«Agricultural Public Development Banks Platform (Agri-PDB) »

Concept note for the PDB working group on agroecology (07/12/2023)

1. How do we define agroecology?

Agroecology, as defined by the FAO, is an integrated approach that combines ecological and social concepts and principles to design and manage food and agricultural systems. It aims to optimise interactions between plants, animals, humans and the environment, while considering the social aspects necessary for a sustainable and equitable food system.

The FAO stresses that agroecology is not a new concept, but has historical roots dating back to the 1920s[1] . It has been practiced by family farmers, grassroots social movements and incorporated into public policies in various countries. In recent years, agroecology has been recognized by major international institutions and by the United Nations as an approach that addresses the main challenges that face agriculture today.

In contrast to other approaches to sustainable development, agroecology is based on a bottom-up and territorial approach. It focuses on providing contextualized solutions to local problems through participatory processes. Agroecology seeks to transform food and farming systems rather than simply modifying unsustainable practices. It tackles the root causes of problems in an integrated way, considering the social and economic dimensions. It also emphasizes the rights of women, young people and indigenous peoples.

For IFAD, agro-ecology is an integrated, comprehensive and promising approach to transforming food systems and systematically solving the problems associated with agricultural and food production and trading systems in an enabling policy environment.[2]

AFD defines agroecology as an agricultural production system that combines economic, social, environmental and health performances. It considers that the agro-ecological transition must align with the economic interests of producers, recognize the risks associated with changing

[1] https://www.fao.org/documents/card/en/c/I9037FR; https://www.fao.org/3/cb0486en/cb0486en.pdf
[2] https://www.ifad.org/fr/agroecologie-pour-des-systemes-alimentaires-durables

practices and be compatible with food and nutritional security objectives. These three conditions are deemed necessary to ensure the support of AFD's partners for this transition[3] .

AFD encourages a territorial approach to agro-ecology and promotes projects that integrate these principles in the agriculture, rural development and biodiversity sectors. The aim is to ensure that the agro-ecological transition is better integrated into the projects financed by the AFD Group, by focusing on the economic, social, environmental and health impacts of agricultural production systems.

This suggests that agroecology emerged in part as a reaction to some of the perceived limitations and unintended consequences of the Green Revolution of the 1960s. The Green Revolution, which involved the introduction of high-yielding crop varieties and the use of synthetic fertilizers and pesticides, aimed to increase agricultural productivity and address food insecurity.

Agroecology is a concept that encompasses different agricultural production systems aimed at promoting a holistic and sustainable approach to agriculture. These systems of production include practices such as agroforestry, resilient agriculture, organic agriculture, conservation agriculture and climate-smart agriculture. Agroecology emphasizes the integration of ecological principles into farming systems, promoting crop diversity, sustainable water and soil management, the reduction of synthetic inputs, the integration of agriculture and livestock farming, and the preservation of biodiversity. It also encourages the use of local knowledge and traditional practices, while incorporating scientific and technological advances. Overall, agroecology aims to promote farming systems that are resilient, environmentally friendly and socially equitable, in harmony with natural ecosystems and in response to the challenges of climate change and food security.

2. How does this affect Agricultural Public Development Banks (Agri-PDB)?

The history of Agri-PDB is closely linked to the Green Revolution and the development of intensive monoculture farming. This production model required considerable expenditure on the part of farmers, who had to purchase the improved seeds, fertilisers, plant protection products

[3] https://www.afd.fr/fr/ressources/meilleure-integration-transition-agroecologique-projets-finances-groupe-afd

and agricultural machinery needed to carry out their cultivation activities as part of a technological package.

In a context where commercial banks were mainly oriented towards other sectors, multilateral development organizations financed the creation of public banks specifically focused on the agricultural sector. These public agricultural banks were set up to meet the financing needs of farmers, giving them access to the credit they needed to invest in their businesses.

It should be noted that today's Agri-PDBs are very different from the public banks of the 60s and 70s, which were often transformed into "universal" banks. However, a significant proportion of their loan portfolio is still made up of seasonal loans for the purchase of fertilizers, plant protection products and agricultural machinery. This reflects the continuing importance of these inputs in modern farming practices, despite technological developments and the debates surrounding their use.

Intensive farming models, based on monoculture and the use of chemical inputs, represent a high level of risk for the Agricultural Public Banks (Agri-PDBs). These intensive farming practices increase the vulnerability of farmers, particularly the smallest, due to several factors.

Firstly, climate change is placing increasing pressure on intensive agricultural crops. Unpredictable weather variations, such as droughts, floods and storms, have a devastating impact on crop yields. Similarly, frequent fluctuations in commodity prices represent an additional risk, especially as the range of crops available is limited. Farmers who rely heavily on these crops to generate income face significant financial losses. This situation increases the risks for BPAs, as they are faced with a greater number of credit requests to rebuild and resume farming activities.

In addition, intensive farming models require resources that are themselves limited, particularly water and soil. Water supplies are becoming increasingly precarious due to the scarcity of water resources and the over-exploitation of groundwater. As a result, farmers are finding it difficult to maintain high levels of production, which directly affects their ability to repay their loans from Agri-PDBs.

Furthermore, the availability of chemical inputs needed for intensive agriculture is gradually decreasing, while their costs are rising. Farmers face additional economic challenges in obtaining the fertilizers, pesticides and other chemicals on which they depend. This may result in farmers experiencing financial difficulties, making it difficult for them to repay their loans, ultimately jeopardizing the financial stability of Agri-PDBs.

Overall, intensive monoculture farming models, based on the use of chemical inputs, present considerable risks for Agri-PDBs. Climate change, resource constraints, declining chemical inputs and their increasing cost are all factors that threaten the viability of farming activities and the financial stability of farmers and the Agri-PDBs that support them. Promoting more sustainable and resilient farming practices is crucial to mitigating these risks and ensuring long-term food security.

In this context, the agro-ecological transition is a major opportunity that does not represent a return to the practices of the past, but a major investment in human and financial capital to improve practices and restructure supply chains and the food system. The approach must be contextualized and adapted to each situation. For example, on degraded land, soil restoration will be a long-term investment that may require the use of fossil fertilizers to encourage the production needed to boost soil organic matter. Similarly, in a context of open markets and low remuneration through prices, appropriate mechanization as a means of improving labor productivity (and reducing its arduousness) remains a major development element in this transition.

3. In what ways can Agri-PDB incorporate agroecology?

There are several ways in which agri-PDBs can integrate the agro-ecological approach into their business strategies.

Offer adapted financial services: Agri-PDBs can develop specific financial products for farmers who adopt agro-ecological practices. This can include loans at preferential interest rates or the mobilisation of guarantee tools for the purchase of organic seeds, organic fertilisers, conservation farming equipment or water-efficient irrigation systems. Agri-PDBs can also offer flexible financing mechanisms to support the transition to agro-ecological practices, such as extended repayment periods or deferred repayment loans.

Providing advice and technical support: Agri-PDBs can strengthen their advisory services by integrating agro-ecology experts into their teams. These experts can help farmers understand the principles of agro-ecology and implement sustainable practices adapted to their local conditions. They can also provide advice on soil management, biodiversity, crop rotation and other key aspects of agro-ecology.

Promote training and education: Agri-PDBs can organize or mobilize qualified institutions to organize training and education programs for farmers on agro-ecological practices. This can include workshops, awareness-raising sessions, field demonstrations and exchanges of best practice. By investing in training, Agri-PDBs can build farmers' capacity to adopt agro-ecological techniques and maximize their long-term productivity and sustainability.

Encouraging partnerships and networks: Agri-PDBs can establish partnerships with key players in the agro-ecological sector, such as organic producer organizations, agricultural research centers, line ministries and specialist NGOs. This can also take the form of alliances with key buyers (private or institutional) in certified supply chains. These partnerships can facilitate farmers' access to the resources, knowledge and technologies needed to implement agro-ecological practices. Agri-PDBs can also encourage networks of farmers committed to agro-ecology, promoting exchanges of knowledge and experience between peers.

By integrating these approaches into their business strategies, Agri-PDBs can play a key role in promoting agro-ecology and supporting farmers in their transition to more sustainable

farming practices. This contributes to environmental preservation, farm resilience and long-term food security.

Here are some examples of specific agro-ecological practices that promote the sustainable management of natural resources and can be financed by the Agri-PDBs:

Soil conservation agriculture, no-till sowing: This practice aims to reduce tillage by limiting ploughing and favoring permanent soil cover with crop residues or intermediate crops. No-till is often combined with cover crops and compulsory crop rotations. This preserves soil structure and fertility, reduces weed pressure and erosion and degradation, and promotes better water retention.

Agroforestry: Agroforestry involves combining the cultivation of trees or shrubs with perennial agricultural crops or livestock on the same plot of land. Trees provide numerous benefits, such as nitrogen fixation, protection against erosion, regulation of the local climate, wood and fruit production, and the creation of habitats for wildlife. This production system is widely used in tropical regions to grow coffee, cocoa and other fruit crops. Trees planted in meadows make up sylvo-pastoralism, an agro-ecological livestock farming practice.

Water management: Agro-ecological practices such as the construction of small dams, any land development (Keyline, cordons, terraces, etc.) that impede the flow of water, water-saving irrigation systems such as drip irrigation or rainwater harvesting and conservation enable more efficient management of agricultural water resources. This helps to reduce water consumption, prevent water shortages and maintain an adequate water balance.

Crop rotation: Crop rotation involves alternating different types of crop on the same plot of land over the course of several seasons or years. Consequently, crop nutrition is improved, disease, weed and pest problems are reduced, soil structure is improved, and resource efficiency is increased.

Use of organic fertilizers: Agro-ecological practices favor the use of organic fertilizers such as compost, animal manure or green manure. These natural fertilizers improve soil fertility, increase organic matter content, promote soil microbial biodiversity and reduce dependence on chemical fertilizers.

Biological control and integrated pest management: Rather than using chemical pesticides, agroecology encourages the use of biological control methods, such as introducing beneficial organisms to control pests, promoting functional biodiversity and implementing integrated pest management strategies. This preserves populations of beneficial insects, reduces the use of chemical products and maintains ecological balance.

4. What are the main obstacles or challenges encountered or to be anticipated?

Integrating the agro-ecological approach into Agri-PDB strategies can face a number of challenges, including **resistance to change**: Agro-ecological practices often involve a break from conventional, intensive farming models. Some farmers and even some Agri-PDB employees may be reluctant to adopt new approaches, fearing economic risks or lacking knowledge about agro-ecological practices. **Awareness-raising, education and communication are essential to** overcome this resistance and promote a thorough understanding of the benefits and opportunities offered by agro-ecology. A committed agricultural policy supporting the approach will greatly facilitate the promotion of agroecology (incentives, regulation).

Access to resources and technologies: Adopting agroecology may require investment in specific resources and technologies, such as adapted seeds, efficient irrigation systems, alternative pest management approaches, etc. However, many farmers, particularly those in rural and disadvantaged areas, may find it difficult to access these resources. Agri-PDBs will need to find ways to provide financial (government, international financial partners) and technical (agricultural research, agricultural education, public technical services, consultancies and NGOs, Agri-PDB support platforms) support to facilitate access to these necessary resources.

Accountability and traceability: While some investments are easy to identify (energy efficiency, renewable energies, localized irrigation), the vast majority of agro-ecological investments are often linked to agricultural and livestock practices, which require a more sophisticated information system (taxonomy, monitoring of practices, impact measurements). This reporting is essential to justify the use of subsidies or the issuance of green bonds, for example.

Assessing risks and returns: Agri-PDBs should assess the risks and returns associated with agro-ecological practices in order to make informed funding decisions. As agro-ecology is often based on diversified and long-term approaches, it can be more difficult to quantify potential returns and to consider the risks associated with external factors such as climate change. Agri-PDBs need to develop appropriate evaluation tools to assess the economic viability of agro-ecological projects and adapt their risk assessment methods.

Inter-institutional collaboration and partnerships: Integrating agro-ecology often requires close collaboration with other players in the agricultural sector, such as producer organizations, research institutes and government agencies. Agri-PDBs need to establish strong partnerships

and coordinate their efforts with these actors to share knowledge, resources and best practices. This may require organizational adjustments and effective coordination mechanisms.

5. How can Agri-PDB take greater account of agro-ecology?

Agri-PDBs can strengthen their role in supporting farmers in their transition to agro-ecological practices. Identifying and proactively managing these challenges is essential to ensure the successful integration of agro-ecology into Agri-PDB business strategies and to promote sustainable and resilient agriculture. Agri-PDBs can implement different strategies to encourage farmers to adopt agro-ecological practices. The establishment of an internal "green and social" strategy, combined with roadmap planning and aligned with the bank's mandates, is often a prerequisite.

Awareness-raising and education: Agri-PDBs (in partnership with, for example, an agricultural college and/or agricultural research institute) can organize awareness-raising and education programmed to inform farmers about the benefits and principles of agroecology. This can include workshops, training sessions, field visits and practical demonstrations. By providing farmers with in-depth knowledge of agro-ecological practices, Agri-PDBs can help them understand the long-term benefits of these sustainable approaches.

Technical support: Agri-PDBs can offer technical support to farmers wishing to adopt agro-ecological practices. This can take the form of expert advice, regular field visits, specialist training and support with farm planning. Farmers need practical support to implement agro-ecological techniques, and BPAs can play an important role in providing this kind of support. A partnership between the BPA and public agricultural technical services could be envisaged.

Offer of adapted financial products: Agri-PDBs can develop specific financial products to support farmers in their transition to agro-ecological practices. This may include loans at preferential interest rates and/or the offer of partial guarantees for the purchase of organic seeds, sustainable farming equipment, water-efficient irrigation systems, etc. Agri-PDBs can also provide flexible financing mechanisms, such as extended repayment periods, that are tailored the specific features of agro-ecology.

Partnerships with key players: Agri-PDBs can establish partnerships with key players in the agro-ecological sector, such as organic producer organizations, agricultural research centers and multilateral projects. These partnerships can facilitate farmers' access to the resources, knowledge and technologies they need to adopt agro-ecological practices. They can also establish support networks and facilitate exchanges of experience between farmers committed to agro-ecology.

Recognition and valorization: Agri-PDBs can put in place mechanisms for recognizing and valuing farmers who adopt agro-ecological practices. This can include financial incentives, certification or eco-labelling, specific marketing programs for agro-ecological products, etc. By valuing farmers committed to agro-ecology, Agri-PDBs encourage other farmers to follow their example.

By combining these approaches, Agri-PDBs can play a key role in encouraging farmers to adopt agro-ecological practices. By providing knowledge, technical and financial support, as well as establishing strategic partnerships, Agri-PDBs help to create a favorable environment for agro-ecology and the transition to sustainable agriculture.

6. Medium- and long-term economic, environmental and social benefits for Agri-PDB

Economic benefits

Increased farm resilience: Agroecology focuses on crop diversification, sustainable soil management, preserving biodiversity and reducing dependence on external inputs. By adopting these practices, farmers can enhance their farms' resilience to fluctuations in input prices, climate change, crop disease and so on. This reduces economic risks and contributes to the long-term sustainability of farms.

Income diversification: Agroecology encourages the development of diversified farming systems, which can enable farmers to have several sources of income, reducing their dependence on a single agricultural product.

Resilience to market fluctuations: By using agro-ecological practices, farmers are often better prepared to deal with climatic hazards and variations in market prices, which strengthens their economic resilience.

Reduced production costs: Agroecology promotes a reduction in the use of chemical inputs, such as pesticides and synthetic fertilizers, and the use of local resources. By adopting agro-ecological practices, farmers can reduce their expenditure on inputs, resulting in significant savings in the long term. In addition, sustainable soil management and crop diversification help to reduce disease and pest problems, which in turn reduces chemical treatment costs.

Access to differentiated markets: More and more consumers are looking for healthy, environmentally-friendly food products produced to high sustainability standards. Agro-ecological products often enjoy growing demand on local and international markets. By encouraging farmers to adopt agro-ecological practices, Agri-PDB can help them access these

markets and obtain higher prices for their products. This can also help to diversify farmers' incomes and reduce their dependence on specific crops.

Positive image and branding: Agri-PDBs that integrate the agro-ecological approach into their business strategies can benefit from a positive image as institutions committed to sustainable development and environmental preservation. This positive image can strengthen the confidence of customers and partners, attract new investors and improve the overall reputation of Agri-PDBs. It can also open up new opportunities for collaboration with other players in the agricultural sector and attract additional funding to support agro-ecological initiatives.

Environmental benefits

Agroecology contributes to the preservation of agricultural biodiversity in a number of ways:

Encouraging crop diversity: Agroecology encourages crop diversification, i.e. growing several different plant species on the same plot of land. This makes it possible to recreate ecosystems closer to those found in nature, encouraging the presence of a greater diversity of plant species.

Encouraging polyculture and agroforestry systems: Agroecology promotes the planting of different plant species together, whether in polyculture systems (growing several crops simultaneously) or agroforestry systems (combining trees and agricultural crops). This encourages the coexistence of plant species and creates habitats that will support a wider variety of animals and insects.

Preserving local and ancient varieties: Agroecology encourages the conservation and use of local and ancient varieties of cultivated plants. These varieties are often adapted to local conditions and possess significant genetic diversity. By preserving and cultivating them, agroecology helps to maintain the diversity of cultivated plants and prevent genetic erosion.

Encouraging the presence of natural habitats: Agro-ecological approaches encourage the preservation of natural elements such as hedges, grass strips, wetlands, isolated trees, etc. These elements provide habitats for numerous species of animals, insects and birds, thus helping to preserve biodiversity. These elements provide habitats for numerous species of animals, insects and birds, thereby helping to preserve biodiversity.

Reducing the use of chemical pesticides and fertilizers: Agroecology favors pest and disease control methods that reduce dependence on chemical pesticides. By limiting the use of these products, agroecology preserves auxiliary fauna and flora, which play an important role in maintaining ecological balance.

By combining these different approaches, agroecology aims to recreate agricultural systems that are more diversified and closer to natural ecosystems, thereby helping to preserve agricultural biodiversity. By preserving agricultural biodiversity, agroecology also contributes to reducing greenhouse gas (GHG) emissions from agricultural activities. By reducing ploughing, chemical

fertilizers (especially nitrogenous ones) and plant protection products, CH4, CO2 and NOx emissions are greatly reduced.

Agro-ecological practices have a positive impact on water and soil protection, favoring the soil's "sponge" effect to conserve more water, recharge the water table and slow its descent towards the river system, thereby increasing resilience in the face of meteorological accidents.

By adopting these agro-ecological practices, farmers can reduce the environmental impact of their activities, better preserve natural resources such as soil, water and biodiversity, and promote sustainable management of agricultural systems while reducing GHG emissions.

Employee benefits

Adopting agroecology can create job opportunities in various sectors of agriculture and the local economy. Here are some concrete examples of job creation thanks to agroecology:

Jobs in agricultural production: Agroecology encourages crop diversification and the development of more sustainable farming systems. This may require more labour for crop management, management of agroforestry systems, animal husbandry, local seed production, collection of wild edible produce, etc.

Jobs in product processing and marketing: Agroecology often encourages more local and artisanal forms of processing and marketing. This can create jobs in activities such as food processing, the production of value-added products (e.g. jams, preserves, dairy products, etc.), direct sales to consumers (farmers' markets, organic baskets, etc.) and the creation of agricultural cooperatives.

Jobs in related services and infrastructure: The adoption of agroecology may require additional services and infrastructures, such as the setting up of short distribution networks, the creation of agroecology training centers, technical support for farmers, the setting up of certification and labelling systems, applied agroecology research, and so on. These activities create job opportunities in related fields.

Jobs in the environment and conservation sector: As agroecology focuses on sustainable agricultural practices, it can help preserve the environment and conserve biodiversity. This can generate jobs in areas such as ecosystem restoration, natural resource management, biodiversity monitoring, environmental education, etc.

Jobs in innovation and research: Agroecology often requires innovation and research to develop new practices, techniques and technologies adapted to agroecological systems. This can lead to jobs in agronomic research, technological innovation, varietal selection adapted to agroecology, etc.

7. An example of BPA integrating the agro-ecological approach into its business strategy.

Banco Nacional de Desenvolvimento Econômico e Social (BNDES) (Brazil) : BNDES is Brazil's main economic and social development bank. They have set up specific lines of credit to support agro-ecological projects in the country. Their "BNDES Pro-Sustainable Agriculture" programme offers loans at preferential interest rates to farmers and agricultural businesses that adopt agroecological practices, such as agroforestry, sustainable irrigation and organic production. BNDES also works in partnership with research organizations and NGOs to promote agroecology in the country.

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