to contribute at no charge.
AoW-IOC 7.2	CGIAR and Program stakeholders support the vision and the engagement and advocacy framework.	<ul style="list-style-type: none"> <li>NARES; Academia, all CGIAR Programs, Accelerators and assets focal points – peer-review of the framework</li> </ul>	Willingness and availability to contribute at no charge.
I-OC 7	Science and landscape actors within and outside of CGIAR Science Programs share and strengthen their capacity for MFL management.	<ul style="list-style-type: none"> <li>NARES; Academia, all CGIAR Programs, Accelerators and assets focal points; A few examples include the secretariats of the Convention on Biological Diversity, the UN Convention to Combat Desertification (UNCCD), UN Framework Convention on Climate Change, the Food and Agriculture Organization (FAO), the United Nations Environment Program (UNEP), the International Union for Conservation of Nature (IUCN), The Nature Conservancy (TNC), The World Research Institute, The World Wildlife Foundation (WWF), the International Land Coalition (ILC), the Global Landscape Forum, the Coalition of Action for Soil health (CA4SH), the World Water Council (WWF), the national research council/academies in the intervention countries, and the Regional Economic Communities (RECs) among others – Participation in the community of practice and contribute of expertise and know-how</li> </ul>	Landscape actors and stakeholders adhere to the shared vision.

ToC element #	Statement	Contributing AoW #	Partners (including internal) and roles	Assumption	Targets
2030 OC-5	National, regional, and global actors use scientific evidence on MFLs to engage in global and regional agenda settings and policy discourse.	7, 4, 5, 6	<ul style="list-style-type: none"> <li>• Scientists from academia and NARES – communicate the performances of interventions using appropriate mediums</li> <li>• NGOs and development organizations – provide witness about the performances of solutions to create awareness and enable scaling</li> <li>• Regional, national governments and authorities, and civil society – apply science-based monitoring tools, communicate performance results, and negotiate for environmental payments</li> <li>• The financial sector – review success cases and develop mechanisms to incentivize</li> <li>• AoW 7 – leads the engagement agenda</li> <li>• All AoWs – provide scientific evidence and broaden the engagement</li> <li>• Policy Innovations Program – support policy implementation and prioritizing incentives</li> <li>• Capacity Sharing Accelerator – co-develops methods, provides opportunities for capacity sharing</li> <li>• Gender Equality and Inclusion Accelerator – create awareness and build capacity to promote GESI principles and Fairness</li> </ul>	<p>Capacity-sharing resources and activities are user-centered and based on scientific evidence (other AoW).</p> <p>CGIAR and Program stakeholders engage in the proposed knowledge-sharing process to strengthen their influence in agenda settings and policy discourse.</p>	<p>Cumulative 15 policy changes at country, regional, and global scales; cumulative 5 financing agencies (donors and financing institutions) integrate ML indicators in financing development projects; Zero net deforestation; land degradation neutrality; water use efficiency improved by 20% in irrigated farming systems; reduction of economic water scarcity in at least five landscapes in LMICs; the 4Rs nutrient stewardship adopted in at least 10 landscapes in LMICs including low and high N inputs systems; Conservation of genetic resources in situ and ex situ improved in at least 10 landscapes in LMICs.</p>

Figure 9. AoW 7: Global Engagement and Learning



## 7. Country integration

### 7.1. Example of integration in a country or set of countries: Kenya

Building on the lessons learned from decades of CGIAR (implementation of the Initiatives, feedback received from recent stakeholder consultations, IPSR workshops, and CGIAR listening sessions), the Multifunctional Landscapes Program will optimize country integration, with Kenya as an example, where the three Initiatives and the platform contributing to this Program are operating and where we have a long history of research for development.

#### How is the Program co-designed with key stakeholders?

Decisive feedback came from consultations held with key national stakeholders to introduce the Program, as well as a workshop on Agroecology/Regenerative organized by the Rockefeller Foundation in April 2024.

Kenya's readiness in agrifood research was evidenced by the research interests expressed in CGIAR listening sessions,<sup>46</sup> held in collaboration with several NARES, informing research, specifically of AoW 1, 2, 3, and 4. The Program Writing Team furthermore has had input from partners of the Intersectoral Forum on Agrobiodiversity and Agroecology (ISFAA), a multistakeholder platform that brings together important government and non-government institutions and receives funding from key agroecology investors, mobilizing the private sector. Centers' partnerships with Kenyan NARES and universities provide a good foundation for supporting PhD and Master students building national capacities.

Our **country integration strategy** is anchored in the continuity of co-design processes engaged by the respective Initiative teams. In Kenya, this process mobilized the participation, involvement, and strategic collaboration of several dozen stakeholders at the national, subnational (county), and local levels including governmental and non-governmental agencies, research, education and outreach, and private sector actors.<sup>47</sup> Deliberately included were community-based organizations (training centers, community seed banks) and outstanding lead farmers to provide anchorage and continuity on the ground. This collaboration will be strengthened and adapted to all countries, including through the provision of structural partnership guidelines, in the Inception Phase and onwards.

#### How will the Program's work be embedded in policies and priorities?

We build on strong CGIAR Center connections to sectoral policy and institutional actors in the country (agroecology, wildlife and conservation, agriculture, livestock, aquatic food, water, land, or forests), and a large CGIAR Center presence in Nairobi.

Strategically important is the collaboration with the Ministry of Agriculture, Livestock, Fisheries and Cooperatives, continuing our support in implementing the country's National Agricultural Policy 2021, including the engagement with ISFAA and other multistakeholder platforms at the national level that are officially recognized by the Kenyan Government the Landscapes Actors Platform under the Ministry of Environment.

We will also continue its targeted engagement at the subnational level. Kenya's recent decentralization made the counties the key actors in Program-related sectors, and we will explore opportunities to strengthen our technical support to the five-year county-level integrated development plans (CIDPs), interacting also with County Agriculture Sector Steering Committees, which observe the implementation of CIDPs and vet new projects coming into the counties, as well as the County Environment Committees.

We can draw on long-standing policy engagement:

- The Agroecology and Nature-Positive Solutions Initiatives support the ISFAA-led development of the National Agroecology Strategy.
- Co-created priorities of the Nature-Positive Solutions Initiative, already integrated into the Vihiga County Integrated Development Plan.
- The Livestock and Climate Initiative's innovative participatory rangeland management approach is integrated into the Baringo County Integrated Development Plan.

We will engage with regional bodies, particularly the Intergovernmental Authority for Development (IGAD), a trade block involving eight countries in the eastern parts of Africa, which is making progress on championing a regional soil hub.

AoW 4 will make sure that policy work is aligned with national priorities.

#### How are country lessons from the 2022-2024 Portfolio integrated?

The Initiative teams, represented in the Writing Team, informed the proposal development process. During the Inception Phase and under AoW 2, we will convene country-level meetings to re-emphasize lessons learned and create a common understanding about experiences, opportunities, and challenges to consolidate a joint vision, operationalization guideline, and implementation strategy for the next years.

We will capitalize on the current in-depth, multistakeholder-engagement processes adopting a landscape perspective and strengthening the engagement of agrifood system actors that were previously neglected. These include socially excluded food producers and land stewards, such as pastoralist communities, but also community forest associations and water resource user associations. We will enhance collaboration with consumer collectives and networks, and the private sector.

#### How will CGIAR work alongside specific local and other partners?

Our objectives are the empowerment of national and territorial actors and the user-centered packaging of context-specific solutions ensuring that innovations are scientifically sound, socially and culturally relevant, and sustainable. Collaboration modalities span from ad hoc proactive and responsive engagement to institutional partnership agreements, addressing key scaling considerations, through transformative partnerships, (ii) innovation processes with purposively identified stakeholders and partners, and (iii) valorizing existing and building structures for scaling purposes.

<sup>46</sup> CGIAR. 2024. Listening Sessions. Infographic. Montpellier, France: CGIAR. <https://hdl.handle.net/10568/144159>

<sup>47</sup> Fuchs, L. (2022, October, 12) Learning how to 'do engagement' agroecology style. <https://glix.globallandscapesforum.org/news/973114?lang=fr>

In Kenya, the three Initiatives have engaged with numerous stakeholders, at the county level with Kisumu and Vihiga in western Kenya, Turkana in the northwest, Kajiado and Makueni in the southeast, as well as Baringo in the north Rift, and Kiambu in the central Rift Valley. In Kiambu and Makueni counties, organizations with farmer training centers and large demo farms act as hosts for the Agroecology Living Landscapes. Their local work is well connected to and amplified by national actors such as PELUM-Kenya, a national network of 60+ medium-sized organizations engaged in ecological land use, and ISFAA who have significant know-how in mainstreaming the use of the evidence-based approaches. This work is in turn articulated with international actors, with CIFOR-ICRAF, Alliance Bioversity-CIAT, ILRI, and IFPRI playing a key role in this articulation, and international research and development partners. New partnerships will include international landscape organizations and fora for knowledge sharing and global engagement.

#### **How will the different components of this Program work together?**

The **Living Landscapes approach** will bring different stakeholders, innovations, and activities together and from where the set of integrated AoW activities will be implemented, following an integrated co-design and implementation planning process. The importance and weight of each AoW in Kenya's Living Landscapes will depend on the shared vision of stakeholders (developed under AoW 2).

Efficient structures and engagement modalities based on easy-to-use tools will be established to ensure coordination of activities, working closely with the country convenor and with other Science Programs.

#### **How will the Program link with other Programs/Accelerators?**

Multifunctional Landscapes will leverage the expertise of various CGIAR Centers through co-location and co-investments with Programs/Accelerators, particularly with the Sustainable Farming and Sustainable Animal and Aquatic Foods Programs with a focus on agronomic and soil management solutions at the plot and farm levels.

We will develop joined activities with Climate Action aimed at reducing greenhouse gas emissions and enhancing adaptation and resilience in the targeted landscapes and engage with Policy Innovations to influence national policies, institutions, land tenure, and incentive-based mechanisms for both private and common lands. Collaboration with Breeding for Tomorrow and Genebanks will ensure access to improved genetic material suited to agroecological systems and will enhance access to locally adapted seeds for crucial minor crops. Finally, we will collaborate with Scaling for Impact to gather evidence-based research and incorporate it into the co-design of solutions and scaling out with partners. Multifunctional Landscapes will leverage the work of the Accelerators.

## 7.2. Overview of selected work in the top 15 countries

**Table 7.1.** Caption Needed

Region	Country	District/system	Area of Work	Program & Accelerator collaboration	Key partners
East Africa	Kenya	Mixed crop-livestock farming systems; Pastoral and agropastoral livestock systems; aquatic foods, Mountains-highlands-lowlands continuum, lakes, rivers, ocean	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; Kenya Participatory Ecological Land Use; Intersectoral Forum on Agroecology and Agrobiodiversity; Host centers of Agroecological Living Landscapes (ALLs) Community Sustainable Agriculture and Healthy Environment Program and Drylands Natural Resource Centre; State Ministry of Livestock and Fisheries; Centre for Agriculture and Bioscience International; The Nature Conservancy; Mercy Corps; Procasur; Kisumu and Vihiga county governments; Wageningen University; Scuola S. Anna, Italy
East Africa	Tanzania	Kiteto/Chalinze/Kilosa and Mvomero districts/pastoral, agropastoral systems Dodoma region/Semi-Arid Agropastoral; Mountains-highlands-lowlands continuum, aquatic foods, ocean	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; Ministry of Livestock and Fisheries; Agriculture; National Land Use Planning Commission; Tanzania Natural Resource Forum; Tanzania Land Alliance; TARI; Tanzania Livestock Research Institute; World Food Programme (WFP)
East Africa	Ethiopia	Highland mixed crop-livestock system; Pastoral/agropastoral systems; highland-lowland continuum; Lake Tana, Lake Turkana landscapes	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; Ethiopian Institute of Agricultural Research; Ministry of Agriculture; Ministry of Irrigation and Lowlands; GIZ; SASAKAWA; VSF-Suisse; Mercy Corps; Yabello Research Center
Southern Africa	Zimbabwe	Mixed crop-livestock systems; Rainfed crop-livestock mixed systems, aquatic foods, lakes rivers	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	Ministry of Agriculture; National Agricultural Research Organization; Bio-Hub Trust; Agricultural Partnership Trust; AGRITEX; MDTC
Southern Africa	Malawi	Crop-livestock mixed systems; Shire-basin (with lake, fishery, energy, wetlands)	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; CRS, Total Land Care; Lilongwe University of Agriculture and Natural Resources; DARS
West Africa	Burkina Faso	Bobo-Dioulasso; Bazèga, Boulkiemdé, Kadiogo, and Ouhritenga provinces/ dairy food system, agro-silvopastoral	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; CIRAD; IUCN, INERA; Développement sur l'Élevage en zone Subhumide (CIRDES); Mani Tese, Slow Food; National Tree Seed Center of Burkina Faso; Joseph Ki-Zerbo University; Abdou Moumouni University
West Africa	Senegal	Fatick/crop-livestock	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Genebanks	CIRAD; DyTAES; ISRA

Region	Country	District/system	Area of Work	Program & Accelerator collaboration	Key partners
West Africa	Ghana	Crop-agroforestry-livestock system; crop-livestock-fish system		Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	Ministry of Food and Agriculture (MOFA); CSIR; DEGAS; TROPENBOS; Forest Commission; WASCAL; Nature Conservation Research Center
North Africa	Tunisia	El Kef-Siliana and mixed cereal-tree-small ruminants (sheep and goat) systems; Silvopastoral and pastoral and agropastoral systems	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	IRESA; INRAT; INRGREF; Direction Generale des Forests; Institut des Régions Arides; GDA Beni Khedache; CIRAD
LAC	Colombia	Highland Andean region, Amazon area, traditional to intense agricultural systems Orinoquía and Andean regions/silvopastoral and pasture-based private ranches	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	Agrosavia; Corponariño; Corpoamazonía; SENA; Naturamazonas Program- Conservation International; Forestpa; Fundación Indígena Los Pumamakes, Cumbal, Nariño; Resguardo Indígena de Cumbal (indigenous authorities); Procasur; Hacienda San Jose; Corporación GANSO Servicios Técnicos; Universidad del Valle
LAC	Peru	Ucayali, cacao forestry	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; Cooperativa de Cacao Aromático Colpa de Loros; Cooperativa Agraria Banaqui Curimaná; Terra Nova; Agrosalud de Ucayali; Sociológicas, Económicas, Políticas y Antropológicas – CISEPA; Asociación Nacional de Productores Ecológicos ANPE; IDMA
South Asia	Bangladesh	Sylhet Division fisheries, Haor, Khulna, Barisal, Chattogram, fisheries, Mymensingh, Jashore, Dhaka, aquaculture, Rangpur, Rajshahi, aquaculture, Chattogram Hill tracts, aquaculture, Kaptai, and fisheries	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	BARC; BFRI; BARI; Bangladesh Agricultural University (BAU); BWMRI; DAE; DoF; BRRI; BRRI; BLRI; BMD; Patuakhali Science and Technology University; United International University Bangladesh; Center for Environmental and Geographic Information Services (CEGIS)
South Asia	India	Andhra Pradesh, rice Madhya Pradesh, forestry Marahastra, agro-silvopastoral systems, Jhansi- Bundelkhand, Agroforestry, aquatic foods	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; ICAR-IIFSR; ICAR-NBPGR; ICAR-NIASM; ICAR-CAFRI; ICAR-CRIDA, ICAR-IGFRI, ICAR-CIFAR, RLBCAU, PPRADAN; Foundation for Ecological Security (FES), BUAT-Banda; GIZ, Department of Agriculture, UP, MP, BAIF Foundation
Southeast Asia	Vietnam	Lao Cai and Son La Provinces, mixed farming	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	CIFOR-ICRAF; VAAS; PRC; FAVRI; NOMAFSI; CIRAD; CECR; UNDP; Department of Economics, Sa Pa Province; Department of Agriculture and Rural Development, Mai Son Province
Southeast Asia	Laos	Attapeu Province, rice-fish farming system	ALL	Sustainable Farming, Climate Action, Sustainable Animal and Aquatic Foods, Better Diets and Nutrition, Policy Innovations, Scaling for Impact, Digital Transformation, Gender Equality and Inclusion, Capacity Sharing, Breeding for Tomorrow and Genebanks	NAFRI; Lao Farmers Network

## 8. Boundaries and linkages with other components of the Portfolio

### 8.1. Boundaries with other components of the Portfolio

#### Multifunctional Landscapes and Sustainable Farming

The Multifunctional Landscape and Sustainable Farming Programs are distinct yet complementary in advancing FLW system transformation. The Multifunctional Landscapes Program aims for resilient and equitable livelihoods, improved nutrition, and biodiversity gains, taking a source-to-sea perspective. The Sustainable Farming Program focuses on enhancing productivity, resilience, and sustainability at the field-farm levels. The Multifunctional Landscapes Program emphasizes sustainable land use, restoration/regeneration, and protection/conservation pillars through agroecology, nature-positive and regenerative approaches while the Sustainable Farming Program prioritizes agricultural lands using suits of integrated agronomy, plant health, and farming systems solutions toward sustainable intensification. To enhance synergy, the two Programs will collaborate on (a) **Shared geographies**: Identify ‘common sites’ to co-implement tailored solution bundles across the plot/farm-landscape continuum. The two Programs will also conduct joint planning and innovative action research related to ‘land-sharing and land-sparing strategies to optimize synergies and production-conservation objectives under the sphere of landscape-level multifunctionality. (b) **Data sharing and performance indicators**: Share tools and adopt common indicators (e.g., soil health, land degradation neutrality, water management, biodiversity, and ecosystem services conservation and restoration) to monitor shared objectives and geographies. (c) **Non-shared geographies**: Assess contributions to productivity, resilience, and sustainability using common metrics to enable cross-site comparisons. Additionally, collaboration on socioecological resilience will include technical innovations, markets, policies, land-use planning, governance, performance assessments, and global advocacy to support learning and science-based decision-making across regions. Both Programs will engage in joint fundraising to facilitate achieving the above.

### 8.2. Linkages across the Portfolio

#### Climate Action Program

This linkage will maximize the synergies of socio-technical innovations. The solutions co-developed in Multifunctional Landscapes contribute to climate adaptation and mitigation, i.e., Multifunctional Landscapes benefit from emission monitoring and measurement advanced in Climate Action. The AoWs dedicated to global and national engagement in both Programs create opportunities for collaboration.

Mechanisms include (a) joint sites; (b) exchange visits; (c) sharing methods; (d) joint fundraising; (e) advocacy and policy engagement i.e., on incentives for carbon credits/ecosystem services (i.e., integration of the three Rio Conventions).

#### Sustainable Animal and Aquatic Foods Program

The linkage will allow us to (a) integrate innovations on sustainable animal and aquatic food production into the Multifunctional Landscapes Program solution bundles; (b) provide evidence of their MFL deployment and their impact on socioeconomic

and environmental and biodiversity outcomes; (c) optimize complementary land use and management solutions that benefit ecosystems, livestock, and aquatic resources.

Mechanisms include integration, testing, and evaluation of Sustainable Animal and Aquatic Foods’ innovations in the Multifunctional Landscapes Program, including those related to livestock health/one health, feeds and forages, improved livestock and aquatic breeding practices, soil and water conservation, business and marketing models. Tools for monitoring resilience, emissions and environmental/biodiversity outcomes will be co-developed. Multifunctional Landscapes’ AoW 1 and Sustainable Animal and Aquatic Foods’ AoW 1 Productivity+ and AoW 3 will collaborate on climate and environment.

#### Policy Innovations Program

The linkage with Policy Innovations will provide refined evidence on the role of national and subnational institutions and policies to support Multifunctional Landscapes outcomes, considering the political economy of landscape transformation and policy change, evaluating the effectiveness of alternative policy options for the integration of landscape components, and identifying ways to influence policy processes. Lessons from the national and subnational scales will be consolidated to inform the global and regional engagement of the Program in various policy discourses (AoW 7).

Mechanisms include shared funding and activities to examine policies on tenure security (including land rights governance), coordinate impact assessments (e.g., effects of policies on adoption and landscape outcomes), conduct political economy analysis, support policy changes and associated institutional capacity strengthening for inclusive landscape governance, policy coherence, national and regional development objectives.

#### Better Diets and Nutrition Program

The linkage will allow collaboration on matching demand and supply and deliver healthy, nutritious foods for rural as well as the increasing number of urban populations, addressing the challenges of getting sustainably produced nutritious foods into the growing urban poor settlements at affordable prices, and understanding preferences of urban consumers.

Mechanisms include (a) co-design technologies on co-located sites, and (b) sharing methods and tools for targeting, evidence generation, and scaling. The key synergistic alignment would be the combined work of Multifunctional Landscapes and Better Diets and Nutrition on agrobiodiversity/agroecology-related nutrition-sensitive innovations and solutions to inform the Convention on Biological Diversity’s initiative on Biodiversity for Food and Nutrition.

#### Gender Equality and Inclusion Accelerator

The linkage will allow collaborative research on collective agency (how to support and measure it) in the context of common property resources, inclusive landscape governance, normative change (to accelerate equality and environmental outcomes), and studying youth aspirations, mobilities, and livelihoods in the Living Landscapes. The research will be rooted in the principles of co-design and inclusive participation, which are central to both Programs.

Mechanisms include co-investments in the Multifunctional Landscapes localities to allow for larger, multi-location studies to generate a broader and more impactful evidence base. Multifunctional Landscapes will test methods developed/led by the Accelerator. Collaboration will happen primarily through its AoW 5.

### Digital Transformation Accelerator

The linkage will allow co-developing and applying digital solutions and new data science in AoW 1, 2, and 6 with trade-off and scenario analysis, new data collection and data management, integrated modeling, and near-real-time evidence generation. Integrated systems analysis across scales where different actors and their actions shape landscapes requires huge data and sophisticated analytics. Both Multifunctional Landscapes and the Accelerator will explore the Digital Twin Landscapes.

Mechanisms include co-investment (time, personnel, resources), specifically on AoW 2 and 6; collecting and collating data from different sources; harmonization for AI-based analysis, capacity building of the Multifunctional Landscapes Program team.

### Capacity Sharing Accelerator

The linkage will allow for increased efficiency and effectiveness of capacity-sharing approaches, and to contribute to the knowledge base of the Accelerator. Collaboration on the science of capacity sharing will relate to co-creation processes (place-based learning), user-centered design, South-South and triangular knowledge sharing, MEL of capacity sharing, and strengthening of systems thinking capabilities within CGIAR and partners (with the Sustainable Farming Program and the Accelerator.)

Mechanisms include the joint conceptualization of the capacity-sharing interventions and Multifunctional Landscapes' participation and contribution to the Accelerator's Innovation Lab, Marketplace, and Knowledge House with its community of practice.

### Scaling for Impact Program

The linkages will allow life-cycle collaboration. The two Programs will co-develop impact scaling methodology including co-identification of scaling actors in the geographies of interest. Multifunctional Landscapes will play a critical role in global and regional engagement, while at the national level SIP will be more active.

Mechanisms include (a) identification of scaling research questions to enhance the adoption and the performance of the innovation bundles; (b) joint science-based advocacy at the national, regional, and global scales to enhance the performance of multifunctional landscapes; (c) use of feedback loops to inform Multifunctional Landscapes research priorities based on scaling challenges.

## 9. Monitoring, evaluation, learning, and impact assessment (MELIA)

### 9.1. Monitoring, evaluation, and learning (MEL)

MELIA will build on existing experiences with the Initiatives and knowledge of bilateral donor requirements and working at multiple levels: farm/food producer, organizations and markets, and landscapes.

**Monitoring** will focus on the performance of the Program, meaning the extent to which Multifunctional Landscapes delivers the planned activities, and outputs at the levels of the AoWs and the progress that is being made toward the outcomes. It will also monitor the contributions of bilateral projects to Program Outcomes.

**Evaluation** will provide a bridge between monitoring and learning for effective adaptation of Program implementation. Formative and summative evaluation activities will focus on the qualification of the monitoring results related to the activities or projects that fall under the different AoWs and consider the articulation between them.

**Learning** will be strengthened compared to the current Initiatives and will bridge M&E and impact assessment. Learning will take place within the management teams (AoW), and partnership levels based on quantitative and qualitative data (on delivery of planned activities and outputs, but also on the next user's perceptions of co-creation processes, capacity sharing, and partnerships). Designated MEL focal points by country will ensure a distributed effort and ensure that the performance of the AoW is analyzed at the country level. MEL plans for bilaterally funded projects will be mapped to the Program intermediate and 2030 outcomes in coordination with project managers.

### 9.2. Impact assessment

The outcomes of Multifunctional Landscapes occurring at different levels of intervention (individuals, i.e., farmers, organizations, market systems, or policies) call for a differentiated impact assessment strategy that will employ quantitative and qualitative methods to measure the contribution of the Multifunctional Landscapes Program, as well as to comprehend the mechanisms and reasons behind the achieved impacts. Thus, the Program will (a) assess the effect of the innovations at the landscape level on advancing the pathways to their transition and (b) facilitate a reflexive evaluation of the Multifunctional Landscapes Program contribution in influencing behavioral changes of landscape stakeholders. The diversity of landscapes addressed in the Multifunctional Landscapes Program will provide enriching contrasts to the evaluation methods, allowing us to compare the results of the outcomes achieved, and acknowledge the need for contextualized approaches.

Impact assessments will allow us to address learning objectives and broad research questions related to ToC components such as the outcomes and impacts related to:

1. Multistakeholder involvement at different stages of collaborative research.
2. Selected technical, institutional, and socioecological innovation.
3. Socially inclusive and adaptive multistakeholder decision-making, landscape governance, and land-use planning.
4. Increased availability of food and non-food production and ecosystem services.
5. National, subnational, and regional landscape-level policies, strategies, programs, and investments.
6. Socially inclusive and gender-transformative processes.
7. Global and regional agenda-setting on environmental health and biodiversity.

Multifunctional Landscapes will build on baseline studies and outcome evidencing undertaken in the Initiatives, using prioritization criteria such as the BASE indicators, and adjusting existing impact assessment tools as required.

## 10. Capacity sharing

Multifunctional Landscapes will approach capacity sharing by addressing interconnected problems in food, land, and water systems within complex networks of stakeholders in more than 15 countries and the seven Areas of Work. The goal is to enhance the capacities and agency of actors to co-create, use, adapt and adopt the knowledge, innovations, tools, and evidence generated with partners. The Program will achieve its goal by engaging in two interconnected pathways.

**At the level of the landscape and each AoW:** Based on a synthesis of the country's needs, the focus will be on strengthening landscape stakeholders' capacities to co-implement AoW activities and learn together from this process for further use and adaptation. Topics relate to technical and socioecological innovations, enabling environments (policy, markets, institutions), land-use planning and governance, science-based assessments, and evidence generation, as well as methods for GESI and youth inclusion. Activities will be tailored to the needs of each country/landscape. Emphasis will be given to knowledge sharing, transferring of skills, cross-functional learning, cultural exchanges, and leadership development fostering a collaborative mindset among landscape stakeholders. Partnerships with academia based on knowledge gaps will allow to co-develop and share scientific evidence and train scientists (individual, group, face-to-face, online, and blended, master and PhD students, scholarships, and exchange visits). Emphasis will be given to the customization and use of citizen science, digital tools, AI, blockchain, and other data-analytical methods.

**At the Program level:** The focus will be on elevating findings from the Multifunctional Landscapes Program as well as bilateral projects inside and outside CGIAR to increase landscape stakeholders' long-term organizational and institutional capacities. This higher-level engagement will contribute to creating a shared vision of MFLs, foster global thinking, and shape international policy discourse. Feeding into the hub and marketplace planned by the Capacity Sharing Accelerator, AoW 7 will develop science-based delivery models with partners, pull together or join existing knowledge hubs for different audiences (scientists, policymakers, farmers), offer opportunities for South-South and triangular exchanges, feed research into existing networks and facilitate communities of practice for cross-regional learning.

**Past and ongoing capacity-sharing activities** relate mostly to technical training. The Agroecology Initiative emphasized capacity sharing at the Living Landscape level with a focus on technical training on selected agroecological principles and practices of communities participating in the Living Landscapes in eight countries. In the first 2 years, 80 events, mostly face-to-face, trained 6,500 people (more than 50% women) with 36 partners. Nature Positive trained more than 4,000 people in 20 events. In addition, a program in Ghana on circular bioeconomy in schools reached more than 5,000 students. Under the Livestock and Climate Initiative over 10,000 pastoralists and other stakeholders have directly or indirectly participated in or benefited from improved land-use planning, management, and governance, while the capacity of NGOs and government to support them has been built. Multifunctional Landscapes will build on these training events and for longer-term and institutionalized capacity development at organizational, policy, and institutional levels. The capacities of CGIAR scientists have been strengthened through internal training and knowledge exchanges.

### Capacity-sharing needs

The experience from the Initiatives shows that researchers need to improve their own socio-technical skills and capacities in action research that supports the transition to nature-positive landscapes, agroecological, regenerative, and healthy food systems for all. This includes technical and managerial skills in the facilitation of collaborative research (engagement, co-creation, and learning) with farmers, fishers, pastoralists, and partners. Resources have also to be deployed to improve the user-centered design of capacity-sharing activities and resources that are sensitive to gender, local cultures, and languages that allow to build on and strengthen local and indigenous knowledge systems.

The Multifunctional Landscapes Program will conduct a mapping of strategic partnerships with shared objectives in multifunctional landscapes to increase capacities through cross-learning. Those partners include food, land, and water system actors involved in the three UN Conventions (biodiversity, climate, and desertification) such as UN agencies, regional and global organizations, academia, practitioners, and policymakers. The mapping will include the identification of the offer, and the needs of each partner involved directly and indirectly in the effective implementation of the Multifunctional Landscapes Program.

### The development of capacities will be monitored and evaluated

at the individual level (including program teams) and the level of partners and organizations (including participating centers), through the gathering of baseline information, periodic surveys, outcome identification, and evaluations. This will be done in partnership with the MELIA team and the Capacity Sharing Accelerator.

## 11. Gender and social inclusion

Gender and other factors of social differentiation shape the knowledge, priorities, rights, responsibilities, and vulnerabilities of eco-agrifood system actors; with rural women often faring worse than rural men and urban men and women on every human development indicator for which data is available. Given that gender equality and women's empowerment are an end (SDG 5) as well as a means for achieving the other SDGs, persistent inequalities slow progress toward a range of human and environmental objectives in resilient multifunctional landscapes.

Research and practice on regenerative landscapes and agroecosystems has supported the development of principles, guidance, and methodologies for gender-responsive landscape restoration, feminist agroecology, and other equitable nature-based solutions to injustice and exclusion in MFLs. It has surfaced issues of tenure, resource rights, governance, collective action, and more generally, the trade-offs, synergies, and distribution of costs and benefits implied by different landscape management options. Working at a landscape scale has also brought about new challenges, such as a multiplication of actors who must work together in managing greater socioecological complexity toward shared, but also separate, and at times competing goals. MSPs have gained prominence in fostering inclusion and center interventions on the priorities of women and socially excluded groups such as vulnerable Indigenous People; whereas attention to youth and migration has cast light on the dynamics of MFLs, and their shifts over time and space.

Yet, critical questions remain, including:

1. How to account for and equitably value diverse knowledge systems, socio-cultural ecosystem services, and nature's contributions to people in planning and delivering landscape interventions?
2. How can a just agroecological transition sustain cultural heritage, advance food sovereignty, and enhance collective action?
3. What kinds of policies, integrated solutions, and options can improve distributional equity while synergistically achieving multiple (biodiversity, climate, land restoration, food and nutrition security) objectives and managing trade-offs?

Multifunctional Landscapes will address these questions through four interrelated pathways. First, AoW 5, which focuses on Fairness, Gender Equality, and Social Inclusion, will pursue research specifically on these topics, to advance the state of knowledge and programming on gender and equality more broadly in MFLs (see ToC and high-level outputs and outcomes in AoW 5). Second, Multifunctional Landscapes will integrate GESI and youth inclusion considerations throughout its research agenda to ensure that all innovations developed are equitable, contextually relevant, and driven and co-designed by the range of actors who manage multifunctional landscapes, including the women in all their diversity whose livelihoods are intimately tied to these landscapes. Thirdly, the Program will pay particularly strong attention to responsible gender- and socially equitable-sensitive and transformative innovation and scaling, working with the Scaling Program. All the Program's work on innovation and scaling needs to be responsible: reflexive, responsive, anticipatory, and inclusive. Building on experience with 'GenderUp for scaling' we will design and evaluate guidance on building responsible innovation and scaling practices including the consideration of any trade-offs resulting from innovations and interventions. The fourth pathway, which underpins the other three, focuses on strengthening capacities and modalities for gender integration across MFLs. This work will entail capacity strengthening for CGIAR scientists and partners, building critical awareness on social and gender norms within Multifunctional Landscapes research teams, and stimulating reflexivity among scientists to enable teams to address gender in their work and implement GTAs and social equity interventions and work in socially inclusive ways. Materials will be produced and training using experiential and adult learning methodologies will support this learning, in close collaboration with the GESI Accelerator.

Together, these pathways will allow us to contribute to closing the gender gap in rights to economic resources, access to ownership, control over land and natural resources, and decision-making at the landscape level and offer rewarding opportunities for youth in food, land, and water systems.

Conducting this work will require adequate resources, capacities, and coordination. A GESI and youth inclusion strategy will be developed for Multifunctional Landscapes in the first two-quarters of the Program based on gender analysis and inputs from research teams and partners. A team of researchers specializing in gender equality, youth, and social inclusion in MFLs will work closely with scientists across the Program, with one or more gender researchers contributing to each AoW, in alignment with the strategy and under the coordination of a Gender Research Coordinator. Previous CGIAR Research Programs have shown that dedicating at least

10% of the budget of a program to advancing gender equality and social inclusion can deliver tangible outputs and move the needle on GESI across the program and the outcomes it generates.

## 12. Climate change

Recognizing the bidirectional relationships between climate and landscape processes is essential to understand how climate change can affect landscape functionality and to explore appropriate adaptation and mitigation measures. Impact pathways between climate change and food security are numerous and interdependent. A range of climate impacts does occur and materialize at the landscape level, such as sea level rise, watershed dynamics, droughts and floods, erosion, nutrient and water flows, and increase of biotic and abiotic risks to productive systems (crop, livestock, sea, and inland fisheries, aquaculture, and forests), with ultimate impacts on food security and nutrition, and further environmental impacts on biodiversity and ecosystem health. It is at the landscape scale that climate change impacts interlink with other key factors of change, such as land-use change, deforestation and land degradation, groundwater and surface water extraction, water pollution, biodiversity loss, urban expansion, and changes in coastal management (mangroves, deltas).

There is, therefore, a need to better assess the impacts of climate change on food, land, and water systems at the landscape level and how they interact or can be amplified by other factors of change, to be able to better anticipate the ultimate impact on production, livelihoods, and the environment, and devise options for resilience. Conversely, responses to increasing resilience and adaptation to climate risks need to integrate at the landscape level, with landscape-level measures. For instance, land-use planning integrating forest and ecological corridors can help mitigate ground temperature rise. Sustainable land management for soil, water, and biodiversity conservation is best achieved if planned and managed with the scale and principles of the landscape approach. Sustainable mountain development and integrated coastal zone management are other examples of the landscape approach in action. Management and sustainable use of wetlands support carbon sequestration and reduce GHG emissions. Climate adaptation and mitigation outcomes are hard to achieve by interventions at individual farm or household level. It is also at the landscape level that a lot of synergies can be created between adaptation and mitigation action, as well as with biodiversity conservation, for instance through forest landscape restoration, mangroves restoration, and agroforestry development.

Multifunctional Landscapes will work to better understand and anticipate landscape-level vulnerabilities and impacts and their relations with compounding change factors on food land and water systems, as well as devising context-based adaptation solutions at the scale of landscapes and ecosystems, and the necessary enabling conditions in terms of governance, inclusive markets, land-use planning and technical capacities. Adaptation planning needs to integrate several sectors and actors, as part of the national adaptation plan processes,<sup>48</sup> and Multifunctional Landscapes will work to support the integration of adaptation and mitigation planning in practice at the landscape scale that, to be most effective, needs to involve, be connected to, and mobilize existing or new, ad hoc landscape governance and management bodies and institutions. It will support countries

<sup>48</sup> FAO, 2024. Integrating Agriculture in National Adaptation Plans, <https://www.fao.org/in-action/naps/en/>

and actors with appropriate knowledge and tested solutions in a range of contexts. As part of this, it will act to support the implementation of NDCs (nationally determined contributions) and NAPs (national adaptation plans) and strengthen their reporting mechanisms by capturing landscape-level indicators.

Multifunctional Landscapes will establish climate risk assessment at the landscape level for the priority landscapes, gathering evidence and data about climate impact and constructing projections into the future. It will analyze how, given synergies and trade-offs within a landscape, adaptation measures in agriculture, livestock, aquatic foods, and forests can benefit other sectors (cross-sectoral adaptation), and how these synergies can support the selection and prioritization of options (including cost-benefit analysis) with particular attention to mitigation and other co-benefits. Multifunctional Landscapes Program will construct “business cases” for adaptation that can attract a diversity of public and private investments. Multifunctional

Landscapes will also work at building the enabling environment at the landscape level for the implementation of measures. This will include working with institutions, networks, and partnerships and promoting cross-sectoral and integrated approaches to land-use and land management at the landscape level.

Multifunctional Landscapes will work on improved ways to organize at the landscape level the governance of finance for adaptation and mitigation. Finally, it will coordinate, with inputs from the Climate Action Program work on better indicators for adaptation and mitigation at the landscape level, and improved monitoring and assessment of the effectiveness of implementation and adaptation and mitigation at the landscape level. The above will be undertaken inter-alia through capacity strengthening and linkages with key initiatives such as the Global Center on Adaptation, the FAST Partnership or TreesAdapt, and multilateral climate change instruments such as the Green Climate Fund, Global Environment Facility, or Adaptation Fund.

## 13. Risk management

Risks will be finalized and mitigation actions will be developed as part of the risk management plan during the Inception Phase.

**Table 13.1.** Preliminary risks identified at proposal stage

Risk title (summarized statement)	Risk statement including potential event, sources, and consequences on objectives
Natural disasters, geopolitical dynamics, and disease outbreaks	Some of the countries in which we will implement the Multifunctional Landscapes Program are prone to all those risks. Local or more national social unrests remain a possibility, as well as potential natural disasters and disease outbreaks. Multifunctional Landscapes Program, in collaboration with the landscape actors, will conduct due diligence to mitigate this risk.
Conflicting consequences of innovations for environmental, productivity, social and economic aspects	There are some key trade-offs among environmental and productivity targets and social and economic objectives, not only for households but for other actors across landscapes. These challenge the calculation of return on investments for all relevant actors. Trade-off analyses will be conducted and options to optimize synergies and reduce trade-offs identified.
Inability to incentivize behaviors needed for adoption, in landscape stakeholders	Inability to find and apply suitable incentives that compensate trade-offs in the adoption of solutions could prevent landscape stakeholders from adopting desired behaviors for successful implementation. Adaptive management will be applied to inform iterations of incentives to minimize bottlenecks.

## 14. Funding sources

The Multifunctional Landscapes Program will be funded through a combination of pooled<sup>49</sup> and bilateral<sup>50</sup> funding. Each type of funding will be governed and managed in accordance with applicable rules agreed by and between CGIAR and the CGIAR Centers. The Program aims to ensure accountability on activities supported by pooled funding, transparency, complementarity, and synergy across all sources and types of funding. For additional details on the use of pooled funding, please refer to the Annex.

The Multifunctional Landscapes Program's initial level of pooled funding was derived from mapping the 2024 budgets of the Initiatives and Environment Impact Area Platform that will be integrated into the Program. The level of funding in the baseline scenario shown in Table 14.1 is much lower than the total pooled funding required to implement the totality of the activities listed

in the Annex on Pooled Funding. This funding gap cannot be filled with bilateral funding alone. Therefore, additional pooled funding will need to be secured beyond the current preliminary budget allocation shown in Table 14.1, in order to elevate the ambition of the Program through expanding the scope and outcomes of the constituent Initiatives. Increasing the level of pooled funding budget is particularly important for enhancing integrated CGIAR efforts in areas such as agroforestry, aquatic food production, restoration, conservation, and sustainable finance in productive landscapes. These areas, where CGIAR has a recognized scientific record of accomplishment, present opportunities to unlock additional funding and financing.

The AoW allocations in Table 14.1 were calculated based on the mapping of the Initiative and Impact Area Platform Work Packages to the Multifunctional Landscapes Areas of Work (Table 14.2). This preliminary distribution will be adjusted during the Inception Phase in accordance with country-level workplans.

**Table 14.1.** High-level preliminary breakdown of pooled funding by Area of Work (in USD) for 2025

Area of Work	Baseline funding (USD)
1. Agroecology, nature-positive, regenerative, restorative and nutrition-sensitive bundles of solutions	3,294,158
2. Multi-scale, inclusive and adaptive land- and water use planning, integration, and governance	2,908,399
3. Leveraging markets, business models, and financial mechanisms	2,894,158
4. Institutions and policy environment	2,794,158
5. Fairness, gender equality, and social inclusion	2,608,399
6. Evidence-based performance assessment supported by new data science	3,094,158
7. Global engagement, science-based advocacy and learning	1,136,572
<b>TOTAL</b>	<b>18,730,002</b>

**Table 14.2.** Preliminary mapping of Initiative/Platform Work Packages into Program Areas of Work

Initiative/Platform	WP/Function	Mapping to Multifunctional Landscapes AoWs
Agroecology Initiative	WP1	70% to AoW 1, 30% to AoW 2
Agroecology Initiative	WP2	100% to AoW 6
Agroecology Initiative	WP3	100% to AoW 3
Agroecology Initiative	WP4	100% to AoW 4
Agroecology Initiative	WP5	50% to AoW 2, 50% to AoW 5
Nature Positive Solutions Initiative	WP1	34% to AoW 1, 33% to AoW 3, 33% to AoW 4
Nature Positive Solutions Initiative	WP2	20% to AoW 1, 16% to AoW 2, 16% to AoW 3, 16% to AoW 4, 16% to AoW 5, 16% to AoW 6
Nature Positive Solutions Initiative	WP3	20% to AoW 1, 16% to AoW 2, 16% to AoW 3, 16% to AoW 4, 16% to AoW 5, 16% to AoW 6
Nature Positive Solutions Initiative	WP4	16% to AoW 1, 16% to AoW 2, 16% to AoW 3, 16% to AoW 4, 16% to AoW 5, 10% to AoW 6, 10% to AoW 7
Nature Positive Solutions Initiative	WP5	16% to AoW 1, 16% to AoW 2, 16% to AoW 3, 16% to AoW 4, 16% to AoW 5, 10% to AoW 6, 10% to AoW 7
Livestock and Climate Initiative	WP3	100% to AoW 2
Livestock and Climate Initiative	WP5	33% to AoW 4
NEXUS Gains Initiative	WP1	7.5% to AoW 2
Environmental Health and Biodiversity Impact Platform	All	100% to AoW 7

The ten largest bilateral funding sources, from 55 projects above 1 million USD mapped to the Multifunctional Landscapes Program, are listed in Table 14.3. These projects are implemented in 30 countries by the Alliance of Bioversity International and CIAT, CIP, ICARDA, ICRISAT, ILRI, IWMI, WorldFish, and their respective

partners. In addition to these bilaterally funded projects led by CGIAR Centers, other projects led by non-CGIAR Centers might be mapped to the Multifunctional Landscapes Program. This is the case for *ARCA: Regenerative agriculture for the conservation of the Amazon*, a USD 17.4 million project led by CIFOR-ICRAF and funded by USAID.

<sup>49</sup> Building on the 30 May proposal of CGIAR's Financial Model Reference Group ([https://storage.googleapis.com/cgiarorg/2024/05/3020-11\\_FMRG-Update\\_.pdf](https://storage.googleapis.com/cgiarorg/2024/05/3020-11_FMRG-Update_.pdf)) and for the purpose of this proposal, the term "pooled funding" refers to funding from CGIAR Trust Fund Windows 1 (W1) and 2 (W2), made available for the 2025–30 Portfolio as a whole through W1 ("Unites" funding) or earmarked towards a Program, Accelerator, or Genebanks through W2 ("Light Earmark").

<sup>50</sup> As above, "bilateral funding" is used as a shorthand for funding from CGIAR Trust Fund Window 3 (W3) and bilateral funding directly from a funder to a Center ("Direct" funding in the Reference Group's proposal).

**Table 14.3.** Overview of the key known bilaterally funded projects and programs that the Program will integrate

Project/Program Title	Lead CGIAR Center	Funder Name	Duration	Project Budget	Relevant Program Areas of Work, if known
F-AG10607-ASIA-AFRICA BLUETECH SUPERHIGHWAY PROJECT (COAST)	WorldFish	United Kingdom — Foreign, Commonwealth and Development Office (FCDO)	31.03.2030	\$8,654,107	All
USA-USAID-Amazon Biodiversity Fund Brazil Fundo de Investimento em Participações Multiestratégia	Alliance Bioersity CIAT	USA — United States Agency for International Development (USAID)	2026	\$3,891,483	AoW 3
Biodiversity for Resilient Ecosystems in Agricultural Landscapes (B-REAL) (TBC)	Alliance Bioersity CIAT	GAC	TBD	\$4,000,000	AoWs 1,3,4,7
USAID (USA) - SERVIR Amazonia Phase II	Alliance Bioersity CIAT	USAID	02.25.2027	\$3,324,794	AoW 6
YUPO3- Building Community Resilience by Alleviating Water scarcity and Land Degradation through Integrated Natural Resource Management in Bundelkhand, Uttar Pradesh	ICRISAT	India — State Government of Uttar Pradesh	31.10.2025	\$2,483,560	
L-IUC001-Sustainable Investments for Large-scale Rangeland R	ILRI	International Union for Conservation of Nature and Natural Resources (IUCN)	30.09.2026	\$2,056,675	AoW 1
SCIENTIFIC AND TECHNICAL SUPPORT TO ASEAN COUNTRIES' SUSTAINABLE AGRICULTURE - 3S	Alliance Bioersity CIAT	Agenzia Italiana per la Cooperazione allo Sviluppo (AICS)		\$1,917,238	
UK FCDO - Seed to tree: value chains and partnerships for resilient restored forests in Malaysia	Alliance Bioersity CIAT	UK FCDO — UK Pact Malaysia		\$1,600,000	
D-100814-KFAED: Kuwait IDFS	ICARDA	Kuwait Fund for Arab Economic Development		\$1,500,000	
Rural and sustainable innovation for regional development in conditions of climate variability in the Central RAP-E Region	Alliance Bioersity CIAT	IILA — Organizzazione Internazionale Italo Latino Americana // AICS-Agenzia Italiana per la Cooperazione allo Sviluppo		\$1,357,763	
YMH05- Landscape resource management for augmenting groundwater recharge and sustainable intensification of farming systems and building resilience for improved livelihoods of farmers in dryland of Maharashtra, India	ICRISAT	Groundwater Surveys & Development Agency (GSDA)	31.03.2025	\$1,250,010	
Transforming Supply Chains for a Deforestation-Free Future: Integrating MRV Protocol in Colombia's Agri- Food Sectors	Alliance Bioersity CIAT	United Kingdom — FCDO		\$1,138,505	

## Annex - Pooled funding

This section provides details on the activities of the Program to be funded by pooled funding. These activities have been identified considering three aspects:

1. The proposed ToC and components of this Program. Every activity responds to the scope described in the proposed Areas of Work. It is envisioned that during implementation, the Program's reporting system will capture how these activities contribute to the high-level outputs of the AoW and the Program outcomes.

2. Inputs derived from an analysis performed within the Initiatives upon which the Multifunctional Landscapes Program is building (Agroecology, Nature-Positive Solutions, Livestock and Climate, and NEXUS Gains), plus the Environmental Health and Biodiversity Impact Platform. Activities to be covered by pooled funding were selected after discussing the next level of actions needed to advance further the achievements of the Initiatives/Platforms. It considered how such activities contribute to the Science Program scope, the AoW and the high-level outputs, and to the overall integrative approach proposed in this Science Program. These activities also respond to the priorities already assessed by Initiatives during their Pause and Reflect meetings.

It is worth mentioning that the activities proposed in this annex represent an evolution of the activities in the Initiatives and then are not identical to what has been done in the past year of the Initiatives. Based on the process to integrate these Initiatives/Platform into a comprehensive integrated landscape management approach, 100% of the Agroecology Initiative has been mapped to the Multifunctional Landscapes Program, as well as 100% of the Nature-Positive Solutions Initiative and 100% of the Environmental Health and Biodiversity Impact Platform's functions. In addition to this, 100% of the WP3 and 33% of the WP5 activities from the Livestock and Climate Initiative were mapped into this Program, along with 7.5% of the WP1 activities from the NEXUS Gains Initiative.

3. New activities identified during the design of this Program and the respective AoW ToC, which are required to realize the overall ambition of this Program. This Program is not just the sum of the

parts (i.e., precedent Initiatives and Platform), but the result of integrating their approaches into a broader framework to deliver multiple benefits from food, land, and water systems, with actions both at the farm level and at the food systems level, converging in specific landscapes. This means that the ambition of this Program, and the activities laid out in this Annex, require larger pooled funding resources than the current budget assigned to the Initiatives mentioned. During the Inception Phase, the Multifunctional Landscapes Program Writing Team expects to develop detailed work plans for participating Centers and partners for 2025 and onwards, based on the proposed activities in this Annex and the pooled funding to be confirmed in the coming months.

It is important to note that the Program envisions an implementation model in selected landscapes that represent a diversity of socioecological contexts, where all Areas of Work are implemented holistically—from activities about technological co-design to activities about institutional innovations enabling change toward multifunctional landscapes, to be able to support a comprehensive transition in each landscape. In this sense, activities under all AoWs are planned to be supported with pooled funding. The level of intensity of each AoW and the specific activities will be calibrated during the Inception Phase in each country/landscape. This implementation model will also foster cohesion within the Program, amplify collaboration between CGIAR Centers, and with partners, and maximize system approaches in CGIAR that can result in unlocking further financial opportunities for the Program. In general terms, it is expected that the current annual budget allocated to the Initiatives will continue as a minimum basis to start the Program in 2025 and likely will increase to allow implementation of the new activities. During the Inception Phase, and upon a process of engaging country and landscape-level partners, the Writing Team will prioritize the activities listed here, based on budget availability and stakeholders' demands and preferences. In this Inception Phase, a ToC will be elaborated for each of the geographies targeted, to have a clear route of action, optimize resources and ensure accomplishment of objectives.

In the following table, the activities planned to be funded with pooled funding are described, indicating which ones represent an evolution from the current activities in Initiatives, which ones are completely new, and how they are mapped into the proposed Areas of Work.

**Table A1.** Program activities expected to be funded by pooled funding

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
1. Agroecology, Nature-Positive, Regenerative, Restorative and Nutrition-Sensitive Bundles of Solutions	Farmer seed networks to improve the use of agro and tree biodiversity for resilience, nutrition, and environment	Nature + and Agroecology Initiatives	New activity	WP1	Colombia, India, Kenya, Peru, Vietnam
	Strengthen and expand EncontrAR knowledge portal; currently a knowledge portal for climate adaptation in the Andes with more than 300 experiences mapped and growing	Nature + Initiative	Activity continuation or expansion	WP1	Colombia, India, Kenya, Peru, Vietnam
	Co-designed options to enhance integration of biodiversity use, soil, and water management in farms	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Identify strategies to increase consumption of diverse and nutritionally rich crops, including under-utilized species	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Co-design of, and capacity sharing on, circular water, nutrient, and energy innovations building and expanding from pilot innovations	Nature + Initiative	New activity	WP4	Colombia, India, Kenya, Peru, Vietnam
	True-cost accounting data collection in additional countries	Nature + Initiative	Activity continuation or expansion	WP5	Colombia, India, Kenya, Peru, Vietnam
	Network of reference landscapes (building on the Agroecological Living Landscapes Network) for monitoring dynamics at farm and landscape level, in synergy with networks of innovators	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Foster co-design of agroecological innovations based on cooperation between farmers (e.g., seed production, circular economy innovations)	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Co-designed agricultural production models, following agroecological principles, which respond to consumer preferences (linked to AoW 3)	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Establishment of more controlled research environments at plot and landscape levels to generate scientific evidence about the co-designed agroecological innovations with key local/national research partners (linked with AoW 6)	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Continue to provide evidence on Agroecological innovations performance using the Holistic Assessment Framework piloted in eight countries (linked with AoW 6)	Agroecology Initiative	Activity continuation or expansion	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Analysis of power issues and inclusiveness in the co-design process of agroecological and nature-positive solutions, and identify and implement improvements as needed, during the action research processes	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Elevate co-design of agroecological innovations (and other solutions) from Living Labs/farm level to landscape level, and leveraging within existing institutional/decision-making structures in landscapes	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
1. Agroecology, Nature-Positive, Regenerative, Restorative and Nutrition-Sensitive Bundles of Solutions	Evaluation of technical solutions co-designed and implemented in past years to assess how sound they are from the agronomic, social, and environmental perspectives	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Advances toward a basket of innovation options at landscape level for different types of aquatic food producers, farmers & agroecosystems, and restoration and conservation needs	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Digital advisory tools following human-center design approaches for catalyzing implementation of tested agroecological innovations	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Field-based assessments on the cost-effectiveness of bio inputs, covering the diversity of inputs and identifying key bottlenecks for the widespread use of the effective ones	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Inclusion of nutritional criteria, as per local priorities and nutritional needs, in the co-design of agroecological innovations (nutrition-sensitive solutions)	Agroecology Initiative	New activity	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Co-design activities with buffer-zone inhabitants, park authorities, and conservation actors that integrate tenure arrangements, local potential, and concerted action plans They include (i) ecotourism; (ii) wildlife corridors; (iii) beekeeping and pollination; (iv) optimization and trade-off analysis; (v) payment for ecosystem services; (vi) co-designing transboundary mechanisms to reduce conflict over shared natural resources	N/A	New activity	N/A	TBD
	Socially inclusive and culturally relevant climate-smart solutions	N/A	New activity	N/A	TBD
	Sustainable production following agroecology, nature-positive solutions, and complementary approaches, combined with restoration and conservation strategies, which incorporate climate change adaptation and mitigation considerations, for fostering resilient and low emissions landscapes	N/A	New activity	N/A	TBD
	Accelerate new data science and AI use in advisory services for integrated landscape management	N/A	New activity	N/A	TBD
	Farmer/pastoralist/aquatic food producer field schools expanding and complementing the network of living landscapes initiated in Agroecology and other similar efforts in other Initiatives	N/A	New activity	N/A	TBD
Actor-centered training to anchor and scale-tested solutions that together increase benefits from sustainable production, restoration, and conservation at the landscape level These may involve (i) farmer-farmer scaling networks; (ii) digital tools and advisory systems; (iii) farmer/ fisher/pastoralist field schools; (iv) development communications; (v) training of trainers; (vi) multistakeholder platforms; (vii) design, use and evaluation of experiential learning tools, and other innovative learning approaches	N/A	New activity	N/A	TBD	

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
	Co-designing polyculture systems in aquaculture as part of a solution bundle, estimating the potential for achieving environmental and economic benefits	N/A	New activity	N/A	India, Bangladesh, Laos, Kenya, Zimbabwe
2. Multiscale, Inclusive and Adaptive Land- and Water-Use Planning, Integration and Governance	Landscape plans following a nested approach (from farm to landscape) to enable biodiverse production systems (including agroforestry and aquatic systems) with multiple stakeholders	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Strengthening collective action/experiential learning through serious games	Nature + Initiative	Activity continuation or expansion	WP5	Colombia, India, Kenya, Peru, Vietnam
	Review agroecological transition pathways built together with Agroecological Living Landscapes, adapt based on learning in terms of how desired changes are occurring and expand to desired farm/landscape-level transitions	Agroecology Initiative	Activity continuation or expansion	WP1	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Key interface and institutional reconfigurations that support local agroecological innovation identified and disseminated to agricultural innovation researchers, practitioners, and producer organizations	Agroecology Initiative	New activity	WP5	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Innovation opportunities for cooperative decision-making and widespread behavior change identified	Agroecology Initiative	New activity	WP5	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Agency and behavior change knowledge incorporated in agroecological living landscapes theories of change based on an iterative reflection process	Agroecology Initiative	Activity continuation or expansion	WP5	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Key roles of agroecological science, practices, and social movements in enabling agency and behavior change to support agroecological transitions identified, synthesized across ALLs, and incorporated into strategies and investment plans	Agroecology Initiative	New activity	WP5	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Improvement, contextualization, and scaling of participatory inclusive land-use planning innovations particularly relevant for shared collective resources	Livestock and Climate Initiative	Activity continuation or expansion	WP3	Colombia, Ethiopia, Kenya, Senegal, Tanzania, Tunisia
	Improvement, contextualization, integration, and scaling of participatory rangeland management and links to peace building and gender transformation	Livestock and Climate Initiative	Activity continuation or expansion	WP3	Colombia, Ethiopia, Kenya, Senegal, Tanzania, Tunisia
	Development and deployment of innovations, capacities, and financing (e.g., private sector) for large-scale rangeland restoration	Livestock and Climate Initiative	Activity continuation or expansion	WP3	Colombia, Ethiopia, Kenya, Senegal, Tanzania, Tunisia
Decision support tools development and deployment including land use and restoration cost-benefit analysis, trade-off analysis, ecosystem services valuation	Livestock and Climate Initiative	Activity continuation or expansion	WP3	Colombia, Ethiopia, Kenya, Senegal, Tanzania, Tunisia	

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
2. Multiscale, Inclusive and Adaptive Land- and Water-Use Planning, Integration and Governance	Development of innovations to measure and reduce GHGs at the landscape level - measure through the use of eddy towers, reduce through improvements in production and collective manure biodigesters	Livestock and Climate Initiative	Activity continuation or expansion	WP3	Colombia, Ethiopia, Kenya, Senegal, Tanzania, Tunisia
	Analyzing Water, Energy, Food and Environment Nexus Innovations using Foresight and Trade-Off Methodologies	NEXUS Gains Initiative	Activity continuation or expansion	WP1	Nepal, Pakistan
	Co-design, strengthen and apply land-use planning tools and methodologies building upon previous experiences (e.g., vision-to-action methodologies developed and applied in Agroecological Living Landscapes)	N/A	New activity	N/A	TBD
	Identify needs and opportunities for integrated management solutions for water, soil, aquatic food production, trees, and underutilized species that meet the needs of landscape actors	N/A	New activity	N/A	TBD
	Implement inclusive participatory land use and water planning when informing the co-design of solutions for sustainable production, restoration, and conservation	N/A	New activity	N/A	TBD
	Co-design, strengthen appropriate inclusive multiple-scale governance building on relevant previous experiences (e.g., multistakeholder platforms)	N/A	New activity	N/A	TBD
	Develop engagement strategies to connect national policymakers and policies into inclusive participatory action planning in landscapes from sustainable production, restoration and conservation	N/A	New activity	N/A	TBD
	Capacity- and agency-building for socially excluded groups to encourage their participation and non-discrimination principles and capacity strengthening on social inclusion to all actors, and to fill stakeholder skills, information, and knowledge gaps	N/A	New activity	N/A	TBD
3. Leveraging markets, business models and financial mechanisms	Strengthen and expand the AGUAPAN and RESCA models (Payment for Ecosystem Services mechanisms)	Nature + Initiative	Activity continuation or expansion	WP1	Colombia, India, Kenya, Peru, Vietnam
	Develop bioeconomy viable models that can incentivize more biodiversity use in production systems	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Financial mechanisms to link sustainable production to public procurement	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Provide viable business models and supporting decision support tools to advance circular economy options (developed under AoW 1)	Nature + and Agroecology Initiatives	New activity	WP4	Colombia, India, Kenya, Peru, Vietnam
	Identify employment opportunities for the youth via business models (in the Agroecology Initiative there was no emphasis on youth)	Agroecology Initiative	New activity	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
3. Leveraging markets, business models and financial mechanisms	Identify opportunities for demand creation for agroecological products and strengthen the link between producers and consumers Identify the target markets where these business models have an impact (rural or urban)	Agroecology Initiative	New activity	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Address the research gap on Fairness and sustainability of business models	Agroecology Initiative	New activity	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Create synergies between farm sizes and business models to benefit small-scale farmers	Agroecology Initiative	Activity continuation or expansion	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Advance research on organizational processes (financial, inclusion, management) to foster social innovations that can accelerate agroecology, nature-positive solutions and the delivery of multiple landscape benefits, at scale	Agroecology Initiative	New activity	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Identify the required changes in the enabling environment for market innovations (e.g., business models), with emphasis on financial (and non-financial) incentives to initiate, catalyze and scale farm-level and enterprise/social-level innovations at the landscape scale	Agroecology Initiative	New activity	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Evaluation of identified incentives for potential consumers of sustainable products and services (e.g., product differentiation, traceability and labeling, marketing)	Agroecology Initiative	New activity	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Indicators and a system to monitor and evaluate the success of business models (among other market innovations) holistically, in the landscape (linked to AoW 6)	Agroecology Initiative	Activity continuation or expansion	WP3	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Exploring mitigating risk alternatives for farmers (insurance systems) (linked with AoW 1)	N/A	New activity	N/A	TBD
	Analyze markets and consumer preferences, relevance, and potential impact of innovative market strategies, and test them with the support of scaling/development partners	N/A	New activity	N/A	TBD
	Identify and strengthen local SMEs and continue Accelerator programs (e.g., the agroecological Accelerator program initiated in 2023)	N/A	New activity	N/A	TBD
Identify and implement the best communication strategies to promote sustainable goods and services	N/A	New activity	N/A	TBD	

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
4. Institutions and policy environment	Understand enablers and bottlenecks to the use of farmer seed and local agrobiodiversity within seed regulation	Nature + Initiative	New activity	WP1	Colombia, India, Kenya, Peru, Vietnam
	Analysis of inclusiveness in seed systems and policies and provide recommendations for their enhancement	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Policy dialogues on the implications of true-cost accounting for improved design of investment mechanisms and incentives for sustainable production, restoration and conservation	Nature + Initiative	Activity continuation or expansion	WP5	Colombia, India, Kenya, Peru, Vietnam
	Integration of economic valuation of biodiversity and environmental services into decision-making	Nature + Initiative	Activity continuation or expansion	WP5	Colombia, India, Kenya, Peru, Vietnam
	Research on informal structures, not just formal institutions, which influence the most the transition pathways toward sustainable production, restoration, and conservation	Agroecology Initiative	New activity	WP4	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Policy analysis to identify bottlenecks and actions to overcome them, for catalyzing implementation of emerging environmental incentives	Agroecology Initiative	Activity continuation or expansion	WP4	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Strengthen/bring back research on land tenure, water, and land governance aspects that are determinant to make viable agroecological, nature-positive solutions and other complementary actions at scale	Agroecology Initiative	New activity	WP4	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Use of the policy tracker tool (developed to map policies relevant to agroecological transitions) to understand bottlenecks and opportunities	Agroecology Initiative	Activity continuation or expansion	WP4	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Global and national policy influencing pastoralism and rangelands including UNCCD COP and International Year of Rangelands and Pastoralists 2026	Livestock and Climate Initiative	New activity	WP5	Colombia, Ethiopia, Kenya, Senegal, Tanzania, Tunisia
	Advance political economy analyses to define strategies for advancing at scale, integrated solutions for multifunctional landscapes via sustainable production, restoration, and conservation	N/A	New activity	N/A	TBD
	Develop best practices for capacity sharing	N/A	New activity	N/A	TBD
	Create localized policy toolkits	N/A	New activity	N/A	TBD
	Facilitate science-policy dialogues and public-private partnerships	N/A	New activity	N/A	TBD
	Identify entry points for enhanced policy coordination, including subnational policy options	N/A	New activity	N/A	TBD
Develop frameworks for cross-sectoral policy alignment using the policy tracker tool	N/A	New activity	N/A	TBD	
Extract examples of effective policy coordination mechanisms	N/A	New activity	N/A	TBD	
Pilot experiential learning interventions	N/A	New activity	N/A	TBD	

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
5. Fairness, gender equality and social inclusion	Inclusive models for integration of soil, crop and treed diversity, and water management practices in different types of systems and for different types of farmers and land users	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	Gender inclusive circular solutions, targeted capacity building of informal women-led circular business	Nature + Initiative	New activity	WP4	Colombia, India, Kenya, Peru, Vietnam
	Lessons drawn from analysis of the relations between rural youth in low- and middle-income countries (LMICs) and agroecological transitions	Agroecology Initiative	Activity continuation or expansion	WP5	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Co-design and strengthen other AoWs to improve Fairness and GEYSI for different social groupings and target change at different scales (household, community, organizational)	N/A	New activity	N/A	TBD
	Co-implement innovations and interventions, regularly reflected upon and adaptively managed	N/A	New activity	N/A	TBD
	Synthesize behavioral change lessons across AoWs	N/A	New activity	N/A	TBD
6. Evidence-based performance assessment supported by new data science	Use of crowdsourcing methodologies and integrated monitoring framework of nature-positive solutions	Nature + Initiative	New activity	WP2	Colombia, India, Kenya, Peru, Vietnam
	End-line data collection on nature-positive solutions	Nature + Initiative	Activity continuation or expansion	WP5	Colombia, India, Kenya, Peru, Vietnam
	Strengthen the capabilities and use of the In situ toolbox, a toolbox for establishing baselines and conducting multiscale monitoring from genes to landscapes for native crops	Nature + Initiative	Activity continuation or expansion	WP1	Colombia, India, Kenya, Peru, Vietnam
	Capacity-sharing modules to strengthen systems approaches for policymakers and implementers of nature-positive solutions, agroecology, in the context of integrated landscape management	Nature + and Agroecology Initiative	New activity	WP5	Colombia, India, Kenya, Peru, Vietnam
	Assessing prosperous and resilient livelihoods more explicitly in assessments	Agroecology Initiative	New activity	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Stronger biodiversity assessment (including agrobiodiversity) models	Agroecology Initiative	Activity continuation or expansion	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Apply HOLPA in new landscapes and more diverse cropping systems, and repeat its application to track changes	Agroecology Initiative	Activity continuation or expansion	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Interactive data platforms from the onset to allow quick usability of data and evidence	Agroecology Initiative	New activity	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Spatial and GIS but in a highly participatory and community-embedded way (possibility to combine with citizen science approach) to assess the performance of agroecology	Agroecology Initiative	New activity	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
Landscape- and food system-level assessments for Agroecology Possibly linked to TAPE+	Agroecology Initiative	Activity continuation or expansion	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe	

Area of Work	Proposed activity	From	Type of activity	Initiative WP	Countries
6. Evidence-based performance assessment supported by new data science	Assessment of ‘attractiveness’ of rural landscapes (with different statuses in terms of sustainable production, conservation, and restoration) to counter generational loss in rural landscapes	Agroecology Initiative	New activity	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Landscape-level analyses of adoption and market opportunities	Agroecology Initiative	New activity	WP2	India, Kenya, Laos, Peru, Senegal, Tunisia, Zimbabwe
	Develop nested assessment frameworks and tools to conduct ecosystem health assessments across spatial and temporal scales	N/A	New activity	N/A	TBD
	Establish and strengthen modeling capacities and models for assessing multiple benefits from improved sustainable production, restoration, and conservation in landscapes	N/A	New activity	N/A	TBD
	Implement nested multiscale assessment framework in all landscapes and conduct a landscape-level assessment of key performance variables	N/A	New activity	N/A	TBD
7. Global engagement, science-based advocacy and learning	Circular bioeconomy and agroecology innovation hubs supported with Accelerator programs (linked to AoW 3)	Nature + and Agroecology Initiative	New activity	WP4	Colombia, India, Kenya, Peru, Vietnam
	Shared vision of CGIAR and close partners related to environmental health, biodiversity, ecosystem functions, and services in the context of multifunctional landscapes including emerging research priorities based on various megatrends	Environment Impact Platform	Activity continuation or expansion	N/A	Global
	CGIAR and Program stakeholders’ concert and influence global and regional agenda settings on environmental health and biodiversity	Environment Impact Platform	Activity continuation or expansion	N/A	Global
	Knowledge base/hub on multifunctional landscapes including metrics, indicators, assessments approaches, benchmarks/standards, and knowledge gap assessments based on well-defined benchmarks	Environment Impact Platform	Activity continuation or expansion	N/A	Global
	Science and landscape actors within and outside of CGIAR Programs share and strengthen their capacity for multifunctional landscape science and management	Environment Impact Platform	Activity continuation or expansion	N/A	Global
	Framework and agenda for engagement and advocacy built on synthesized evidence on multifunctional landscapes	Environment Impact Platform	Activity continuation or expansion	N/A	Global
	Capacity sharing, learning agenda, and resources built on the knowledge base/hub and the synthesized evidence on multifunctional landscapes	Environment Impact Platform	Activity continuation or expansion	N/A	Global
	Synthesize scientific evidence on multifunctional landscapes	N/A	New activity	N/A	Global
	Support the co-development and sharing of learning resources for landscape stakeholders on all AoWs	N/A	New activity	N/A	Global
Facilitate a community of practice in integrated landscape approaches applying agroecology, nature-positive solutions, and other complementary approaches, bringing scientific evidence to actors inside and outside the Program	N/A	New activity	N/A	Global	

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# Multifunctional Landscapes Program

## Appendix

November 15, 2024

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# Appendix: Comparative Advantage Analysis (Section 4)

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<b>AoW 1. Solution bundles</b>					
<p>OP: Co-created basket of solutions and strategies for multifunctional landscape management</p>	<p><b>Human Capital (HC)</b></p> <ol style="list-style-type: none"> <li>Multidisciplinary diverse teams of scientists: biophysical and social</li> <li>Delivery enablers making the links to development agents, entrepreneurs, and advisory services</li> </ol> <p><b>Biophysical Capital (BC)</b></p> <ol style="list-style-type: none"> <li>Access to laboratories</li> <li>Access to global data and modeling outputs</li> <li>Learning landscapes (key benchmark sites)</li> </ol> <p><b>Social Capital (SC)</b></p> <ol style="list-style-type: none"> <li>Relevant partnerships and networks to co-design and implement</li> <li>Long-term relationships and commitment with national R4D organizations to achieve impact</li> <li>Long-term scientific links to newest discoveries (blue sky) and adaptive research</li> </ol> <p><b>Incentives (I)</b></p> <ol style="list-style-type: none"> <li>Incentive for NARES: increased capacity and international scientific links</li> <li>CGIAR: publication of international public goods (IPGs), impact on the ground,</li> <li>National universities and ARIs: Access to data, relevant fieldwork, and experience for students</li> <li>CBOs and INGO: access to innovations and technical assistance, new business models</li> <li>Political and development partners and stakeholders understand the benefits of the approach</li> </ol>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> CGIAR has globally recognized scientists in all fields STRONG</p> <p><b>BC:</b></p> <ol style="list-style-type: none"> <li>Access to own state-of-the-art laboratories, built capacity in some NARES</li> <li>all Centers</li> <li>across all 5 high coverage of regions and country presence</li> <li>Ongoing collaboration in multiple landscapes allowing access to benchmark sites</li> </ol> <p>MODERATELY STRONG</p> <p><b>SC:</b></p> <ol style="list-style-type: none"> <li>Partnerships and networks with NARES, local governments, and grassroots organizations (CBOs)</li> <li>Long-term relationships and commitment with national R4D organizations through physical presence</li> <li>Long-term scientific links with partner universities through capacity development and joint publications</li> </ol> <p>MODERATELY STRONG</p> <p><b>I:</b></p> <ol style="list-style-type: none"> <li>Publication of IPGs,</li> <li>Proof of developed and used innovations</li> <li>Opportunity to address very diverse challenges (living labs)</li> <li>Impact on the ground,</li> <li>Developing partner capacity and strong human ties</li> </ol> <p>STRONG</p>	<p><b>Current</b></p> <ul style="list-style-type: none"> <li>Demand partners (DPs): <b>NARES, government, CBOs, funders, government organizations, foundations, private sector</b></li> <li>Innovation partners (IPs): internal CGIAR, NARES, <b>universities, advanced research institutes (ARIs)</b> CBOs, multiscaleholder platforms/innovation platforms</li> <li>Scaling partners: internal CGIAR, government, NGOs and INGOs, development actors and projects, private sector</li> </ul> <p><b>New or to be expanded</b></p> <p>DPs:</p> <ul style="list-style-type: none"> <li>ARI: Global Methane Hub, Funders: African Development Bank, Asian Development Bank, International Fund for Agricultural Development</li> <li>Regional agricultural research organizations (Friedreich's Ataxia Research Alliance, Association for Strengthening Agricultural Research in Eastern and Central Africa, Centre for Coordination of Agricultural Research and Development for Southern Africa)</li> <li>Intergovernmental organizations (e.g., Intergovernmental Authority on Development, Common Market for Eastern and Southern Africa)</li> <li>The Global Environment Fund</li> </ul> <p>IPs:</p> <ul style="list-style-type: none"> <li>ARI: Global Methane Hub</li> <li>International Research Institutes and universities (Cornell, Maryland, Boku, Florida, Wageningen University, Swedish University of Agricultural Sciences, KU Leuven University, Sant'Anna)</li> </ul> <p><b>Scaling partners:</b></p> <ul style="list-style-type: none"> <li>INGOs: Oxfam, CARE, Heifer International Land O'Lakes Venture37</li> </ul>	<p><b>NARES and national universities</b></p> <p><b>HC:</b> Can participate in co-creating bundled solutions for agroecology, nature-positive, and regenerative agriculture practices at different landscape typologies Value: STRONG</p> <p><b>BC:</b> Universities and NARES are responsible for some specific lab requirements should they be unavailable in-house. STRONG</p> <p><b>SC:</b> Different landscape stakeholders will co-design and co-implement locally relevant baskets of options and ensure implementation. Most relevant are land users or managers, including local communities and Indigenous People MODERATE</p> <p><b>I:</b> Demand stakeholders are those with stronger incentives to support the adoption of a bundle of solutions as part of the broader prioritization of sustainability STRONG</p> <hr/> <p><b>Government:</b></p> <p><b>HC:</b> WEAK TO MODERATE</p> <p><b>BC:</b> MODERATE</p> <p><b>SC:</b></p> <p><b>I:</b> MODERATE</p> <hr/> <p><b>CBOs and Innovation platforms</b></p> <p><b>HC:</b> Farmers organizations, land users, and managers to co-develop and co-implement appropriate basket of options STRONG</p> <p><b>BC:</b> They provide access to landscapes STRONG</p> <p><b>SC:</b> They help provide additional connections to stakeholders and key partners in landscapes STRONG</p> <p><b>I:</b> They contribute through their traditional knowledge to design the bundle of options STRONG</p> <hr/> <p><b>Private sector (input and output supplies)</b></p> <p><b>HC:</b> THE DEGREE OF CA DEPENDS ON THE INNOVATION</p> <p><b>BC:</b> POTENTIALLY STRONG</p> <p><b>SC:</b> POTENTIALLY STRONG</p> <p><b>I:</b> MODERATE TO STRONG</p> <hr/> <p><b>Advanced Research Institutes</b></p> <p><b>HC:</b> STRONG</p> <p><b>BC:</b> MODERATE</p> <p><b>SC:</b> WEAK TO MODERATE</p> <p><b>I:</b> STRONG</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b></p> <p><b>HC:</b> MODERATE</p> <p><b>BC:</b> WEAK TO MODERATE</p> <p><b>SC:</b> MODERATE TO STRONG</p> <p><b>I:</b> MODERATE</p>	<p>The Comparative Advantage (CA) for this high-level output lies likely with CGIAR with regard to scientific human capital, knowledge, and skills because of its coverage and global reach as well as the high number of innovations already developed and tested; CGIAR also has a CA to some extent on specific biophysical capital, but with very limited geographical coverage; through a continuous long-term presence in some of the target countries across the six CGIAR regions, CGIAR has built social capital and networks and can bring partners together for co-designing and implementation of innovations that can generate impact on the ground;</p> <p>Incentives for delivering this high-level output are high for CGIAR and nearly all partners.</p> <p>To overcome some limitations in CGIAR's CA, we shall continue to build on</p> <ul style="list-style-type: none"> <li>the CA of NARES with regard to their HC and SC</li> <li>the CA of selected ARIs in providing in-depth and blue sky expertise and the latest State-of-the-art infrastructure</li> <li>on the CA of Government using their presence on the ground and their ability to enable implementation and scaling</li> <li>strengthen partnerships with land users/managers for access to testing landscapes</li> </ul> <p>Given the CA of INGOs and Regional agricultural organizations in terms of their specific human capital related to understanding broader context and political landscapes and their social capital, we will explore more strategic partnerships with these organizations for across-country delivery of our innovations in sustainable animal and aquatic foods</p>

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<p>OP: Living Landscapes</p>	<p><b>Human Capital (HC)</b></p> <ol style="list-style-type: none"> <li>Inter-multi-disciplinary team of experts along the spectrum of social-natural sciences.</li> <li>Experts working on participatory methods and tools</li> <li>Remote sensing and geospatial analysis experts, modelers, data scientists</li> <li>Experts with experience in partner coordination, innovation platforms, etc.</li> <li>Experts in the areas of sustainable finance, business model</li> <li>Experience in operationalizing action research and behavioral change</li> </ol> <p><b>Biophysical Capital (BC)</b></p> <ol style="list-style-type: none"> <li>Soil- field equipment</li> <li>Soils – lab</li> <li>GHGE tools</li> <li>Hydrology – field equipment</li> <li>Remote sensing images</li> <li>Drone images</li> <li>Landscapes</li> <li>Farms/plots</li> </ol> <p><b>Social Capital (SC)</b></p> <ol style="list-style-type: none"> <li>Government institutes</li> <li>NARES and universities</li> <li>NGOs and the private sector</li> <li>Associations and platforms</li> <li>Communities and farmers</li> </ol> <p><b>Incentives (I)</b></p> <ol style="list-style-type: none"> <li>Access to data, models, and tools</li> <li>PES/carbon credit</li> <li>Collaboration and partnership</li> <li>Capacity sharing</li> <li>Enabling policies and strategies</li> <li>Platforms</li> <li>Value chain actors</li> <li>Development actors</li> </ol>	<p>Considering the 9 CGIAR Centers collaborating in the Multifunctional Landscapes Program:</p> <p><b>HC:</b> There is adequate human capital with associated skill sets and experiences in all domains. Collaboration can be sought in the areas of business models and sustainable finance. VALUE: Strong</p> <p><b>BC:</b> The CGIAR has adequate access to the required biophysical assets. Collaboration will be sought to acquire "living landscape, plots and farms" to operationalize action research. VALUE: Strong</p> <p><b>SC:</b> CGIAR has the social capital available to undertake the objectives under Living Landscapes because of its close collaboration with national governments, land users, communities, and other actors within countries. VALUE: Medium</p> <p><b>I:</b> Most of the incentives need to be fulfilled through partners. CGIAR can play a role in catalyzing. VALUE: Weak</p>	<p><b>Current</b> Government institutions (NARES, Universities, etc.), private Sector, NGOs, cooperatives, platforms, Unions, communities, farmers</p> <p><b>New or to be expanded</b> Incubators, youth innovation hubs, financial mechanisms</p>	<p><b>NARES and national universities:</b> <b>HC:</b> Can support the implementation of bundled solutions in Living Landscapes and capacity development for farmers. These will be key partners. Universities can offer students to conduct research. VALUE: Strong</p> <p><b>BC:</b> Can help secure landscapes, plots, and farms for action research. CGIAR can use local labs and research facilities as appropriate. VALUE: Strong</p> <p><b>SC:</b> CGIAR can use partnerships and other arrangements NARES has within countries. VALUE: Strong</p> <p><b>I:</b> NARES and Universities can offer entry points for CGIAR to access some value chain actors. VALUE: Strong</p> <hr/> <p><b>Government:</b> <b>HC:</b> Government can offer extension workers, relevant department staff, and the like to support on-the-ground execution of living landscape objectives. VALUE: Strong</p> <p><b>BC:</b> Government can offer the necessary infrastructure to operationalize action research. This includes landscapes, farms, lots, and labs on public land. VALUE: Strong</p> <p><b>SC:</b> All landscape actors generally operate under the government's jurisdiction, and CGIAR can benefit tremendously from the existing institutions and associated social capital. VALUE: Strong</p> <p><b>I:</b> Necessary enabling conditions for implementing living landscapes and their sustainable management can succeed through collaboration with the government in the countries of interest. VALUE: Strong</p> <hr/> <p><b>CBO, innovation platforms</b> <b>HC:</b> CGIAR has a better comparative advantage, but those actors will contribute with traditional knowledge and approaches. VALUE: Medium</p> <p><b>BC:</b> They provide access to landscapes and are critical for implementation and adoption VALUE: Strong</p> <p><b>SC:</b> Available platforms can be beneficial for CGIAR operations. VALUE: Strong</p> <p><b>I:</b> Platforms and other arrangements can facilitate CGIAR engagement on the ground. VALUE: Medium</p> <hr/> <p><b>Private sector (input and output supplies)</b> <b>HC:</b> These can play a role in executing action research on the ground. In some countries, they can play a role in the sustainable management of living landscapes. VALUE: Medium to Strong</p> <p><b>BC:</b> May not be as strong, but there are strong laboratories in some countries. VALUE: Medium</p> <p><b>SC:</b> These can play an important role in executing action research on the ground. In some countries, they can play a leading role in the sustainable management of living landscapes. VALUE: Strong</p> <p><b>I:</b> Can play an important role in business model development and sustainable finance. VALUE: Medium to strong</p> <hr/> <p><b>Advanced Research Institutes</b> <b>HC:</b> Can support CGIAR engagement in the countries of implementation. Can also provide personnel for laboratory, modeling, data analytics support, and capacity development. VALUE: Medium</p> <p><b>BC:</b> Can provide laboratory facility, modeling, and data analytics tools. VALUE: Strong</p> <p><b>SC:</b> Can facilitate CGIAR engagement using their existing networks and research sites. VALUE: Medium</p> <p><b>I:</b> CGIAR has a comparative advantage. VALUE: Weak</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b> <b>HC:</b> Can play a pivotal role in business model, sustainable finance, and capacity development. VALUE: Medium</p> <p><b>BC:</b> May not be as strong or at the same level as CGIAR capacities, but they can have strong connections with land users/managers. VALUE: Weak to Medium</p> <p><b>SC:</b> May not be as strong or at the same level as CGIAR capacities. VALUE: Weak</p> <p><b>I:</b> May not be as strong or at the same level as CGIAR capacities. VALUE: Weak</p>	<p>Living Landscapes are key operational units of the Multifunctional Landscapes Program. These are combinations of methodologies and action research sites where the scaling partners' work will be executed, demonstrated, and used as benchmarks for scaling. CGIAR has adequate capacity in various ways to handle these in collaboration with its partners. It will benefit governments, local communities, and NARES in securing those landscapes and person-to-person support research and extension. The CA needs to be identified for the concrete country and landscape in the inception.</p>

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<b>AoW 2. Planning and Governance</b>					
<p>Multi-layered land-use plans, governance, and coordination mechanisms</p>	<p><b>Human Capital (HC)</b> Multidisciplinary teams of scientists: biophysical (soils, agrobiodiversity, water, forests, ecology, etc.) and social, including those with experience in land-use planning, land tenure, and governance (CAPRI, CRP PIM F5, initiative and bilateral).</p> <p>Very important to this AoW is our capacity to act as an honest broker</p> <p><b>Biophysical Capital (BC)</b></p> <ol style="list-style-type: none"> <li>1. Labs for testing soils, water, plant dry matter, etc.</li> <li>2. Mazingira Center – GHGe and assessment tools and technology</li> <li>3. Breeding for Tomorrow and Genebanks</li> </ol> <p><b>Social Capital (SC)</b></p> <ol style="list-style-type: none"> <li>1. Innovation platforms</li> <li>2. Cooperatives</li> <li>3. Community organizations</li> <li>4. Watershed management units</li> <li>5. Land-use planning unit</li> <li>6. Stakeholder coordination unit</li> </ol> <p><b>Incentives (I)</b></p> <ol style="list-style-type: none"> <li>1. Enabling Policies</li> <li>2. Strategies</li> <li>3. Institutes</li> <li>4. Land-use planning strategies</li> <li>5. Governance system</li> </ol>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes Program:</p> <p><b>HC:</b> Most of the required human capital to execute activities that deliver the outputs is available within CGIAR. VALUE: High</p> <p><b>BC:</b> The required biophysical assets are available within CGIAR. Additional items (e.g., GHGE chambers) can be purchased and capacity building may be required. VALUE: Strong</p> <p><b>SC:</b> CGIAR has relatively less CA along with this, though it can easily achieve this in collaboration with national partners. The availability of land-use planning and stakeholder coordination units may vary from country to country –but CGIAR can use its networks to establish those if necessary. VALUE: Strong</p> <p><b>I:</b> CGIAR may not influence some of the incentives mentioned but can facilitate their creation or benefit through collaboration with national partners. VALUE: Weak</p>	<p><b>Current</b></p> <ul style="list-style-type: none"> <li>• Government Ministries and sectors,</li> <li>• NARES, Universities</li> <li>• NGOs</li> <li>• Private Sector</li> <li>• Development organizations</li> <li>• IRAs</li> </ul> <p><b>New or to be expanded</b> Ensure that marginalized groups are well identified to make sure their voices are heard</p>	<p><b>Government</b></p> <p><b>HC:</b> Coordinate the different sectors while co-developing and executing land-use plan, ensuring equal participation of all relevant stakeholders VALUE: Strong</p> <p><b>BC:</b> Ensure clear delimitation of boundaries landscapes VALUE: Strong</p> <p><b>SC:</b> Governments have connections with the different stakeholders in landscapes and are aware of projects and initiatives that already exist, including those that can be unsustainable VALUE: Strong</p> <p><b>I:</b> Those plans will be part of government plans and priorities VALUE: Strong</p> <hr/> <p><b>NARES and national universities</b></p> <p><b>HC:</b> They will provide technical inputs and support in the planning processes VALUE: Low to medium</p> <p><b>BC:</b> Unless there will be landscape sites within the perimeter of universities or research stations, they will not contribute to BC VALUE: Low</p> <p><b>SC:</b> In some cases, they can be involved in other initiatives and programs within landscapes where they may not have a strong connection with non-research stakeholders VALUE: low to medium</p> <p><b>I:</b> they may have incentives to be part of new landscape programs VALUE: low to medium</p> <hr/> <p><b>CBOs and innovation platforms</b></p> <p><b>HC:</b> Many of the users and adopters in landscapes have strong knowledge of landscapes VALUE: high</p> <p><b>BC:</b> They represent part of the land users in landscapes and provide access to land, such as farms or communally managed areas VALUE: high</p> <p><b>SC:</b> While they may not have connections to all stakeholders in landscapes, they provide useful connections to grassroots stakeholders VALUE: Medium</p> <p><b>I:</b> As important land users in landscapes, they have a strong incentive to contribute to the planning and governance VALUE: high</p> <hr/> <p><b>Private sector (input and output supplies)</b></p> <p><b>HC:</b> Private Sector has strong interests in the landscapes they operate VALUE: high</p> <p><b>BC:</b> Private Sector is an important player in land use and access to landscapes VALUE: high</p> <p><b>SC:</b> They have connections with a number of stakeholders but maybe not all, particularly those that are more disadvantaged VALUE: medium</p> <p><b>I:</b> As key players in landscapes, they have strong incentives for the planning process VALUE: high</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b></p> <p><b>HC:</b> unless there are particular instances, they have more interest in implementation than in governance and planning VALUE low to medium</p> <p><b>BC: No contribution to BC</b> VALUE: Low</p> <p><b>SC: In specific circumstances, they may contribute to stakeholders</b> VALUE: low</p> <p><b>I: No strong interest in planning and governance</b> VALUE: low</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b></p> <p><b>HC:</b> In specific circumstances, they may have an interest in participating in governance and planning VALUE: Low</p> <p><b>BC:</b> they may not provide access to BC VALUE: Low</p> <p><b>SC:</b> They may have connections with some stakeholders in specific landscapes VALUE: Low</p> <p><b>I:</b> they are more interested in implementation than governance and planning VALUE: low</p>	<p>The CA rests with partners, mainly policymakers or other key decision-makers in the landscapes. CGIAR will play a critical role in ensuring all actors are involved and their voices heard, and all can contribute to plans and be involved in governance through inclusive coordination mechanisms, particularly using GEYS lenses. Also, CGIAR will contribute to feasible and technically sound plans.</p>

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<b>AoW 3. Markets</b>					
<p>OP3.1. market and nonmarket systems approaches based on consumer preferences</p>	<p><b>Human Capital (HC)</b></p> <ol style="list-style-type: none"> <li>Economists, social scientists,</li> <li>Market system researchers,</li> <li>Market analysts,</li> <li>Behavioral scientists,</li> <li>Innovative financing specialists,</li> <li>National and local facilitators and trainers, trained field investigators.</li> </ol> <p><b>Biophysical Capital (BC)</b></p> <ol style="list-style-type: none"> <li>Access to global, national, and sub-national markets and other relevant data</li> <li>Business incubation facilities and infrastructure,</li> <li>Successful SMEs can be used as benchmarks to support the AoW activities.</li> </ol> <p><b>Social Capital (SC)</b></p> <ol style="list-style-type: none"> <li>Alliances of social, green, and circular entrepreneurs, food system stakeholders, and NGOs</li> <li>Local and national partners who can support the design and implementation of contextually relevant business models.</li> </ol> <p><b>Incentives (I)</b></p> <ol style="list-style-type: none"> <li>Incentive for NARES: increased capacity, scalable models, and international scientific links</li> <li>CGIAR: publication of IPGs, impact on the ground</li> <li>National universities and ARIs: Access to data, relevant fieldwork, and experience for students</li> <li>CBOs and INGO: access to innovation, technical assistance, and new business models</li> </ol>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> CGIAR Researchers in all fields: The centers involved have all the skill sets required to cover different aspects of this AoW, including value chain development, financial investment, development of payment schemes, STRONG</p> <p><b>BC:</b> Market data and analysis: MODERATELY STRONG</p> <p>Network of living landscapes and communities engaged&gt; STRONG</p> <p>Business incubation and facilitation: MODERATELY STRONG</p> <p>Network of business cases of SME: MODERATELY STRONG</p> <p><b>SC:</b> Alliances of social, green, and circular entrepreneurs MODERATELY STRONG</p> <p>Local and national partners: STRONG</p> <p><b>I:</b></p> <ol style="list-style-type: none"> <li>Market innovations and transformation processes,</li> <li>Proof of developed and used innovations</li> <li>Opportunity to address very diverse ecosystem goods and services,</li> <li>Impact and transformation on the ground,</li> <li>Supporting partner capacity and strong human and market ties</li> </ol> <p>STRONG</p>	<p><b>Current</b> Depending on the countries, linkages with value chain actors are well-established with partners linked with consumers' needs</p> <p><b>New or to be expanded</b> Better linkages with other actors to improve access to finance as well as potential funders interested in projects on sustainable agriculture, biodiversity credits</p>	<p><b>NARES and national universities:</b> <b>HC:</b> Working with economic departments of NARES and universities would be important to have students for particular studies and assessments. Yet the CA is higher in CGIAR VALUE: Medium</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> they are locally connected with relevant stakeholders and actors in market and nonmarket systems VALUE: medium</p> <p><b>I:</b> Interest in being part of studies that can increase their capacity to VALUE</p> <hr/> <p><b>Government:</b> <b>HC:</b> While governments may or may not participate to this point with <b>HC</b>, they are interested in the economic development of their countries and regions VALUE: Medium</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> Governments are well aware of development projects and actors operating in food systems and their market value and can support connecting with those actors as part of the plans VALUE: High</p> <p><b>I:</b> Governments have significant incentives to promote economic growth and well-being VALUE: high</p> <hr/> <p><b>CBOs and innovation platforms</b> <b>HC:</b> Not expecting much capacity in this sector VALUE Low</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> they may include networks of producers and consumers with great demand for increasing access to markets and improved well-being VALUE High</p> <p><b>I:</b> they have a strong interest in markets and nonmarket mechanisms for improving livelihood and well-being VALUE High</p> <hr/> <p><b>Private sector (input and output supplies)</b> <b>HC:</b> They are key actors in the value chain with a strong understanding of economic dynamics VALUE High</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> They are connected to farmers, other producers, shops, and consumers VALUE High</p> <p><b>I:</b> They have a strong interest in developing livelihoods and well-being through different mechanisms VALUE High</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b> <b>HC:</b> As for other research partners, they may have an interest in economic and market sectors VALUE Low to medium</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> If part of some projects in selected countries and regions, they can have strong connections to market and nonmarket actors VALUE Low to medium</p> <p><b>I:</b> We assume they have low incentives for this work, except for research purposes VALUE: low</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b> <b>HC:</b> INGO can have programs for livelihood improvements and may have some capacity on the ground. VALUE: Low</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> INGOs can have large development projects in some of our intervention countries and can have connections with a broad range of stakeholders. VALUE: Medium to high</p> <p><b>I:</b> If they have large operations in target countries, their interest may be high VALUE: medium to high</p>	<p>The CA likely rests with CGIAR, which has a diverse set of economists and social scientists who have the capacity to address different economic pathways to support smallholder farmers, consumers, and other actors in the food environment space. This capacity includes market, nonmarket, and public-private approaches. Tools such as choice experiments will allow us to identify consumer preferences and the potential for safe and biodiversity-friendly food. NARES and university partners will bring expertise to a specific social-economic context.</p>

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OP: Business models, financial mechanisms for Multifunctional Landscapes	<p><b>Human Capital (HC)</b></p> <ol style="list-style-type: none"> <li>Environmental economists</li> <li>Finance experts</li> <li>Agricultural economists</li> </ol> <p><b>Biophysical Capital (BC): N/A</b></p> <p><b>Social Capital (SC)</b></p> <ol style="list-style-type: none"> <li>Stakeholders in the and businesses in target landscapes</li> <li>Policy-makers for designing financing mechanisms for ecosystem gains</li> <li>Private sectors interested in ecosystems gain as part of corporate social responsibilities.</li> </ol> <p><b>Incentives (I)</b></p> <ol style="list-style-type: none"> <li>Enabling policies</li> <li>Land-use planning to identify areas for ecosystem restoration and conservation</li> <li>Funding mechanisms</li> </ol>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> The CGIAR has a strong capacity for ecosystem valuation and financing mechanisms in terms of payment schemes of different kinds VALUE: High</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> In some countries where those schemes are implemented, the CGIAR team is strongly connected with policymakers, private sector, and other stakeholders involved in the schemes; however, other stakeholders have a greater SC VALUE: Medium to high</p> <p><b>I:</b> CGIAR can help design schemes and promote investments in ecosystem gains, but implementation and enabling policies are with public and private sector VALUE Low</p>	<p><b>Current</b> Some connection with stakeholders in some countries, less so with finance and investors</p> <p><b>New or to be expanded</b> Much stronger connection with investors are needed, as well as the promotion of financing mechanisms more broadly adopted by decision-makers</p>	<p><b>NARES and national universities:</b></p> <p><b>HC:</b> VALUE Low</p> <p><b>BC:</b> VALUE Low</p> <p><b>SC:</b> VALUE Low</p> <p><b>I:</b> VALUE Low</p> <hr/> <p><b>Government</b></p> <p><b>HC:</b> this could be a new area in some countries and some governments and may not have strong capacity. However, they are required to enable the environment around those schemes VALUE medium</p> <p><b>BC:</b> N/A VALUE high</p> <p><b>SC:</b> they have all necessary linkages with actors relevant to achieving investment for ecosystem gains VALUE high</p> <p><b>I:</b> if ecosystem and biodiversity are a priority as part of multifunctional landscape planning, they have strong incentives to implement and support such schemes VALUE high</p> <hr/> <p><b>CBOs and innovation platforms</b></p> <p><b>HC:</b> They may not have the capacity to develop investment schemes for ecosystem gains VALUE Low</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> they are interested parties that can benefit from the schemes VALUE Low</p> <p><b>I:</b> If mechanisms are developed inclusively, they can contribute to their formulation VALUE medium to high</p> <hr/> <p><b>Private sector (input and output supplies)</b></p> <p><b>HC:</b> They have the capacity to plan investments VALUE High</p> <p><b>BC:</b> N/A VALUE</p> <p><b>SC:</b> they have strong and consolidated knowledge and presence in the landscapes they operate, including relationships with other stakeholders VALUE high</p> <p><b>I:</b> If part of their business models, they provide high incentives to deliver VALUE high</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b></p> <p><b>HC:</b> It is primarily the policy and investment part that may not have capacity in ARI VALUE: Low</p> <p><b>BC: N/A</b> VALUE: Low</p> <p><b>SC:</b> Not part of their core business, hence low SC VALUE: Low</p> <p><b>I:</b> Not part of their core business, hence low incentives VALUE: Low</p> <hr/> <p><b>INGOs and regional agricultural organizations</b></p> <p><b>HC:</b> Not part of their core business, low capacity VALUE; Low</p> <p><b>BC:</b> N/A VALUE: Low</p> <p><b>SC:</b> Not part of their core business, low SC VALUE: Low</p> <p><b>I:</b> Not part of their core business, low incentives VALUE: Low</p>	<p>CA is mostly with policymakers and public and private investors in terms of creating enabling environments for financing mechanisms for ecosystem gains. CGIAR can provide technical backstopping and advice on the design of such mechanisms</p>

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<b>AoW 4. Policies</b>					
<p>National and sub-national policy options and enacting strategies</p>	<p><b>Human Capital (HC)</b> Policy analysis researchers (economists, political economy experts, political scientists, and other researchers who do policy-relevant research); impact assessment experts; policy engagement experts; researchers who have been providing capacity-strengthening support to country partners (NARES, policymakers.)</p> <p><b>Biophysical Capital (BC)</b> Access to relevant data, policy documents, models, tools, etc.</p> <p><b>Social Capital (SC)</b> Established network of national and sub-national policy-relevant actors, collaborators, and partners; NGOs active in the policy design, implementation, and evaluation space; global actors active in the relevant global policy framework spaces</p> <p><b>Incentives (I)</b> Enabling policies and strategies</p>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> CGIAR has researchers significant experience in liaising with governments to work on enabling policies for more sustainable agriculture VALUE high</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> Very strong connections in some countries with both local and national governments VALUE Medium to High</p> <p><b>I:</b> With its capacity to technically support policies and strategies for agroecology, nature-positive, and regenerative systems, CGIAR strongly supports the incentives to develop enabling policies VALUE high</p>	<p><b>Current</b> Strong connections with government and other organizations with similar goals in terms of policies and strategies development</p> <p><b>New or to be expanded</b> Expand the range of stakeholders for policy influence</p>	<p><b>NARES and national universities</b> <b>HC:</b> NARES can be consulted on policy development and participate in technical working groups for policy development. Some university departments can provide support in terms of policy framing. VALUE medium to high</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> Directors and executives in NARES are linked to policymakers and influence the policy process VALUE High</p> <p><b>I:</b> As they influence agricultural policies from a technical point of view, they play a key role in policy formulation VALUE High</p> <hr/> <p><b>Government</b> <b>HC:</b> They are those making laws and strategies VALUE High</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> they coordinate policy development processes with all stakeholders who need to be involved VALUE High</p> <p><b>I:</b> They are the ones making the enabling environment. VALUE High</p> <hr/> <p><b>CBOs and innovation platforms</b> <b>HC:</b> they may be consulted during policy formulation VALUE Low to medium</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> They may be connected with policy officers but generally do not influence policy processes much, although they can promote grassroots priorities VALUE Low to medium</p> <p><b>I:</b> They only at times influence policy processes contributing to enabling the environment VALUE Low to medium</p> <hr/> <p><b>Private sector (input and output supplies)</b> <b>HC:</b> They may or may not participate in policy processes, but they are connected and are relevant actors in policy development in many cases VALUE medium to high</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> they are generally well-connected to policymakers and can influence policy development processes VALUE high</p> <p><b>I:</b> they can push for policy changes if necessary for their business models VALUE medium to high</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b> <b>HC:</b> Generally not interested in policy processes and development VALUE Low</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> May or may not be connected with policymakers VALUE Low</p> <p><b>I:</b> Not necessarily involved in the enabling environment VALUE Low</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b> <b>HC:</b> Generally not interested in policy processes and development at the national or local level. Some INGOs can support local organizations in participating in policy development and processes VALUE Low to medium</p> <p><b>BC: N/A</b> VALUE</p> <p><b>SC:</b> May or may not be connected with policymakers depending on their programs VALUE Low</p> <p><b>I:</b> The enabling environment can affect project and program implementation VALUE Low</p>	<p>CA rests with policymakers mandated to develop policies and strategies supporting agroecological, nature-positive, and regenerative practices. CA for CGIAR is to be able to provide strong technical backstopping for such policies and strategies. NARES are also important actors in the policy process and have significant CA</p>

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<b>AoW 5. Fairness</b>					
<p>OP: Multiscale Fair, GESI, and behavioral change approaches</p>	<p><b>Human Capital (HC):</b> Gender specialist Human-centered design expert Social scientist</p> <p><b>Biophysical Capital (BC):</b></p> <p><b>Social Capital (SC)</b> Gender unit Youth unit Job creation unit</p> <p><b>Incentives (I):</b> Gender policy and strategy Youth policy and strategy Job creation strategy</p>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> CGIAR has expertise in GYSI and human-centered design. VALUE: Strong</p> <p><b>BC: NA</b> VALUE: NA</p> <p><b>SC:</b> These units are generally available in countries (the arrangement can vary from country to country). CGIAR can access these units in most countries and benefit from their engagement. VALUE: Weak</p> <p><b>I:</b> Generally, there are good policies and strategies at global, regional, and national levels that CGIAR research can benefit from. CGIAR Centers also have their own strategies (mainly GYSI) that can support their action research on the ground. But it will benefit more from national policies and strategies. VALUE: Weak</p>	<p><b>Current</b> The specific partner types related to GYSI can vary from country to country and may be difficult to name. However, from our initiatives and bilateral projects, we know that CGIAR can benefit from any establishments within the countries of interest.</p> <p><b>New or to be expanded</b> In countries where units, policies, and strategies related to empowering youth and women are unavailable, the CGIAR may attempt to promote awareness.</p>	<p><b>NARES and national universities</b> <b>HC:</b> NARES can provide support through their GYSI-related institutes. However, CGIAR has enough capacity compared to most NARES systems. VALUE: Weak</p> <p><b>BC:</b> NA VALUE: NA</p> <p><b>SC:</b> NARES will have an important role to play in this regard. But, the level of contributions depends on whether those GYSI-related units and centers are available. VALUE: Medium</p> <p><b>I:</b> NARES can play an important role in these perspectives – if those units are available. VALUE: Weak</p> <hr/> <p><b>Government</b> <b>HC:</b> Government systems may not have strong human capital related to GYSI. VALUE: Weak</p> <p><b>BC:</b> NA VALUE: NA</p> <p><b>SC:</b> Governments will play an important role here as they create, administer, and fund those units. If those units are already available, the government can serve as a bridge to link and coordinate with CGIAR (or can be reached directly); if not, the program will negotiate with the government (relevant actors) in the respective countries to create and operationalize those. VALUE: Strong</p> <p><b>I:</b> Government (and respective institutes and offices, etc.) play a role in developing, promoting, and implementing those enabling conditions. It will be crucial for the CGIAR to foster collaboration! VALUE: Strong</p> <hr/> <p><b>CBOs and innovation platforms</b> <b>HC:</b> May not be as strong! VALUE: Weak</p> <p><b>BC:</b> NA VALUE: NA</p> <p><b>SC:</b> May not be as strong to make meaningful contributions. VALUE: Weak</p> <p><b>I:</b> May not be as strong! VALUE: Weak</p> <hr/> <p><b>Private sector (input and output supplies)</b> <b>HC:</b> Not strong. VALUE: Weak</p> <p><b>BC:</b> NA VALUE: NA</p> <p><b>SC:</b> Not strong VALUE: Weak</p> <p><b>I:</b> Not strong VALUE: Weak</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b> <b>HC:</b> Can provide meaningful contributions in social science, human-centered design, and promoting GYSI-inclusive measures VALUE: Strong</p> <p><b>BC: NA</b> VALUE: NA</p> <p><b>SC:</b> Can facilitate collaboration with government units. However, this depends on how much they collaborate with the government system. VALUE: Medium</p> <p><b>I:</b> Can catalyze implementation, awareness creation, etc. VALUE: medium</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b> <b>HC:</b> Can have personnel in social science, development, human-centered design, and the like. However, CGIAR has sufficient coverage in these areas. VALUE: Medium</p> <p><b>BC:</b> NA VALUE: NA</p> <p><b>SC:</b> Some INGOs have good connections and collaborate well with governments. They can play an important role in aligning CGIAR efforts with relevant actors. In addition, some INGOs specifically promote GYSI-related work, which can be good entry points. VALUE: Strong</p> <p><b>I:</b> Some INGOs have good connections and collaboration with governments and can play an important role in aligning CGIAR efforts with relevant actors. In addition, there are INGOs that specifically promote GYSI-related policies and strategies and provide institutional support. Such can be good entry points. VALUE: Strong</p>	<p>Generally, CGIAR has a better comparative advantage in co-designing, promoting, and implementing GYSI responsive and transformative solutions and frameworks. It can thus execute this output adequately. However, it will benefit hugely if the governments within each country of interest have the units, strategies, and policies associated with GYSI. In addition, INGOs and development organizations in different countries play an important role in GYSI-related spheres, and collaborating with those can be beneficial.</p>

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<b>AoW 6. Performance assessment</b>					
<p>OP: Frameworks and Decision support tools for holistic performance assessment, including the use of new data science</p>	<p><b>Human Capital (HC)</b></p> <ol style="list-style-type: none"> <li>Landscape ecologist</li> <li>Modelers, data scientists</li> <li>Web design, interface, dashboard developers,</li> <li>Gender expert, social science</li> <li>Business model developer, sustainable finance</li> <li>Agricultural economist, political science</li> <li>Climate scenario and modeling expert</li> <li>Incubators</li> <li>Extension worker</li> <li>Lab technician</li> </ol> <p><b>Biophysical Capital (BC)</b></p> <ol style="list-style-type: none"> <li>Satellite images</li> <li>Handheld sensors</li> <li>Drones</li> <li>Apps</li> <li>Soil testing kits, GHG chambers, soil labs</li> <li>Weather stations Hydrology and erosion assessment tools</li> <li>Server(s)</li> <li>Landscapes</li> <li>Fields and plots</li> </ol> <p><b>Social Capital (SC)</b></p> <ol style="list-style-type: none"> <li>Unions</li> <li>Science networks</li> <li>Platforms</li> <li>Hubs</li> </ol> <p><b>Incentives (I)</b></p> <ol style="list-style-type: none"> <li>PES, carbon credit, biodiversity finance</li> <li>Policies, strategies</li> <li>Institutions</li> </ol>	<p>Considering the XXX CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> 1, 2, 4, 6, 7- CGIAR has globally recognized experts (interdisciplinary). VALUE: Strong</p> <p>3, 5 - CGIAR has limited availability VALUE: Weak</p> <p>8, 9, 10 - CGIAR has limited capacity but has access through partners VALUE: Weak</p> <p><b>BC:</b> 4, 5, 6 - CGIAR has a comparative advantage.</p> <p>1, 2, 3 - Can be accessed through cost or in collaboration with partners.</p> <p>7, 8 - CGIAR has some (with partners) and can expand to its new sites. Can be done with partners. VALUE: Weak</p> <p><b>SC:</b> 1, 2, 3, 4 - CGIAR is strong on those but can create complementarity with partners and the private sector (in the respective countries). VALUE: Moderate</p> <p><b>I:</b> 1, 2, 3 - CGIAR can access those through negotiation based on evidence of performance and achievements. VALUE: Moderate</p>	<p><b>Existing partners</b></p> <ol style="list-style-type: none"> <li>Government sectors (agriculture (crop, livestock), water, forest, biodiversity environment and climate, etc. Sectors)</li> <li>NARES (research centers, Universities)</li> <li>Development organizations</li> <li>NGOs</li> <li>Private Sector</li> <li>Advanced Research Institutes</li> <li>Associations</li> <li>SMEs</li> <li>CBOs and innovation platforms</li> </ol> <p><b>New or to be expanded</b></p> <ol style="list-style-type: none"> <li>Software developing companies (Microsoft, Google)</li> <li>Incubators</li> <li>Financial Institutions</li> </ol>	<p><b>Government sectors</b></p> <p><b>HC:</b> Can help create enabling conditions (incentives), policy support, strategy development, and implementation. Coordinate support from extension and other actors. Personnel to manage and monitor experimental and measurement stations. VALUE: Weak</p> <p><b>BC:</b> Support operational landscapes, plots, and farms for co-implementation and learning. Lab support is available in some counties (for some activities). VALUE: Moderate</p> <p><b>SC:</b> Support coordinating and play a facilitation role with platforms, hubs, unions, etc. VALUE: Moderate</p> <p><b>I:</b> Strategies, policies, and institutional support to incentivize. VALUE: Strong</p> <hr/> <p><b>NARES and national universities:</b></p> <p><b>HC:</b> Support in some specific fields of work associated with the items listed under column 2 of this section. The real entry point can vary from country to country, but it can be aligned with NARES and universities. PhD, MSc students, training, seminars demonstration. VALUE: Moderate to Strong</p> <p><b>BC:</b> Can offer labs (and associated field equipment) for our team to use. Can offer landscapes, plots, and fields for implementation, demonstration, etc. VALUE: Strong</p> <p><b>SC:</b> Can link up with unions and SMEs as appropriate. VALUE: Strong</p> <p><b>I:</b> Can support the development of Incentives and support institutions. VALUE: Moderate</p> <hr/> <p><b>Development organizations</b></p> <p><b>HC:</b> 9) Extension and development workers coordinate with scaling partners. VALUE: Strong</p> <p><b>BC:</b> Co-locate action research sites. VALUE: Moderate</p> <p><b>SC:</b> Collaborate in Unions and Platforms they are part of. VALUE: Moderate</p> <p><b>I:</b> Can support setting up schemes and support institutions. VALUE: Moderate</p> <hr/> <p><b>NGOs</b></p> <p><b>HC:</b> 5) Expertise in business models, sustainable finance, and linkage with cooperatives and hubs. Support in delivering advisories. App (dissemination and feedback collection) development expertise. VALUE: Moderate to Strong</p> <p><b>BC:</b> Possible provision of 2, 3, 5, and 6, support of 8 and 9. VALUE: Moderate</p> <p><b>SC:</b> Good relationships with 1.4 may be possible depending on the NGO, especially in local situations. VALUE: Moderate to Strong</p> <p><b>I:</b> Support for implementation in local contexts VALUE: Weak to Moderate</p> <hr/> <p><b>Private sector (input and output supplies)</b></p> <p><b>HC:</b> little capacity in 1, 2, 4, 6, 7 and 9 VALUE: Weak</p> <p>Possible capacity in 3, 8 and 10 VALUE: Moderate</p> <p><b>BC:</b> Apps to disseminate advisory, collect data (near real-time) and gather feedback. VALUE: Weak</p> <p><b>SC:</b> Links with SMEs, Unions, and others. VALUE: Weak to Moderate</p> <p><b>I:</b> Insurance, credit, and other financial mechanisms. Alignment of our technologies to incentive actors. VALUE: Moderate to Strong</p>	<p><b>HC:</b> CGIAR likely has a CA for 1, 2, 4, 6, and 7. There are strong partnership opportunities with universities and Advanced Research Institutes. For 3, the CA lies globally with Software developing companies and with SMEs nationally. The capacity to support development across countries is with CGIAR. For 5, the CA lies with Financial Institutions, both globally and nationally, and with the private sector to co-develop sustainable financial mechanisms for Multifunctional Landscapes.</p> <p><b>BC:</b> The CGIAR likely has a CA on human capital to execute the output but will require collaboration with organizations such as NASA to get analysis-ready high-resolution satellite images.</p> <p>Collaboration will also be needed with national partners to secure landscapes, farms, and plots where applied research can be conducted. In addition, access to extension and development workers can be granted through formalized collaborations that have been underway with different countries.</p> <p><b>SC:</b> CGIAR likely has CA on this because of its long-term collaboration with different actors worldwide.</p> <p><b>I:</b> Collaboration with the financial sector, companies, and the private sector will be needed. To solicit finance for the development and sustainable use and management of Multifunctional Landscapes.</p>

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				<p><b>Advanced Research Institutes (ARI)</b>  <b>HC:</b> Can complement the CGIAR team in various ways (modelers, thematic expertise), mostly 1, 2, 3, 4, 6, 7, and 9.  <b>VALUE:</b> Moderate to Strong</p> <p>Little capacity in 8 and 10:  <b>Value:</b> Weak</p> <p><b>BC:</b> Labs, tools, equipment, apps  <b>VALUE:</b> Moderate to Strong</p> <p><b>SC:</b> Hubs, platforms  <b>VALUE:</b> Moderate</p> <p><b>I:</b> Support in Development  <b>VALUE:</b> Weak to Moderate</p>	
				<p><b>INGOs and Regional agricultural organizations</b>  <b>HC:</b> Can complement the CGIAR team in various ways (modelers, thematic expertise) for all HC categories  <b>VALUE:</b> Moderate to Strong</p> <p><b>BC:</b> Provision of Labs, tools, equipment, apps  <b>VALUE:</b> Moderate</p> <p><b>SC:</b> Possible provision of Hubs, Platforms, Incubators  <b>VALUE:</b> Moderate</p> <p><b>I:</b> Support for development and implementation  <b>VALUE:</b> Moderate to Strong</p>	
				<p><b>Associations</b>  <b>HC:</b> Support of on-the-ground operations and value chain linkage only 8 and 9  <b>VALUE:</b> Moderate, Weak for all other categories</p> <p><b>BC:</b> Support for 8 and 9  <b>VALUE:</b> Moderate to Strong            Little capacity for all others  <b>Value:</b> Weak</p> <p><b>SC:</b> Linkage with associations to collaborate on specific value chains in 1, 3, and 4  <b>VALUE:</b> Moderate</p> <p><b>I:</b> Support in Implementation for all  <b>VALUE:</b> Moderate</p>	
				<p><b>SMEs</b>  <b>HC:</b> Little capacity for 1, 2, 3, 4, 6, 7, and 9  <b>VALUE:</b> Weak            Possible capacity in 3, 8 and 10  <b>Value:</b> Moderate to Strong</p> <p><b>BC:</b> Depending on the type of SME, support in provision and implementation for all  <b>VALUE:</b> Moderate to Strong</p> <p><b>SC:</b> Depending on SME, support for 3 and 4  <b>VALUE:</b> Moderate            Little capacity in 1 and 2  <b>Value:</b> Weak</p> <p><b>I:</b> Depending on SME, support for the implementation of 1 and 3  <b>VALUE:</b> Weak to Moderate</p>	
				<p><b>CBOs and innovation platforms</b>  <b>HC:</b> Little capacity in most, except 9, where capacity can be strong  <b>VALUE:</b> Weak for most, Strong for 9</p> <p><b>BC:</b> Not applicable for most except 8 and 9  <b>VALUE:</b> Weak to Moderate</p> <p><b>SC:</b> Possible host for 3 and 4  <b>VALUE:</b> Moderate to Strong</p> <p><b>I:</b> Support the development of mechanisms  <b>VALUE:</b> Weak to Moderate</p>	

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<b>AoW 7. Engagement and Advocacy</b>					
<p>OP: Engagement and science-based advocacy framework</p>	<p><b>Human Capital (HC)</b> A community of practice and thematic working groups on multifunctional landscapes, including scientists and experts within and beyond CGIAR</p> <p><b>Biophysical Capital (BC)</b> -CGSpace and other data repositories; scientific publications.</p> <p><b>Social Capital (SC)</b> Well-established scientific expertise and know-how well-acknowledged by partners and other key stakeholders</p> <p><b>Incentives (I)</b> High interest of most parties to the three Rio conventions for more integration to optimize the socio-ecological resilience (biodiversity, climate, and desertification with a focus on land degradation neutrality); capacity needs of parties to update NBSAPs, NAPs, and NDCs</p>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> CGIAR has expertise around the world connecting agenda-setting fora STRONG</p> <p><b>BC:</b> CGIAR has the infrastructural capacity to convene working groups, while for the broad convening of the community of practice, CGIAR would mainly rely on partner infrastructures (national regional, or international conference Centers) WEAK to MODERATE</p> <p><b>SC:</b> CGIAR research and policy networks MODERATELY STRONG</p> <p><b>I:</b> CGIAR co-creation approach 50 years of relationship with NARES Increasing contribution to international processes like the United Nations Framework Convention on Climate Change (UNFCCC), Convention on Biodiversity (CBD), and UNCCD, among others MODERATELY STRONG</p>	<p><b>Current Demand partners</b> CBD processes related to the global biodiversity framework, including the updates to the NBSAPs United Nations Convention to Combat Desertification (UNCCD) processes related to land degradation neutrality</p> <p><b>Innovation partners</b> Other CGIAR science programs and accelerators; academia; regional and international research institutions; NARES</p> <p><b>Scaling partners</b> Public and private extension services; NABSAP and LDN country focal services</p> <p><b>New or to be expanded Demand partners</b> Regional institutions and economic communities with shared objectives on multifunctional landscapes</p> <p><b>Innovation partners</b> Additional academic institutions and networks through global engagement and regional learning</p> <p><b>Scaling partners</b> Additional country NBSAP and LDN focal services</p>	<p><b>NARES and national universities</b></p> <p><b>HC:</b> Strong. Significant workforce that would benefit from co-creation</p> <p><b>BC:</b> Moderate to strong, which varies across the countries of interest</p> <p><b>SC:</b> Strong in all countries of interest</p> <p><b>I:</b> Moderate to high, depending on the country context, for effective participation in the community of practice.</p> <hr/> <p><b>Government</b></p> <p><b>HC:</b> Moderate to strong, which varies across the countries of interest</p> <p><b>BC:</b> Conference centers to convene the community of practice and working groups</p> <p><b>SC:</b> Strong ability and power to mobilize stakeholders</p> <p><b>I:</b> Strong to support the national capacities and programming.</p> <hr/> <p><b>CBOs and innovation platforms</b></p> <p><b>HC:</b> Moderate in most countries</p> <p><b>BC:</b> Weak in most countries</p> <p><b>SC:</b> Moderate in most countries</p> <p><b>I:</b> High. Most Innovation platforms are eager to share and learn more to strengthen their programming.</p> <hr/> <p><b>Private sector (input and output supplies)</b></p> <p><b>HC:</b> Moderate to strong to inform investment priorities and optimize returns</p> <p><b>BC:</b> Weak to moderate, depending on the national contexts</p> <p><b>SC:</b> Moderate to high, depending on the culture of the business and the country contexts</p> <p><b>I:</b> Moderate to high, depending on the culture of the business and the country contexts</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b></p> <p><b>HC:</b> Moderate to high, opportunities to improve their curricula.</p> <p><b>BC:</b> Moderate to high, depending on country and regional contexts</p> <p><b>SC:</b> Generally high, irrespective of the country and regional contexts</p> <p><b>I:</b> Moderate to high, to support their programming</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b></p> <p><b>HC:</b> Moderate to high, in support of their programming</p> <p><b>BC:</b> Weak to moderate, depending on the regional context</p> <p><b>SC:</b> Moderate to high, depending on the regional contexts</p> <p><b>I:</b> Moderate to high, irrespective of the regional contexts</p>	<p>CGIAR brings in more convening power given its regional presence in low-middle income countries (LMICs) across continents and decades of scientific research on multifunctional landscapes. At the same time, the partners contribute mainly in terms of better access to large facilities to convene communities of practices and the social capital given the political mandates of some of them. All parties would have an equal interest in a shared vision to advance their programming effectively and efficiently.</p>

High-level output	Needed sources of Comparative Advantage required to deliver the high-level output	CGIAR's sources of Comparative Advantage in delivering high-level output	Potential partner types (e.g., NARES, SMEs, private sector)	Partners' sources of Comparative Advantage in delivering the high-level output	Analysis of the trade-offs between CGIAR and (potential) partners' sources of CA in delivering the high-level output and indication of where the CA lies (i.e., with CGIAR or with the potential partner)
<p>AoW 7.2. Capacity-sharing programs and resources</p>	<p><b>Human Capital (HC)</b> Knowledge managers, communicators, Political scientists and advocacy specialists, human-centered design professionals</p> <p><b>Biophysical Capital (BC)</b> Research infrastructure of CGIAR, specifically for information and innovation management (CGspace)</p> <p><b>Social Capital (SC)</b> Transdisciplinary, Multidisciplinary workforce in CGIAR, connection with global framework actors. Partnerships with universities and NARES.</p> <p><b>Incentives (I)</b></p> <ul style="list-style-type: none"> <li>• Incentive for NARES: increased capacity and international scientific links and access to CGIAR facilities</li> <li>• For CGIAR: get international exposure and influence global agenda settings</li> <li>• For National universities and ARIs: innovating curricula with science-based evidence</li> <li>• CBOs and INGO: access to easy-to-use knowledge products in open access</li> </ul>	<p>Considering the 9 CGIAR Centers collaborating in Multifunctional Landscapes:</p> <p><b>HC:</b> CGIAR has expertise around the world connecting South-North, South-North-South talents STRONG</p> <p><b>BC:</b> CGIAR's open access policy assures wide access and interoperability with other information systems MODERATELY STRONG</p> <p><b>SC:</b> CGIAR research and policy networks MODERATELY STRONG</p> <p><b>I:</b> CGIAR co-creation approach 50 years of relationship with NARES Need of development NGOs for scientific evidence for scaling MODERATELY STRONG</p>	<p><b>Current Demand partners</b> The three Rio Conventions required scientific evidence, particularly from LMIC countries, to bridge the current data gaps (CBD, UNCCD, UNFCCC), particularly for the agriculture, food, land, and water systems</p> <p><b>Innovation partners</b> Other CGIAR science programs and accelerators; academia; regional and international research institutions; NARES</p> <p><b>Scaling partners</b> Public and private extension services; NABSAP and LDN country focal services</p> <p><b>New or to be expanded</b></p> <p><b>Demand partners</b> Regional institutions and economic communities with shared objectives on multifunctional landscapes</p> <p><b>Innovation partners</b> Additional academic institutions and networks through global engagement and regional learning</p> <p><b>Scaling partners</b> Additional country NBSAP and LDN focal services</p>	<p><b>NARES and national universities</b></p> <p><b>HC:</b> Weak to moderate, which varies across the countries of interest</p> <p><b>BC:</b> To moderate, which varies across the countries of interest</p> <p><b>SC:</b> To moderate, which varies across the countries of interest</p> <p><b>I:</b> Moderate to high, which increases with effective co-creation</p> <hr/> <p><b>Government</b></p> <p><b>HC:</b> Weak to moderate, which varies across the countries of interest</p> <p><b>BC:</b> Weak to moderate, which varies across the countries of interest</p> <p><b>SC:</b> Weak to moderate, which varies across the countries of interest</p> <p><b>I:</b> Moderate to high, which increases with effective co-creation</p> <hr/> <p><b>CBOs and innovation platforms</b></p> <p><b>HC:</b> Moderate in most countries</p> <p><b>BC:</b> Weak in most countries</p> <p><b>SC:</b> Moderate in most countries</p> <p><b>I:</b> High. Most Innovation platforms are eager to share and learn more to strengthen their programming.</p> <hr/> <p><b>Private sector (input and output supplies)</b></p> <p><b>HC:</b> Weak, limited priority in LMICs</p> <p><b>BC:</b> Weak, limited priority in LMICs</p> <p><b>SC:</b> Moderate to high, depending on the culture of the business and the country contexts</p> <p><b>I:</b> Moderate to high, depending on the culture of the business and the country contexts</p> <hr/> <p><b>Advanced Research Institutes (ARI)</b></p> <p><b>HC:</b> Moderate to high, depending on country and regional contexts</p> <p><b>BC:</b> Moderate to high, depending on country and regional contexts</p> <p><b>SC:</b> Generally high, irrespective of the country and regional contexts</p> <p><b>I:</b> Moderate to high, irrespective of country and regional contexts</p> <hr/> <p><b>INGOs and Regional agricultural organizations</b></p> <p><b>HC:</b> Moderate to high, depending on regional contexts</p> <p><b>BC:</b> Weak to moderate, depending on the regional context</p> <p><b>SC:</b> Moderate to high, depending on the regional contexts</p> <p><b>I:</b> Moderate to high, irrespective of the regional contexts</p>	<p>Most partners in the national, regional, and international systems acknowledge the limited data availability and the role that CGIAR can play in bridging the gap, given the workforce, the biophysical infrastructure, and extended experience in LMICs for decades. CGIAR gains from the partnership mainly from a good understanding of the root causes of the scientific gaps through co-creation in collaboration with grassroots partners.</p>