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PRACTICAL GUIDE

Alternative Development and the Environment

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PRACTICAL GUIDE

Alternative Development and the Environment

PREFACES

At its heart, addressing the world drug problem is about helping people and communities live safer, healthier lives in the most sustainable way possible. Alternative development embodies those goals, contributing to successful supply reduction strategies while fostering economic and social development, empowering local ownership, reducing dependency on illicit crops, and strengthening governance in isolated rural areas. To ensure that we are making progress towards those same goals, alternative development must also be in harmony with our environment.

Alternative development interventions generally entail a shift in agricultural production, broader livelihood patterns, land systems or land use. As such, they provide an entry point for countries and the international community to work on environmental protection and sustainability.

However, substituting illicit crops in an unsustainable manner can have a detrimental impact on the environment, depending on conditions, methods of cultivation, the use of fertilizers, pesticides and other agricultural inputs, and the marketing of the end products.

That is why UNODC has stepped up research into the environmental impact of both the illicit drug economy and the policy responses designed to address it. The *World Drug Report 2022* included a deep dive into the nexus between drugs and the environment, and the *World Drug Report 2023* featured an in-depth case study on the Amazon Basin, exploring the region's convergence of drug trafficking and various other crimes that are accelerating environmental and social devastation.

This new *Practical Guide on Alternative Development and the Environment* is another step in our efforts to provide guidance on how we can mainstream environmental concerns, strategies and instruments into alternative development projects. I am convinced that this guide will help practitioners design effective alternative development responses that can help drive economic and social development in an environmentally sustainable manner, for the good of the communities we serve.

GHADA WALY
Executive Director
United Nations Office on Drugs and Crime

Alternative development is a fundamental pillar of a balanced drug policy, responding to the principle of shared responsibility. Germany started its engagement to address illicit drug economies with our partners forty years ago and we remain committed to this endeavor. Human rights, gender equality and environmental sustainability are key principles of German development policy. The alternative development approach promoted by the Federal Ministry for Economic Cooperation and Development (BMZ) incorporates these principles and aims to ensure that development-oriented drug policies do not only contribute to improving the social and economic conditions of vulnerable communities in areas where illicit drug crops are cultivated, but also to environmental sustainability.

The climate and biodiversity crises exacerbate the challenges of a just transition to sustainable economic systems. This challenge is even bigger in highly vulnerable and marginalized settings such as illicit drug crop cultivation areas, which are characterized by high levels of poverty and inequality. The transition proposed by alternative development, from illicit drug economies to legal and sustainable livelihoods, requires even stronger international efforts. Germany's development policy prioritizes the reduction of poverty, hunger, and inequality, as well as a socially just transition to a sustainable economy.

UNODC is a long-standing partner of the German Federal Government on development cooperation in the field of alternative development. More recently, this cooperation has focused on combining the protection of the environment with international drug policy goals. This cooperation seeks to address illicit drug crop cultivation as a driver of deforestation and environmental degradation in our partner countries and to enhance the evidence basis on this nexus through the *World Drug Report*. Let me also highlight the fruitful cooperation with the Government of France within this framework.

The results of this cooperation are reflected in this *Practical Guide on Alternative Development and the Environment*. We hope it will serve as a future point of reference to better align international drug control efforts with the SDGs. For this purpose, it is of utmost importance to enhance our joint efforts and to share our knowledge, best practices, and experiences from around the world.

BURKHARD BLIENERT
Commissioner of the Federal Government for Drug and Addiction Policy
Federal Republic of Germany

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This *Practical Guide on Alternative Development and the Environment* was produced by the United Nations Office on Drugs and Crime (UNODC). It was prepared by Jorrit Kamminga, independent consultant under the guidance of Thierry Rostan, Global Coordinator of UNODC's Alternative/Sustainable Livelihoods Team and its Drugs, Laboratory and Scientific Services Branch (DLSSB).

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The present guide builds on earlier research, especially research conducted for booklet 5 on Drugs and the Environment of UNODC's *World Drug Report 2022*, which was also supported by funding from GIZ and the French government.

The research underlying this guidance document was conducted in a participatory manner, benefiting from the generous support and valuable input of representatives of local (indigenous) communities, producer cooperatives, national authorities, international organizations and UNODC regional and country offices. In total, more than sixty interviews were conducted for the elaboration of this *Practical Guide,* including interviewees from fourteen countries: Afghanistan, Bolivia, Brazil, Colombia, Ecuador, Germany, Lao PDR, Mexico, Myanmar, Nigeria, Peru, Spain, Thailand and the United States. In addition, representatives of other United Nations organizations kindly shared their knowledge and experiences, including the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organization (UNIDO).

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LIST OF ACRONYMS

AECID	Agencia Española de Cooperación Internacional para el Desarrollo (Spanish Agency for International Development Cooperation)
AIDER	Asociación para la Investigación y el Desarrollo Integral (Association for Research and Integral Development)
ANEC	Asociación Nacional de Empresas Comercializadoras de Productores del Campo (National Association of Trading Companies of Rural Producers)
BMZ	Federal Ministry for Economic Cooperation and Development of Germany
CCCI	UN-HABITAT's Cities and Climate Change Initiative
CER	Certified emission reduction
CFS	Committee on World Food Security
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIFOR	Center for International Forestry Research
CIRAD	Cooperation Internationale en Recherche Agronomique pour le Developpment (International Cooperation on Agronomic Research for Development)
COAAN	Cooperativa Agraria Asháninka y Nomatsiguenga con Criterios Ambientales (Asháninka and Nomatsiguenga Agrarian Cooperative with Environmental Criteria)
DACAAR	Danish Committee for Aid to Afghan Refugees
DCA	Dutch Committee for Afghanistan
EU	European Union
EUDR	European Union Deforestation Regulation
EU ETS	EU Emissions Trading System
FAO	Food and Agriculture Organization of the United Nations
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GCC	Global Carbon Council
HREDD	Human rights and environmental due diligence
ICARDA	International Center for Agricultural Research in the Dry Areas
IFAD	International Fund for Agricultural Development
IUCN	International Union for Conservation of Nature
IWMI	International Water Management Institute
NGO	Non-governmental organizations
REDD	Reducing emissions from deforestation and forest degradation in developing countries
SENA	Servicio Nacional de Aprendizaje (Colombian National Training Service)
SFA	Sustainable Fibre Alliance
TAPE	Tool for Agroecology Performance Evaluation
TGO	Thailand Greenhouse Gas Management Organization
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNGASS	United Nations General Assembly Special Session on the World Drug Problem
UNIDO	United Nations Industrial Development Organization
UNODC	United Nations Office on Drugs and Crime
USDA	United States Department of Agriculture
VER	Voluntary emission reduction
WWF	World Wildlife Fund

ABOUT THE GUIDE

This *Practical Guide on Alternative Development and the Environment* is intended for two main audiences: First, practitioners involved in the design of alternative development and related policies, projects and programmes; and second, project implementers and coordinators at the local level.

The guide brings together experiences (e.g., best practices, lessons learned or general country examples) and common success factors that could be used to inform the design, planning and implementation of alternative development and broader sustainable livelihood interventions. It offers guidance, not perfect solutions or success models. The experiences and success factors included are neither panaceas nor one-size-fits-all solutions that will be guaranteed to work everywhere. Instead, their usefulness will need to be assessed locally and, where relevant, they will need to be tailored to the local context and conditions.

Given the very different socioeconomic, cultural and political contexts of alternative development projects around the world, this guide does not contain any technical, step-by-step guidance when it comes to environmental mainstreaming. It merely aims to point practitioners at both the local and policy design levels in the right direction by referencing various available tools, tactics, guidelines, best practices and potential success factors.

While experiences are drawn from the decades-long experience of alternative development, an effort has been made to benefit from existing guidance from other fields outside of drug policy, especially from the broader fields of environmental policy and sustainable agricultural practices. The mention of best practices or guidelines does, however, not represent any endorsement.

In general, the guide is not an endorsement of any project, organization, methodology, concept or definition. Each policy or practice may have its downsides and may not work under all circumstances. It is up to the practitioners involved in alternative development to decide which elements may be useful to promote environmental protection and sustainability at the level of the project or programme.

While this guide focuses on alternative development as defined by the United Nations General Assembly in 1998, similar livelihood strategies are increasingly also implemented in non-traditional settings, such as urban areas, along drug trafficking routes or related to other illicit economies. For example, in Brazil a UNODC project has started in the Tapajós river basin, considered the largest wildcat mining regions in the world. The project is helping to identify and protect vulnerable (indigenous) workers at mining sites, including victims of human trafficking and labor analogous to slavery. At the same time, it promotes sustainable livelihoods and the active involvement of indigenous communities in environmental protection. Nevertheless, this guide is primarily focused on rural settings, including four sub-sectors of agriculture: crops; livestock; fisheries and aquaculture; and forestry. These sectors represent the brunt of alternative development activities worldwide.

Although the *Practical Guide* has been produced by UNODC, the importance of UN Joint Programming cannot be overestimated in the realm of environmental protection and sustainability. The FAO, UNEP and UNIDO have directly contributed to this guide. The work and experience of other organizations such as the United Nations Development Programme (UNDP), the International Fund for Agricultural Development (IFAD) and the United Nations Conference on Trade and Development (UNCTAD) should also be built on to strengthen the environmental mainstreaming of alternative development.

Lastly, given the focus on alternative development, the environmental impact of illicit crop cultivation, drug production and the broader illicit drug economy is not directly addressed in this guide. The same goes for crimes that affect the environment, such as wildlife crimes or illegal logging. These activities may all be relevant as a starting point for sustainable livelihood interventions, but their environmental consequences are beyond the scope of the present guide.

HOW TO USE THE GUIDE

The guide is divided into two main parts: First four narrative sections (sections 2-5) and then a final section (section 6) with lists of key resources.

Narrative sections: The narrative sections (sections 2-5) explain the relevance of various best practices and highlight success factors for project design. Each of these four sections covers one of the main thematic areas of this guide:

1. Environmentally sustainable practices and approaches: A broad range of approaches and instruments that attempt to balance productivity, profitability and environmental protection and sustainability.

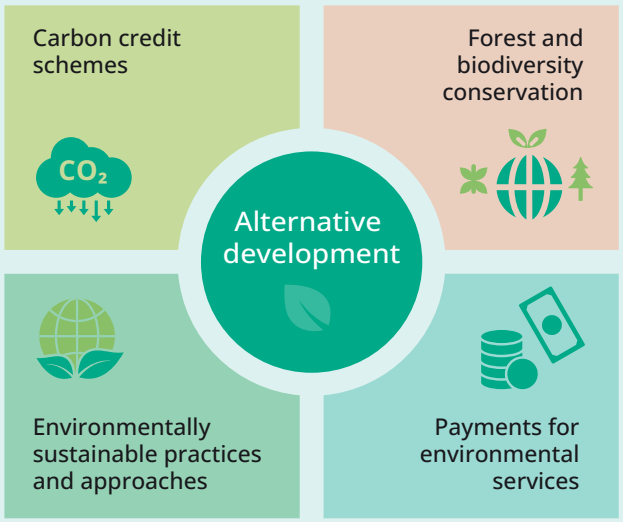
2. Forest conservation: A range of approaches to preserve forests, water sources, biodiversity and ecosystems in general.

3. Carbon credit schemes: Instruments to preserve forests and initiate other activities that help maintain, capture, secure and store carbon dioxide from the atmosphere.
4. Payments for Environmental Services: An instrument to provide some additional income (or in kind compensation) to farmers and communities in exchange for services that benefit various aspects of the environment.

In the narrative sections country and project examples are highlighted in colored boxes. These may refer to alternative development experiences, but also include best practices from other settings. In addition, where possible, some starting points and essential steps are offered for policy designers and other practitioners interested in exploring the feasibility of certain approaches and principles, again keeping in mind that processes and steps will differ and will need to be adjusted according to the specific local context.

Throughout the guide, different approaches are mentioned, with each having their principles and their complementing policy instruments, as summarized in the table below. Sometimes an approach can also be considered a policy instrument for another approach. For example, agroforestry can be an approach, but can also be used to support afforestation and reforestation as well as agroecology. Also, some complementing instruments like organic or fair trade certification can complement all approaches and are left out of the table.

Four main themes of the Practical Guide



Source: UNODC elaboration.

Approaches	Principles	Complementing instruments
Afforestation/ Reforestation	Using native tree species, combining various tree species, taking into account wildlife and habitat needs.	Carbon credits, payments for environmental services, buffer zones, protected areas, wildlife corridors, flood barriers (in the context of disaster risk reduction).
Agroecology	Mimicking natural ecosystems, enhancing biodiversity, improving and maintaining soil health, reducing external inputs.	Development and use of local and traditional seeds, cover crops, crop rotation, organic fertilization and pest management, reduced tillage.
Agroforestry	Introducing shade crop cultivation and fruit trees, sustainable timber plantations, exploiting synergies between (plant and animal) species, sustainable harvesting.	Carbon credit, payments for environmental services, benefiting from ancestral knowledge.
Permaculture	Exploiting synergies between (plant and animal) species, capturing and storing energy, prioritizing renewable resources, reducing waste.	Organic fertilizers and pesticides, soil amendments such as rock dust and biochar (biomass charcoal), closed-loop waste management systems.
Regenerative agriculture	No or minimum soil disturbance, crop diversity, covering the soil, maintaining roots in the soil, integrating livestock.	Cover crops, organic fertilizers and pesticides, biochar, rock dust and other soil amendments.

Key resources: All key resources and references are included at the end of this guide (section 6), again categorized according to the four main thematic areas of this guide. The reader can go directly to that section or read the corresponding narrative sections of interest first. The lists of key resources in section 6 should be considered as non-exhaustive. Using the various publications included, the reader can further explore the topics, for example, by looking at the respective reference lists and bibliographies. The inclusion of sources does neither represent any kind of endorsement of these, nor of the authors or institutions involved.

In addition to the four main thematic areas included in the guide, the meaningful participation and empowerment of indigenous people, women and the youth should be considered as cross-cutting themes.

GENERAL SUCCESS FACTORS FOR POLICY DESIGN

On the basis of the research conducted, the following general success factors can be distilled to guide the design and planning of alternative development at policy level.

1. People at the heart

Environmental concerns, policies and practices cannot be detached from the individuals and communities involved in alternative development. Environmental mainstreaming will not be effective without taking the legitimate needs and concerns of those people into account. Their economic and social interests will have a strong influence on the success and sustainability of local drug control projects. As such, the starting point of any environmental initiatives should be the perspective of the farmer.

2. Helping people to help themselves

Involving local communities, landowners and other stakeholders in the research, experimentation and discussions about the design and implementation of environmental components of alternative development will increase local ownership, project effectiveness and helps ensure environmental practices are both locally tailored and acceptable. In addition, alternative development projects should connect to the environmental challenges local communities have experienced firsthand, which will make it easier to integrate environmental protection and sustainability into the transition towards licit livelihoods these communities go through.

3. Long-term commitment

The long-term commitment of all stakeholders – from communities to governments and donors – is vital for achieving sustainable developmental and environmental gains. For example, reforestation and carbon sequestration are long-term processes and the benefits may take years to become evident. More specifically, a sustainable transition from illicit cultivation to licit alternative livelihoods will take considerable time.

4. Access to land, land rights and ownership

The granting and enforcement of individual and collective land titles has proven a successful alternative development strategy. It can also benefit the environment indirectly, through stronger commitments to the conservation of local lands and ecosystems and by reducing migration which in turn decreases the pressure on the expanding agricultural frontier. Land ownership also makes it easier to participate in payments for environmental services or carbon credit projects which rely on transparent land rights to function properly. As land ownership also tends to increase access to credit, local communities may also find it easier to pay for some of the costs involved in setting up these or other schemes such as organic certification.

5. Local adaptation and flexibility

The environmental mainstreaming of alternative development projects generally requires flexibility and agility. Projects should be adaptable to changing contexts, allowing for adjustments based on lessons learned, unforeseen challenges or new developments and information. More specifically, local adaptation is necessary with all environmental policies, practices and components of alternative development. Interventions that consider local climate, soil types and agricultural systems are more likely to succeed. For example, organic fertilizers and pesticides tend to be regionally specific, as they rely on local plant extracts or beneficial organisms. Tailoring practices to the specific local conditions also helps optimize carbon sequestration and emission reduction outcomes.

6. Realistic expectations

It is important to be realistic about what can and cannot be achieved in terms of results of environmental protection and sustainability. Expectations should be managed realistically at the local level, especially given the adverse starting conditions of many communities dependent on illicit crop cultivation, which may be characterized by isolation, marginalization, extreme poverty, fragility or conflict. This means that there are often no perfect results. Referring to Buddhist traditions, one of the field visit coordinators in Chiang Mai province, Thailand said: "You often walk the middle way."

7. Keeping it simple

Given the starting conditions of local communities involved and the fact that they are already making important transitions (e.g., in some cases leaving behind generations-long traditions of illicit crop cultivation or shifting cultivation), it is important not to jump too far ahead by introducing the latest environmentally sustainable technology or innovation. Often, small steps or simple improvements, such as organic fertilizers or sustainable waste or water management practices that can be incorporated relatively easily (e.g., easier than organic certification), can be a starting point and will face less resistance from local communities.

8. Transparency

In addition to drug control, alternative development interventions have various simultaneous objectives which

may have conflicting results in terms of environmental protection and sustainability. For example, objectives to introduce agro-industry, increase agricultural production or obtain access to international markets may be at odds with environmental objectives. It is important to be transparent about such tensions. Over-promising on environmental gains will, especially in the longer term, benefit nobody.

9. Finding the right incentive

Successful environmental mainstreaming of alternative development is all about finding the right incentives for communities and other stakeholders to adopt sustainable practices. This often involves creating win-win scenarios in which environmental gains are combined with economic or social benefits for the individuals or communities involved. At the minimum, projects should consider the fact that – in addition to potential income loss from shifting towards licit livelihoods – individuals and communities may lose some of the financial gains of less sustainable practices or may need to spend additional time on more labor-intensive approaches.

10. Partnering with the private sector

Involvement of the private sector is a way to improve quality and access to markets for alternative development products. However, it can also be a way to advance on the environmental side. Private sector partners can provide technical assistance, for example about composting or organic fertilizers, but can also finance fair trade or organic certification processes. Involvement of the private sector, however, is not a one-way street: project participants, including farmers, cooperatives and local government entities, should also increase their capacity to proactively engage with the private sector.

11. Establishing a proper baseline

Establishing a solid baseline at the start of the project is crucial for effective planning, monitoring and evaluation. It allows for an in-depth assessment of the environmental impact of the interventions as it helps to set realistic objectives and to quantify progress. Impact monitoring also provides evidence essential for payments for ecosystem services.

12. Developing environmental management plans

A standard tool is an environmental management plan, which can be developed for the alternative development project. Such plans detail both the positive impacts expected to result from the project as well as the measures taken to mitigate any negative environmental impacts. There is no standard format for these plans but there are many examples and templates available online.

INTRODUCTION

INTRODUCTION

The United Nations General Assembly, at its twentieth special session held in 1998, defined alternative development as a process to prevent and eliminate the illicit cultivation of plants through specifically designed rural development measures in the context of sustained national growth and sustainable development efforts in countries taking action against drugs, recognizing the particular sociocultural characteristics of the target communities and groups.

Environmental protection is an inherent part of sustainable development efforts. Therefore, it cannot be separated from alternative development and broader sustainable livelihood interventions. There is a growing consensus that alternative development can only contribute successfully to environmental protection and sustainability if environmental factors are taken into account in a holistic manner and throughout the entire production process: from the design of the projects to the transportation and marketing of the products.

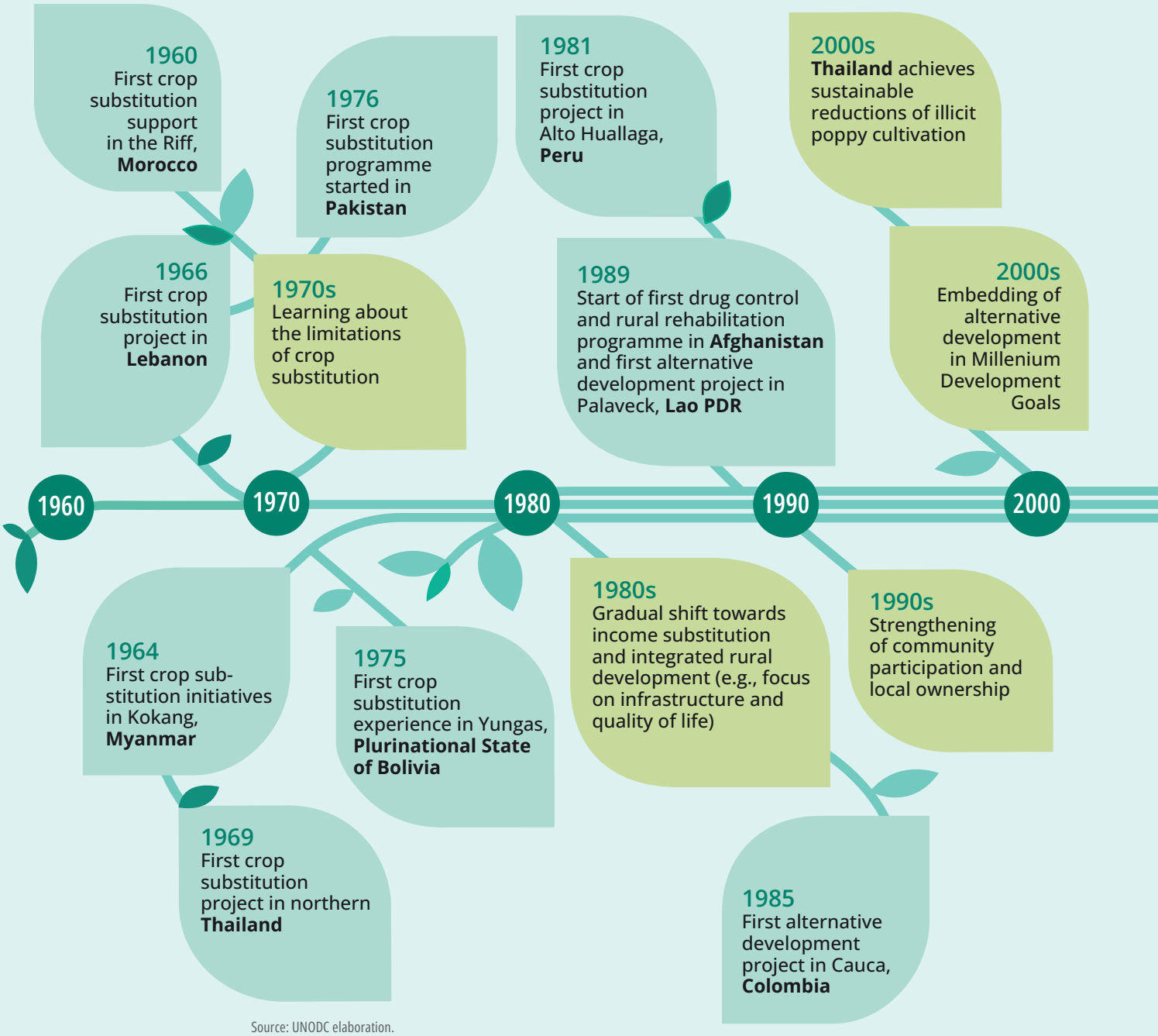
As alternative development interventions generally entail a shift in agricultural production, broader livelihood patterns, land systems or land use, they provide a unique opportunity to work towards environmentally sustainable development. However, this is neither an automatic process nor a guaranteed success. Alternative development itself has an impact on the environment that, if not managed well, might be greater than the environmental impact of the illicit crop cultivation it is trying to address. That means that, at the design stage, alternative development interventions should take into account any short, medium and long term consequences for the environment, both positive and negative.

1.1 The evolution of alternative development

Since the early experiences with alternative development in the 1960s, the concept has changed considerably. Narrow crop substitution efforts changed into integrated rural development initiatives, which over time became more people-centered and have increasingly incorporated environmental concerns. The current commitments and priorities of Member States were captured in the Outcome Document of the 2016 United Nations General Assembly Special Session on the World Drug Problem (UNGASS). The latest development is that similar livelihood strategies are now being implemented in other settings (e.g., urban settings), tackling other parts of the illegal economy (e.g., illegal mining, illegal logging or drug trafficking). For example, through the effects of money laundering, drug trafficking can affect land use (e.g., by investments in large scale cattle ranching).

10TH ANNIVERSARY OF THE UN GUIDING PRINCIPLES ON ALTERNATIVE DEVELOPMENT

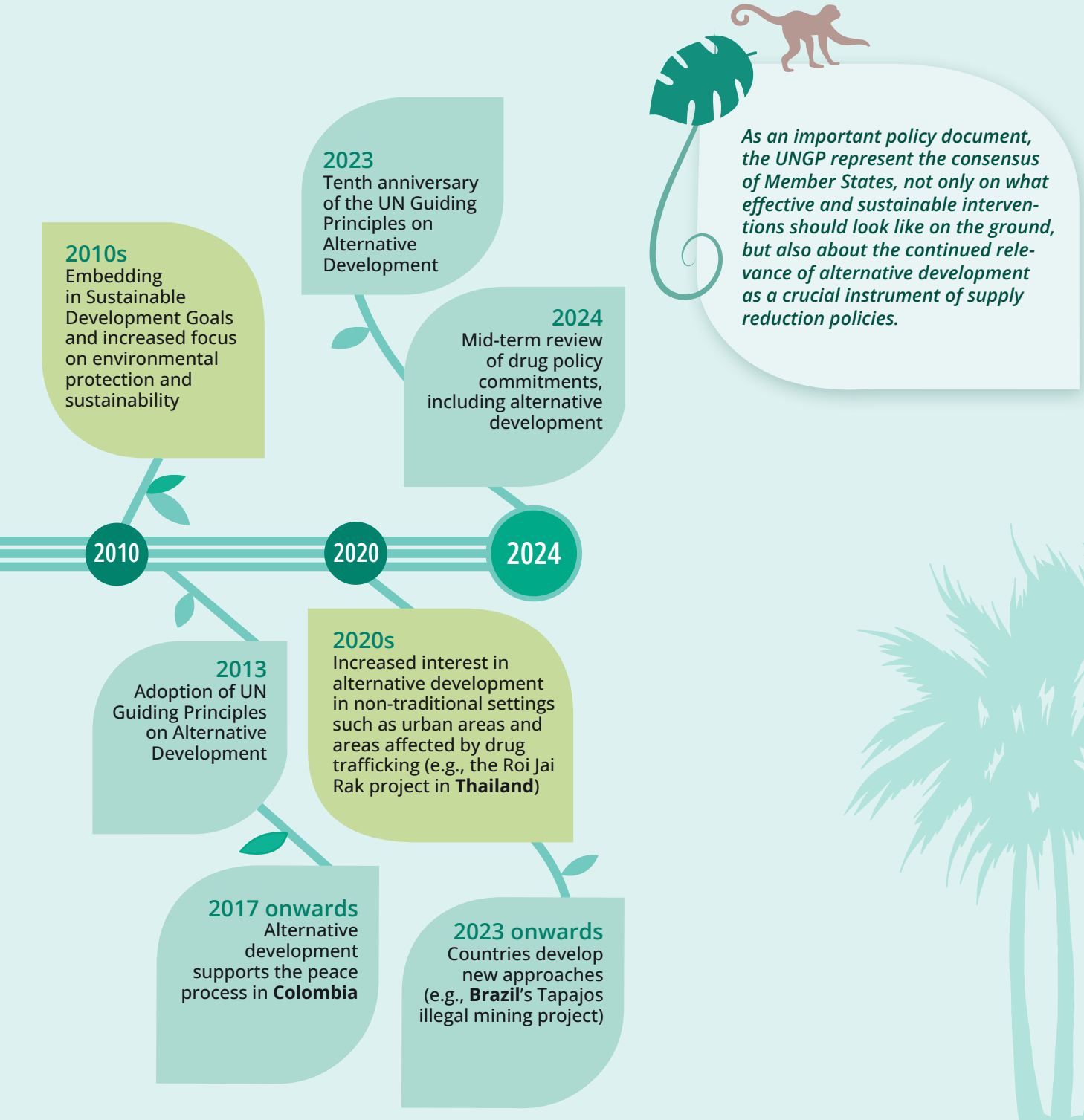
The evolution of alternative development



Source: UNODC elaboration.

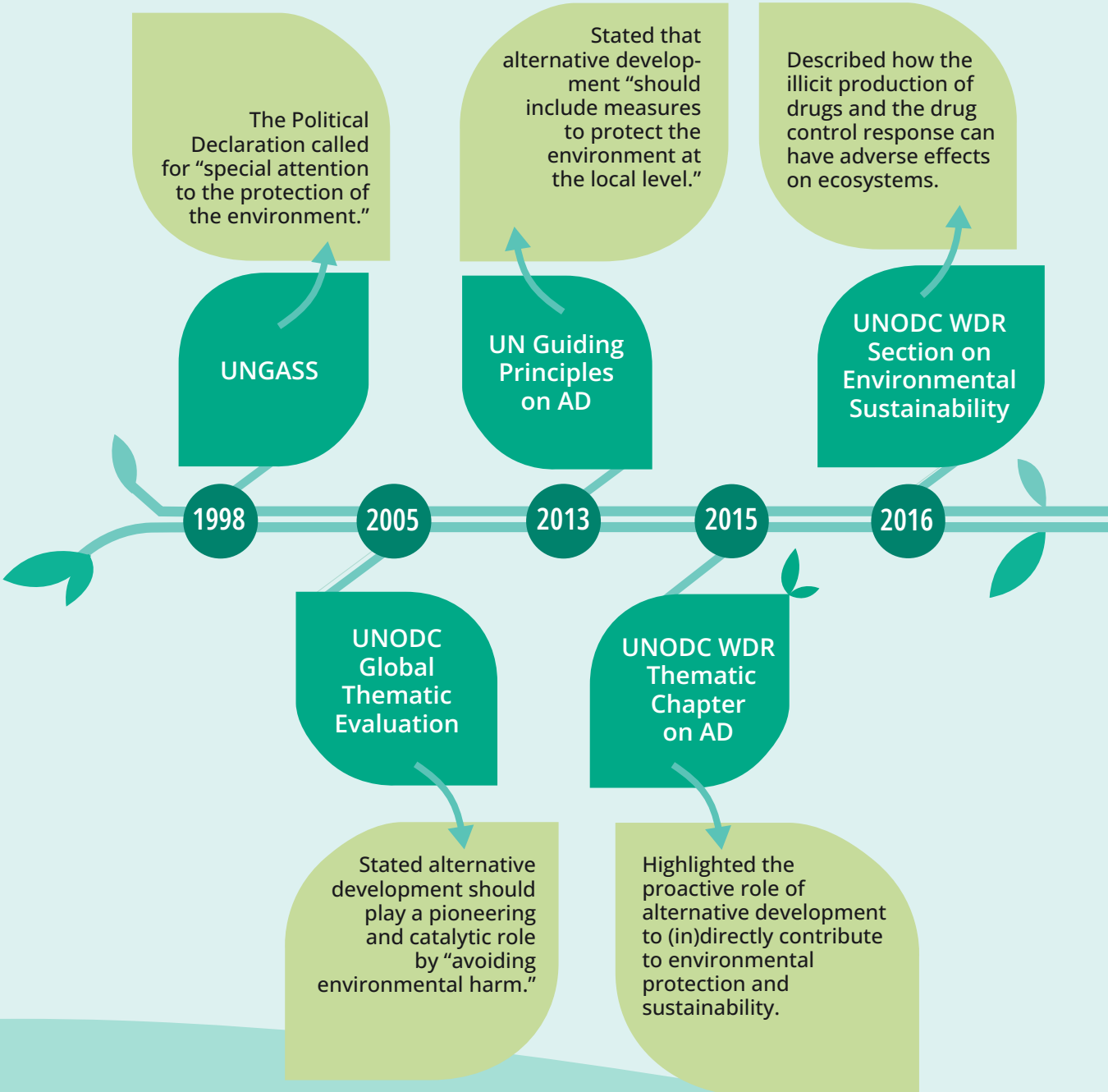
The United Nations Guiding Principles on Alternative Development (UNGP) were adopted on 18 December 2013. Since then, they have been guiding Member States on various dimensions of alternative development, including local ownership, women's participation and environmental sustainability.

10th Anniversary of the United Nations Guiding Principles on Alternative Development

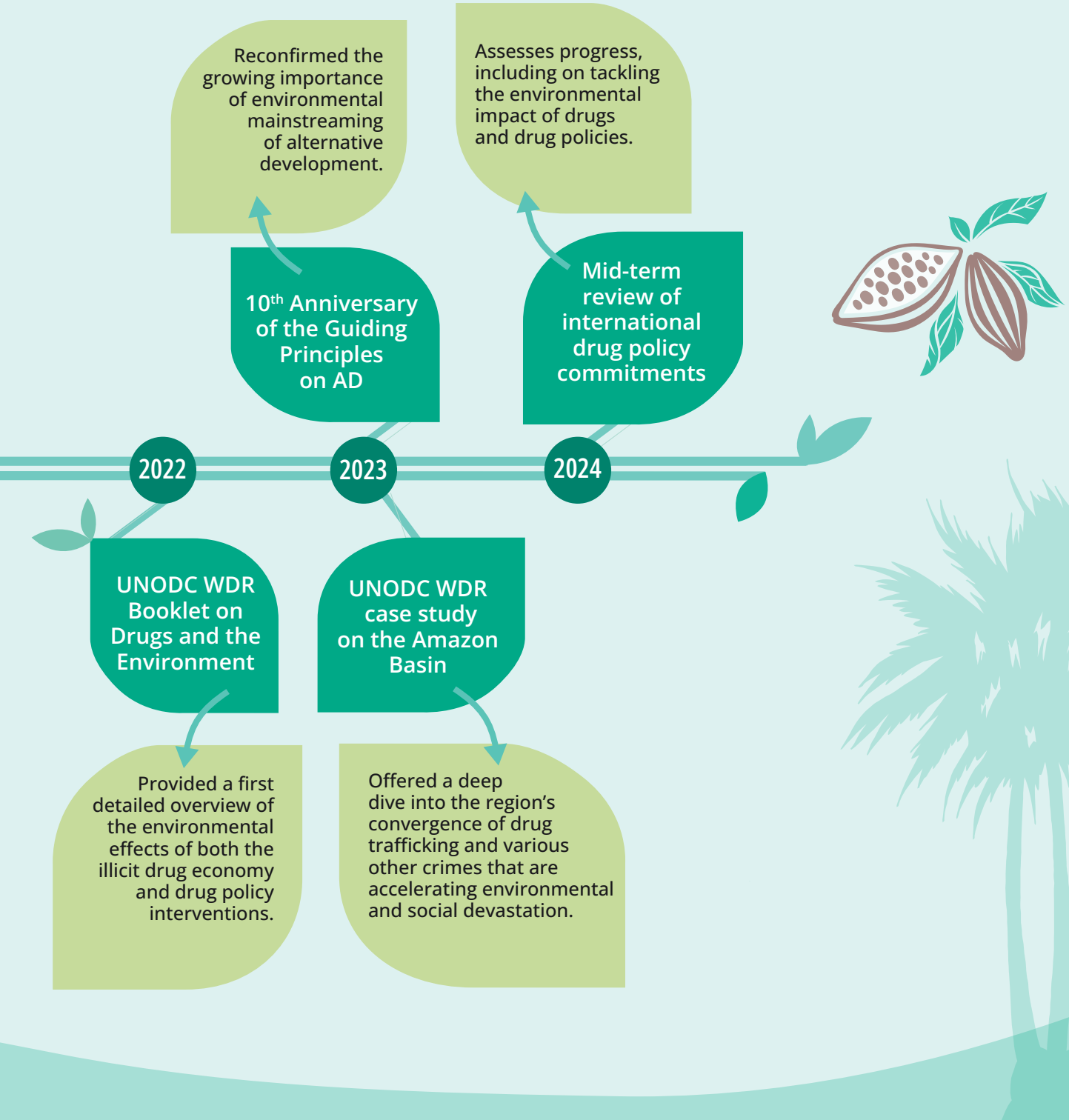


As an important policy document, the UNGP represent the consensus of Member States, not only on what effective and sustainable interventions should look like on the ground, but also about the continued relevance of alternative development as a crucial instrument of supply reduction policies.

TIMELINE OF UN MILESTONES RELATED TO DRUGS, DRUG POLICY AND THE ENVIRONMENT



Source: UNODC elaboration.

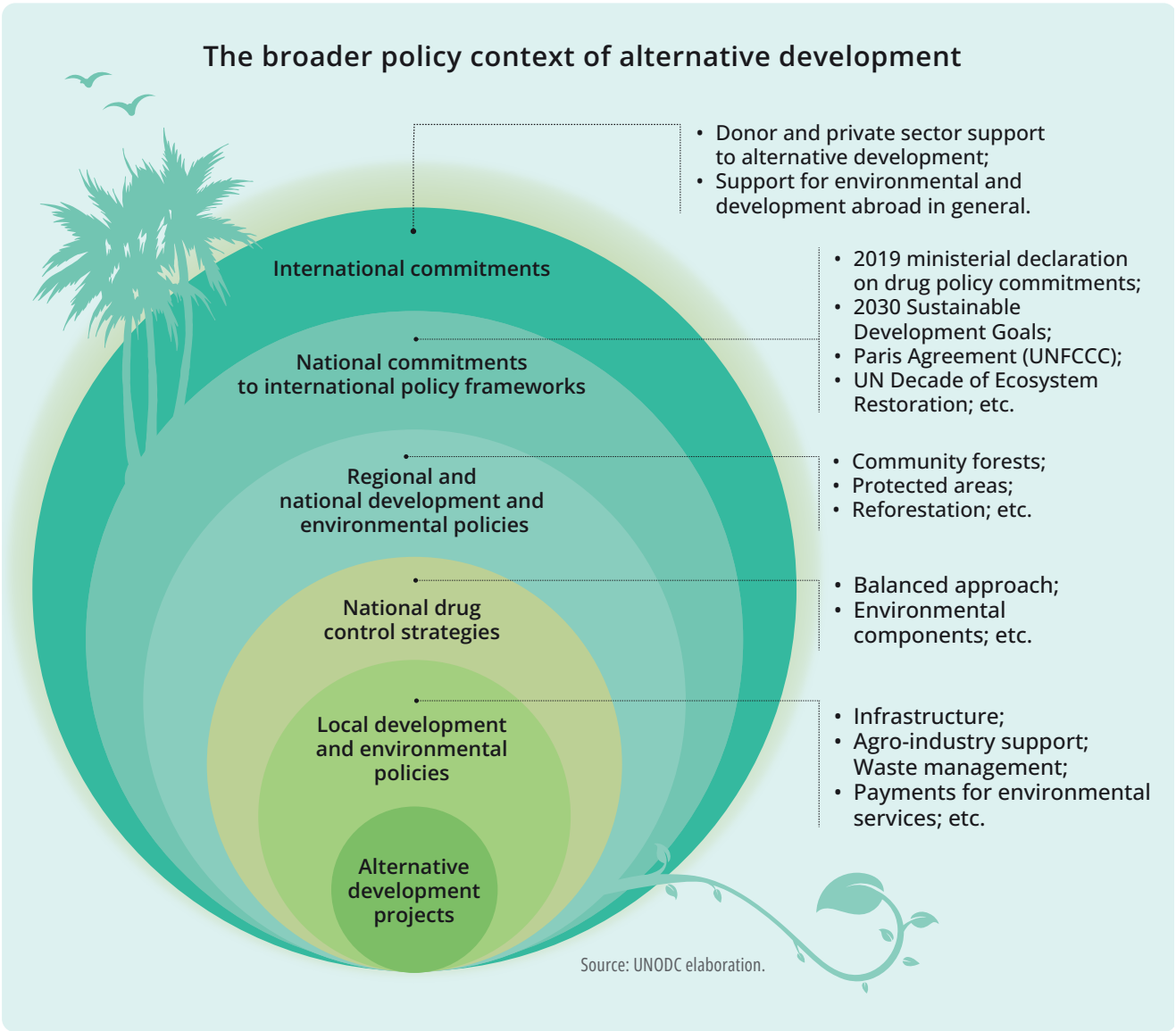

2022
UNODC WDR Booklet on Drugs and the Environment
Provided a first detailed overview of the environmental effects of both the illicit drug economy and drug policy interventions.
2023
10th Anniversary of the Guiding Principles on AD
Reconfirmed the growing importance of environmental mainstreaming of alternative development.
UNODC WDR case study on the Amazon Basin
Offered a deep dive into the region's convergence of drug trafficking and various other crimes that are accelerating environmental and social devastation.
2024
Mid-term review of international drug policy commitments
Assesses progress, including on tackling the environmental impact of drugs and drug policies.

1.2 From do-no-harm to proactive environmental strategies

In 2005, the International Narcotics Control Board (INCB) mentioned in its annual report the environment as a concern that "has become virtually inseparable from illicit crop cultivation." In the same year, UNODC's Global Thematic Evaluation listed "avoiding environmental harm" as part of the "pioneering and catalytic role" of alternative development. Alternative development interventions have often contained such a "do-no-harm" component, trying to minimize the environmental impact of alternative development projects.

In addition to reducing harm, many alternative development projects have also directly or indirectly contributed to the protection of the environment, biodiversity and the mitigation of climate change, for example, through agroforestry, reforestation or watershed management. In some cases, such as the Doi Tung Development Project in Thailand, environmental concerns were among the key drivers of the project from the start.

This broader environmental role was also captured in the 2013 United Nations Guiding Principles on Alternative Development, which state that "alternative development programmes should include measures to protect the environment at the local level, according to national and international law and policies, through the provision of incentives for conservation, proper education and awareness programmes so that the local communities can improve and preserve their livelihoods and mitigate negative environmental impacts."



1.3 The broader context

Alternative development is part of a much broader policy framework in which various national and international initiatives, efforts, commitments and legal obligations work towards environmental protection and sustainability.

For alternative development, a relatively small development endeavor within this bigger picture, this offers many opportunities for synergies with other development and environmental initiatives. For example, at the international stage, there is the Paris Agreement, a legally binding international treaty on climate change that entered into force on 4 November 2016.

In addition, the outcomes of the 2016 UNGASS placed drug policy interventions firmly within the broader framework of the 2030 Agenda for Sustainable Development. While the Sustainable Development Goals are not legally binding, countries are expected to take ownership and establish a national framework for achieving the 17 Goals.

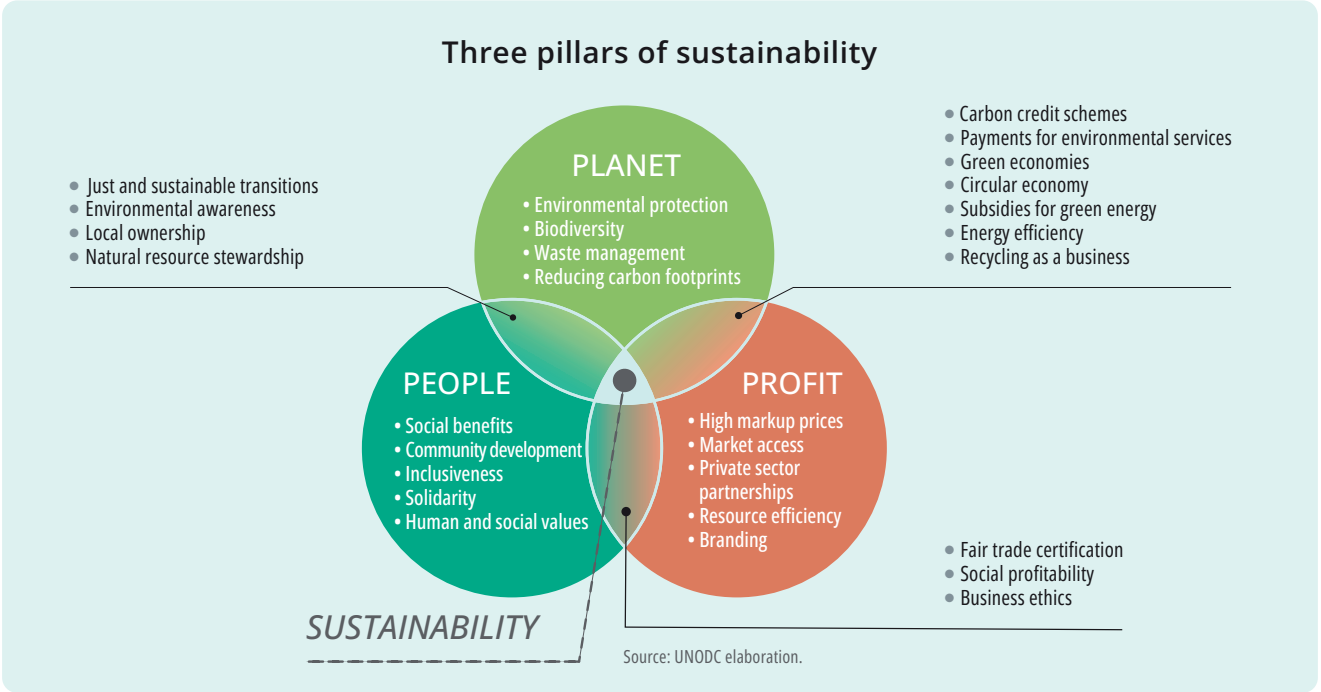
A complementary effort is the UN Decade on Ecosystem Restoration (2020-2030). Led by UNEP and FAO, this effort aims to halt the degradation of ecosystems, and restore them to achieve global environmental goals. Separately, UNEP is also promoting a green economy, which it defines as low carbon, resource efficient and socially inclusive. Many other UN agencies have complementary programmes, such as UNESCO's BRIDGES initiative on sustainability science or UN-HABITAT's Cities and Climate Change Initiative (CCCI).

A complementary policy objective is the circular economy, which can be described as a regenerative system in which resource input and waste, emissions, and energy leakages are minimized through long-lasting design, maintenance, repair, reuse, sharing, remanufacturing, refurbishing, and recycling activities. Its basic objective is to complete a transition in which economic growth is increasingly decoupled from the use and depletion of natural resources. Lastly, alternative development is part of other transitions as well, including the shifts towards renewable energies and more sustainable food systems.

1.4 The three dimensions of sustainability

Sustainability is the central concept in this guide. It includes a focus on all three dimensions of sustainability: the social, environmental, and economic dimensions, often also referred to as, respectively, people, planet and profit.

Taking these dimensions into account simultaneously means alternative development needs to find a delicate balance. It means projects should navigate both the synergies as well as the trade-offs between the three dimensions. The promotion of practices that contribute to environmental preservation or restoration can, for example, neither ignore the well-being of people and communities nor the economic value-added needed to ensure long-term sustainability.



1.5 Just transition

Balancing the three dimensions of sustainability essentially means focusing on a "just transition", which is the notion that any shift towards more sustainable and environmentally friendly livelihoods should be equitable and fair for all stakeholders involved, from individual farmers to local communities and from companies to governments. Just transition means working towards the twin-goals of improving the lives of local communities significantly and fairly, while reducing carbon emissions at the same time.

For alternative development, this approach entails taking into account the needs and concerns of all stakeholders while ensuring that the positive and negative social and economic consequences of environmental mainstreaming are shared equally. Without such a granular approach, the interventions may have very different outcomes for women, youth or specific ethnic or indigenous groups involved in or affected by the project. Failing to create just transition is likely to create resistance to change, opposition to new projects or innovations and may even result in social tensions and conflict.

SUCCESS FACTORS

- **Fair prices and incomes:** Participants of alternative development projects should receive fair premiums for their additional efforts to shift towards environmentally sustainable approaches and practices. Without a fair economic incentive, projects will not be sustainable.
- **External support:** Financial and technical support, for example, for certification processes, technical knowhow and technological solutions, is important to assist project participants throughout the transition.
- **Human rights and social support:** The promotion and protection of human rights is essential for just and sustainable transitions. Social elements of support are as important as production-related assistance.

1.6 Main challenges

Working on the environmental mainstreaming of alternative development brings various challenges. The setting of alternative development projects is still predominantly marginalized and isolated, rural areas which have suffered from decades of social fragility, chronic underdevelopment, insecurity or in some cases armed conflict. A culture of lawlessness and lack of state presence have often prevented any type of environmental policy from being implemented or enforced. In such settings, any development is difficult, but especially if it includes a transition from illicit to licit livelihoods. Bringing change to these fragile social environments may antagonize various individuals and groups, including those involved in the illegal economies. This may cause serious risks for those leading the transitions, such as community and indigenous leaders.

For many communities, environmental mainstreaming will be a second or third transition, following the complex process of shifting away from illicit crop cultivation and drug production or other changes such as the incorporation within the administrative framework of the state or the granting of land titles. This means alternative development's objective of environmental protection and sustainability does not occur in a vacuum. It is part of complex, intertwined social, cultural, economic and political processes that all may impact its feasibility and long-term success.

EXPERIENCES

Colombia: In Colombia various alternative development projects have incorporated the strategy to provide land titles to individuals and local communities. For example, in cooperation with Colombia's National Land Agency, UNODC has been supporting land access in the departments of Antioquia, Magdalena and Cesar through the assignation of use rights of unoccupied lands in forest reserve areas. The allocation of land and land use rights to project participants contributed to environmental protection and sustainability in various ways. For example, it decreased shifting cultivation and the pressure on the agricultural frontier, helped replace illicit coca crop cultivation by legal agroforestry activities and increased commitments to sustainable practices.

1.7 Main opportunities

Alternative development is an indivisible part of the broader efforts to work towards environmental protection and sustainability. As such, it does not have to invent its own environmental policies or instruments. In addition to learning from its own experiences with environmental mainstreaming over the past decades, alternative development can also benefit from guidelines and best practices developed in other domains, such as organic agriculture, carbon credits or payments for environmental services.

Being part of broader processes and transitions can be challenging, but can also be a blessing. It means alternative development can exploit the synergies with other initiatives implemented at the local, national and international level. The gradual incorporation over the years of organic certification, payments for environmental services and carbon credits into alternative development projects shows that this is actually possible and not some distant ambition.

In general, there are many best practices and lessons learned available that could be applied to existing and new alternative development projects. These include many interesting initiatives that lie beyond the direct scope of alternative development implementation, such as various technical assistance, awareness and educational initiatives including UNEP's focus on "green skills", "green jobs" and "green entrepreneurship," the farmer field school best practices of FAO or educational initiatives in countries such as Colombia's National Training Services (SENA, Spanish acronym), which allows people even in remote areas to benefit from professional training about productive activities and environmental practices.

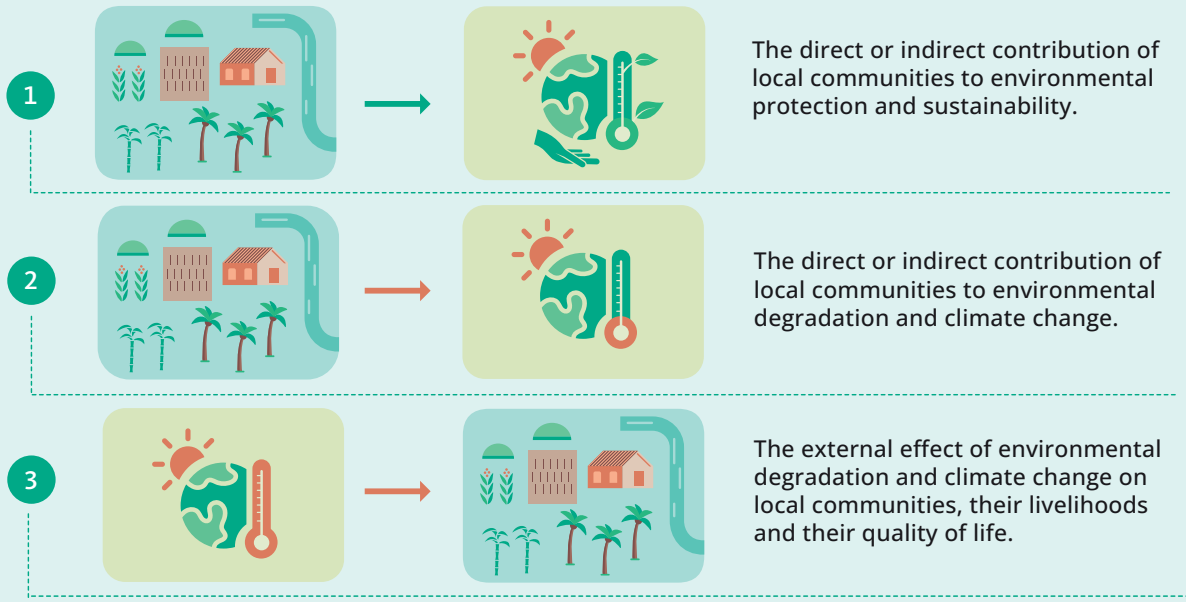
Lastly, an important opportunity for alternative development is the focus on inclusiveness. Projects that include indigenous communities can benefit from the ancestral knowledge about sustainable forestry and farming practices. Similarly, projects promoting gender equality and women's meaningful participation can benefit from women's leadership and commitments. For example, 50 per cent of the Administration Board of the Green Gold Cooperative (GGC) in Shan State in Myanmar is women and the cooperative of more than 1,000 farmers was led by a woman until July 2023.

1.8 Three main effects linking local communities and the environment

There are three principal effects when it comes to the nexus between alternative development and the environment, which are depicted in the diagram below.

It is important to note that the external effect of environmental degradation and climate change on local communities may be much greater than the other two effects. For example, a structural rise in temperature may decrease the yields of certain crops and could make their production economically unsustainable in the future. That means that climate change resilience and adaptation may be important components of alternative development. However, these and related strategies lie outside the scope of the present guide, which focuses especially on the direct or indirect contribution of local farming communities to environmental protection and sustainability, for example through agroforestry, reforestation, carbon credit schemes and payments for environmental services.

Three main effects linking local communities and the environment



Source: UNODC elaboration.

2 ENVIRONMENTALLY SUSTAINABLE PRACTICES AND APPROACHES

ENVIRONMENTALLY SUSTAINABLE PRACTICES AND APPROACHES

This section contains various approaches and corresponding principles and complementary instruments.

2.1 Common success factors for project design

The following success factors and positive project approaches, principles and elements have been identified in the research as related to environmentally sustainable practices and approaches. Some are taken from alternative development projects but the majority has been distilled from broader experiences shared during the interviews or from the documents included in the research.

1. **Introducing agroforestry:** The integration of trees with agricultural crops or livestock offers various benefits and produces various positive synergies. Within alternative development projects, agroforestry can, for example, reduce (top) soil erosion, increase or restore biodiversity, for example, when the area has been affected by illicit crop cultivation. Agroforestry promotes carbon sequestration and can also enhance the income and food security of local communities.
2. **Reducing chemical inputs:** Decreasing (minimal use only) or abandoning the use of synthetic pesticides and fertilizers in alternative development will reduce their negative environmental impact on the soil, water, air and biodiversity (insects, birds and other species). Chemical inputs can be replaced by organic equivalents and by soil amendments such as rock dust or biochar. Shifting towards organic fertilizers and pesticides is an important step towards organic certification. Producing these locally can also have a positive impact on the local economy (excess production can be sold locally) and social cohesion (local organic products can be produced together as a group).
3. **Promoting diversification and resilience:** Introducing and alternating various crops and plant species generally benefits the soil and increases the resilience against insect pests and plant diseases. Biologically diverse agricultural systems enhance the stability and variety of ecological functions that support productivity and other ecosystem services such as nutrient cycling and pollination.
4. **Introducing indigenous and native species:** Indigenous and other native species tend to have important environmental advantages, such as reduced needs for irrigation, fertilizers and pesticides.
5. **Introducing sustainable waste management:** Proper waste reduction and management systems are essential components of environmental protection. They allow for the control and use of by-products of the agricultural process that favors the quality of the air, water, soil and entire ecosystems.
6. **Introducing cover crops:** Planting crops to cover the soil after the harvest of the primary cash crop helps reduce soil erosion and increases soil fertility by contributing organic matter to the soil. Cover crops also retain water.
7. **Minimizing soil disturbance:** Reducing or abandoning tillage has various positive effects on the soil. Techniques of conservation tillage, ranging from no to reduced tillage, help conserve the soil structure and its organic materials. This in turn prevents soil erosion and increases the presence of beneficial soil organisms and water infiltration. It also helps sequester soil carbon.
8. **Promoting sustainable water management:** Sustainable irrigation systems such as drip irrigation and complementary measures such as rainwater harvesting can help conserve water resources in areas where alternative development is implemented.
9. **Introducing certification:** Marketing alternative products with an organic or fair trade certification has the potential to increase farmers' income while promoting environmental protection and sustainability. Adding the certification to an alternative development project makes various environmental protection policies and practices mandatory.
10. **Knowledge sharing:** Stimulating knowledge sharing among the community is important to facilitate the transition towards environment-friendly practices. This could, for example, include knowledge about how to address certain pests or produce fertilizers.
11. **Introducing systematic monitoring:** Regularly assessing the environmental sustainability of farming practices in alternative development is important; especially to take into account the medium and longer term implications. The introduction of lifecycle assessment methodologies can help to better understand the environmental impact of various types of licit cultivation and other livelihoods.

2.2 Starting point of alternative development and the environment

Alternative development projects respond to the needs of local communities and build on the local context. Unfortunately, that local context is often characterized by a history of environmental fragility and unsustainable

agricultural or forestry practices. This includes broad and well-established patterns that mostly go far beyond the scope of alternative development settings, including shifting agriculture, crop residue burning, monocrop plantations or intensive crop production relying on chemical inputs. The results of unsustainable practices vary according to the location, but they generally include soil erosion, reduced soil fertility, water pollution, biodiversity loss and dysfunctional ecosystems.

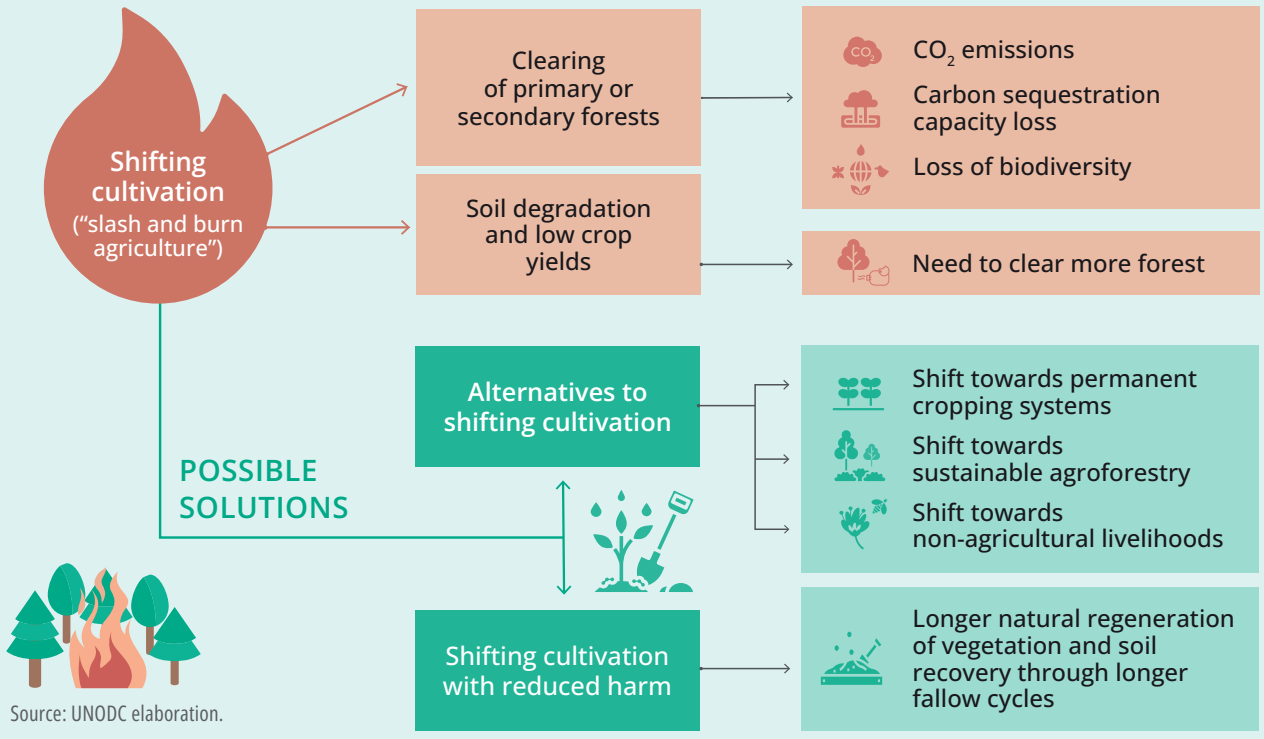
For the environmental mainstreaming of alternative development projects, this means that the starting point may often be the recovery or restoration of soils, forests, biodiversity and entire ecosystems. Addressing those challenges in a sustainable way might require farmers and local communities to move away from unsustainable practices such as shifting cultivation and monocrop cultivations. It may involve abandoning chemical fertilizers and pesticides or input-intensive agriculture altogether. In that sense, alternative development projects can effectively represent both an alternative to the dependence on illicit economies as well as to unsustainable livelihood practices.

At the local level, alternative development projects can empower local community to be change agents. For example, they can introduce viable and practical solutions to shifting cultivation and crop residue burning.

The ingrained tradition of shifting cultivation does not necessarily have to cause environmental degradation. Proper sequences of crop rotation and fallow periods long enough for the land to recover can reduce the environmental impact. However, because of population growth and other factors, in many countries there is increased pressure on land, which has caused farmers to limit the fallow period or cultivate the same crop on the same land for too many years in a row (e.g., illicit opium poppy cultivation in Afghanistan).

Similar to shifting cultivation, crop residue burning also has a nuanced relationship with the environment. Burning the residues clears the land, but is also carried out to remove weeds and prevent plant diseases and pests. This means that, if farmers would abandon these practices and shift towards chemical pesticides, the environmental impact may be similar or even worse. Regardless of the approach taken, the overarching goal is to reduce the negative impact of agricultural and other livelihoods on the environment, promote any positive impact and synergies, while at the same time maintaining or improving productivity.

The challenge of shifting cultivation



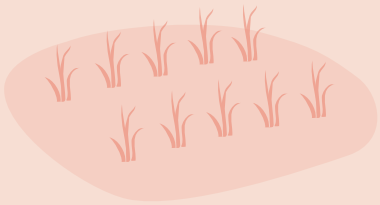
Source: UNODC elaboration.

EXPERIENCES

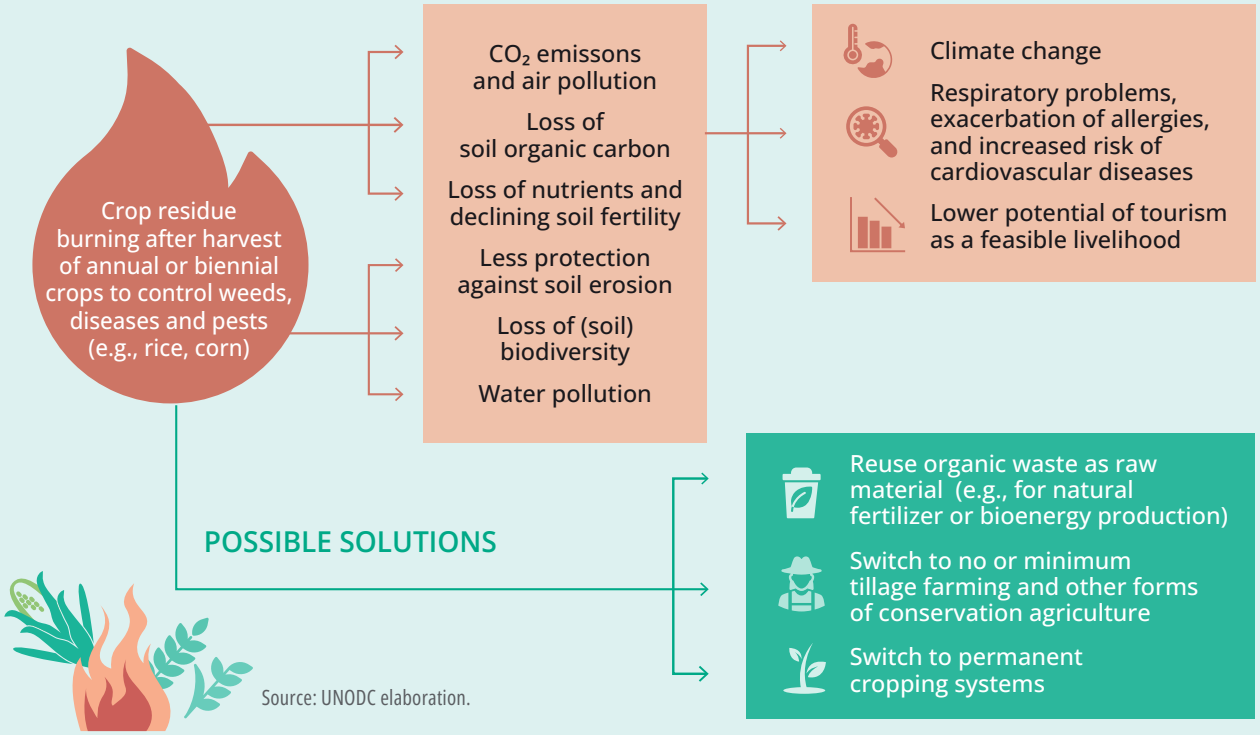
Brazil: In Brazil various initiatives have been promoting the concept of bioeconomy for its vast territories of rainforest. Such initiatives have generally addressed the concerns and interests of smallholder famers and indigenous communities within the context of environmental protection and biodiversity. For example, in 2019 the Ministry of Agriculture, Livestock and Food Supply launched the Bioeconomy Brazil Sociobiodiversity programme, which sought to promote partnerships between the public sector, farming and indigenous communities and the business sector.

India: The Swedish company IKEA implements the Better Air Now initiative. It responded to the structural challenge of air pollution in northern India caused by rice crop burning. Instead of burning the rice straw, the initiative encourages the farmers to sell the straw to the company, which turns them into baskets, rugs and bowls. The idea is to scale up this project to also produce other products and bioenergy. Separately, the FAO is already working with the Indian government on the promotion of a sustainable circular bioeconomy approach, turning crop residues into alternative biofuels.

Thailand: During various decades, the Royal Project Foundation has prevented the destruction of forests by empowering farmers to cease shifting cultivation and adopt sustainable agricultural practices, thus saving thousands of hectares of forest and providing income for farmers. Additionally, the Royal Project Foundation promotes natural-based solutions for adaptation by advocating the use of vetiver grass to prevent fertile topsoil from being swept away by erosion.



The challenge of crop residue burning



Source: UNODC elaboration.

2.3 Sustainable and organic agriculture

Most alternative development interventions are related to agricultural, agro-industry or agroforestry activities. Therefore, an important overarching concept is sustainable agriculture. In 1988 the FAO defined sustainable agriculture as "the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such development (in agriculture, forestry and fisheries etc.) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable." This definition clearly shows the three dimensions of sustainability, for example, emphasizing not only the quality of the natural environment but also the quality of life of farmers and local communities.

Organic agriculture or farming can be considered part of sustainable agriculture. It generally refers to various practices and principles of crop cultivation, livestock farming and other agricultural livelihoods that actively promote environmental protection and sustainability, soil health, biodiversity and minimal interference with natural processes.

Organic farming consists of many of the principles and approaches that are listed further below in this section. Despite the differences between the approaches included in this guide, there is a lot of overlap. For example, organic farming, permaculture and regenerative agriculture all call for adding organic material to the soil to improve soil health. Most approaches work towards a reduction of chemical inputs, emphasize environmental sustainability and biodiversity promotion, and aim to work in harmony with natural ecosystems. In general, it is useful to highlight two principles of organic agriculture, as emphasized by IFOAM – Organics International, a global organization working towards sustainable agriculture:

Fairness: This principle underlines the importance of fairness at all levels of the organic agriculture process – from farmers and workers to consumers and traders – fostering good quality of life, supporting food sovereignty, and reducing poverty. The approach aims to provide an ample supply of high-quality food and products while respecting the well-being and natural behaviors of animals and managing natural resources in a socially and ecologically just manner.
Care: Organic agriculture is guided by a precautionary and responsible approach aimed at safeguarding the well-being of current and future generations and the environment. The principle emphasizes that precaution and responsibility guide management, development, and technology choices in organic farming. This approach involves valuing traditional wisdom, indigenous knowledge, and accumulated experience.

2.3.1 Composting and sustainable waste management

Composting is probably one of the easiest ways for alternative development projects to practice sustainable waste management while benefiting locally from the natural life cycle recycling process of plants and food waste. It helps to rebuild the soil by adding organic matter and increases the soil's capacity to retain moisture and nutrients.

There are many different composting methods, including, for example, vermiculture, which uses worms to decompose organic materials such as plant rests and food waste. It turns the waste into a nutrient-rich material that can feed and sustain new plants, reducing the need for synthetic pesticides and fertilizers.

SUCCESS FACTORS

- **Proper ratio of carbon-to-nitrogen:** Effective decomposition relies on maintaining a balance between carbon-rich materials (e.g., dry leaves, plant stalks or straw) and nitrogen-rich materials (e.g., food and vegetable rests and green plant materials). Experts disagree about the most effective Carbon/Nitrogen ratio, but the range is often between 25:1 and 35:1.
- **Aeration:** As oxygen is necessary for aerobic decomposition, turning or aerating the compost pile regularly increases the efficiency of the process.
- **Moisture and temperature:** Composting organisms require certain levels of moisture and temperature to be most efficient. What the right levels are will depend on the type of composting and the organic materials involved. Moisture and temperature requirements will, for example, also determine whether the compost pile should be covered or not.

EXPERIENCES

Bolivia (Plurinational State of): In an integrated natural resource project called Jatun Sach'a implemented in La Asunta (2010-2017), technical assistance was provided to promote the effective use of composting among the

community participants as a way to produce organic fertilizer locally. The same project also resulted in the local production of "Biol", a liquid, organic fertilizer produced by anaerobic decomposition, a process in which manure, ashes, plant materials and other ingredients are mixed to produce organic matter in the absence of oxygen.

Thailand: The Mae Fah Luang Foundation established a Center for Energy and Environmental Management to produce fertilizer from food waste, use macadamia shells as biomass to produce heat for its production line of handicrafts, set up a natural-based water treatment system as well as a holistic trash separation initiative. It also serves as a training centre for local communities to apply the best practices to their own context. In addition, the Carbon Credit from Community Forests for Sustainability project of the foundation includes composting baskets constructed around the trunks of trees to provide nutrition to the tree and reduce the risk of wildfires.

POLICY STARTING POINTS

- **Reinforce local practice:** Often, some form of composting is already part of local farming practices. What the project could do is to strengthen these efforts, for example, by offering technical assistance, introducing more efficient ways of composting and organizing composting at the group or cooperative level.
- **Determine the scale:** Make a decision about the scale of composting for the alternative development project. For example, should the compost only serve the agricultural activities of the project itself, or should it also be beneficial to the broader community. This decision will influence the choice of composting method and the respective resources needed.
- **Check local and national regulation:** Composting may be subject to local or national regulations, affecting for example the types of materials you can compost, or the methods used. In some cases, permits may be required.
- **Design a composting system:** After choosing the method and the scale of composting, you need to design the composting system, which may involve creating compost bins or baskets.
  Guidelines: There are many community composting guidelines with best practices available. For example, the FAO has published a Farmer's Compost Handbook based on experiences in Latin America.

2.3.2 Organic fertilizers

Organic fertilizers provide important benefits to both plants and the soil. The organic matter that organic fertilizers contain improves the soil structure, which increases the soil's capacity to hold onto water and nutrients. These fertilizers stimulate microbial activity, which enhances the processes of crop residue decomposition, plant growth and the overall nutrient cycle. The latter is the loop in which nutrients in the physical environment are constantly recycled into living organisms and back again into the physical environment. Supporting local communities to produce their own organic fertilizers and pesticides is a relatively cheap and easy way to integrate environmental protection and sustainability in alternative development projects.

SUCCESS FACTORS

- **Complementarity:** Organic fertilizers are made from renewable sources such as animal manure, compost and plant residues. As such, they work well with other principles of sustainable agriculture such as cover crops, no or minimum tillage and integrated pest management techniques, as well as with circular economies, in which waste such as compost is reincorporated into the agricultural and livestock production chain.
- **Reduced water pollution:** The use of organic fertilizers reduces water pollution as nutrients are released much slower, preventing excessive nutrient leaching and runoff.
- **Combining organic fertilizers with biochar:** Biochar, a soil amendment, is a charcoal created by a process called pyrolysis, which involves heating organic materials such as agricultural residues or other biomass in a low-oxygen environment. Once applied to the soil, this organic compound can enhance carbon sequestration, water and nutrient retention, soil fertility and regeneration. An additional benefit is that the pyrolysis process itself can be used to produce bioenergy.

EXPERIENCES

International: In various countries, including in Africa and Latin America, there are experiments with types of organic fertilizers based on production-related rest materials. For example, in Peru, the indigenous cooperative COAAN, operating under the brand of Sankori, is using cocoa and fruit production rests

to produce organic fertilizers. A soil expert from Colombia, Jairo Restrepo Rivera, is promoting various recipes for organic fertilizers of the "bokashi" type. These are fermented fertilizers which are much faster to produce (e.g., on average 2-4 weeks compared to conventional composting methods that generally take six months to a year). In a project in the Kpélé Prefecture in the Plateaux region of Togo, a group of more than 200 women was specifically trained on the production of bokashi, supporing women's groups in income-generating activities and improving their living conditions in general.

Lao PDR: Agricultural extensionists form part of UNODC's alternative development project and extend coffee-related agricultural services to farming communities. Those activities include establishing local capacities for organic fertilizer production, managing wastewater and other activities enhancing environmental protection and sustainability in the Vanmai community.

Philippines: Since 2021, farming communities in Mindanao province have been involved in a project that produces biochar from rice husks, which were previously discarded by rice farmers. As a result, more than 5,000 farmers reduced the use of chemical fertilizers due to the distribution of this organic compound through small shops, cooperatives and producer organizations. Biochar can also be used as an ingredient in "bokashi."

POLICY STARTING POINTS

- **Assess local opportunities:** Understand which ingredients are available locally, for example, in terms of animal manure some areas may have guano from bats.
- **Assess project needs:** Assess the requirements of the alternative development project, for example, related to agricultural conditions, crops selected and the scale of the project.
- **Guidelines:** Various handbooks, manuals and guidelines about fertilizers and soil amendments are available online. Guidance is also often included in broader handbooks and manuals about organic farming. In all cases it is important to check whether the information refers to similar agro-climatic and agro-environmental conditions.

2.3.3 Organic pesticides and integrated pest management

To reduce the reliance on chemical pesticides, integrated pest management (IPM) can be a powerful component of alternative development projects. It combines various techniques to manage pests, including organic pesticides, biological control (e.g., introducing beneficial insects and predators) and cultural practices (e.g., the creation of unfavorable environments for pests through crop diversification or specific tree densities).

SUCCESS FACTORS

- **Integration of organic pesticides:** The application of organic pesticides is more effective when it is part of a broader integrated pest management strategy.
- **Targeted pest control:** Target specific pest species to minimize harm to non-target organisms and the ecosystem at large.

EXPERIENCES

Afghanistan: Integrated pest management is an integral part of UNODC projects in Nangarhar, Afghanistan, applied to orchards, cereals and vegetable crop production. UNODC trained citrus growing farmers on IPM and the tools provided to them helped the farmers bring down the prevalence of diseases in citrus orchards. IPM, together with improved irrigation systems, increased the yield of the orchards by 50 per cent.

POLICY STARTING POINTS

- **Understand problems and solutions:** As a first step it is important to know which pests may (potentially) affect the project and which organic pesticides are available, relatively easy to prepare in the local setting as well as allowed (whether legally or in the context or organic certification).
- **Seek advice:** Similar to organic fertilizers, this is a field where getting advice on methodologies, recipes and best practices is useful, for example, from other community members or organic pest management experts.
- **Guidelines:** The FAO offers a detailed resource center with numerous case studies on integrated pest management. In addition to online manuals about organic pesticides, there are also resources

available to mitigate the harm of organic pesticides to pollinators and the broader ecosystem. An example is the 2021 guidelines of The Xerces Society for Invertebrate Conservation on Organic Pesticides: Minimizing Risks to Pollinators and Beneficial Insects.

2.3.4 Sustainable water resource management

Sustainable water resource management is a broad principle and cross-cutting policy instrument. It ranges from reducing water for irrigation or agro-industrial processes to the protection of watersheds and rivers by minimizing pollution. Techniques such as rainwater harvesting can help local communities mitigate the impacts of droughts. In addition to supporting local communities to make their own organic fertilizers and pesticides, promoting sustainable water management is a relatively easy way to produce environmental gains in alternative development projects.

SUCCESS FACTORS

- **Designing water-efficient landscapes:** Planning of agricultural or agroforestry land-use systems can benefit from proper planning in terms of water resources, for example, through terracing or by placing crops with similar water needs together.
- **Efficient irrigation systems:** Irrigation systems such as drip irrigation or sub surface irrigation help avoid water evaporation and runoff.
- **Water saving techniques:** Capturing and storing rainwater in bunds, reservoirs or storage tanks can help reduce water use, regenerate soils and restore degraded ecosystems.
- **Mulching:** Mulching, which consists of covering the soil around plants with a layer of organic or inorganic materials, helps to reduce water evaporation and maintain soil moisture.
- **Treating production wastewater:** Various techniques have been developed to treat the production wastewater of typical alternative development products like coffee.

EXPERIENCES

Afghanistan: A UNODC project in Kandahar and Helmand provinces focuses on rainwater conservation. Rainwater harvesting techniques include percolation and storage tanks, control dams and stop dams. The programme promoted improved irrigation techniques such as furrow irrigation and drip irrigation methods instead of flood irrigation, which decreased the water loss by up to 70 per cent and the amount of fuel used (from 50 to 20 liters) for water pumps to irrigate one hectare. Furrow irrigation further reduced the time to 6-7 hours, compared to the 20 hours it takes for flood irrigation.

Afghanistan: An alternative development project in Takhar province focusing on watershed management combined the construction of check dams and terraces with the planting of fruit trees on these terraces.

Colombia: Colombia's Kogui indigenous people are involved not only in coffee production but also in the environmental protection of the lands they manage. They are currently part of UNESCO's BRIDGES project, which focuses on finding sustainable solutions coming from local communities. In the Reviving Water: Munekan Masha project, the Kogui will work together with non-indigenous scientists on the restoration of three degraded land areas in the Sierra Nevada of Santa Marta by focusing on water management. An overarching objective is to create education materials which document the ancestral knowledge and conservation methods of the Kogui for use in schools and universities around the world.

Kenya and Tanzania: Projects implemented by the NGO Justdiggit promote the use of water bunds, holes dug into the soil to gather rainwater and plant evaporation. Such landscape restoration techniques can help regenerate degraded soils and desert ecosystems.

POLICY STARTING POINTS

- **Planning:** As first steps it is important to assess available water sources, understand relevant local and national water resource regulations and assess and select the types of measures and techniques that suit the alternative development project.
- **Explore synergies**: Effective water management measures can save even more water when recycling is integrated into the project. For example, greywater, the wastewater from non-toilet systems, or agro-industrial wastewater can be used for irrigation purposes.
- **Setting targets:** Once the planning is done, it is important to set clear targets and corresponding result indicators, for example, for water use, run-off levels, water quality and water-related biodiversity.

- **Guidelines:** Many guidelines are available. For example, in 2014 FAO has put together a Compendium on Rainwater Harvesting for Agriculture in the Caribbean Sub-region. The International Water Management Institute (IWMI) also has various useful publications and success stories on its website.

2.3.5 Renewable energies

Introducing renewable energy sources in alternative development projects is a relatively straightforward way of working towards environmental protection and sustainability. Types of renewable energy include solar, wind, geothermal, hydropower, ocean and biomass energy (bioenergy).

EXPERIENCES

Afghanistan: UNODC is promoting solar energy in rural areas where farmers don't have access to grid electricity. Community-based poultry hatcheries, grape drying houses and drip irrigation systems all run on solar energy, reducing the use of diesel generators. Farmers are also increasingly using solar energy to power water pumps used in deep wells and other systems used for irrigation. While this may be beneficial to the environment in terms of using renewable energy, the downside may be an increase in water use, further depleting already low levels of groundwater.

Colombia: In the Department of Valle del Cauca the community-based environmental organization Serraniagua is promoting the production of methane-rich biogas from pig and cow manure.

POLICY STARTING POINTS

- **Guidelines:** IFAD has produced a guide on Renewable Energy for Smallholder Agriculture (RESA), which was intended to mainstream renewable energy in IFAD operations but contains interesting information for any project. The University of Southern Denmark Esbjerg has published a Biogas Handbook. The German Fachagentur Nachwachsende Rohstoffe e. V. (FNR) has, with support of the Federal Ministry of Food, Agriculture and Consumer Protection and GIZ, published the Guide to Biogas: From production to use.

2.3.6 Sustainable fisheries

Small-scale artisanal fishing has often been part of alternative development projects, for example, in Colombia's Darién and Urabá regions and in the Ciénaga de Santa Marta. In Urabá a trade agreement with Carrefour has benefited more than 1,000 artisanal fishers. In addition, fish farming has also been introduced as part of alternative development.

SUCCESS FACTORS

- **Ecosystem protection:** It is important to integrate local fishery initiatives into broader policies to protect the habitats of fish, which can include fragile ecosystems such as mangroves, wetlands, coral reefs or seagrass beds. It is important to limit bycatch and protect the fragile habitats of non-target species.
- **Awareness and technical assistance:** The successful incorporation of sustainable fishing into alternative development will rely in part on a combination of awareness raising (about why sustainable fishing is important and of direct interest to the project participants) and technical assistance (e.g., training about sustainable fishing techniques, or ways to reduce bycatch).

EXPERIENCES

Colombia: A project supported by UNODC has been promoting sustainable fish farming and processing (trout and tilapia) among four reservations of the indigenous Pastos in the department of Nariño. An environmental plan was developed to support and strengthen the project participants' technical and productive capacities as well as their motivation to implement sustainable fish farming activities, in line with good aquaculture production practices.

Costa Rica: With support of UNCTAD, Costa Rica launched in 2021 its seafood and aquaculture trademark, "Pura Vida", which brands domestic seafood and aquaculture products that meet certain conditions across the supply chain to promote economic, social and environmental sustainability.

International: The FAO is developing new Sustainable Aquaculture Guidelines (SAG) to provide practical guidance to government authorities and policy-makers, and assist them to implement FAO's Code of Conduct for Responsible Fisheries. The guidelines are expected to be ready at the end of 2024.

POLICY STARTING POINTS

- **Community ownership:** Investigate how the local community can be part of the management and decision-making in alternative development projects focusing on fisheries.
- **Climate change adaptation:** In addition to thinking about environmentally sustainable fishing methods, it is important to also think about strategies to mitigate the impact of climate change on local fishery projects.
- **Guidelines:** The FAO has developed Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries as well as Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. In addition, IFAD has developed Guidelines for Integrating Climate Change Adaptation into Fisheries and Aquaculture Projects.

2.3.7 Organic certification

There are many labels that represent sustainable or ethical practices. Depending on the alternative crops selected, the local opportunities and the market potential, alternative development projects can choose one over another. This guide only covers organic certification and, in the next section, fair trade certification as these have been two types of certification that have already been successfully applied to alternative development projects. However, depending on the local context, other certification standards may be equally relevant. For example, in a country like Afghanistan with an important pastoralist sector, a standard such as the Good Cashmere Standard (GCS) for sustainable cashmere may be relevant, which aims to protect the environment while ensuring the welfare of cashmere goats.

Organic certification is based on established organic standards. Obtaining and maintaining certification confirms that a farm or product adheres to the practices and principles agreed on under a certain standard that promotes environmental sustainability. There are many different organic standards, some formulated and managed by governments, others set by NGOs or companies. The most well-known certification standards are the EU's organic label and the USDA Organic Seal. Given the size of these markets, both are highly relevant for any organic certification under alternative development.

Given the limited size and economic clout of cooperatives or producer organizations involved in alternative development projects, the costly organic certification process will often have to be paid by national or international donors or the private sector. In addition, training and technical assistance about organic practices are essential to obtain and maintain certification successfully. This is increasingly important as organic certification standards currently tend to become stricter, with more controls and monitoring.

It is important to note the certification usually includes a transition period to transform a farm or agricultural activity to organic practices. This period can vary but usually takes two or three years for agricultural projects. Certification standards are also subject to change. For example, a new EU Organic Regulation came into force on 1 January 2022.

Some countries have their own certification schemes. For example, in Peru, the "Allies for Conservation" brand is a promotional instrument for the conservation of Protected Natural Areas under national administration. The brand generates the differentiation of products and services that were developed under a scheme of sustainable use and management of resources in protected areas, buffer zones and other strategic spaces.

SUCCESS FACTORS

- **Quality:** Certification and a seal alone are not enough for sustainability. The products involved in alternative development will need to have quality.
- **Marketing:** Given the considerable costs and time involved in organic certification, it is wise to first identify a market that can be guaranteed or at least has a high potential for the alternative product. Given the ever-stricter standards involved in organic certification, there needs to be some guaranteed market to justify the additional costs and efforts involved. Many organic products do not reach customers.
- **Awareness:** Local commitment to implement organic farming practices and adhering to a strict set of rules often requires a change in the mindset of the project participants. This is especially the case as they need to adopt practices that may be more labor-intensive or less effective than, for example, chemical fertilization and pest control. That change in mindset can be nurtured externally, but the most effective way for individuals and local communities to adapt is when they become aware of the long-term negative impact of traditional agricultural practices.
- **Documentation:** Even if one is still only preparing to shift towards organic practices and principles, it is

important to document all actions and steps taken, especially related to the agricultural inputs used.
- **Financial incentives:** Using certification as a prerequisite for access to state funding or offering tax benefits in the first years of implementing the certification.

EXPERIENCES

Afghanistan: In Afghanistan a USAID-funded project implemented by Dutch Committee for Afghanistan (DCA) is linking goat herding to the sustainable cashmere wool market, benefiting from standards such as the Sustainable Cashmere Standard of the Sustainable Fibre Alliance (SFA).

Bolivia (Plurinational State of), Lao PDR and Myanmar: In Bolivia, Lao PDR and Myanmar, local cooperatives and farmer organizations have successfully obtained fair trade and (in some cases) organic certification with support of the French coffee roaster Malongo.

Peru: The "Allies for Conservation" brand highlights the environmental commitment of the communities in the sustainable use of natural resources and the conservation of protected areas, but also reflects social commitments to develop fair livelihoods throughout the production process. There are currently 69 enterprises registered under this brand, 43 per cent led by women. Products include taricaya eggs, cocoa, coffee, smoked bush meat and nectar drinks.

Peru: The indigenous cooperative COAAN (Sankori) is producing high quality organic cocoa, applying ancestral knowledge about the protection and conservation of forests, soils and biodiversity. They have obtained several certifications, including the ones from the USDA and European Union.

POLICY STARTING POINTS FOR ANY CERTIFICATION

- **Creating Understanding:** It is important to build up basic knowledge about certification standards, national and international regulation and available certification bodies. Websites of certification standards tend to have many resources available, for example, lists of agricultural inputs that have been approved for organic farming.
- **Conducting outreach:** Engaging directly with the certification entities is the best way to get specific guidance about the opportunities, feasibility and requirements as directly related to the local project setting. Similarly, getting advice from other projects in similar settings can be highly beneficial.
- **Apply careful deliberation:** The decision to apply for certification should not be taken lightly. It can create high expectations that may not all be met and commits project participants to lengthy transition periods. Afterwards, there is also no turning back. Maintaining certification requires an endless commitment to organic practices.
- **Common implementation phases:** While each organic and fair trade certification has different steps and requirements, the following common phases can be identified, not necessarily always in this order:
  - **Research:** Understanding the available regulations and certification, and checking the feasibility of organic transition and market potential for the project.
  - **Selection:** Selecting the certification that is most promising and the corresponding accredited certifying agent.
  - **Planning:** Developing a plan for organic transition.
  - **Implementation and transition:** Starting with organic practices and changes.
  - **Application:** Applying with the accredited agent for certification by submitting the detailed plan.
  - **Inspection:** Receiving field visits from an independent, third party auditor.
  - **Approval:** The certifying agent approves the report from the auditor and issues an organic certificate.
  - **Monitoring:** Recurrent monitoring visits to maintain the certification.
- **Guidelines:** While general guidelines for certification can be found online, it is important to directly refer to the guidelines and certification standards as specified by the certification scheme of choice (e.g., Fairtrade International or the organic production standards of the USDA or the European Union).

2.3.8 Fair trade certification

Contrary to organic certification, fair trade certification does not require organic farming. The two certification systems do however share values related to environmental sustainability and social responsibility. Fair trade certification includes various standards and labels. These generally include multiple environmental norms, including restrictions and caveats on using hazardous chemical inputs and the promotion of sustainable resource management such as water and waste.

Fairtrade certification offers an important connection point between alternative development and the environment. In order for producers and traders to acquire the certification, a range of economic, environmental and social criteria must be met. Fairtrade International, which represents the most well known label, describes the environmental criteria as follows: "Environmental criteria emphasize ecologically and agriculturally sound practices, including responsible water and waste management, preserving biodiversity and soil fertility, and minimal use of pesticides and agrochemicals. Fairtrade prohibits the use of several hazardous materials and all genetically modified organisms (GMOs)."

For alternative development fair trade certification may represent an important win-win situation, providing increased income for farmers and other participants, while contributing to environmental protection and sustainability.

SUCCESS FACTORS

- **Growing market demand:** The international market for fair trade products has grown steadily during the past decades. There is the potential that this market will further grow due to increased consumer awareness and concern about climate change. However, at the level of local or national markets, it should be noted that the marketing potential of fair trade products may be limited.
- **Private sector partner:** Having a private sector partner is often key to obtaining fair trade certification. In UNODC alternative development projects in Bolivia, Colombia, Lao PDR and Myanmar, the French coffee roaster Malongo, provided technical and financial support to obtain fair trade certification (under the Fairtrade Mark). The technical assistance included showing local communities how to prepare their own organic fertilizers and pesticides.

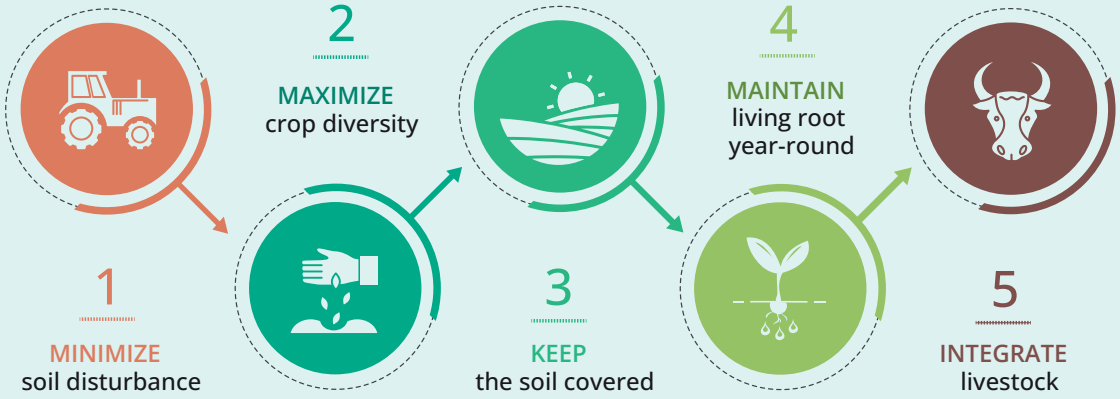
EXPERIENCES

Lao PDR: Cooperatives can use the fair trade premium to invest in activities related to environmental best practices. For example, the Vanmai Coffee Cooperative in Lao PDR is using their Fairtrade Premium to invest in organic fertilizer production.

2.4 Regenerative agriculture

Regenerative agriculture is a form of organic farming that aims to protect and restore soil health, water resources and biodiversity. In addition to protecting the agricultural land's ecosystem, this approach simultaneously also intends to enhance productivity and profitability. While regenerative agriculture consists of many different practices and principles, soil health, conservation and regeneration lie at the heart of this approach.

Five core principles of regenerative agriculture



Source: UNODC elaboration based on General Mills.

SUCCESS FACTORS

- **Adding organic matter:** Incorporating organic matter in the soil improves soil structure and soil health. This is commonly done by adding compost, crop residues and animal manure to the soil. Other ways are planting cover crops or introducing agroforestry, which adds organic matter through the planting of trees or shrubs.
- **Adding inorganic matter:** Inorganic amendments such as rock dust release nutrients (e.g., magnesium, calcium and silicon), which increase soil fertility, reduce the need for chemical fertilizers and prevent soil erosion.
- **Precision water and nutrient management:** Implementing precision techniques for the application of fertilizers and water increases soil health and decreases the risk of runoff and environmental contamination.

EXPERIENCES

Afghanistan: In Afghanistan the Dutch Committee for Afghanistan (DCA) is supporting sustainable pastoralist livelihoods while simultaneously using pastoralist traditions as an entry point for the rehabilitation of the rangelands. DCA promotes an extensive approach to livestock that helps preserve the pastures, regenerate the soil and avoid soil erosion. UNODC also implemented land stabilization projects in Herat, Farah and Nimroz provinces. To protect the topsoil from flash floods and fierce winds, drought resistant plants are introduced and community members are discouraged from cutting trees for firewood and from having their animals overgraze the lands.

Kenya: In the counties of Embu and Tharaka Nithi in the highlands of Kenya, a Farm Africa project started in 2020 developed a technical curriculum on good agricultural practices for regenerative agriculture and business management. The subsequent training, which reaches a total of 50,000 farmers boosted resilience through regenerative agricultural practices that improved soil health and food security after years of soil degradation and climate-related shocks.

Mexico: In the state of Chiapas, Mexico, experiments with regenerative agriculture show positive results for soil restoration, for example, through maintaining crop residues on the fields and intercropping corn with species that help the soils recover, including the trailing legume Canavalia and the ice cream-bean, Inga edulis.

POLICY STARTING POINTS

- **Assess the project area:** Among the first steps is to carefully look at the current conditions of the project area, for example, in terms of soil health, water (retention) levels and interactions with livestock. This will identify the most promising or most urgent areas to focus on.
- **Setting targets:** Once the priorities are set, it is important to set clear targets and corresponding result indicators, for example, for water retention levels, organic matter content or (soil) biodiversity.
- **Choice of instruments:** Depending on the local context and priorities set, the mix of instruments can be chosen, including cover crops, crop rotation, reduced tillage, composting and organic fertilizers or livestock integration.
- **Guidelines:** EIT Food has developed a Regenerative Agriculture Manual. There are also many guidelines available online, but not all of them are for free.

2.5 Permaculture

Originated in the 1970s, permaculture represents a holistic approach to designing sustainable agricultural and food systems that mimic natural ecosystems, drawing on basic principles and patterns found in nature. The term was originally a combination of “permanent” and “agriculture” to illustrate that its focus is on long-lasting sustainable systems. Interestingly, later this evolved into a combination of “permanent” and “culture”, to highlight another factor: the social aspects of permaculture.

Permaculture improves soil health, conserves water, enhances biodiversity and promotes resilient ecosystems in general. The approach may be an option for alternative development projects, but it requires research, observation, careful planning and involves a relatively complex design process to develop various zones and detailed interaction patterns within and between them.

SUCCESS FACTORS

- **Observation:** To make the best of permaculture, it is crucial to observe and understand the natural processes and patterns. (e.g., water flows, wind directions or animal behavior)
- **Interactions**: Permaculture is most effective when beneficial relations and interactions between plant and animal species are optimized.

- **Pollination:** Permaculture can increase the health of the ecosystem through the provision of habitats and food sources for bees and other insects that enable pollination.

EXPERIENCES

Timor-Leste: In 2013 the government in Timor-Leste changed the national curriculum for primary education to include the teaching of permaculture and agroecological principles through school gardens.

Malawi: The organization Never Ending Food introduced a community-based permaculture project in Malawi, simultaneously addressing food security, poverty reduction and climate change through sustainable agriculture. To improve soil management, the project integrated various methods, including mulching, composting, organic fertilizers, crop rotation, cover crops and food forests. A core component has been the introduction of perennial tree crops, providing year-round access to food, fuel, building materials, fiber, shade, windbreaks, soil stabilization, and nutrient cycling.

POLICY STARTING POINTS

- **Study the design principles:** Permaculture is a field that is well-developed with many design principles that can be included in an alternative development project. This ranges from catching and storing energy to maximizing the productive potential of the project.
- **Learn from available design plans:** As a holistic system, permaculture is built on rather complex patterns of interactions and beneficial relationships. That means the project requires a detailed and thorough design plan, which includes the various zones (different areas which are separated on the basis of their labor-intensity and functions), sectors (uncontrolled influences such as wind and water) and elements (plants, trees, ponds, chicken runs, etc.) the project would like to integrate. Many sample design plans can be found on the internet, which can be used for inspiration. There are different samples for different area sizes.
- **Design process:** The design process of the project itself generally consists of five steps, not necessarily in this order:
  1. **Mainframe design:** The first step of the actual design tends to start with the big picture, including the water sources and flows, the access routes across the terrain and the structures (e.g., houses or other buildings) the project will have.
  2. **Sector analysis:** Assessing the influence and benefits of all available (uncontrollable) energy sources, including wind, sun and water.
  3. **Zone planning:** Design the various areas of the project's territory, normally starting with the house, living areas or village center ("zone 0") and ending with a wilderness area "zone 5"). Zone planning involves placing the necessary or desired elements in these different areas.
  4. **Workflow design:** This involves planning how the tasks of project participants are carried out in relation to the zones planned and the elements selected. It basically includes the daily, weekly, monthly and annual routines of the individuals living and working on the site.
  5. **Analyzing and selecting elements:** This involves selecting crops, trees, animals and other components that will be included in the permaculture design of the project.
- **Guidelines:** The USAID-sponsored Technical and Operational Performance Support (TOPS) Program has produced a detailed manual on the related concept of perma-gardens.

2.6 Agroecology

Agroecology can be defined as "an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems. It seeks to optimize the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system." Agroecology strengthens livelihoods and reduces rural poverty by decreasing the dependence of farming communities on external inputs, subsidies and volatile international markets.

Agroecology is fast gaining interest worldwide among a wide range of actors as a holistic response to the multiple and interrelated challenges agrifood systems are facing; by incorporating all dimensions of sustainability (environmental, economic and social). It represents a holistic approach that jointly addresses various interdependent issues, including livelihoods, food security and nutrition, health and the management of natural resources. Through the application principles, agroecol-

ogy contributes to improved soil fertility and productivity, increasing biodiversity and natural pest control. In addition, the approach has a strong social component at local and national level, supporting smallholder farmers' transition to more sustainable agrifood systems while strengthening the recognition of the rights of women, youth, indigenous peoples and other vulnerable groups.

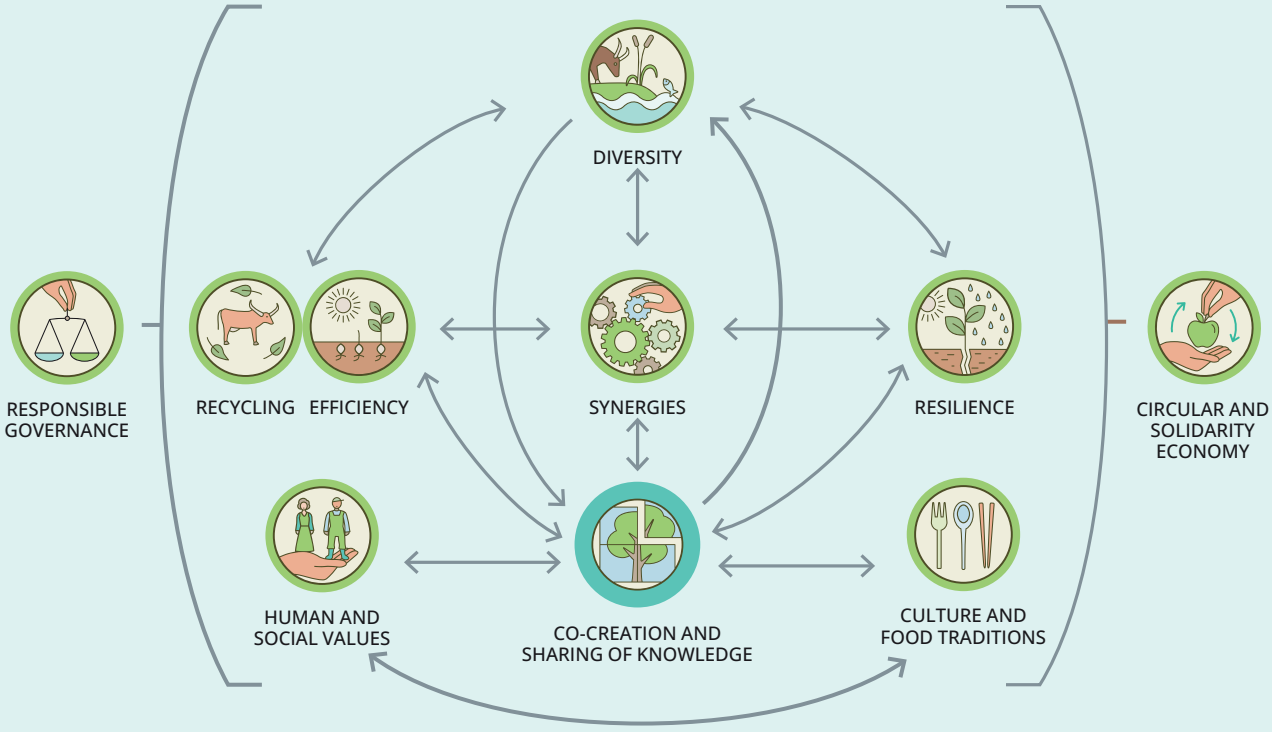
Recognizing the complexity of achieving sustainability which can be a deterrent to decision making, FAO is supporting countries with their assessment of sustainable food and agricultural systems, and the development of legal and policy frameworks for agroecological transition. One of the instruments it has developed for this support is the "Ten elements of agroecology," an analytical framework to support the design of differentiated paths for agriculture and food systems transformation. Together, these elements represent an integrated and holistic approach of agroecology in which different interactions, conditions and processes jointly work towards more sustainable agriculture and food systems.

The diverse nature of agroecology can make it challenging to evaluate its impact. In 2018, the 26th Committee on Agriculture (one of FAO's governing bodies) "requested FAO to assist countries and regions to engage more effectively in the transition processes towards sustainable agriculture and food systems by strengthening normative, science and evidence-based work on agroecology, developing metrics, tools and protocols to evaluate the contribution of agroecology and other approaches to the transformation of sustainable agriculture and food systems." In response to that request, FAO has developed the Tool for Agroecology Performance Evaluation (TAPE), which can be adapted to different contexts and aims to measure the multi-dimensional performance of agroecological systems.

SUCCESS FACTORS

- **Indigenous knowledge:** The incorporation of local and traditional expertise about farming techniques, weather patterns, biodiversity and ecosystem functions enhances the efficiency of agroecology. In general, tapping into ancestral knowledge increases the possibilities to use and properly manage local plants and trees for multiple purposes.

Interaction of the ten elements of agroecology



Source: FAO (2023).

- **Synergies between crops and animals:** Synergies lie at the heart of the agroecology approach, but is especially important when it comes to the way different plant and animal species work together to create positive impact, both for the environment and the productivity of the project.

EXPERIENCES

Afghanistan: Given the impact of climate change on already highly fragile ecosystems, in Afghanistan the Danish Committee for Aid to Afghan Refugees (DACAAR) is supporting drip irrigation techniques, traditional grape-drying facilities, and the introduction of resilient plants and fruit trees. DACAAR focuses on small scale initiatives such as home-based kitchen gardening, which has the additional benefit of allowing vulnerable women to support food security and provide a livelihood for their families.

Colombia: In Putumayo, a group of farmers who are self-taught agroecologists have been building their own Amazonian agroecology school to share knowledge in the region.

Mexico: In collaboration with researchers, the Asociación Nacional de Empresas Comercializadoras de Productores del Campo (ANEC) developed an agroecological approach to farming called Agriculture of Integrated Knowledge/ Management of Resilient Crops. ANEC works in twelve Mexican states to support local farming organizations with their agroecological transition. Practices include composting and the shared production of pelletized worm compost at scale. As a result of this transition, farmers have reported higher yields, a 30-50 per cent drop in production costs, healthier soils and more resilient crops.

POLICY STARTING POINTS

- **Study the design principles:** Agroecology is a field with many available resources, case studies and design principles that can be included in alternative development. FAO's online Agroecology Knowledge Hub is a good starting point for any initial exploration of this approach.
- **Tool for Agroecology Performance Evaluation (TAPE):** FAO's TAPE methodology provides guidance on how to assess agroecology. By carrying out a diagnostic of production systems with regard to various dimensions (environmental, social and economic) and in a variety of contexts (production systems, communities, territories, agro-ecological zones, etc.) it aims to build evidence of the multidimensional performance of agroecology and its potential to contribute to the SDGs. It can also be used to support project development by establishing a baseline of agricultural sustainability for project design, monitoring and evaluation through time. TAPE starts by analyzing the context at the local and national level, and identifying both enabling and disabling factors. Later, it evaluates the system by using indicators based on the ten elements of agroecology and its performance in five main dimensions (Governance, Economy, Health and Nutrition, Society and Culture, and Environment). TAPE is not limited to agroecological systems; It can analyze other (food) systems through the lens of agroecology and can help identify key entry points and gaps in the systems that need to be addressed to promote a transition to agroecology.
- **Guidelines:** A useful guide is FAO's 2023 working paper on Harnessing the potential of the 10 elements of agroecology to facilitate agrifood systems transformation. For the national policy level, the Committee on World Food Security (CFS) has developed a set of detailed policy recommendations on agroecological approaches.

2.7 Agro-industry

Agro-industry is literally the integration of agriculture and industry, representing a range of strategies to transform agricultural products into processed goods. Agro-industry has been a complementary strategy of many alternative development projects, intended to contribute to sustainable livelihoods by increasing value added at the project level and creating non-agricultural jobs.

SUCCESS FACTORS

- **Sustainability of the supply chain:** Consider the entire supply chain when assessing and addressing the environmental impact of the agribusiness.
- **Alternative development branding**: In some projects, the branding of final products as related to alternative development and broader drug control efforts, has been considered added value.

EXPERIENCES

Colombia: In the department of Cauca, the FRUCAP agribusiness started in 2019, which combines waste management with the circular economy. The project collects rest materials of the production of oranges and other fruits, dehydrates these and transforms them into powder-based nutrient capsules for low-income families. The project received support from the Spanish Agency for International Development Cooperation (AECID).

Peru: In the province of Condorcanqui, part of the Amazon region, 15 young indigenous entrepreneurs of the Awajun tribe received training to start an agribusiness called Nugkui, which consists of transforming the rest products of plantain production into dehydrated flakes, which can be used to produce other food products such as flour or tortillas. The project has been supported by the Spanish la Caixa Foundation and the Swiss Limmat Foundation. In other areas of the Peruvian part of the Amazon, communities use forest resources to make jewelry, baskets, bags, wallets, embroidered rugs and clothing with designs from various ethnic groups.

POLICY STARTING POINTS

- **Market research:** Becoming aware of market trends enables the project to identify opportunities for the marketing of alternative products that are sustainable and environment-friendly.
- **Life-cycle assessments:** One way to assess the environmental impact of alternative products is to look at available life-cycle assessments or to implement new ones. These assessments estimate the environmental impact of products throughout their entire lifecycle.
- **Guidelines:** FAO has developed a sourcebook on Territorial tools for agro-industry development. Some countries also have industry guidance reports available such as Brazil's National Confederation of Industry (CNI)'s 2020 Bioeconomy and Brazilian Industry report. At the national strategic level, many governments intend to develop agro-industry and rural industrialization. UNIDO is supporting these efforts, for example, by providing guidance on the establishment of integrated agro-food parks (IAFP), which are agribusiness development corridors integrating value-chain entities with high-quality infrastructure, utilities, logistics and specialized facilities and services to create economies of scale for sustainable market-driven agribusiness development and rural transformation. Lastly, there are also training manuals available, such as training manual on Agro-industrial Development in the Context of Climate Change, Food Security and Trade developed for Uganda and published by CUTS International.

3 FOREST CONSERVATION

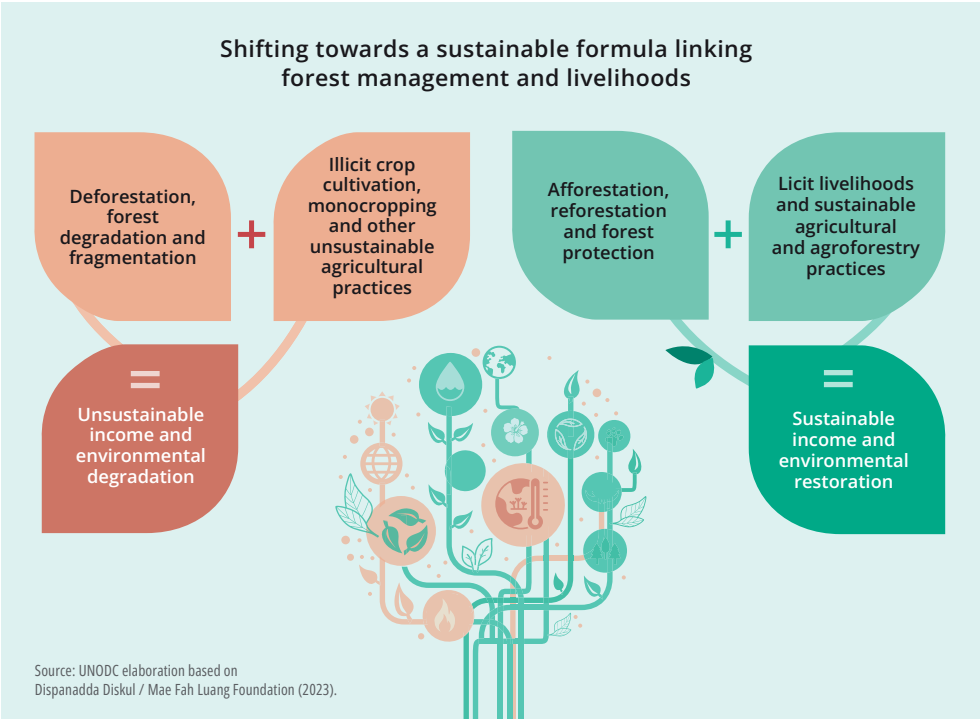
FOREST CONSERVATION

The conservation and sustainable management of forests serve many purposes. Key among them are the objectives of carbon sequestration, biodiversity protection and maintaining the protective effects of the forests themselves, which range from reducing soil erosion to preventing avalanches and floods.

3.1 Common success factors for project design

The following success factors and positive project activities and elements have been identified in the research as related to forest preservation:

1. **Implementing a balanced approach:** Forest conservation should go hand in hand with income generation activities. In order to preserve (tropical) forests, in some areas it will be necessary to make use of its timber, to preserve cultivatable soil, and to promote agroforestry activities that can generate real incomes for the local communities involved in alternative development.
2. **Promoting community empowerment:** In various successful alternative development projects, local communities have been empowered to manage and benefit from forest resources, for example, in community forests. Projects seem to work well when communities benefit from the livelihoods and products obtained from the forests, but also have an explicit and detailed responsibility to help protect the forest and counter deforestation.
3. **Ensuring long-term commitments:** Adding forest conservation elements to alternative development requires by definition a long-term strategic approach. The incentives and commitments of local communities involved need to be sustained over time to ensure sustainable impact.
4. **Awareness and changing the mindset:** When local awareness about the consequences of the ecological challenges increases (e.g., lack of water or poor soils), it is more likely that this translates into more local voluntary commitments to participate in environmental protection and sustainability initiatives. Any commitment will often require a change in the mindset of the farmers and local communities involved. Practices such as shifting cultivation and deforestation in general have often been standard practice for centuries. As one interviewee mentioned during the research: "In the end, it is the person with the "machete" or the chainsaw who will determine whether he will cut down the tree or not, regardless of any regulation or protection measures that may be in place." Where relevant, it is important to communicate effectively in native languages and on topics of local interest to boost local ownership and commitment.



Source: UNODC elaboration based on Dispanadda Diskul / Mae Fah Luang Foundation (2023).

5. **Guaranteeing a strong legal basis:** Strong legal frameworks with clear and transparent rules are essential to incorporate forest protection. Clarity about forest ownership and benefit distribution is crucial to guarantee local ownership and commitments, as well as to avoid any social tensions. Strong cooperation with the relevant state entities is important.
6. **Introducing economic alternatives:** The provision of livelihood alternatives for communities relying on forest resources can complement incomes. Examples are agroforestry and ecotourism.
7. **Incorporating food security objectives:** Forests can offer various food sources, including fruits, nuts, honey and mushrooms, which can be commercialized but can also strengthen food security.
8. **Introducing carbon credit schemes:** Carbon credit schemes can complement the incomes of local communities involved in alternative development projects, but the success of these schemes depends on many factors, including the size and composition of forests, land ownership, the price for carbon credits and the overall volatility of voluntary carbon credit markets.
9. **Stressing the need to protect biodiversity:** It is important to emphasize that alternative development is not only about forest conservation but also about the protection of the biodiversity and ecosystems involved.
10. **Incorporating scientific research:** Collaborations with universities and other academic institutions can help to better understand forest ecosystems and how to create synergies between livelihoods and the protection of biodiversity. For example, alternative development projects could benefit from insights into how agroforestry activities can effectively incorporate wildlife corridors and avoid forest fragmentation.
11. **Involve women and young people:** Training women and young people in reforestation activities, organic gardens and the preparation of organic fertilizers has a spill-over effect, not only at work but also in their homes and daily lives.

3.2 Protected areas, biodiversity protection and restoration

There are many different types of protected areas, such as national parks, forest reserves, protected areas that allow the use of resources, wildlife sanctuaries and communal reserves. The objectives and regulatory frameworks related to them will vary from one country to another, but some protected areas may be subject to the same international agreements. The opportunities for alternative development are limited in protected areas as usually these do not allow cultivation or livestock. However, the development in these areas focuses primarily on the buffer zones and surrounding areas, with the strategy of improving the quality of life of the communities of those areas, which reduces the risk of pressure on the protected spaces. In addition, there is the possibility to create livelihoods related to the protection of such areas or to their promotion, for example, through ecotourism and the sustainable use of forest resources.

Forest conservation is closely linked to the protection of biodiversity. Biodiversity is endangered by deforestation, forest fragmentation, overuse of resources and forest degradation. One of the common ways to protect forest biodiversity is by establishing protected areas such as national parks and other conservation areas. When forests are already fragmented or degraded, long-term landscape restoration approaches can be used to simultaneously reestablish ecological functionality and enhance human wellbeing.

SUCCESS FACTORS

- **Land ownership:** Land ownership is a critical factor for conservation. Natural parks are easier to protect when the land ownership rests with the government. However, in other areas where local communities are living inside forest areas, individual or community land ownership can be an effective way to ensure long-term commitment to forest preservation. In general, transparent and registered land ownership will make it easier to benefit from complementary strategies such as carbon credits or payments for environmental services.
- **Ensuring mutual benefits:** When local communities live close or within protected forest areas, it is essential to make sure the (legally allowed) forest benefits and resources can be enjoyed in a sustainable and equitable manner by the communities involved. Forest conservation projects need to take into account the local needs for food, fuel and other forest resources.

EXPERIENCES

Afghanistan: In the rangelands of Afghanistan, livestock plays a crucial role in protecting the soil, providing manure to grasses and bushes. However, too many animals in these fragile and often degraded rangelands can lead to overgrazing which means a sustainable, balanced approach is needed.

Bolivia (Plurinational State of): In the region of Trópico de Cochabamba, monkeys are natural allies to the wild cocoa trees harvested by the Asociación de Recolectores de Cacao Silvestre Yuracaré (ARCASY), an association of the Yuracaré indigenous people. As they eat the white pulp of the fruits, they help with the expansion of cocoa by scattering the seeds. With the assistance of the Bolivian Ministry of Foreign Affairs and the FAO, in 2023 ARCASY managed to export the first 500 kilos of organic and wild cocoa to Denmark.

Brazil: Brazil has been a pioneer when it comes to biodiversity legislation, implementing a law on access to and benefit sharing of resources. In general, the country has put emphasis on awareness raising with the aim to put value on both the products of the forests (from fruits to essential oils and medicines) as well as on ancestral knowledge and practices.

Colombia: In the region of Valle del Cauca, Serraniagua is a community-based environmental organization which connects owners of natural reserves, agroecological producers and networks of rural women and ecologists. Since the 1990s it promotes the conservation of biodiversity with the help of local communities in the Tatamá - Serranía de los Paraguas National Natural Park conservation corridor. This area is part of the Chocó Biogeographic Region and the Tropical Andes, identified as hotspots for biodiversity conservation. The organization builds on the voluntary participation of landowners, who have experienced firsthand the decrease of water sources and understand the importance of protecting the watersheds and cloud forests in the area to safeguard the hydrological cycle. The success of this project builds on the factors of land ownership, awareness, but is also due to its long-term duration (almost three decades), its thorough diagnostic phase before implementation (which lasted from 1996 to 2001) and its network approach which fosters community cooperation.

Colombia: In the same region, studies have been conducted about the relationship between agroforestry projects and the protection of biodiversity. For example, under certain conditions shade coffee fields can effectively function as wildlife corridors between forests and can fulfill important ecosystem functions for migratory birds and mammals.

Peru: in the area of Sandia, Puno, the communication strategy before, during and after illicit crop eradication focuses on the recovery of the Bahuaha Sonene National Park, where the expansion of illicit coca cultivation has resulted in deforestation. Awareness raising activities among the local communities emphasize the harm done by coca crops and the need to protect the environment and biodiversity.

POLICY STARTING POINTS

- **Understanding and integrating cultural heritage:** It is essential for project design to benefit from local, indigenous knowledge and traditions.
- **Biodiversity credits:** For alternative development projects it might be possible to benefit from biodiversity credits. The Climate, Community and Biodiversity Standards (CCB) are an example of a biodiversity certification framework, which instead of focusing on carbon sequestration, promotes best practices that deliver net positive benefits for climate change mitigation, the local communities involved and biodiversity. A starting point is to seek expert advice to understand the specific environmental context of your project location, identify the best areas for biodiversity conservation or habitat restoration, and measure the expected biodiversity benefits. It is important to align the project design with local conservation priorities, which could be related to particularly fragile ecosystems or endangered species.
- **Guidelines:** There are guidelines available such as the International Union for Conservation of Nature (IUCN)'s toolkit for ecosystem restoration and their biodiversity guidelines for forest landscape restoration opportunities assessments. In March 2023 the European Union published guidelines on Biodiversity-Friendly Afforestation, Reforestation and Tree Planting, which provide practical recommendations for projects implemented at the local level. In 2022 the European Union also developed criteria and guidance for protected areas designations that are intended for EU member states but could also be useful for other contexts.

3.3 Agroforestry

Agroforestry is a land use management system that generally combines trees and shrubs with agricultural cultivation or livestock. This can take many different forms, ranging from trees on farms to farming within forests or timber plantations. The objective is to contribute to an ecosystem that is more natural, more sustainable but also productive. While trees and perennials are a

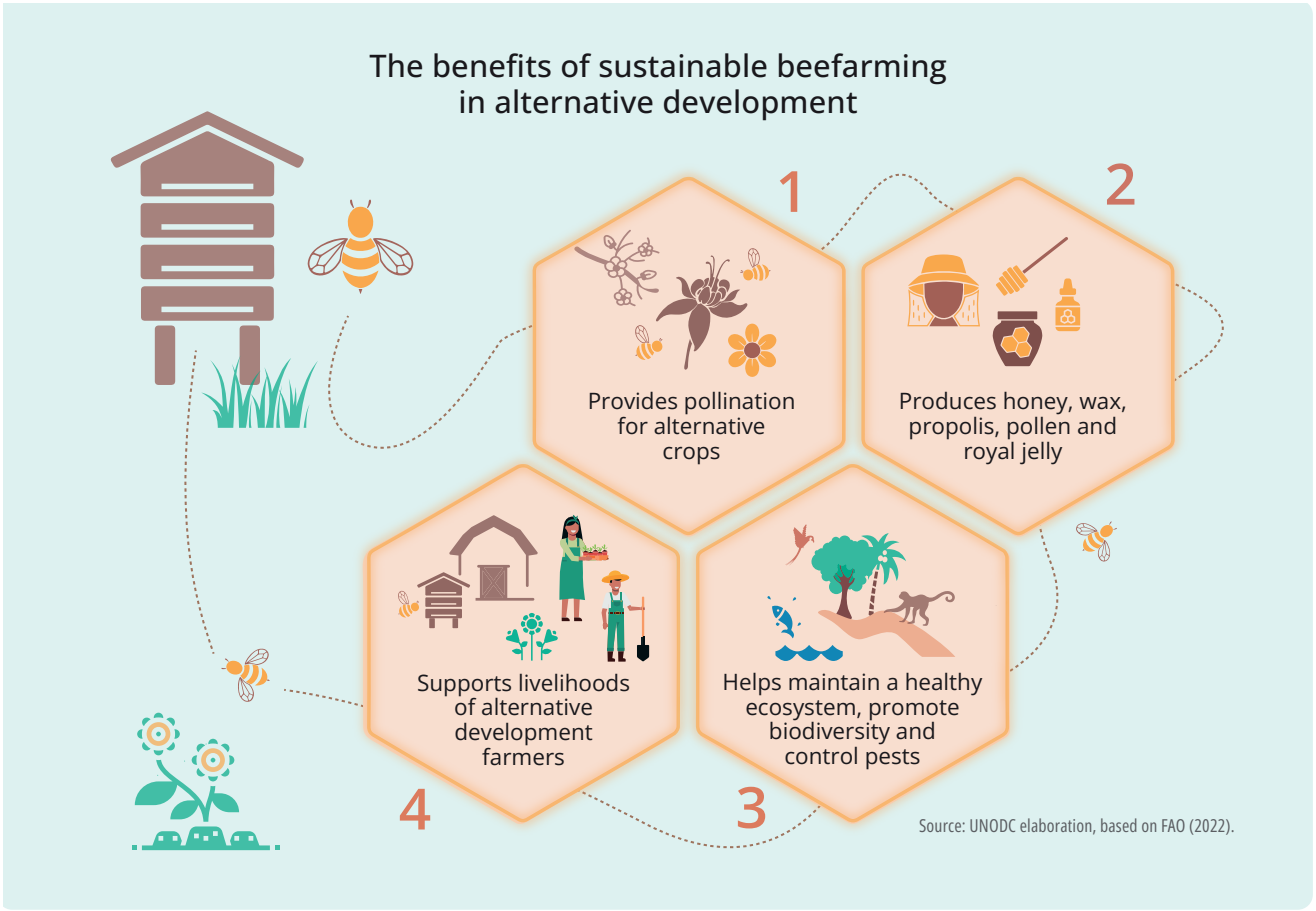
central component of this land-use system, several other components can be added, such as beekeeping, fish farming or horticultural crops.

Agroforestry mimics natural ecosystems by letting different biological systems interact. This can also lead to increased productivity, as trees, plants and animals find ways to support each other. For example, the introduction of perennial crops can provide habitats for pollinators, birds, and other species, contributing to a more natural ecosystem, while at the same time promoting natural pest control.

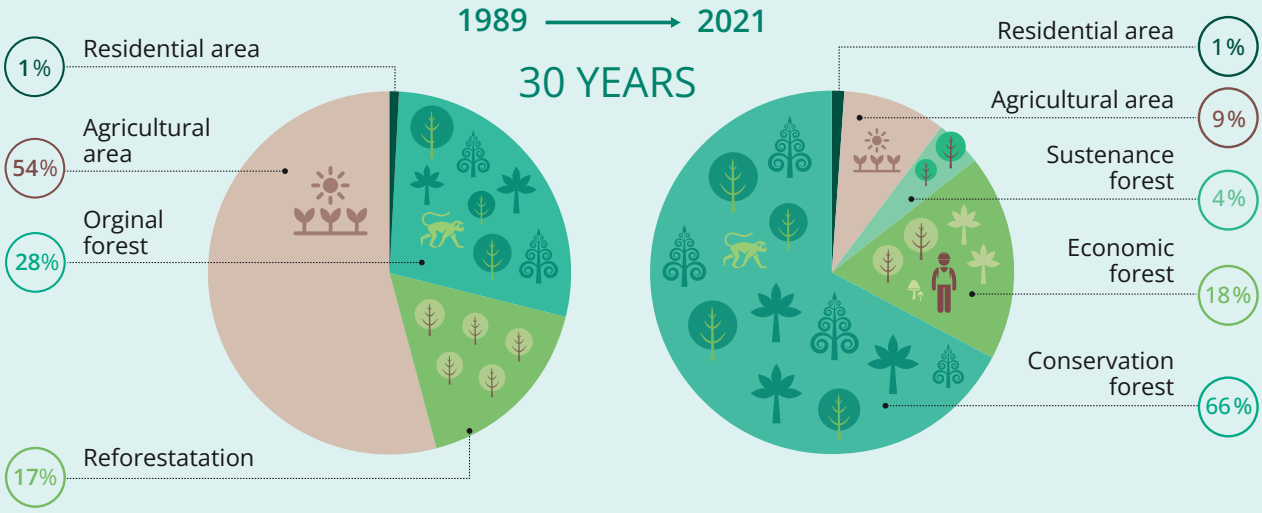
In Thailand, over four decades, MFLF has implemented a reforestation and integrated development project in Doi Tung, Chiang Rai province. The area, previously characterized by illicit opium cultivation and drug trafficking, was transformed through a comprehensive land management model that included reforestation and economic forestry. The foundation introduced alternative livelihoods in the form of under-shade forest coffee and macadamia nut farming and encouraged the use of natural substances for pest control and bee-pollination. Additionally, the foundation promoted a land use distribution model in the area, resulting in a significant transformation by restoring natural forests while allowing the community to continue utilizing the forest for their livelihoods.

The economic forestry project in Thailand balances livelihood development and environmental sustainability objectives through the promotion of proper land utilization. Specific forest areas are designated for conservation with the consent of the community, allowing for limited daily use and leaving the forest to regrow naturally to protect water sources. In addition, in areas that have already been deforested, economic forests of high-value crops such as coffee and macadamia nuts have been introduced. The community has also agreed to use timber, wood, and forage in designated sustenance forest areas, while limiting agricultural farming as per the project agreement.

In each individual community the local land use distribution is agreed upon between the local community and the project implementing agency. It represents a consensus on what constitutes a balanced land use distribution at the local level. This consensus-based agreement can, in itself, be considered a success factor in policy design.



Land use shift over time in the Doi Tung Development Project, Thailand



Source: UNODC elaboration based on Mae Fah Luang Foundation (2023).

SUCCESS FACTORS

- **Proper sequencing:** What was essential in the Thailand model are the three phases of intervention, summarized in a 3S model: "survival", "sufficiency" and "sustainability". This entails a flexible, but incremental process in which also the focus on environmental protection and sustainability will vary from phase to phase. While the environment is always part of the transition, it could have a lower emphasis in the early phases of a project, for example, as elements such as food security and basic income generation might be much more important.
- **Land use distribution:** Community consensus about the ideal land use distribution at the local level can ensure that all actors involved are working towards the same environmental objectives.
- **Synergies between production and biodiversity:** In agroforestry settings, it is important to explore and maximize the positive synergies between crops, other plants and trees, and biodiversity. This can include the function of (pollinating) insects, birds and mammals, but also the use of shade-grown crops to create wildlife corridors and limit the impact of forest degradation.
- **Marketing:** Developing value chains and market access for agroforestry products like mushrooms, fruits, nuts and timber can provide important complementary livelihoods.
- **Perennial crops:** Planting perennial crops reduces soil erosion, increases carbon sequestration and enhances biodiversity.
- **Food security:** Planting food crops can enhance local food security in agroforestry settings.

EXPERIENCES

Brazil: Since 2021, Brazil has a Bioeconomy and Value Chains project, implemented by GIZ in coordination with ECO Consult and the Conexsus Consortium. This project supports the sustainable use and economic valorization of biodiversity, while promoting forest conservation and a sustainable and inclusive bioeconomy in the Amazon region. For example, it supports Amazonian cooperatives and associations in various bioeconomy value chains, including açaí, Brazil nut, cocoa and sustainable pirarucu fish.

Colombia: To complement income from coffee cultivation, the Red Ecolsierra produces honey from within the Sierra Nevada de Santa Marta to boost food security and nutrition, but also to restore the ecosystem's balance in the area.

Colombia: An initiative called Apisgreen, supported by various universities and Conservation International

Colombia, promotes the protection and growth of bee populations by implementating beekeeping in university campuses and urban areas that are free of pesticides.

Myanmar: UNODC-supported alternative development projects in Myanmar are promoting forest conservation and reforestation within villages. These projects have also initiated various small-scale initiatives with community forest groups regarding sustainable use of forest products like bamboo or wild honey. In addition, the introduction of coffee has generated forest cover in previously deforested areas.

Peru: In the Tambopata National Reserve and the Bahuaja Sonene National Park agroecological approaches were used to introduce agroforestry systems, with special emphasis on the cultivation of fine aromatic cocoa combined with banana and timber tree species such as mahogany.

Thailand: Communities in Chiang Mai, participating in the Carbon Credit from Community Forests for Sustainability project, earn additional income through selling mushrooms, bamboo shoots, local herbs and forest honey derived from the forests they help maintain.

POLICY STARTING POINTS

- **Guidelines:** The USDA National Agroforestry Center provides useful information about how to manage various agroforestry practices. In 2013 the World Agroforestry Centre in China published An Agroforestry Guide for Field Practitioners. For policy design at the national level, FAO published in 2020 the Addressing forestry and agroforestry in National Adaptation Plans: Supplementary guidelines, which provide specific guidance for national adaptation planning in the forestry sector, addressing opportunities for climate change adaptation. In addition, guidance can be obtained from academic articles, for example, the 2018 article Agroforestry Standards for Regenerative Agriculture published by Elevitch et. al in the journal Sustainability. Depending on the type of activity, more technical guidance documents can also be found. For example, the International Centre for Science and Technology (ICS) of UNIDO has produced a guide on Extraction Methodologies for Medicinal and Aromatic Plants.

3.4 REDD+ projects in Peru

REDD+ is a climate change mitigation approach adopted by UN Member States. It is aimed to incentivize developing countries to reduce carbon emissions from deforestation and forest degradation. Activities are supported to:

1. Reduce carbon emissions from deforestation.
2. Reduce carbon emissions from forest degradation.
3. Conserve forest carbon stocks.
4. Manage forests sustainably.
5. Enhance forest carbon stocks.

Countries implementing REDD+ need to report on how social and environmental safeguards are being addressed and respected. They should also develop a national REDD+ strategy or action plan, and establish a national forest monitoring system.

Within these national frameworks, local communities involved in alternative development could benefit from REDD+ projects, for example by receiving payments for environmental services as they engage in sustainable land use practices that prevent deforestation, forest degradation and maintain healthy forests. As such, REDD+ can be considered a payments for environmental services scheme focusing on sustainable forest management and the reduction of carbon emissions.

For its protected natural areas, since 2008 Peru has been implementing three REDD+ Early Initiative Projects. These projects are implemented in four protected natural areas with more than 2 million ha of forests. REDD+ links the conservation of these protected areas and the local protection of forests with voluntary international carbon credit markets. In the case of Peru, around 95 per cent of all carbon credits are traded by international entities, mainly from Europe and North America. The three main buyers are Shell, Total and the Disney Foundation.

Peru has a well-developed regulatory framework for its REDD+ Projects. Specifically, Law No. 30215, the Law on Remuneration Mechanisms for Ecosystem Services of 2014, promotes, regulates and supervises payments for ecosystem services derived from voluntary agreements that establish conservation, recovery and sustainable use activities to ensure the sustainability of ecosystems. Under this law, the Ministry of the Environment, through SERNANP, grants contracts to non-profit civil society organizations to administer the territories involved with the broader objective of bridging the technical and financial gaps of Peru's Protected Natural Areas for up to a period of 20 years.

Peru's REDD+ model of carbon credits from protected natural areas

Constitution Art. 67	• Establishes the national environmental policy. • Promotes the sustainable use of natural resources. • Obliges the state to conserve biodiversity and protected natural areas.
Law Nr. 30215	• Regulates the compensation mechanisms for ecosystem services that derive from voluntary agreements that establish actions to ensure the conservation, recovery and sustainable use of ecosystems. • Article 3.7 introduces REDD+ and makes the Ministry of the Environment the focal point.
Ministry of the Environment's SERNANP entity	• Leads the System of Protected Natural Areas of Peru to sustainably manage its biodiversity and maintain ecosystem services that provide benefits to society. • Authorizes three REDD+ projects since 2008, covering 2 million ha of forests.
REDD+ projects	• Three NGOs implement projects in four areas: AIDER, CIMA and Conservation International.
Voluntary carbon credit market	• Projects use standards of Verra and Climate, Community and Biodiversity (CCB). • About 6 million carbon credits certified.
Private sector buyers	• About 95% of the credits are sold outside of Peru. • Buyers include Shell, Total and the Disney Foundation.

Source: UNODC elaboration.

Currently three NGOs are implementing REDD+ Projects: The Association for Research and Integral Development (AIDER), the Center for Conservation, Research and Management of Natural Areas (CIMA) Cordillera Azul and the Conservation International Foundation (CI) Peru. These NGOs provide the technical and financial resources to implement sustainable economic activities that contribute to the objectives set under the contract and to the broader objectives of a master plan designed for the respective protected area.

SUCCESS FACTORS

- **Land ownership:** It is essential to ensure land tenure and land rights for the communities settled in the protected areas included in REDD+ projects. Participants with legal ownership and effective control over their land will be more incentivized to support its long-term sustainable management and conservation. In the case of Peru, the territories where these projects are implemented in Protected Natural Areas are property of the state.
- **Demonstration effect:** REDD+ is about results-based financial incentives to reduce deforestation and forest degradation. Through these projects, effective activities and interventions can be showcased to inspire other communities.
- **External funding:** In the case of Peru there has been widespread international financial and technical support for the establishment of REDD+ projects, including from various donor countries, international organizations and private foundations.
- **Equitable and transparent benefit distribution:** To promote a just transition, projects can develop me-

chanisms to promote equal and transparent benefit sharing, taking into account the varying needs and priorities of different project stakeholders.
- **Biodiversity:** Complementing carbon emission reduction objectives with biodiversity conservation can produce broader ecological gains and can increase the resilience of local ecosystems.

EXPERIENCES

Peru: The country managed to implement a solid legal and institutional framework that has resulted in three successful REDD+ projects in four protected natural areas, linking the effective management of the protected areas with the private sector through the voluntary carbon credit market. For example, the Tambopata – Bahuaja Sonene REDD+ project is a reference model that promotes the reduction of deforestation and the restoration of degraded areas through sustainable productive activities. Currently, these experiences are being scaled up through new administrative contracts.

POLICY STARTING POINTS

- **Guidelines:** Many publications are available online about Peru's REDD+ experiences. In the resource section at the end of this guide some of them are included.

3.5 EU Deforestation Regulation

Environmental protection and sustainability is a global shared responsibility. Deforestation in producer countries is often directly linked to the demand for products in consumer countries. The European Union has acknowledged this relationship and has taken its responsibility to confront the demand side of products with a risk of deforestation throughout the supply chain. In 2023 the EU adopted its EU Deforestation Regulation (EUDR), which is part of the EU Green Deal and a broader strategy to protect forests worldwide. The regulation affects seven specific commodities: coffee, cocoa, soy, palm oil, rubber, wood and cattle, and products made using these commodities such as chocolate and leather. Other commodities and products may be added to the list later.

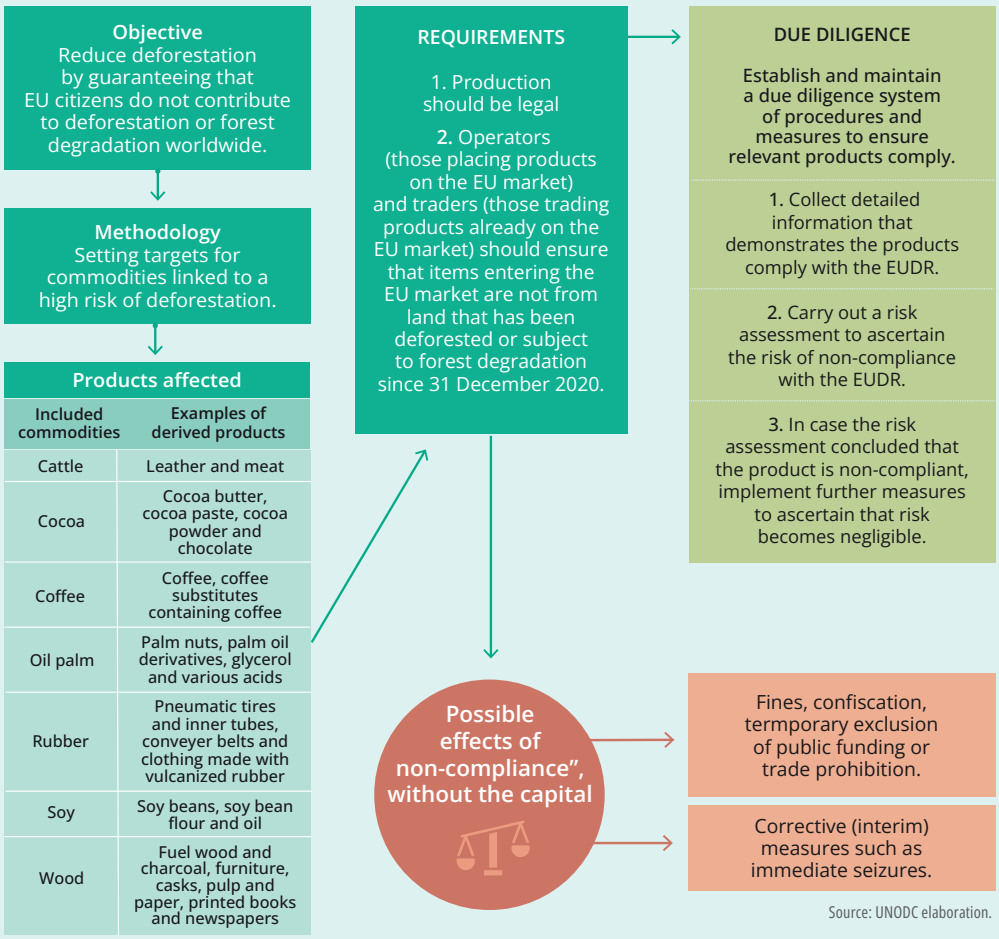
The list is very relevant for alternative development as it includes the commodities most used as alternative livelihoods. The EUDR mandates extensive due diligence on the supply chain for all operators and non-Small and medium-sized enterprise (SME) traders that are placing on, making available or exporting from the EU market relevant commodities and products in scope. The EUDR entered into force on 29 June 2023. The main obligations will apply from 30 December 2024 onwards, 18 months after the entry to force of the regulation, with six additional months for micro and small undertakings.

As the regulation had not entered into application yet at the time of the publication of this guide, it is too early to tell what the direct and indirect effects will be on alternative development. These demand-side measures to encourage sustainable production represent a positive embodiment of shared responsibility for environmental protection, but their exact impact on local alternative development projects remains to be seen.

POLICY STARTING POINTS

- **Compliance for traders and operators:** The primary responsibility for compliance lies with the company placing the product on the EU market or exporting from it. Therefore, local alternative development projects can be affected considerably if the project partners are involved as operators (those placing products on the EU market) or traders (those trading products already on the EU market).
- **Scope of due diligence:** The scope of due diligence requirements depends on whether the trader or operator involved can be considered a micro, small and medium-sized enterprise according to Article 3 of Directive 2013/34/EU of the European Parliament and of the Council. Medium-sized enterprises have less than 250 employees and maximums of €50 million turnover or €43 million balance sheet total; small enterprises less than 50 employees and maximums of €10 million turnover or €10 million balance sheet; and micro enterprises less than 10 employees and maximums of €2 million turnover or €2 million balance sheet.
- **Non-SME traders and operators:** Non-SME traders and operators have much stronger obligations, for example, in terms of risk assessment and mitigation and in terms of traceability, with the obligation to collect the geographic coordinates of the plots of land where the commodities were produced.
- **Obligations for SME operators:** SME operators face full due diligence requirements only for parts of the products that have not already been covered by an-

EU Deforestation Regulation (EUDR)



Source: UNODC elaboration.

other due diligence procedure in the supply chain. For the rest they are exempt from due diligence obligations and are just required to provide the due diligence number to a Competent Authority upon request.

- **Obligations for SME traders:** SME traders are exempt from due diligence obligations but need to keep records, including about the suppliers and clients. For alternative development projects, this for example means that the producer organizations and cooperatives would need to provide the company details and reference numbers of due diligence statements to the trader involved.
- **Guidelines:** The European Union has developed a frequently asked questions document about the regulation which will be updated regularly (see reference in section 6). In addition, the European Commission is preparing a guidance document which will clarify the provisions as well as guidelines, for example on what constitutes "agricultural use."

CARBON CREDIT SCHEMES

4

CARBON CREDIT SCHEMES

Given the global push towards 'net zero' – reducing greenhouse gas emissions to as close to zero as possible by the year 2050 – integrating carbon credit schemes into alternative development increasingly seems a logical step. It can be an effective way to work towards environmental protection and sustainability while at the same time channeling funding to local projects. The link between carbon credits and alternative development can especially be made through the shared focus on sustainable development. For example, the global benchmark of the Core Carbon Principles contains clear provisions of sustainable development, stressing that projects must meet industry best practice on social and environmental safeguards and should deliver net positive impact for communities.

Carbon markets can be generally divided into two major segments:

1. **Compliance markets**, which are regulated by international, regional or sub-national carbon reduction schemes with binding emission reduction targets (e.g., the EU Emissions Trading System (EU ETS)) or other types of government regulation (e.g., tax schemes). Projects in this segment can earn certified emission reduction (CER) credits.
2. **Voluntary markets**, which are driven by the demand of companies or individuals who want to offset their emissions ("voluntary offsetting"; e.g., the Global Carbon Council (GCC) in the MENA region). Voluntary carbon markets allow companies and individuals to offset their emissions by purchasing carbon credits created by projects that remove or reduce CO_2 from the atmosphere. Projects in this segment can earn carbon credits related to voluntary emission reductions (VER). Such credits cannot be used to meet the legal and regulatory obligations created by compliance markets.

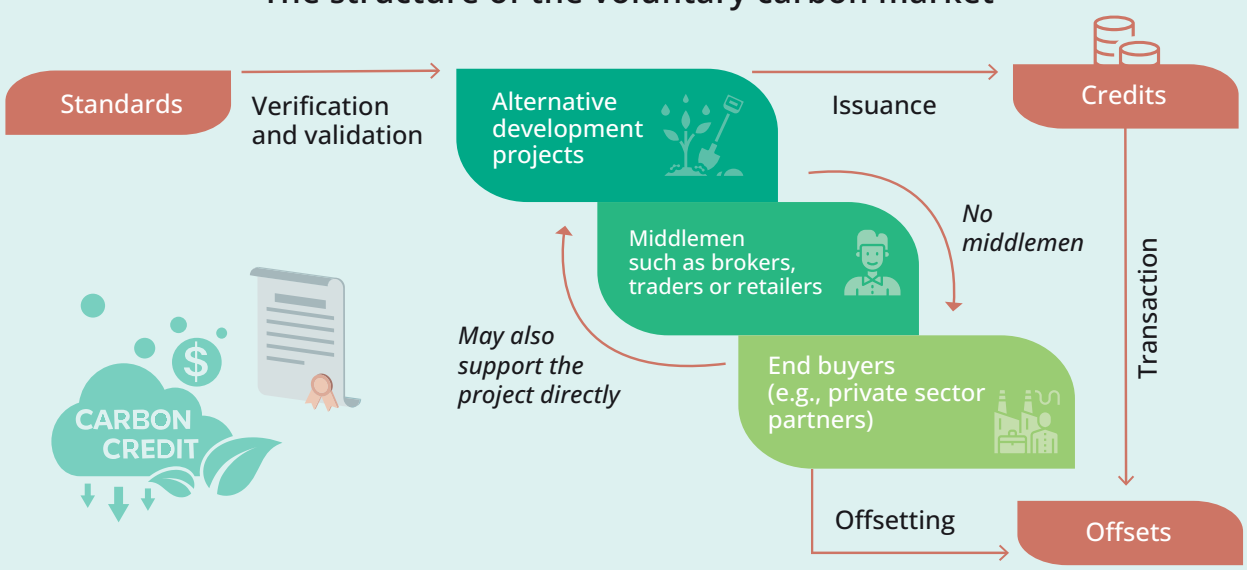
Alternative development projects will generally link to voluntary markets. These are, however, not completely separate from compliance markets in the sense that guidelines developed for voluntary schemes can have considerable impact on mandatory schemes. An example is the set of Core Carbon Principles, developed by The Integrity Council. Also, voluntary markets may need to be integrated into national regulatory frameworks to increase accountability and reduce the opportunities for inaccuracies and fraud.

4.1 Common success factors for project design

The following success factors and positive project activities and elements have been identified in the research as related to carbon credit schemes:

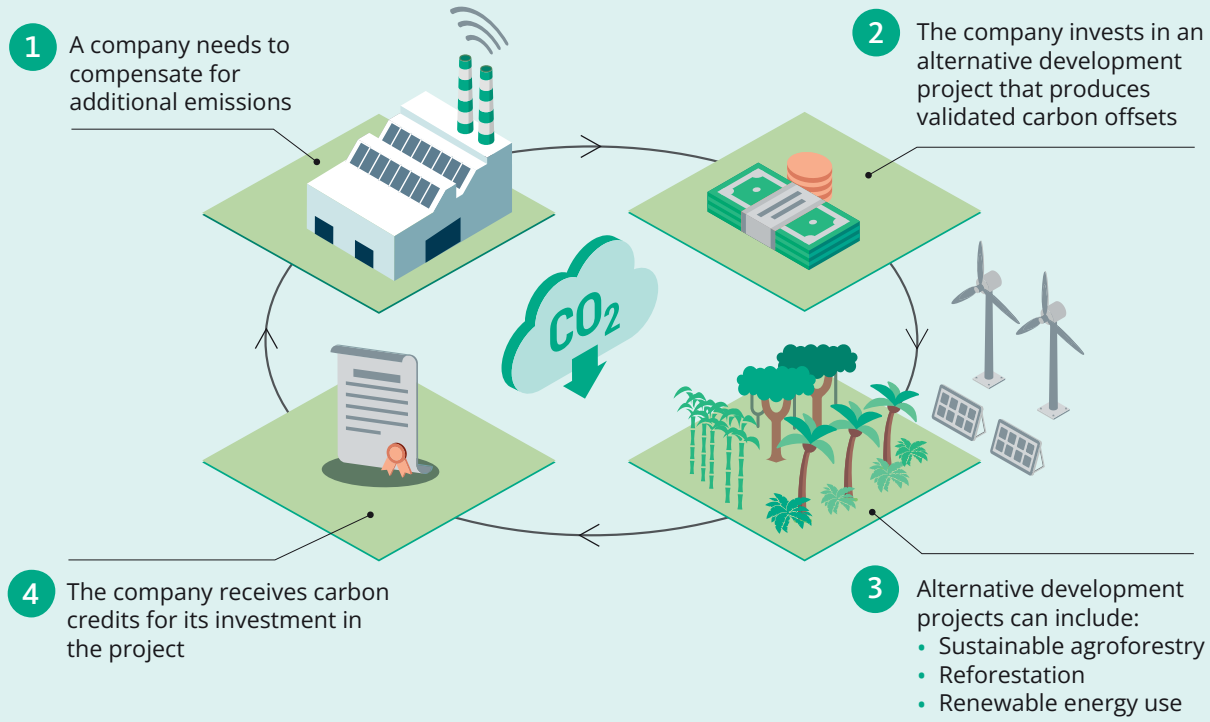
1. **Involving local farmers, communities and other stakeholders:** Community participation in project planning and implementation fosters ownership and

The structure of the voluntary carbon market



Source: UNODC elaboration, based on S&P Global Platts.

Carbon offsets through alternative development projects



Source: UNODC elaboration.

support. This participation also ensures that local knowledge about agricultural and environmental practices is taken into account.

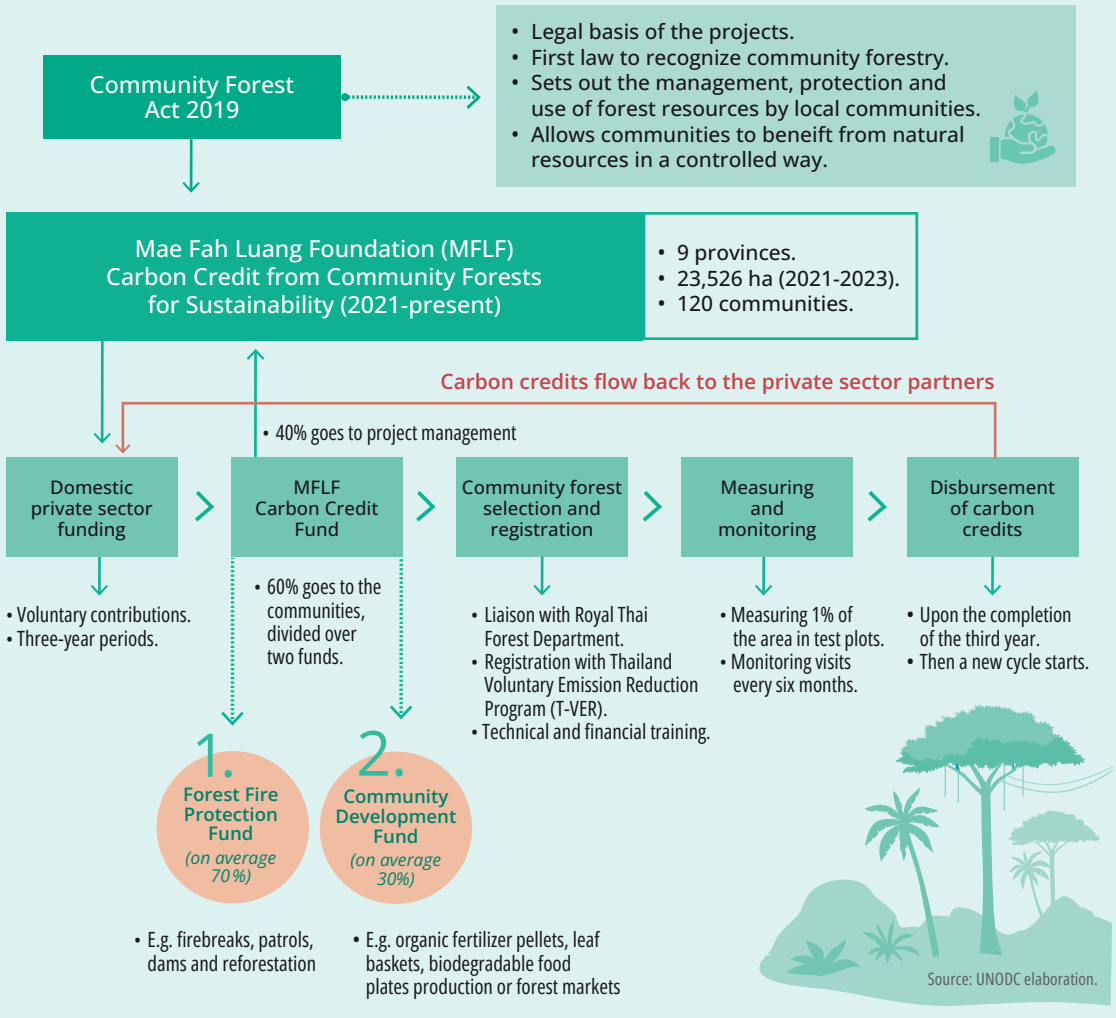
2. **Establishing fair prices:** The price paid to farmers and other participants in carbon credit schemes should reflect their additional time and efforts to implement and maintain certain practices and approaches.
3. **Strong legal framework:** It is essential to have a detailed and clear legal framework that can ensure a transparent and equitable distribution of the benefits.
4. **Long-term commitments:** Incorporating carbon sequestration into alternative development projects is a long-term process. It may take many years before the participating communities can reap the benefits of these initiatives. During this time, they need to keep implementing the sustainable practices and protection measures they have committed to.
5. **Competitive prices:** To be sustainable, the prices of carbon credits should be structurally high enough to compete with the opportunity costs related to forgoing unsustainable practices.
6. **Stable or guaranteed prices:** The project's carbon credits ideally have stable or guaranteed prices. While carbon credit projects can be subject to the volatility of international markets, projects can also establish their own prices, as long as there is the commitment of private sector partners to pay a higher price.
7. **Complementary income:** Carbon credits are best seen as additional income. Local communities will be more attracted to carbon credit projects if these also offer other benefits such as improved soils and higher yields.
8. **Knowledge transfer:** Including the local community directly in the planning, measuring and monitoring of the carbon credit projects increases sustainability and strengthens technical skills and capacity building in general.
9. **Private sector partnerships and external funding:** Private sector entities are needed as buyers but can also be essential to pay for the considerable costs of measuring and monitoring the project area. In general, the process of carbon credit certification can be difficult to finance by local cooperatives or other project participants, which means engaging donor countries and private sector partners can be essential.

4.2 Thailand's carbon credit projects in community forests

In Thailand, the Carbon Credit from Community Forests for Sustainability project exemplifies MFLF's commitment to "Cultivate Land, Cultivate People." Drawing upon over 30 years of expertise in livelihood development, the foundation collaborates with communities, public and private sector entities to implement a comprehensive framework for quantifying, validating, and registering carbon credits within community forest regions. Simultaneously, it empowers the communities to safeguard their forests and augment their income. Corporate donors contributing to the project's funding will receive carbon credits to offset their organization's environmental footprint.

The project's focus is particularly on community forests area, protected under the national law allowing local communities to benefit from the forest area. In these areas, local communities protect their forests, while the private sector aims to reduce their organization's carbon footprint which creates a win-win solution. The foundation empowers local communities interested in carbon sequestration to register with the Thailand Voluntary Emission Reduction Program (T-VER) set by the Thailand Greenhouse Gas Management Organization (TGO) on the voluntary domestic market. In return for providing the budget for measuring carbon sequestration of the forest, verifying and registering the project, the corporate donors will receive carbon credits to offset their emissions. The private partners also sponsor village development funds to improve the communities' quality of life while protecting the forest. The project model is still evolving alongside the carbon credit regulation domestically and internationally.

The carbon credit model of community forests in Thailand



4.3 Fairtrade Carbon Credits

Fairtrade International and Gold Standard, an organization certifying carbon emissions reductions and sustainable development interventions, have jointly developed the Fairtrade Climate Standard and Fairtrade carbon credits. For alternative development projects to be eligible under this Fairtrade carbon credit scheme, they need to fall within the following three categories:

1. **Renewable energy**, for example related to solar thermal heating or electricity, solar photovoltaic (PV) power generation, wind energy, hydropower, biogas heating or electricity.
2. **Energy efficiency**, including, for example, improved cook stoves, water filtration or purification systems, energy saving lamps or fluorescent lamps.
3. **Forestry**, including planting trees or replanting trees in a previously forested area.

EXPERIENCES

Colombia: A Solidaridad Network project in the region of Riseralda supports farming communities to switch to agroforestry activities focusing on shade crops like coffee and cocoa. The project offers farmers a minimum price of 20 euro per ton of CO_2 captured, which is paid through a voluntary carbon credit scheme supported by international companies including Microsoft and Rabobank.

Thailand: In the Carbon Credit from Community Forests for Sustainability project implemented by MFLF, local community members are immediately trained to carry out the measurements in test plots to qualify for the carbon credit certification. This increases local ownership and enhances professional skills.

POLICY STARTING POINTS

- **Funding mechanisms to establish and maintain the project:** Depending of the context of each individual project, various funding mechanisms can be available to start or maintain carbon credit schemes. These include:
  - Government grants or subsidies to support their emissions reduction or carbon sequestration initiatives. This can be very helpful to set up the project.
  - Private sector investment: private investors provide funding in exchange for a share of the project's returns or the carbon credits that are generated.
  - Private sector voluntary contributions: private sector entities can choose to voluntarily contribute to the project because of charity or their corporate social responsibility.
- **Price determinants:** Voluntary carbon markets are more flexible and more decentralized than compliance markets. The prices can vary substantially and depend on various factors, including:
  - Interaction between supply and demand.
  - The type of project, the complexities involved in the initiatives promoted and any complementary benefits (e.g., biodiversity promotion).
  - The type of certification standard and the transparency, credibility and trust that it offers.

5

PAYMENTS FOR ENVIRONMENTAL SERVICES

PAYMENTS FOR ENVIRONMENTAL SERVICES

Payments for environmental services, also known as payments for ecosystem services, in essence award environmental stewardship. They represent a systemic instrument that links different stakeholders at different locations through an incentives-based approach. The incentive, a payment or in-kind contribution, is generally used to compensate landholders for activities or services with environmental benefits to society but which imply reduced profits for themselves. For example, when it comes to watershed management, payments for environmental services link interests in the upstream area with needs in the downstream area, for example in terms of water quality or water distribution.

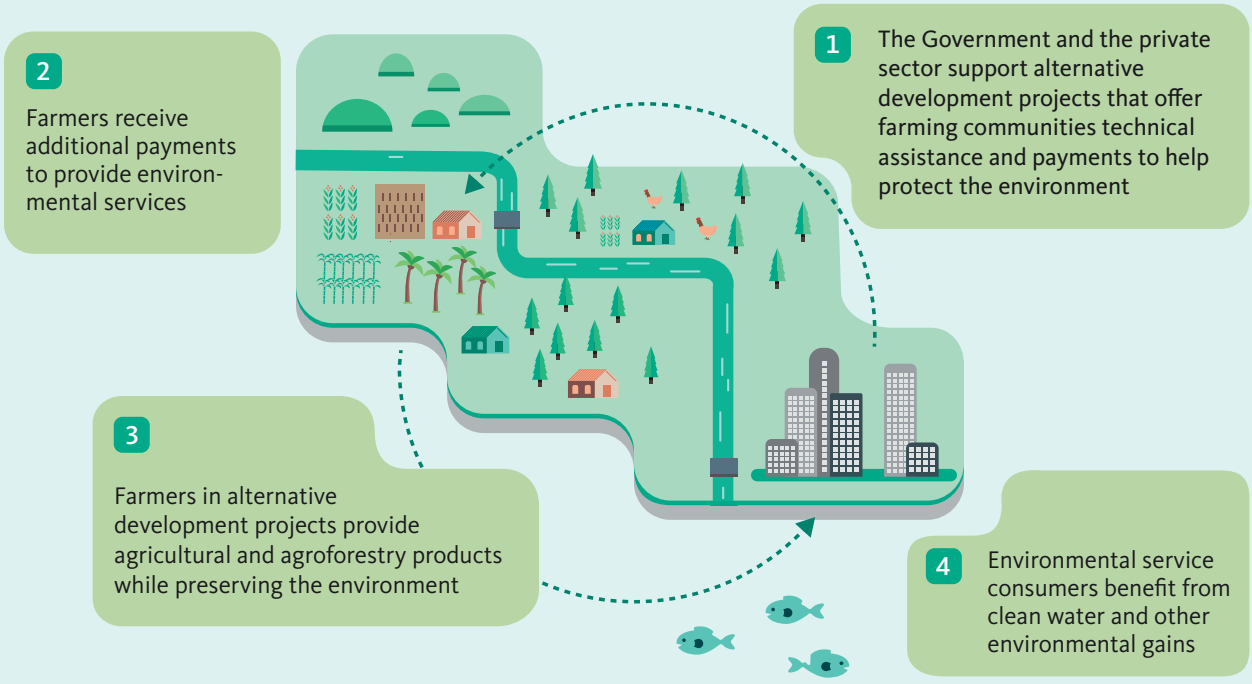
It is a complementary instrument that does not replace other strategies such as protected areas or agroforestry. For alternative development, payments for environmental services can be a tool to make the transition from illicit to licit livelihoods easier, especially as it generates additional income that can help compete with the illicit economy. The figure below shows how payments for environmental services can be applied in alternative development projects.

5.1 Common success factors for project design

The following success factors and positive project activities and elements have been identified in the research as related to payments for environmental services:

1. **User rights and control:** Resource user rights of service providers need to be clear to ensure the legal basis for the payments. Otherwise, disputes may arise about who has the right to provide and receive payments for a particular environmental service. Similarly, it is important to ensure control over the area that produces the environmental service. For example, it is difficult to ensure the sustainable supply of the service if other people can also enter and affect the natural resources in the area.
2. **Demand-driven projects:** The end user's willingness to pay for the environmental services generally needs to exceed the provider's willingness to accept

Payments for environmental services in alternative development projects



Source: UNODC elaboration.

compensations. In order words: the user's perceived value needs to exceed the value of the provider's expected costs of delivery.

3. **Transparency and equity:** Payments for environmental services work best if there is full transparency about how the benefits are distributed and when these are equitably shared among different socioeconomic stakeholders of the project. If not all community members are directly involved, it is important to consider how the whole community can still benefit indirectly, for example, by earmarking part of the funding to community development initiatives.
4. **Relatively low opportunity costs:** If the opportunity costs – how much potential income is lost by foregoing environmentally degrading land uses – is too high, it can be very difficult for payments to be effective and sustainable. For example, in some countries with alternative development projects, these payments would need to compete with high-value commodities such as oil palm or soy beans.
5. **Voluntary stewardship:** The payments should not cover environmental services that local communities were already intrinsically motivated to carry out voluntarily. Rather, the projects should incentivize environmental service providers to deliver additional services.
6. **Bundling:** The bundling of various environmental services can help reduce transaction costs and achieve payment levels high enough to cover the provision costs of environmental services.
7. **Complementary income:** Similar to carbon credits, payments for environmental services should be seen as complementary income that does not replace the necessary income from other sustainable livelihoods.

EXPERIENCES

Colombia: In the Department of Valle del Cauca, payments for environmental services have been integrated successfully into an alternative development project within forest reserve zones. The pilot project involved providing support to farming families growing bananas, cocoa, citrus fruits, coffee and plantain. The key environmental service identified was the provision of water and water quality. To ensure this service, beneficiaries committed to forest protection and to more environment-friendly agricultural practices, such as the use of organic fertilizers. To further promote this use, some farms are in the process of obtaining certification for good agricultural practices. As a result of the pilot project, monthly household incomes increased on average by 42 per cent.

POLICY STARTING POINTS

- **Policy design decision:** The following design decisions need to be made when incorporating payments for environmental services into an alternative development project:
  - **Payment amount:** E.g., whether this would be close to the provision costs (opportunity plus transaction costs) or calculated as a function of social value.
  - **Payment mode:** Cash or in-kind.
  - **Payment differentiation:** Fixed payments or differentiated based on certain criteria related to the provision costs or type of environmental service.
  - **Contract length:** Short or long-term contracting.
  - **Payment duration:** Permanent or temporary.
  - **Degree of conditionality:** Partly ex-ante or fully conditional.
  - **Type of conditionality:** Activity-based or result-based.
- **Guidelines:** Stefanie Engel, Professor of Environmental Economics at the University of Osnabrück, has published work on payments for environmental services, most notably her 2016 article The Devil in the Detail: A Practical Guide on Designing Payments for Environmental Services. In 2013, the UK Department for Environment, Food and Rural Affairs published the Payments for Ecosystem Services: A Best Practice Guide.

KEY RESOURCES

KEY RESOURCES

The resources included in this section by no means represent an exhaustive list. Most of the resources were either suggested by the interviewees or used directly during the research and writing of this guide. A selection of resource centers is listed first as these contain many useful reports, case studies and stories about sustainable approaches, practices and instruments.

Resource centers

- 1t.org:
  https://www.1t.org/resources
- Agrilinks:
  https://agrilinks.org/tools-and-training
- Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT):
  https://alliancebioversityciat.org/publications-data
- CCSI:
  https://ccsi.columbia.edu/content/documents-library
- Center for International Forestry Research (CIFOR):
  https://www.cifor.org/knowledge/
- CIFOR-ICRAF:
  https://www.cifor-icraf.org/knowledge/publications
- Conservation International:
  https://www.conservation.org/research
- Consultative Group on International Agricultural Research (CGIAR):
  https://www.cgiar.org/research/
- Cooperation Internationale en Recherche Agronomique pour le Developpment (CIRAD):
  https://www.cirad.fr/en
- EIT Food:
  https://www.eitfood.eu/content-hub
- Fairtrade International:
  https://www.fairtrade.net/library
- Fair Trade Institute:
  https://www.fairtrade-institute.org/publications/
- FAO flagship publications:
  https://www.fao.org/publications/home/fao-flagship-publications/en
- FAO Agroecology Knowledge Hub:
  https://www.fao.org/agroecology/knowledge/practices/en/
- FAO: Technologies and Practices for Small Agricultural Producers (TECA) platform:
  https://teca.apps.fao.org/teca/en
- Feed the Future:
  https://www.feedthefuture.gov/stories/
- IFAD:
  https://www.ifad.org/en/web/knowledge/publications
- IFOAM - Organics International:
  https://www.ifoam.bio/resource-library
- International Center for Agricultural Research in the Dry Areas (ICARDA):
  https://www.icarda.org/publications

- Re:wild:
  https://www.rewild.org/press
- Sustainable Harvest International:
  https://www.sustainableharvest.org/mediagallery
- The Nature Conservancy:
  https://www.nature.org/en-us/what-we-do/our-insights/data-and-tools/
- UNCTAD:
  https://unctad.org/publications
- UNEP:
  https://www.unep.org/explore-topics
- UNEP, The Transformative Partnership Platform on Agroecology:
  https://glfx.globallandscapesforum.org/topics/21467/page/TPP-home
- UNFCCC:
  https://unfccc.int/resources
- UNFCCC: REDD+ resources:
  https://unfccc.int/topics/land-use/workstreams/redd/redd-resources#tab_home
- UNIDO: Climate Action:
  https://www.unido.org/our-priorities/climate-action
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Environmental protection is an inherent part of sustainable development efforts. Therefore, it cannot be separated from alternative development and broader sustainable livelihood interventions. While alternative development is primarily a drug control intervention, there is a growing consensus that this supply reduction strategy should also promote environmental protection and sustainability. To help pave the way, this *Practical Guide on Alternative Development and the Environment* produced by the United Nations Office on Drugs and Crime (UNODC) brings together experiences and common success factors from around the world that could be used to inform the design, planning and implementation of environmental components of alternative development and similar livelihood projects. The guidance offered in this publication covers four thematic areas: environmentally sustainable practices and approaches; forest and biodiversity conservation; carbon credit schemes; and payments for environmental services. The guide is intended for two main audiences: First, practitioners involved in the design of alternative development and related policies, projects and programmes; and second, project implementers and coordinators at the local level.

This *Practical Guide* is available in PDF format on the UNODC website:
https://www.unodc.org/unodc/en/alternative-development/

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