CASE STUDY: **The "Eco-Agricultural Business for the Adaptation to Changes in Climate" project in Cameroon**

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Executive Policy Summary

Implemented in 2013-14 under the Canada Fund for African Climate Resilience, the "Eco-Agricultural Business for the Adaptation to Changes in Climate" (B-ADAPT) project sought to enhance and diversify income and food security among vulnerable populations of southern Cameroon where two Model Forests are active – Model Forests of Dja and Mpomo and Campo-Ma'an. It did so by engaging men and women farmers and local entrepreneurs in 11 communes of the area in experiments with new agricultural techniques and forest-based enterprises, and providing access to necessary inputs, financial services and market infrastructure. It also introduced new organizational practices, including the formation of farmer field schools (champs école) around which groups of farmers worked and learned together. The project was run by the NGO Cuso International in cooperation with the African Model Forest Network.

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The project addressed some deeply interlinked economic and environmental challenges. Firstly, the rural populations of the Model Forests of Dja and Mpomo and Campo-Ma'an largely rely on agriculture for their livelihoods and are thereby vulnerable to climate change. Secondly, the private sector is weak in that it is characterised by small-scale agricultural production oriented to subsistence rather than to sell produce in the market. Land and labour productivity is low due to the extensive agricultural methods practiced. Thirdly, these populations live in one of the world's greatest rainforests, which provide global environmental services such as carbon sequestration, biodiversity conservation and soil and water protection. The rainforest is subject to deforestation and soil degradation from unsustainable economic production practices such as slash-and-burn subsistence farming.

In the face of these challenges, B-ADAPT was designed on a Private Sector Development (PSD) approach in order to realise co-benefits between environmental sustainability, economic development and security of livelihoods in a rural economy context. The expected synergies were: a) to discourage dangerous slash-and-burn practice by demonstrating economic benefits of biofertilisers and new seeds; b) to reduce land use and pressure on forests by improving resource efficiency; c) to reduce pressure on forests by diversifying income sources away from land-intensive activities; d) to incentivise protection of the forest by showing the value of non-timber forest products. Based on the results of the project's evaluation, B-ADAPT succeeded in reaching some 2,000 poor and vulnerable smallholder farmers in the two Model Forests and achieved a significant impact for them in terms of production volumes, yields, market participation and, possibly, incomes. Measures of the environmental impact, e.g. in terms of lower deforestation rates, were not stated impacts and thus were not captured.

Despite not being explicitly designed as a BER project, B-ADAPT had an impact on the business environment. Most notably, B-ADAPT supported the creation of new market structures like value chains among producers, encouraged the formalisation of enterprises and strengthened the long-standing governance structures of the Model Forests. It is possible that the project could have benefitted from integrating more BER elements in the design, for example through analyses of the legal framework governing companies' registration or of the environmental regulation for forest-protection. In addition, while the project cooperated with the public sector, it did not take a role in improving the functions of the public sector in the promotion of sustainable business.

1 Background and context of the case

1.1 Background, context and key stakeholders

History and context of the programme

The rural economies of the upper Congo basin, which stretches between Congo and Cameroon, are characterised by low productivity of agricultural activity and weak local private sector. Still, in Cameroon agriculture employs about 60% of the working population and is a major source of livelihoods. As the abundance and the frequency of rains are crucial to the success of rural agricultural production, the rural populations of the Congo basin are subject to increasing vulnerability and uncertainty deriving from climate change. They face challenges of two orders: firstly, the security of the agricultural production is highly vulnerable to the effects of climate change; and secondly, this uncertainty has major consequences for the development of agro-businesses and the agricultural value chains, with significant repercussions for consumers in urban areas (Cuso [1]).

The Congo basin also houses the second greatest rainforest in the world after the Amazon and contributes significantly to global environmental services such as carbon sequestration, biodiversity conservation and soil and water protection (AMFN [1]). In Cameroon, around 42% of the total land area is covered by a dense tropical forest. However, the forests of Cameroon are subject to deforestation and soil degradation from unsustainable economic production practices such as slash-and-burn subsistence farming. Slash-and-burn involves shifting cultivation from low productivity fields to forest areas: the forest is cut down and the field is burned in preparation for cultivation. Low investments on sustainable soil conservation practices further lead to a decline in the productivity of the new field. Eventually the farmer decides to cut another part of the forest and shift cultivation there. While the abandoned fields can progressively recover the nutrients necessary to plants growth, soil degradation is often too high and the field never recovers fully. Smallholder farming households commonly practice slash-and-burn as their main source of sustainable income. However, this 'extensive' mode of production is particularly unproductive and requires hard work when it comes to cut the forest. Other pressures on the forest stem from mining and logging as well as population growth and poverty which prevents farmers from moving to other means of income generation.

In this context, the implementation of effective climate-smart agricultural and agroforestry practices planned jointly and benefiting different stakeholders – including small-scale farmers, ethnic groups, and marginalized rural populations – can improve productivity and the well-being of local people. It can also increase the resilience of such systems to climate change, and progressively transform landscapes into climate-smart territories. 'Climate-smart territories' refer to geographical and social spaces where ecosystem services are maintained or restored, improving well-being of local people while continuously optimizing mitigation and adaptation to global changes (LPFN [1]).

To support resilience to climate change and sustain long-lasting livelihoods of rural communities in Cameroon, in 2013-14 the Canadian non-governmental organisation Cuso International, in collaboration with the African Model Forest Network (AMFN), implemented the "Eco Agricultural Business for the Adaptation to Changes in Climate" (B-ADAPT) project in the Campo Ma'an and Dja and Mpomo forest regions. B-ADAPT, conceived as a private sector development project more than a business environment reform project, was funded by Global Affairs Canada (GAC) under the Canada Fund for African Climate Resilience (henceforth, the Fund). Campo Ma'an and Dja and Mpomo regions are large forest areas of 769,445 and 2,700,000 hectares, respectively. By some estimates, 55% of the population in these two forests live in poverty (Cuso [1]).

GAC established the Fund as part of Canada's commitment to the Copenhagen Accord of 2009 to provide new resources for adaptation funding focused on the poorest on most vulnerable. Under the auspices of Fund, GAC disbursed a total of $22.2 million across ten projects operating in eight African countries. Cuso and AMFN received a grant of $2.6 million from the Fund after a detailed and transparent

competition process set up by GAC in 2012 (GAC [1])[1]. The funding mechanism required the implementer to contribute at least 15% of the project's budget, so Cuso contributed with additional $0.5 million.

The main objective of the B-ADAPT project was to enhance and diversify income and food security among vulnerable populations of southern Cameroon in the forests of Dja and Mpomo and Campo-Ma'an.

Table 1: Key stakeholders and their respective roles in the B-ADAPT project

Stakeholder	Role
GAC	Funding and strategic oversight through the Canada Fund for African Climate Resilience.
Cuso International	Provide the human resources and technical assistance, comply with GAC reporting requirements (including financial).
AMFN	Implementing partner - Dja and Mpomo and Campo-Ma'an are AMFN Model Forests since 2005 and B-ADAPT fitted into AMFN's larger economic and environmental resilience programme called One Programme. The governing bodies of the two Model Forests provided the structures and human resources on the ground.
VSO Cameroon,	NGO that recruited, trained and managed volunteers working in the project.
Local communities of the two Model Forests	Women, smallholder farmers and traditional leaders were direct beneficiaries but also participated in intervention design as well as the evaluation.
Government of Cameroon	Implicated at different levels, from the office of the Prime Minister, who enthusiastically supported the project, to the Ministry of Agriculture and the Agricultural Extension Service offices on the ground, who worked closely with the project.

Evaluation

SAS2 Dialogue conducted an evaluation of the project using a range of sources including a household survey (with a sample at baseline of 231 households), project's monitoring reports, field observations and focus groups discussions. As the sole ultimate responsible of the evaluation, the SAS2 Dialogue team conducted three missions throughout the life the process. However, as the final report notes, "the learning process was ultimately a collective effort involving contributions from many people". The evaluation closely tracked results against logical model indicators at the output, outcome and impact level ("résultats immédiats", "résultats intermédiaires" and résultat ultime") (B-ADAPT [2], SAS2 DIALOGUE [1]).

Table 1 Key facts & Figures

Official Project Name / Reference	Eco Agricultural Business for the Adaptation to Changes in Climate (B-ADAPT) (*Original name: Business Eco-agricole pour l'adaptation aux changement climatiques*)
Country/Countries	• Cameroon (Dja and Mpomo and Campo-Ma'an)
Total project/programme volume (USD)	3.1 million USD
Funders and Distribution of Funding	• Global Affairs Canada (2.6 million USD, grant) • CUSO International (0.5 million USD, match funding)

[1] All currencies in US dollars. Exchange rate obtained from www.xe.com (ex rate: 0.958 CAD / USD)

Start & End Years	January 2013 – September 2014 (extended from March 2014)
Evaluation carried out	"Adaptation to Changes in Climate in the Model Forests of Cameroon: Results and Lessons Learned", SAS2 Dialogue, March 2014

Source: Technopolis and Nathan Associates

1.2 Programme design process and linkages to other policy strategies

As mentioned above, the B-ADAPT project design was rooted in Cameroon's priorities for sustainable economic development:

- From an environmental perspective, the government of Cameroon shared ambitious climate change adaptation and mitigation objectives (MARD [1]).
- From an agricultural sector perspective, the government of Cameroon had embraced a vision of agricultural transformation by which the sector guarantees food security, supports more jobs and exploits its economic potential in terms of more efficient utilization of the land (MARD [1]).
- From a business environment perspective, the government of Cameroon supports business development toward the ambition of making Cameroon an emerging country with a strong private sector by 2035 (MARD [1], B-ADAPT [1]).

Like other African countries, at the onset of the project in 2013 Cameroon had chosen to position itself into the green economy to support the emergence of the continent at the United Nations Conference on Sustainable Development Rio+20 in Brazil. The basic idea behind this choice is that African countries can more easily position themselves into a more sustainable, inclusive and fair growth than other industrially more advanced countries. Such a shortcut in a growth model can be a tool of the African countries to transform their large natural resources into tradable goods and services in a way that is more sustainable and inclusive than other western countries (Cuso [1]). Unlike in western countries, the African economies can still steer their underdeveloped industrial sector toward green production while protecting their natural resources, like the Congo basin rainforests, which have not yet been depleted and can a major asset in the countries' growth.

In this context, GAC chose to step up its commitment to financing for mitigation and adaptation to climate change in African countries and started the Canada Fund for African Climate Resilience with three objectives:

- To leverage Canadian expertise in the mitigation of as well as adaptation to the effects of climate change in order to establish effective projects in developing African countries;
- To effectively tackle the adverse impacts of climate change on the future of food security and economic growth of a country or a community;

International efforts for climate change adaptation in Cameroon

The international community stands behind African countries' Green Growth strategy and supports it in different ways, for example through the United Nations' "Reducing Emissions from Deforestation and Forest Degradation" (REDD+) programme. REDD+ is an incentive mechanism by which a country taking remedial action to reduce deforestation rates and achieve emissions reduction will be financially rewarded. By placing a value on the forests' ecosystems for carbon capture and storage, the mechanism encourages the protection of the forests vis-à-vis alternate land uses resulting in their destruction. Despite the fact that the REDD+ mechanism has not yet been fully financed and implemented, a number of REDD+ initiatives have begun in several countries. In Cameroon, a few pilot initiatives have been conceived to prepare for REDD+ roll-out, including a Payments for Ecosystem Services scheme at the regional level and forest monitoring and institutional capacity building at the national level (see: http://theredddesk.org/countries/cameroon).

- To support innovative solutions to environmental and economic issues that require specialised expertise and technologies as well as integrated approaches.

As such, GAC allowed a great amount of flexibility to prospective grantees in choosing instruments to solve the economic and environmental issues, without a clear preference for the instruments of the business environment reforms (BER) toolkit. However, the emphasis on "innovative solutions" and "integrated approaches" indicates an inclination toward experimenting of different tools in the creation of economic-environmental synergies.

What are the Model Forests?

*"**Model Forests are not just about forests**. Rather, they embrace all forms of land use and activities in a large landscape, such as agriculture, livestock, fisheries, mining, water, energy and health, as well as forests, whether natural or planted, rich or degraded. Even cities can be part of a Model Forest.*

*A Model Forest is not just a place. It is primarily a **voluntary and inclusive partnership among all relevant actors**, big and small, in order to ensure the sustainable development of the territory. The partners do this through joint activities, projects and programs of work.*

*A Model Forest is not a project; it is a life project. It is both an **approach and a process by which the partners work together through dialogue, experimentation and innovation to find long term, cooperative solutions to their problems**, and to give concrete shape to their aspirations. Each Model Forest is unique, but all are based on the same core principles (Partnership; Landscape; Sustainability; Governance; Program of work; and Networking).*

***A Model Forest belongs to the local partners**; they set it up and run it. However, while autonomous and rooted in locally established priorities, a **Model Forest is sponsored by its government** to join the International Network. This global community of vision and practice has been gaining ground around the world over the last twenty years. Strategic vision combined with shared ethics and practical flexibility have been key to this success of the Model Forest concept."*

Source: AMFN [1]

Rooted in the priorities of the Government of Cameroon and GAC's Fund's general objectives, in 2013 AMFN was pursuing an existing design of 'soft' territorial governance of forest areas that creates conditions for grassroots cross-sector integration and forms the basis for the B-ADAPT interventions.

These governance structures take the name of "Model Forests" and are rooted in international practice from across 31 countries (see: http://www.imfn.net/international-model-forest-network). The Model Forests are "landscape" initiatives that are not just about forests but also about all other forms of land use. They aim to establish voluntary and inclusive partnerships among all relevant actors in order to find cooperative solutions through experimentation and innovation.

The Model Forests of Dja and Mpomo and Campo-Ma'an were first designated in 2005 but became a reality starting from 2009, when the AMFN was born and a regional Secretariat was established in Yaoundé, Cameroon. The Cameroon Secretariat was financially sustained by Natural Resource Canada, another department of the Government of Canada.

Through the iterative participatory approach, the AMFN and its partners began to recognise the need to strengthen the business environment for several economic sectors in and around the forests, such as agriculture, non-timber products collection as well as commercialisation of the produce, in order to solve the issue of food insecurity and vulnerability to adverse climate conditions. This approach led to the conception of the One Programme, an umbrella of various economic interventions such as mentoring programmes and technical and financial business support. These activities, however, were underfunded and lacked a clear structure and work plan. GAC's new funding represented the opportunity to develop a comprehensive project adopting an integrated approach and requesting strict delivery requirements, such as a definite budget and timeframe.

In sum, the design of B-ADAPT originated in the collaborative and participatory approach of the Model Forests of Dja and Mpomo and Campo-Ma'an, where smallholder farmers, women, local business but also groups of mayors and traditional leaders share platforms to discuss issues and take decisions in the interest of their communities. As such, many of the tools of B-ADAPT responded directly to the demand of local communities and many affiliated farmers had a role in shaping such interventions.

To the AMFN on-the-ground presence, Cuso added its international experience in designing livelihoods, food security and economic development programmes from across many African countries, including the Building Nigeria's Response to Climate Change (BNRCC).

Finally, while B-ADAPT was born from a demand for greater food security and resilience, Cuso and AMFN realised that the project could have had climate change mitigation effects deriving from lower deforestation rates. Such potential impact made the project eligible for REDD+ experimentation. However, the cooperation with REDD+ was never realised and the project's impact on deforestation was never measured.

2 Programme Design and Results

2.1 Mapping the theory of change

The rural populations of Dja and Mpomo and Campo-Ma'an in Cameroon face a number of significant economic and environmental challenges.

Firstly, the security of agricultural production, mainly of plantain and manioc which are the major provider of livelihoods and jobs, hinges on balanced rainfalls and is vulnerable to the disruptive events caused by climate change. In turn, vulnerability and uncertainty have major consequences for the development of agro-businesses and the agricultural value chains, with significant repercussions for consumers, even in urban areas (Cuso [1]).

Vulnerability to climate change is compounded by widespread, environmentally damaging agricultural practices such as slash-and-burn subsistence farming and excessive wood extraction. Slash-and-burn involves shifting cultivation from low productivity fields to forest areas that are cleared from trees and burned in preparation for cultivation. Low investments on sustainable soil conservation further lead to a decline in land productivity. Eventually the farmer decides to shift cultivation in another forest area. While the abandoned fields can progressively recover the nutrients necessary to plants growth, soil degradation is often too severe and the field may never fully recover. Smallholder farming households commonly practice slash-and-burn as their main source of sustainable income. Because of these practices, the tropical forest, which cover around 42% of the total land area of Cameroon, is subject to increasing deforestation and soil degradation.

Finally, smallholder farmers and producers are poorly integrated into markets and value chains, have only access to a limited set of financial and business support services, and utilise resources, such as land and forests, in an inefficient way.

It is thus clear that the issues of the rural populations of Dja and Mpomo and Campo-Ma'an are deeply interconnected. Faced with these issues, the B-ADAPT project aimed to set up a **system of technical assistance, of service delivery and creation of profitable business** managed for and by the communities in order to achieve greater food security and economic development, while improving the capacity of the communities to become more resilient to climate change.

The main activities of B-ADAPT can be grouped according to the output they are supposed to contribute to.

Output 1: Increase knowledge and capacities for at least 2,000 smallholder producers on the use of biofertilisers, eco-agriculture techniques, improved seeds, non-timber forest products, and non-conventional livestock.

- **Training through farm schools**: B-ADAPT aimed to set up 200 farm schools where trained experts would deliver technical training and assistance to at least 2,000 smallholder producers on using climate-resilient agricultural methods such as biofertilisers. The farm schools were also aiming to support producers to organise themselves into value chains.
- **Information and awareness campaign**: B-ADAPT aimed to inform and raise the awareness of smallholder producers on using climate-resilient agricultural methods by mean of radio, trainings, and paper materials.

Output 2: Increase access to improved production systems and new production factors for at least 2,000 smallholder producers.

- **Creation of social enterprises**: B-ADAPT aimed to create four production, storage and distribution centres, two for biofertilisers and two for improved seeds, as social enterprises nested in the Model Forest governance. Initially, the social enterprises would deliver climate-resilient farm inputs to interested producers at no cost in order to demonstrate the inputs' positive effects and attract new producers. In a second stage, the producers would receive the input on credit made by a microfinance institution under a credit guarantee scheme (AMFN/B-ADAPT would bear the losses from any default on the loans). The ultimate goal was to make the production centres profitable and sustainable.

Output 3: Improve coordination into value chains and better access to markets and services for 2,000 smallholder producers.

- **Organisation of producers in value chains and support to business development**: through the school farms, B-ADAPT aimed to develop among smallholder producers an entrepreneurial orientation to agriculture and forest-based livelihoods as well as to help them organise into groups of sellers or value chains.
- **Access to credit**: B-ADAPT set out to collaborate with local microfinance institutions to give credit to groups of farmers based on a "mutual guarantee".
- **Value chain studies and identification of bottlenecks**: the B-ADAPT team conducted value chain studies for several agricultural products, non-timber forest products and non-conventional livestock[2]. The value chain studies served to systematically identify gaps that B-ADAPT should have addressed.

From this set of interventions and outputs, it can be inferred that B-ADAPT design had the features of a private sector development (PSD) project that, like other PSD projects, could have effects on the business environment. For example, in an effort to change market structures the project explicitly addressed bottlenecks identified in a value chain perspective. The value chain approach is clearly illustrated in the diagram below, which was produced by B-ADAPT (B-ADAPT [1]). As mentioned above, the first interventions' set-up was largely inspired by the needs and demands expressed by local communities through the Model Forest governance bodies and later refined during the project life. Most gaps were initially identified at the input and production level, and this justifies why most interventions were in this area. However, the project also had smaller interventions in other sections of the value chains, for example in the facilitation of transport of products to the markets.

[2] To be specific, the value chain studies were conducted for: 5 agricultural products (chili, cassava, maize, peanut and plantain); 7 non-timber forest products (Allablankia, Moabi, moringa, wild mango, Njansang, Mbalaka); and 3 non-conventional livestock (honey, guinea, pigs, giant snails).

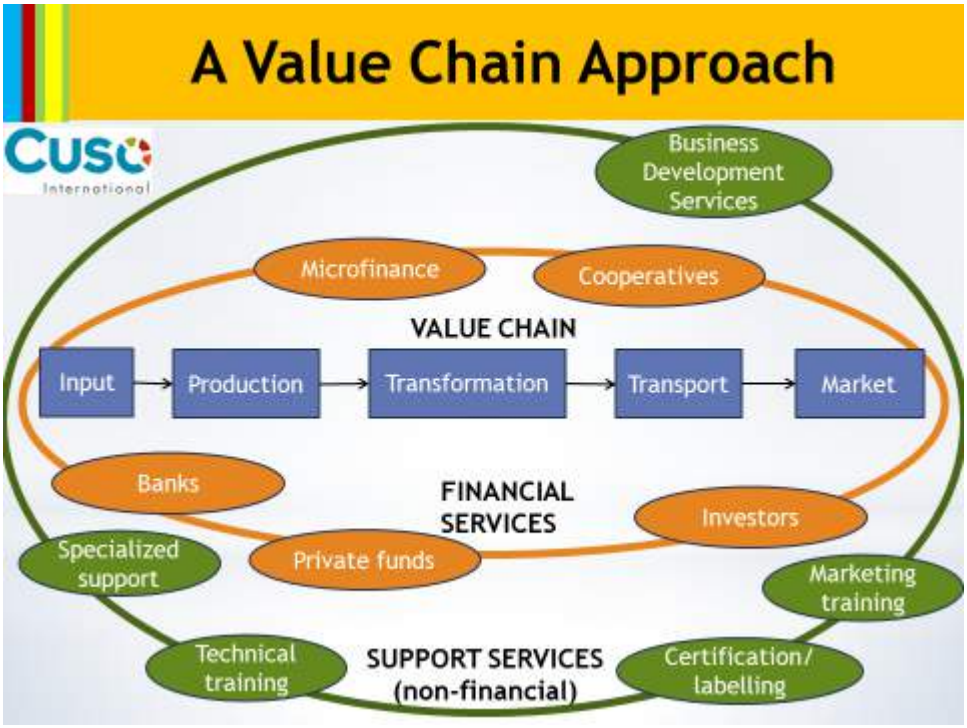


Figure 1 - Value Chain Approach from B-ADAPT (Source: B-ADAPT [1])

The expected outcomes of B-ADAPT were twofold[3]:

Outcome 1. Increased use of techniques and methods that raise agricultural productivity, strengthen food security and resilience of communities, in a way that is respectful of the natural environment.

Outcome 2. Increased used of mechanisms that raise profitability of agricultural activity, facilitate greater access to markets, to financial and non-financial services, and support coordination in efficient value chains, in a way that is respectful of the natural environment.

The expected impact of the project was to achieve greater food security, higher incomes and stronger resilience to climate change for 2,000 smallholder producers, 14,000 members of their families and 27,000 members of the rural communities of the Model Forests of Dja & Mpomo and Campo-Ma'an. Once the B-ADAPT mechanisms would be set up, the smallholder farmers that would not have participated could have benefited as well, through credit, technical assistance and technologies to increase their productivity and make their agricultural production resilient to climate change. In addition, through strengthening of value chains and greater business profitability, the project could also have stimulated economic growth in the two Model Forests and surrounding areas.

Table 2 Intervention Logic of the Measure

Instruments used	Intended outcomes	Intended impacts	Relevance to BER	Relevance to GG
Training of smallholder producers	Higher agricultural productivity	Food security Higher incomes Resilience to climate change	Very low	High

[3] The output, outcome and impact indicators are based on B-ADAPT logical model. However these are not word-by-word translations from French but keep the essential aspects for this case study.

Instruments used	Intended outcomes	Intended impacts	Relevance to BER	Relevance to GG
Information and sensitisation campaign	Higher agricultural productivity	Food security Higher incomes Resilience to climate change	Very low	High
Creation of social enterprises	Higher agricultural productivity	Food security Higher incomes Resilience to climate change	Low/medium	High
Organisation of producers in value chains / Support to business development	Improved coordination in value chains Profitability of agricultural activity Access to markets Access to financial and non-financial services	Food security Higher incomes Resilience to climate change	Low	Low
Access to credit	Profitability of agricultural activity Access to financial and non-financial services	Food security Higher incomes Resilience to climate change	Low	Low
Value chain studies / Identification of bottlenecks	Access to markets Access to financial and non-financial services Improved coordination in value chains	Food security Higher incomes Resilience to climate change	Medium	Low

Nathan Associates

2.2 Analysis of synergy and trade-offs between BER and Sustainable Development in programme design

To frame the discussion on the business environment, it is useful to begin from the broader perspective of private sector development and introduce the key business environment reforms in this context. As previously mentioned, the rural communities of Dja & Mpomo and Campo-Ma'an face major challenges to the development of the private sector. First, the agricultural sector is exposed to major climate change risks. Second, the economy is dominated by subsistence agriculture. The proportion of produce sold in the markets is relatively low, while the smallholder producers hardly reach a sufficient scale to make investments and grow. The extensive agricultural methods are also considered to be very inefficient. Third, these issues are compounded by contextual market constraints, like the lack of access to good financial and business services and underdevelopment of value chains.

Given these challenges, as anticipated above, B-ADAPT was squarely developed as a PSD project aimed at promoting business development of smallholder farmers through a mix of interventions aimed at improving their capacities, providing access to agricultural inputs, increasing their business orientation, and giving access to financial institutions. In consideration of the environmental challenges in the target regions, B-ADAPT was also designed to promote environmentally sustainable production practices.

As such, B-ADAPT took the business environment as a given, without much analysis of how the business environment hindered, or could be changed to enhance, poverty reduction (cfr. Phase I report for a definition of business environment as opposed to PSD). For example, the Cuso tender to GAC for B-ADAPT does not comprehend an analysis of fundamental features of the business environment in the forest management area, for example, the national and regional laws and regulations on land tenure or government subsidies. Successive project strategy documents also do not incorporate a vision of the business environment as a whole (e.g., see how the value chain mapping in Figure 1 overlooks laws and regulations). In this respect, B-ADAPT is representative of many other PSD projects.

Nevertheless, some of the key initiatives of B-ADAPT did have an intended impact on the business environment, even without an explicit theory of change to that effect.

First of all, the Model Forests, which provided the key governance infrastructure to the project, are voluntary partnerships among all actors with a stake in the forests, including the private sector and the smallholder farmers. By engaging in these partnerships, private sector actors are involved in formulating, monitoring, enforcing and evaluating policies that can promote better livelihoods for the rural communities and conservation of the forests for the benefit of everyone. The fact that private sector development became a priority for the Model Forests governing bodies of Dja & Mpomo and Campo-Ma'an is itself evidence of a strong involvement of private actors in forest management. Also, it is possible that the Model Forests have arisen in Cameroon as a way to integrate weak or absent public governance. The B-ADAPT project documents do not discuss the regulatory and policy context in sufficient detail to be conclusive on this. However, they point to the full cooperation of the public sector in the project, which is in itself an evidence that the Model Forests and B-ADAPT were complementary to the public sector.

Secondly, inasmuch as B-ADAPT supported the creation of new market structures (i.e. the value chains) and the introduction of commercial business in the rural economy, it supported the creation of a stronger business environment. B-ADAPT did not explicitly support formalisation of smallholder producers but tried to give them tools (like business planning or credit) to strengthen their organisation.

Thirdly, the training delivered by B-ADAPT to smallholder producers on 'green' agricultural techniques is also an instrument of the business environment toolkit. However, this measure is only partly BER because it was thought as a one-off opportunity and therefore not truly structural.

Fourthly, in a first phase of the project, the social enterprises set up by B-ADAPT delivered biofertilisers and seeds for free, so these inputs were essentially subsidised. The intention was then to substitute the subsidy with a microfinance mechanism once early adopters would have used the inputs and demonstrated its effects to the other farmers. By making this instrument sustainable, the project pursued a structural change in market structure that is *per se* an improvement of the business environment.

In terms of environmental sustainability, B-ADAPT promoted both climate change resilience and mitigation, although the resilience aspect was the most salient one. In addition, it needs to be stressed that the resilience objective of the project was set for the rural communities and their livelihoods and not for the environmental services of the forests that can be threatened by climate events. The key resilience mechanisms put in motion by B-ADAPT were the following:

- The project promoted the diversification of income sources away from standard agricultural practices that are most subject to adverse climate events. These new income sources were in the non-timber forest products and non-conventional livestock and the project trained smallholder farmers into these economic activities and assisted them in their experimentation.

- In addition, the project also promoted higher agricultural productivity that can shield communities from adverse climate events by raising food security.

Despite the lack of clear targets for climate change mitigation effects, it should be noted that the AMFN vision is anchored in the notion that forests produce environmental public goods such as carbon sequestration and therefore need protection. For this reason, the designers and implementers of B-ADAPT did consider effects on the environment at every step of the way and explicitly tried to create synergies and address trade-offs between the economic initiatives and environmental sustainability. Four connected types of synergies and one trade-offs can be identified in the project design as well as in the project delivery.

Discourage slash-and-burn by demonstrating economic benefits of biofertilisers and new seeds. The first synergy relies on the notion that the slash-and-burn production method is both deeply inefficient from an economic perspective and damaging from an environmental perspective. If the

farmers realise that alternative green production methods have higher productivity, they will naturally start to adopt them (on condition that the provision of the methods is guaranteed) and they will avoid deforestation. Using biofertilisers, for example, has several benefits for the farmers, including increased plant growth, increased access to nutrients, increased resistance to hydric stress, improved soil structure etc. In turn, this higher fertility means higher land productivity while it discourages the farmers from engaging in highly damaging slash-and-burn activity. To support such positive synergy, B-ADAPT provided biofertilisers and seeds for free, at least in the beginning of the project, and gave training on how to use them. Once the farmers understand the value of the new techniques, they would start demanding them and the delivery of the inputs would become sustainable.

Reduce land use and pressure on forests by improving resource efficiency. Through the business training, B-ADAPT encouraged smallholder producers to switch from small-scale and subsistence agriculture to commercial intensive agriculture. Alongside the green technical innovations, the farmers were trained into a financial planning process suitable to apply for credit from financial institutions. By improving resource efficiency, the indirect objective was to reduce land use and ease pressure on the forests.

Reduce pressure on forests by diversifying income sources away from land-intensive activities. Reducing pressure on forests was also the indirect effect of supporting income sources different from agriculture. Non-timber forest products and non-conventional livestock were promoted with the farmers.

Incentivise protection the forest by showing the value of non-timber forest products. Another benefit of investing in non-timber forest products was to demonstrate how a well-conserved forest could make an important contribution to an economic sector and thereby support incomes in a sustainable way.

The one trade-off that we could identify is the following:

Greater agricultural business profitability through lower business costs, risks or new markets could directly incentivise greater land use and potentially deforestation. The B-ADAPT project team was well aware that its business development initiatives could incentivise smallholder producers to expand agricultural production in new areas and pose a threat to the forests as a side effect. In recognition of this, the project decided to make the microfinance loans necessary to buy the new inputs, conditional on the farmers not cutting new pieces of the forest.

All these synergies and trade-offs contain elements of relevance for BER policies who are however difficult to unpack from the dominant non-BER aspects.

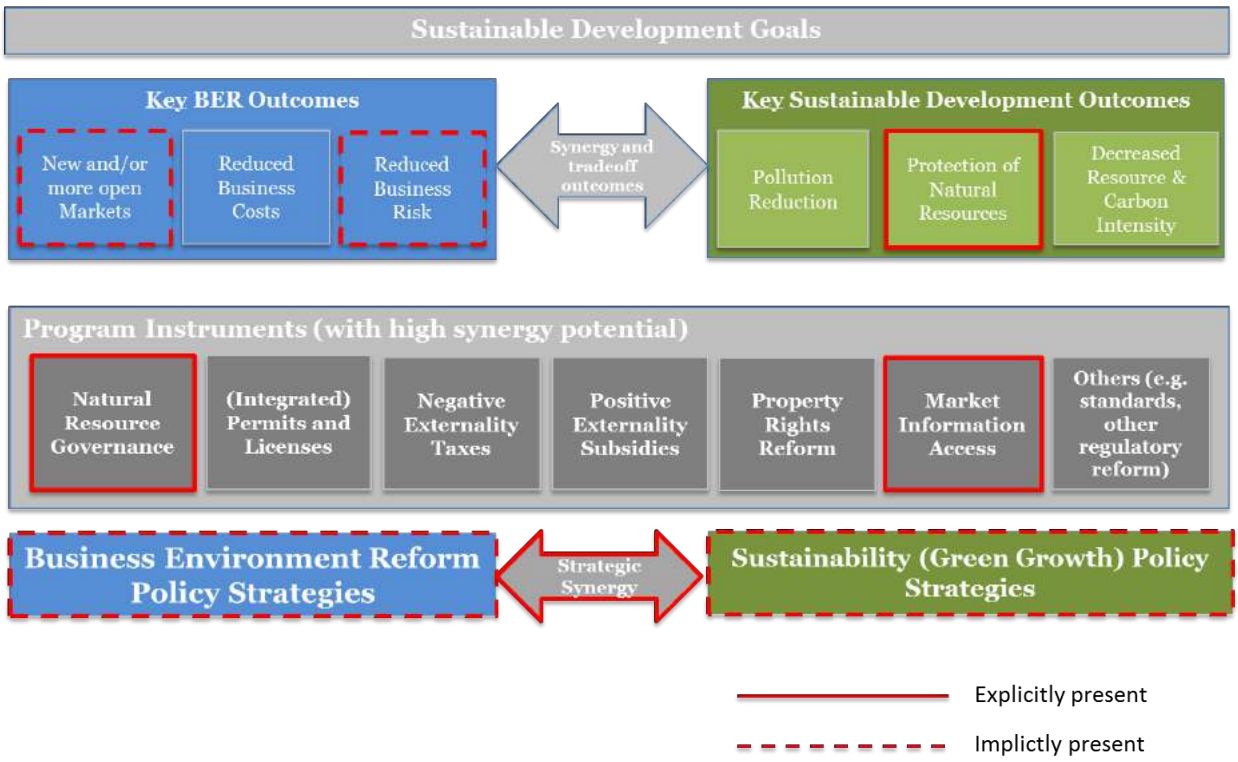


Table 3 Synergies and trade-offs: preliminary overview

	Synergy (positive)	Trade-offs (negative)
BER OUTCOMES -> Synergy with Sustainable Development Outcomes		
Market creation & higher market pressure	• Through the provision of business training, B-ADAPT encouraged smallholder producers to switch from small-scale and subsistence agriculture to commercial intensive agriculture. and trained them about a financial planning process suitable to apply for credit from financial institutions. By improving resource efficiency, this reduced land use and eased pressure on the forests.	• Greater agricultural business profitability through lower business costs, risks or new markets could directly incentivise greater land use and potentially deforestation. The B-ADAPT business development initiatives could incentivise smallholder producers to expand agricultural production in new areas and pose a threat to the forests.
Reduced Business Costs	• NA	
Reduced Business Risks	• Diversifying income sources away from land-intensive activities such as promoting non-timber forest products and non-conventional livestock to farmers reduced the risk of farmers being dependant on a limited number of activities whilst indirectly reducing pressure on forest.	
SUSTAINABLE DEVELOPMENT OUTCOMES -> Synergy with BER outcomes		
Pollution reduction	NA	NA
Protection of natural resources / ecosystem services	• Reducing the use of slash and burn by providing free seeds and bio-fertilisers protects the forests and in turn results in higher economic productivity as a result of more fertile land.	
Decreased resource & carbon intensity	NA	

2.3 Programme results: Outcomes and impacts

The evaluation conducted by SAS2 Dialogue shows the main results achieved by the project. SAS2 Dialogue subdivides results across product types, i.e. agricultural products, non-timber forest products, non-conventional livestock. However, the interventions on non-timber forest products and non-conventional livestock were rolled out too late to achieve any change at the outcome or impact level and will therefore not be discussed. We also discuss some of the results of the access to finance component. Since the project was extended by GAC until September 2014, end-of-project data is also reported where applicable.

Agricultural products

At the outcome level, for evaluation purposes SAS2 Dialogue tracked changes in agricultural productivity through the number of producers using project inputs, changes in farm size, yields per hectare, and amount of surplus product sold on the market. Data was collected through interviews and surveys at baseline, midline and endline.

Based on these data, the project succeeded in reaching some 2,000 poor and vulnerable smallholder farmers in the two Model Forests. These farmers implemented new techniques – like use of biofertilisers, new seeds or line-planting – in a total of 268 hectares of land over the course of the project. Interestingly, during interviews at the end of the project, 81% of the producers said that they had increased the amount of land they had cultivated during the life of the project. Overall, the area cultivated might have grown by 40%. This is a positive achievement since one of the issues was the under-utilisation of cleared land in proximity to the forests. However, the lack of a rigorous counterfactual scenario for land use and of a measure of avoided deforestation do not allow giving firm conclusions on this.

In terms of yields per hectare, end-of-project interviews with staff and farmers suggest that the project stimulated an increase in productivity, although the increase in farm size was probably a more significant factor.

Finally, 58% of producers involved in the project reported an overall increase in surplus production on the market compared to the period where the project started. The proportion of the harvest brought to the market had also increased. By the end of the project (September), more than 50% of farmers said they sold at least 40% of their crops. Most farmers indicated that these benefits were the results of greater productivity achieved by using the projects' inputs.

Data on food security and income show that the project achieved a positive impact on smallholder producers, despite the very short project timeframe (1.5 years). Among the producers that stayed in the project from the beginning, the average number of meals increased slightly from 2.3 to 2.6. The proportion of households struggling to meet food needs dropped from 22% to 3% over the life of the project while the proportion of households having sufficient food or food surpluses for the entire year rose from 38% to 78%.

Access to finance

The credit system established by the project was a group-based solidarity model, where small groups of farmers join forces to request credit and collectively guarantee repayment with interest. Each group was responsible to develop a business plan with a strategy for a new crop production, an estimate of cash flow requirements, and monitoring and repayment plan. Afriland First Bank was the linked credit institution. In the intentions of the project, all the 2,000 producers should have applied for credit however only 518 members did participate in the scheme. Despite the success in linking these farmers to the financial institution, the project encountered many challenges, e.g. the microcredit institution's unwillingness to risk its own capital, and a mismatch between the most requested credit (cash to hire labour) and the one in-kind that was provided for (biofertilisers and seeds). Nonetheless, at the end of the project most producers stated that they had increased their crop area due to the financial services available through the project and that they were on average more likely to be able to repay their debts.

Long-term impact and sustainability

B-ADAPT had a very short timeframe and it is therefore very important to understand whether the project has had an impact beyond its lifetime. Based on anecdotal evidence from interviews, it has been claimed that the social enterprises are still active today within the two Model Forests. This is because the local communities of the Model Forests have embraced a vision for sustainable economic growth and continue to pursue these objectives through the governance bodies. However, the AMFN in Cameroon has faced a major shortage of funding since the end of B-ADAPT and as a consequence, some of the high-level outcomes have not been supported. For example, the credit linkages appear to have been lost since then.

Table 4 Overview of outcomes and impacts

Type of outcomes & impacts	Evidence
Outcomes	
Market creation & higher market pressure	There is no sufficient quantitative or qualitative evidence that the smallholder producers organised in value chains, formalised their business or managed to keep a stable relationship with financial institution.
Reduced business costs	NA
Reduced business risks	NA
Pollution reduction	NA
Protection of natural resources	Mostly anecdotal evidence points to some protection of the forests. SAS2 Dialogue's evaluation quantitatively shows that the smallholder producers involved in the project had increased their land use for agriculture at the end of the project. However it is unclear if forests were cut or not. Also, there is evidence that smallholder producers adopted production methods that better protect the soil, so we have indirect evidence of soil conservation.
Decreased resource and carbon intensity	NA
Other outcomes	The project's stated objective is to reduce the risk of food scarcity which weighs negatively on rural communities' livelihoods. The effect is most likely positive. The evidence on this impact is however only indirect as evaluation data suggests that the smallholder producers began to use green agricultural technologies that help reduce this risk.
Impacts	
Private sector-driven growth	• The available evidence from endline evaluation strongly suggests that production from agriculture has increased, yields per hectare have slightly increased and smallholder producers have production surpluses that they bring to the market. Incomes of the poor might have also slightly improved. • There is however no quantitative or qualitative data on other measures like green job creation or growth of non-agricultural sectors, mostly due to the fact that the project was too short on that front.
Green growth	• Mostly anecdotal evidence suggests that the project might have contributed to lower deforestation rates. The precise extent of this was however not gauged.

Source: Nathan Associates

3 Programme Governance

3.1 Governance

The B-ADAPT project was nested in the existing Model Forests' governance in Dja and Mpomo and Campo-Ma'an. The Model Forests are themselves structures of multilateral governance founded on voluntary partnerships among the forests' stakeholders, including groups of women, mayors, young, indigenous populations, and private enterprises. These interest groups discuss economic, social and environmental issues in platforms and select a representative that participate in the Model Forest's governing body. This body determines a common vision for the forest and set out an overall strategy and annual plans of action.

As structures that are based on the principles of inclusive, collaborative resource governance embracing different sectors, the Model Forests are well placed to develop and host interventions that have inter-related objectives of ecosystem services, climate resilience, agricultural production and rural livelihoods.

For the governance of B-ADAPT, a small field project management team was appointed by Cuso and responded to both Cuso and AMFN. The Project Manager directed operations of the Model Forests project managers, who were appointed by the Model Forests boards in the two regions. Under the Model Forests project manager there were the communal coordinators and facilitators, who worked directly with producers affiliated to the Model Forests as well as with all the other producers. Officials of the Agricultural Extension Services of the Ministry of Agriculture were also involved in the local implementation teams.

In terms of delivery of the expected activities, the project noted how a short implementation timeframe made it impossible to achieve notably ambitious targets. For example, during the third and last agricultural season of the project life, the farmers were supposed to take loans to finance the purchase of the key inputs provided by the project but largely failed to do so, especially because the financial institution had not had sufficient time to comprehend the farmers' business model. In fact, B-ADAPT might have been the first to link financial institutions to these farmers, so their relationships would have needed more time to strengthen. In addition, when the project ended, the biofertilisers and seeds production centres had not yet become fully autonomous and had to be sustained. However, after project end, the AMFN was severely underfunded and some of the interventions might have completely stopped.

3.2 Monitoring, Evaluation and Learning

The evaluation and learning functions for B-ADAPT were coordinated by SAS2 Dialogue, a Canadian consulting firm. SAS2 Dialogue undertook three missions to Cameroon to conduct co-designed evaluation processes with project partners, train staff in participatory monitoring and evaluation methods, design and test survey and monitoring protocols and engage directly in evaluations with project participants and other stakeholders.

In between each mission, project staff, Cuso International, AMFN and SAS2 Dialogue reviewed the results emerging from the evaluation process and made course corrections to project activities. A range of quantitative and qualitative tools were used and developed along the way to collect data and support reflection by stakeholders on issues and lessons learned.

In terms of indicators, the evaluation attempted to track all the outputs, outcomes and impacts of the project's logical framework, and where possible, defined different measures describing different aspects of each indicator.

The key limitations of the evaluations were that it did not rely on a rigorous counterfactual to assess the project's impact and that some of the data was subject to respondent bias which might lead to overstate the results of the project. Despite these limitations, SAS2 Dialogue can show fairly reliable economic indicators such as amount of land use from beneficiaries, yields per hectare, production surpluses and market sales. Some indication on changes in incomes can as well be gauged in the evaluation. However, the indicators for climate resilience are insufficient in this context, especially considering that climate

resilience can only materialise and therefore be measured in the long term. In addition, as previously explained, lower deforestation rates, which might have resulted from the interventions, were not directly targeted by the project and were not measured.

To monitor ongoing project's progress, each of the project teams had regular meetings to discuss data and track progress. The project had a good system to collect and communicate data from the ground up to the Project Manager, who was responsible for the reporting to GAC. The participatory nature of the Model Forests also meant that progress and results were frequently debated in the Model Forests' governance bodies and groups' platforms. This way all stakeholders could feed back their comments and suggestions to the project.

4 Good practices and lessons learnt

4.1 Conclusion on synergies and trade-offs

The B-ADAPT project was concerned with supporting synergies between environmental sustainability and economic development and security of livelihoods in a rural economy context. For B-ADAPT, the primary environmental sustainability objective was the resilience of rural communities to climate change while the protection of the forests and their ecosystem services was a secondary objective.

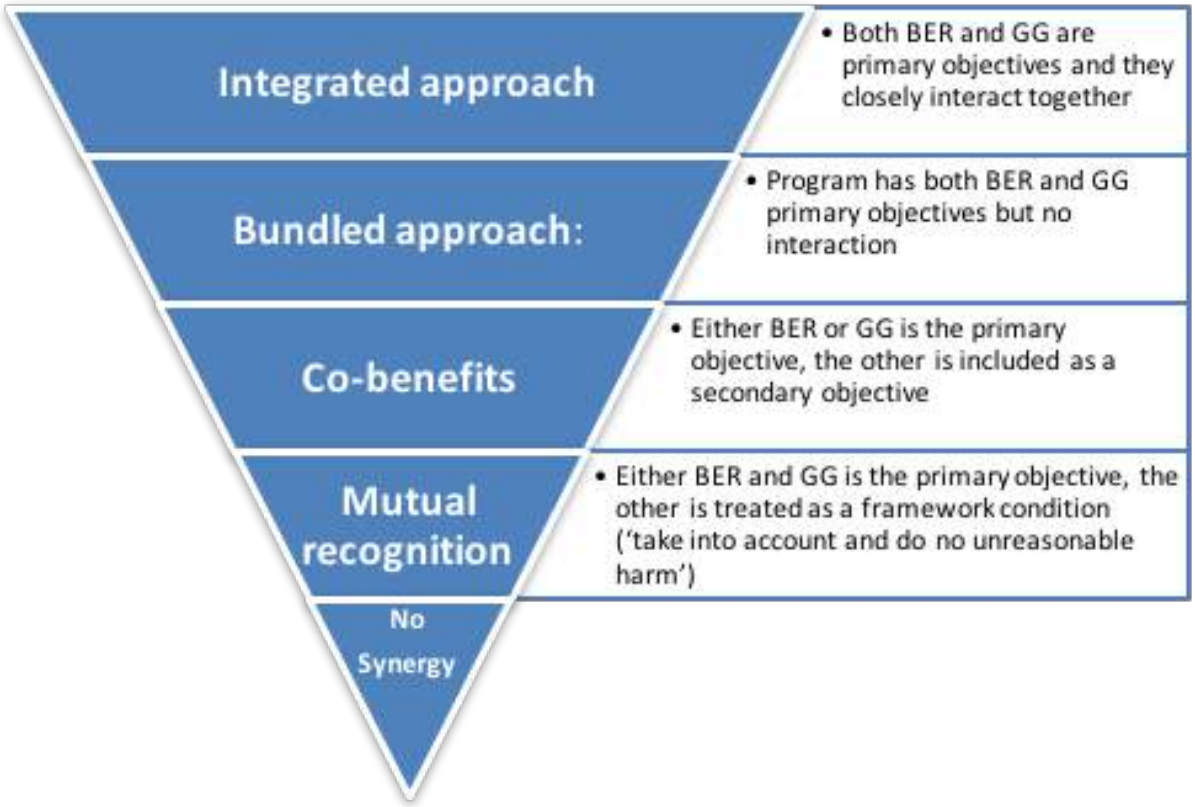
Although the instruments adopted by B-ADAPT were rooted in the creation of stronger and more commercially oriented business, the project design only contains BER aspects in an implicit way. For these reasons, it can be said that the project was founded on GG-BER co-benefits (cfr. Synergy ladder below). The synergy-oriented design of B-ADAPT allows an analysis of the role of other complementary private sector interventions as well as some speculation on the potential role of stronger BER interventions.

In terms of synergies, there is evidence that at the end of the project, the smallholder producers that engaged with the project adopted green technologies that can boost their incomes and livelihoods while reducing the impact on the forests and reducing the vulnerability of rural communities to climate change. The specific contribution of BER measures is hard to disentangle but the governance function of the Model Forests appears as a key asset of the B-ADAPT approach.

Anecdotal evidence from interviews suggests that some of the mechanisms put in place by the project are still existing today (e.g. the social enterprises), however the project did not achieve systemic, structural change. For example, there is no evidence of replication of the interventions. Crucially, it appears that the Model Forests were not adequately funded after the end of the project and therefore they could not sustain or expand the B-ADAPT interventions. It is possible that adopting a more structural, long-term BER-focused approach could have had a more durable impact.

In addition, there is very limited evidence that the project managed to support diversification of income sources away from land-intensive activities and into activities that place a value in the conservation of the forests like non-timber forest products. This was due mostly to the fact that interventions in this area started late and the project's timeframe was too short to allow for the community to reap any benefit.

In terms of trade-offs, anecdotal evidence from interviews suggests that greater agricultural business profitability (through lower business costs, risks or new markets) could have directly incentivised greater land use and potentially deforestation. The project was aware of this and tried to hinder the mechanism by placing a conditionality on some of the services it offered. It is unclear if this correction worked and to what extent.



4.2 Lessons and Good practices for Policy Makers

- **Programme Design**
  - **Good practice:** The B-ADAPT project design benefited from the combination of international objectives and commitments for global environmental sustainability and the needs and demands of relatively small local communities. From an international perspective, Global Affairs Canada stepped up the commitment taken in international fora to provide new resources for adaptation funding focused on the poorest on most vulnerable. This commitment aligned well with the real local problems and needs of the rural communities of the Campo Ma'an and Dja and Mpomo. These rural communities had already organised in the "Model Forests", i.e. forest governance bodies that bring all local stakeholders together to take decisions in the interest of the community. GAC allowed for flexibility of design and this permitted Cuso International and the African Model Forest Network to propose interventions that were the result of a participatory approach where rural communities were heavily involved. This could explain why the project managed to hit the ground running and begin implementation in good time.
  - **Lesson learned:** Although the project had an ambitious vision of synergies between economic and environmental objectives, its interventions seem to have had the scale of small pilots that tested innovations and new approaches (e.g. the access to biofertilisers or access to finance) but were not adequately followed up or made systemic in the larger community. This may be because the project had quite limited funding available (about $2.6 million) and a short timeframe to deliver on its goals. Instruments of the BER toolkit would probably take require time and resources.
  - **Lesson learned:** The B-ADAPT design was founded on the principle of co-benefits between PSD and Green Growth. As such, the project took the business environment as given, and only included BER elements to its strategy in an implicit and complementary way. The key BER tools

used by B-ADAPT were the creation of market structures, the formalisation of enterprises and the support to long-standing governance structures. In retrospect, such a PSD project could have benefitted from explicitly taking into account the business environment. For example, the project did not analyse the legal framework governing companies' registration nor the legal process to comply with regulations. Had the project encouraged smallholder farmers to register and follow the laws, it is possible that more new market structures would have emerged. In addition, the project did not account for any environmental regulation or forest-protection law. For example, it is unclear if slash-and-burn is illegal or permitted and under what conditions. More generally, it is unclear what rights and obligations do farmers have when they exploit forest resources. The project could have addressed potential gaps in awareness of the laws or potential frictions between law and practice. Finally, while the project cooperated with the public sector on the ground, it did not seem to address any of the potential structural gaps in the government's action for the protection of the forests. This would have been hard for such a PSD project to integrate, but perhaps more could have been done to better complement the public sector. That B-ADAPT would have benefitted from better integration of BER elements is a lesson that is perhaps applicable to other similar PSD projects.

  - **Lesson learned:** Based on the B-ADAPT design and history, one can tentatively conclude that PSD instruments are well suited to support synergies between environmental outcomes and economic growth, especially in the context of developing economies dominated by poor smallholder producers. Nonetheless, from B-ADAPT it also emerges that the small scale of the interventions and the short timeframe may have been constraints to achieve structural changes. In addition, as mentioned, the project overlooked key BER aspects to forest management, like environmental regulations and land rights. In combination, these two findings may suggest that BER-focused projects could be successful in similar contexts and should therefore be assessed as complements to PSD approaches.

- **Programme implementation:**
  - **Lesson learned:** The very short implementation timeframe (1.5 years) appears to have acted a major constraint in several respects. First, some of the planned interventions like the value chain studies only took place towards the end of the project and could not bring about the desired change nor be assessed rigorously in an evaluation. Second, the project could not even begin to link smallholder producers with bigger players in the private sector and thus help them to better integrate with regional and global value chains. Third, some of the key relationships established by the project – for example between smallholder producers and the microfinance institution – could not be supported overtime and may have disappeared. Fourth, the short timeframe makes it hard to assess the project's climate resilience impact, which materialises only in a long timeframe. One key lesson for other initiatives is that interventions that aim to bring about a structural and systemic change need a long time to deliver the expected impact.
- **Programme M&E:**
  - **Lesson learned:** The project had adequate Monitoring and Evaluation arrangements considering the small scale and short timeframes. However, in a BER-GG perspective the evaluation failed to capture the contribution of the project to environmental sustainability, e.g. in terms carbon stock sequestration or lower deforestation rates or lower soil degradation. This kind of data would allow to assess whether the synergies with economic objectives prevail vis-à-vis the trade-offs or vice versa. For example, from the evaluation we learn that the smallholder farmers had increased their land use for agriculture at the end of the project, but we do not know whether they have partly cut down the forests to access new fields for cultivation. The evaluator could have asked the participating farmers how much forest they had cut in a given period before the baseline so as to compare with a similar record at the end of the project. The evaluation also failed to capture change in market structures like creation of value chains, e.g. of non-timber forest products, and changes to market imperfections like the lack of transport services. This limited our capacity to assess whether the BER objectives were achieved. Such dimensions could also have been captured through interviews with the farmers.

Appendix A Sources and further reading

A.1 Further reading

African Model Forests Network (2015), *A whole-landscape approach to green development in Africa*, iied Briefing, December 2015.

African Model Forests Network (no date), *The African Model Forest Network. Development of a Regional Model Forest Network in Africa*, The International Model Forest Network.

African Model Forests Network (no date), *The African Model Forest Network. A Presentation Note.* (REF: AMFN [1])

Global Affairs Canada (2013), *Canada's Fast-Start Financing. Delivering on Our Copenhagen Commitment. May 2013.* (ref: GAC [1])

Ministry for Agriculture and Rural Development (2011), Address by H.E. Paul BIYA President of the Republic of Cameroon, (ref: MARD [1]) (link)

SAS2 Dialogue (2014), *Adaptation to Changes in Climate in the Model Forests of Cameroon: Results and Lessons Learned* (ref: SAS2 Dialogue [1])

A.2 Other sources

B-ADAPT, Business approach slide pack (ref: B-ADAPT [1])

B-ADAPT, Modèle logique (ref: B-ADAPT [2])

Cuso International, Formulaire de demande pour le Fonds canadien (ref: Cuso [1])

A.3 Interviews

Gabriel Sarasin, Project Manager, B-ADAPT

Mariteuw Chimère Diaw, Director General, African Model Forests Network