



IFC | International
Finance Corporation
World Bank Group

PRIVATE SECTOR SUPPORT TO CLIMATE RESILIENCE IN ZAMBIA

Promotion of Microfinance to Build Climate
Resilience in Rural Areas

Final Report - For public release

NIRAS

Acronyms and Abbreviations

AEZ	Agro-ecological zone
AMIZ	Association for Micro-Finance Institutions in Zambia
ASNAPP	Agribusiness in Sustainable Natural Africa Plant Products
BoZ	Bank of Zambia
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COO	Chief Operating Officer
DAPP	Development Aid from People to People
DFID	Department for International Development (United Kingdom)
GRZ	Government of the Republic of Zambia
Ha	Hectare
HIV / AIDS	Human immunodeficiency virus / Acquired immune deficiency syndrome
HQ	Headquarters
ICT	Information and communication technology
iDE	Ideas for Innovation (NGO)
IFC	International Finance Corporation
MFI	Microfinance institution
MSME	Micro, small and medium enterprise
POS	Point of sale
PPCR	Pilot Program for Climate Resilience
SME	Small and medium enterprise
SPCR	Strategic Program for Climate Resilience
SSF	Small scale farmers
USAID	United States Agency for International Development
USD	United States dollar
WB	World Bank
ZCSMBA	Zambian Chamber of Small and Medium Business Association
ZK, ZMK	Zambian kwacha

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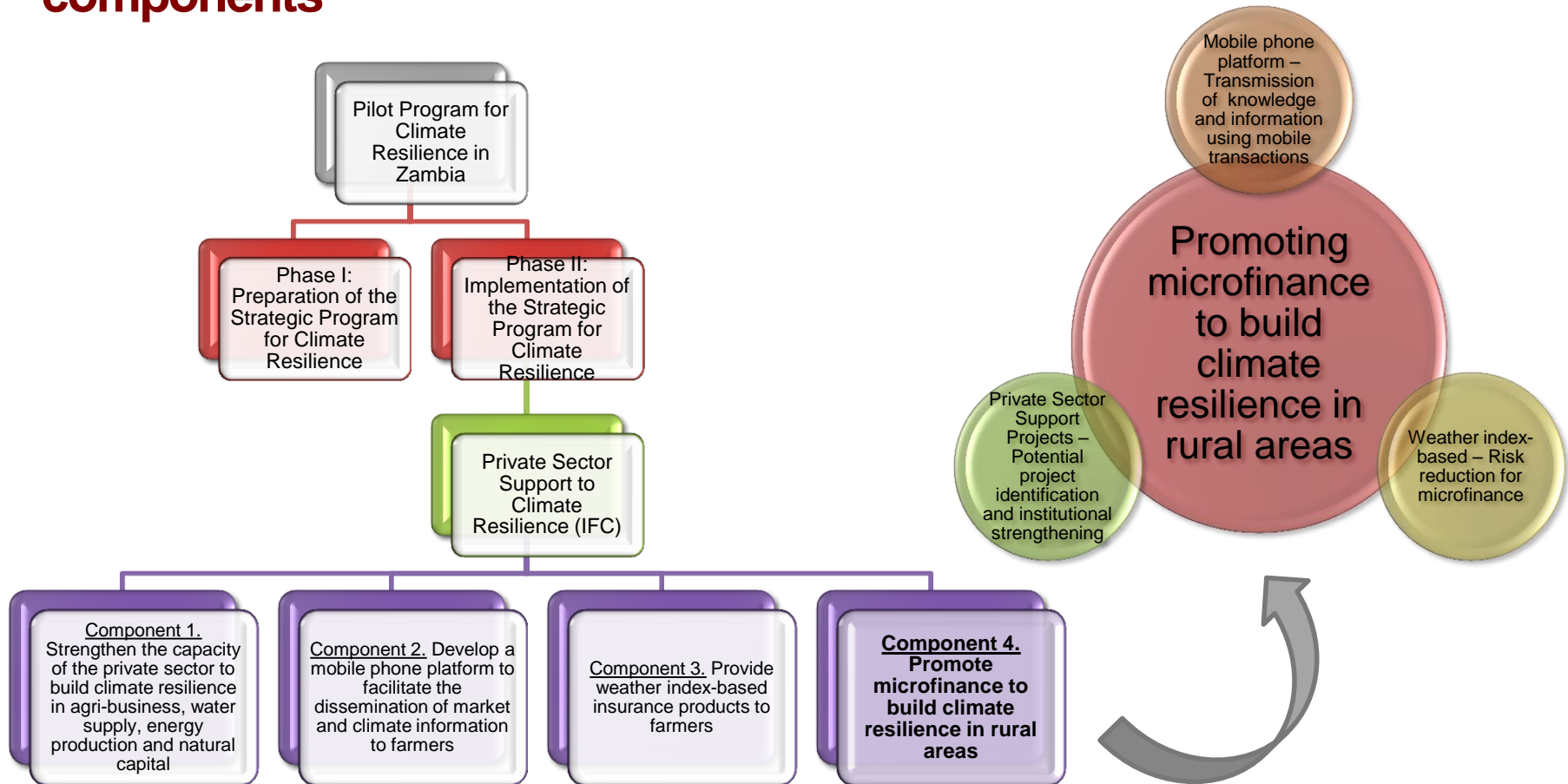
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NB: Names of institutions, companies, projects and products in the report have been replaced with letters e.g. Company A, B, C or Product 1, 2 3 in order to maintain confidentiality of entities, projects and products involved.

Introduction

- ❑ This presentation contains the main findings and conclusions of the pre-implementation phase of the Promotion of Microfinance to Build Climate Resilience Program in Zambia. The program is one of the four components of the wider Pilot Program for Climate Resilience.
- ❑ The outcome is based on a comprehensive literature review, interviews of 311 small-scale farmers and SMEs, and other stakeholders in 10 of the 24 target districts in the Kafue and Barotse sub-basins, as well as consultations with the microfinance institutions and other stakeholders in Lusaka.
- ❑ The analysis identified five MFIs as suited to the PPCR objectives and willing to be included in the IFC project.
- ❑ There is high demand by the Small-Scale Farmers and SMEs for financing products and particularly credit, however, the MFIs can only design and deliver financial products that assure profitability.
- ❑ MFIs identify capacity gaps that constrain their entry into the pilot area, and there are also barriers on the SSF and SME side affecting their capacity to access available financial products. Thereby support is needed to resolve the gaps and barriers before the investments flow in.
- ❑ The first section of the presentation focuses on the project area and its livelihoods and climate change effects; the second section describes the financial landscape in Zambia including the analysis of microfinance institutions; the third section presents the pipeline of potential climate resilient activities and the last one pulls the findings together in a business plan and timeline.

Pilot Program for Climate Resilience PPCR with four IFC project components

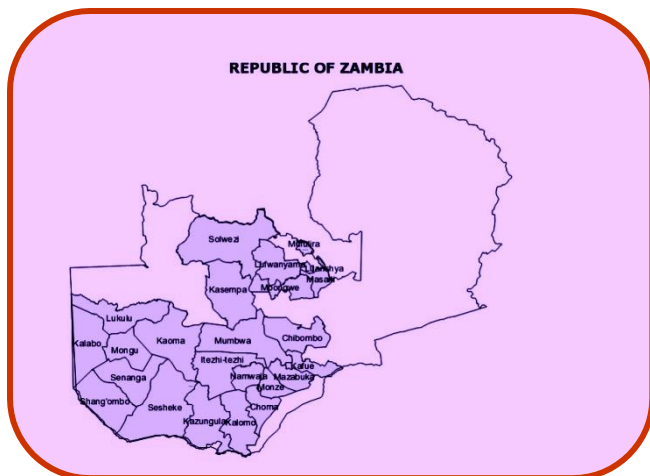


The International Finance Corporation (IFC) seeks to support climate resilience through private sector investment

The IFC has commissioned four assessments under the Pilot Program for Climate Resilience (PPCR) to identify investment opportunities to help smallholders including: I General private sector innovations in agricultural technology; II A mobile platform for disseminating market and climate information; III Weather index-based insurance products and IV Microfinance products.

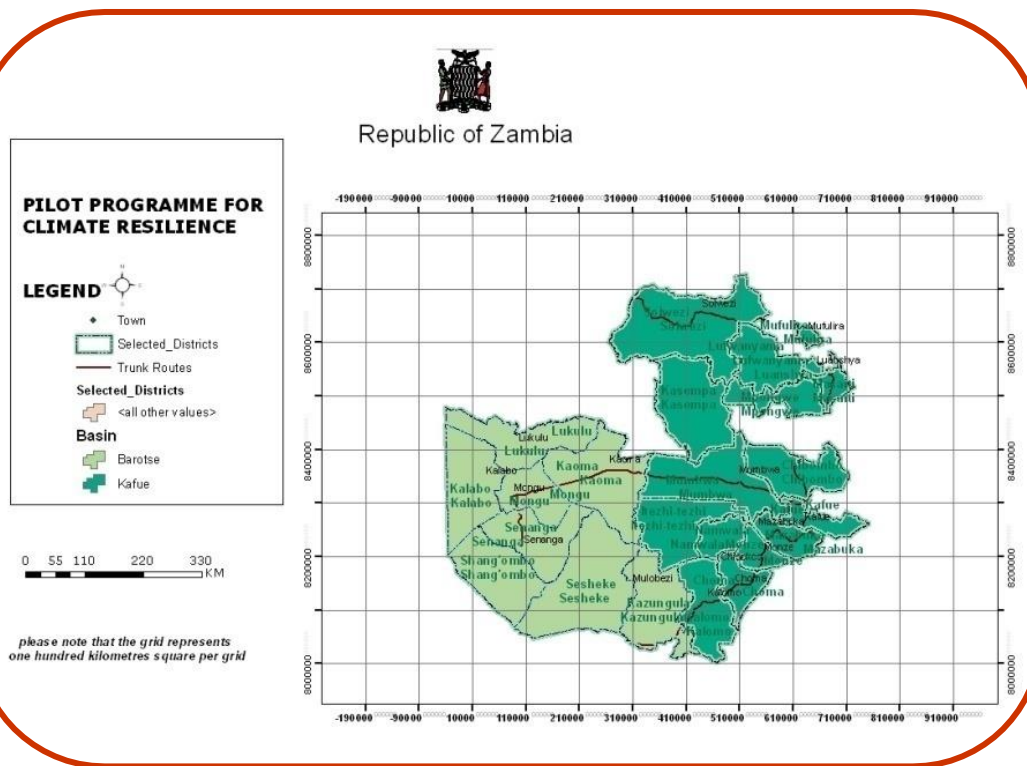
PROJECT AREA, LIVELIHOODS AND CLIMATE CHANGE

Project area – Barotse and Kafue sub-basins, 24 districts



The main economic activity in rural Zambia is agriculture, either subsistence or for cash. It is estimated that about 60% of crops are grown by women, while men are mostly involved in livestock production. Maize, tobacco, groundnuts, cotton and soybeans are the main crops that drive agricultural growth. Poverty level is higher in rural areas, 88 per cent, compared to 22% in urban areas. Expanding financial services to rural households may result in transforming the livelihoods as well as improve access to finance.

The main agriculture activities vary from basin to basin. In the **Kafue sub-basin** maize, groundnuts, cotton, cassava and millet are the main subsistence and cash crops while livestock (cattle and goats) are a prominent feature in Mazabuka, Namwala, Itezhi-Tezhi and Mumbwa. In the **Barotse sub-basin**, cattle and goats are prominent; so are cassava, millet and rice in some districts. In both sub-basins, not only is cattle a measure of wealth, but also a status symbol. Fishing and trade in fish are important occupations/livelihood activities in the Barotse sub-basin. Fishing is also important in some parts of the Kafue sub-basin.



Population in the sub-basins

Kafue

Location	Total Population	Men	Women	Number of Household
Lufwanyama	75,542	37,771	37,771	12,590
Mpongwe	91,765	45,882	45,882	15,292
Chibombo	293,765	146,882	146,882	48,960
Kafue	242,754	121,377	121,377	40,459
Mazabuka	261,268	130,634	130,634	43,545
Namwala	101,589	48,763	52,826	16,931
Mumbwa	218,328	108,151	110,177	40,254
Solwezi	239,051	117,725	121,326	48,935
Kasempa	65,730	32,058	33,672	12,539
Luanshya	153,117	75,703	77,414	30,888
Monze	195,921	96,141	99,780	33,398
Masaiti	102,503	51,182	51,321	21,264
Itezhi-Tezhi	64,593	31,814	32,779	12,777
Mufulira	161,601	80,525	81,076	30,967
Choma	244,180	118,486	125,694	45,733
Kalomo	254,211	123,325	130,886	46,464
Sub-total	2,765,918	1,366,419	1,399,497	500,996

Barotse

Location	Total Population	Men	Women	Number of Households
Mongu	178454	83,873	94,580	29,742
Senanga	126974	59,678	67,296	21,162
Shangombo	85288	40,085	45,202	14,214
Sesheke	94,616	46,254	48,358	21,210
Kazungula	98,292	48,482	49,810	20,417
Kalabo	132,968	61,022	71,946	29,242
Lukulu	83,902	40,144	43,758	17,482
Kaoma	179,326	85,669	93,657	38,084
Sub-total	1,078,108	416,885	464,639	191,553

TOTAL	3,844,026	1,783,304	1,864,136	692,549
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Source: The Zambia National Census 2010.

Some characteristics of the two sub-basins



PEOPLE:

- High level of illiteracy
- High level of poverty
- Highly dependent on agriculture which is vulnerable to climate change



AGRICULTURE, LIVELIHOODS:

- Reliance on subsistence farming, both crops and livestock, fishing
- Low value of agricultural crops because of non-value addition
- Seasonality of agricultural activities
- Lack of product diversification



RURAL FINANCING:

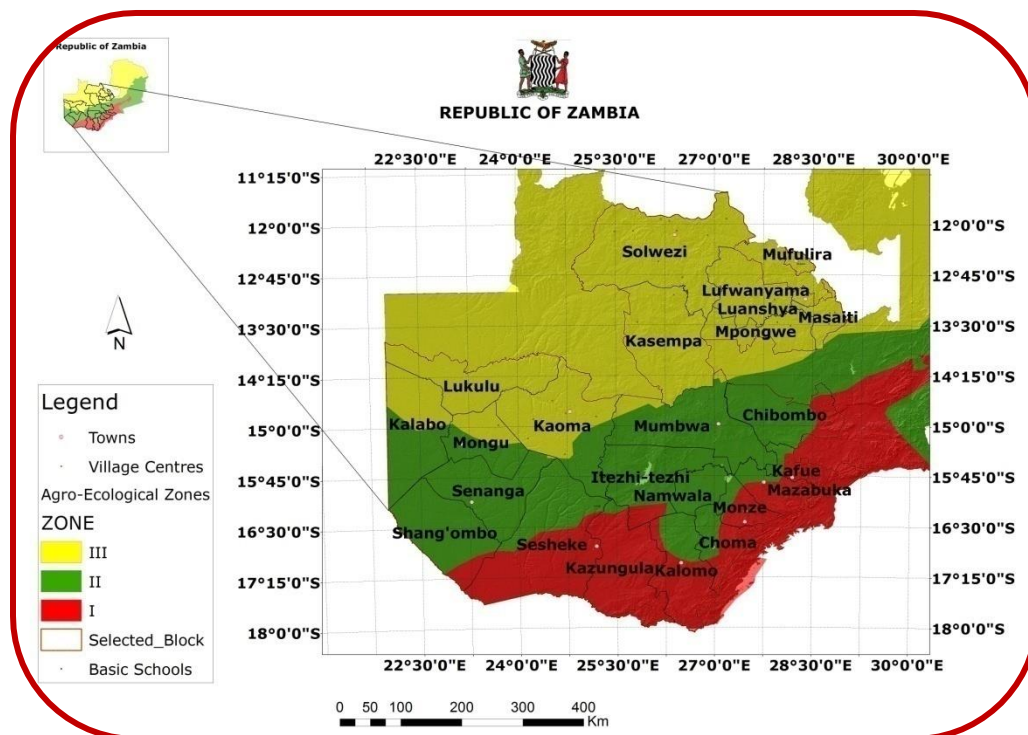
- Lack of access to financing
- Lack of assets to use as collateral
- High management cost due to sparse population
- Absence of transaction technology platform to aid micro finance



MARKETS:

- Lack of access to market information
- Highly informal trade
- Poor infrastructure

Agro-Ecological Zones



Zambia has three main agro-ecological zones that dissect the country from East to West.

Districts in the same zone tend to have similar weather patterns, especially rainfall, heat and drought.

AEZ	Location	Annual Rainfall
I	Southern Part of Zambia	less than 700mm
Ila & Ilb	Central part of Zambia	700mm and 1000mm
III	Northern part of Zambia	1000mm and 1500mm

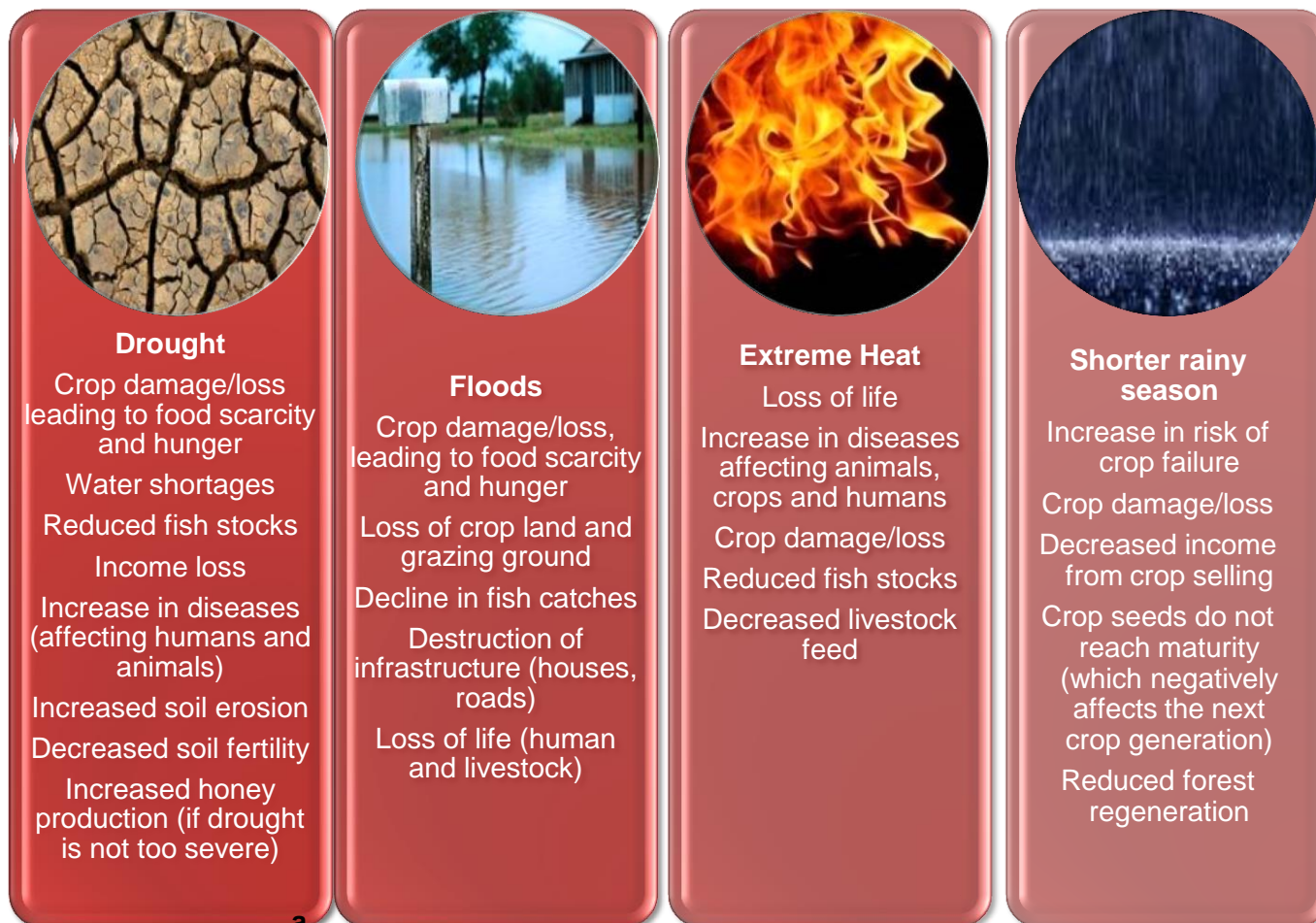
Barotse sub-basin

The lower part of the basin receives less than 700mm while the rest of the sub-basin is in the flood plain and lies in zone II (b) and to a less extent zone II (a). The upper part of the basin falls in zone III which has rainfall of between 1000mm and 1500mm.

Kafue Basin

Although zone III receives most rain (apart from the part in the Barotse plains), the area is not prone to floods as it is not a plateau nor does it have swamps and wetlands. Floods are however, easily experienced in the Kafue flood plains (Kafue Basin) in Mazabuka, Namwala and Itezhi-Tezhi which affects key livelihoods such as fishing, livestock and crop (maize) farming.

Impact of climate change in Zambia



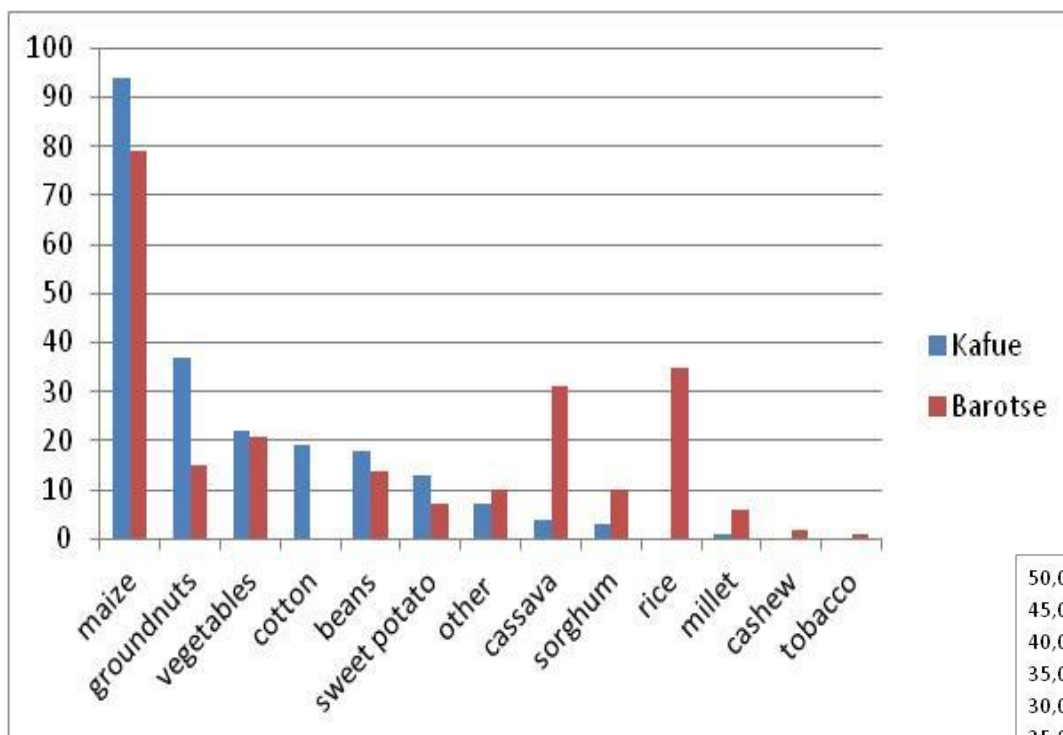
Source: Adopted from GRZ 2007. The National Adaptation Programme of Action on Climate Change.

Climate change impact and agro-ecological zones

Agro-ecological zone	District (sub-basin)	Climate variability and climate change impact	Main adaptation measures
1	Shangombo (B), Sesheke (B), Kazungula (B)	Earlier onset and withdrawal of rains; increased occurrence of droughts; average increase of 2°C in mean temperature; cattle dependent households vulnerable; maize already somewhat marginal; significant yield reduction under rainfed conditions; depletion of some fish species	Irrigation; water management; drought resistant/early maturing crops and varieties; introduction of well-adapted livestock; technologies enhancing moisture storage; income diversification
2a and 2b	Mongu (B), Senanga (B), Kalabo (B), Lukulu (B), Kaoma (B), Kalomo (K), Choma (K), Monze (K), Mazabuka (k), Itezhi-Tezhi (K), Namwala (K), Kafue (K), Chibombo (K), Mumbwa (K)	Zambezi plains and Kafue flats susceptible to floods; floods tend to come earlier; average increase of 2°C in mean temperature; annual rainfall on decrease; dry spells more frequent; cattle dependent households vulnerable; depletion of some fish stocks	Irrigation; water management; flood control; aquaculture; post-harvest storage and marketing; income diversification; drought resistant/early maturing crops and varieties; well-adapted livestock
3	Solwezi (K), Kasempa (K), Mufulira (K), Luanshya (K), Mpongwe (K), Lufwanyama (K), Masaiti (K)	Highest rainfall also in the future; increased frequency of heavy precipitation; average increase of 2°C in mean temperature	Income diversification; aquaculture; beekeeping; post-harvest storage and marketing

Sources: GRZ 2007. Formulation of the National Adaptation Programme of Action on Climate Change. Final Report. Thurlow James, Tingju Zhu and Xinshu Diao 2009. The Impact of Climate Variability and Change on Economic Growth and Poverty in Zambia. IFPRI Discussion Paper 00890.

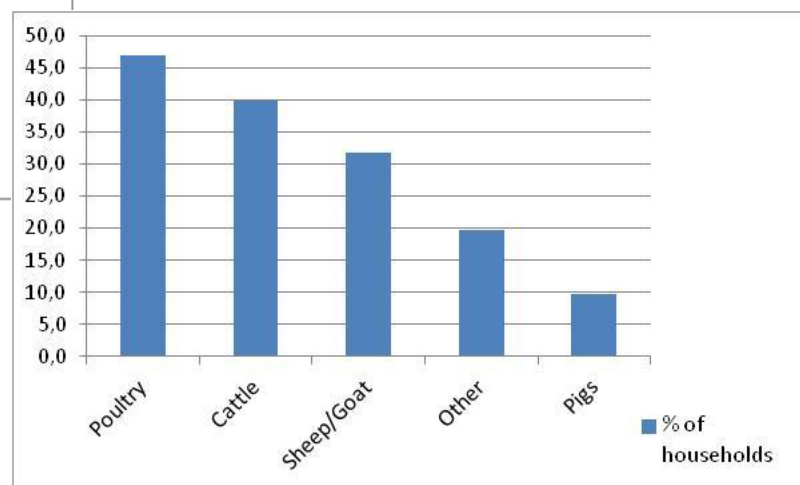
Agriculture production in the sub-basins (Source: Survey 2012)



Crops; % of households cultivating in Kafue & Barotse

The small-scale farmers were strongly dependent on manual labor: 33% were using hand hoes, 45% using both hand hoes and oxen or donkeys, 15% fully reliant on draught animals, and approximately 6% had access to tractors. The production was mainly based on rain-fed agriculture (78%), while 22% of farmers used some kind of irrigation (e.g. bucket irrigation 15%, surface flooding 1.5%).

Type of livestock, % of households keeping, Kafue and Barotse sub-basins



Climate resilience and the present activities

In addition to the variety, the climate resilience of crops depends to a large extent on water and soil management. Some crops and varieties are more climate resilient than others, for example cassava, sorghum and millet tolerate drier conditions than maize and rice. Some of the varieties are early maturing, while others require more time. Most of the SSF field crops are rain-fed, while vegetables are usually grown under irrigation. Conservation agriculture and agroforestry, which have been widely promoted in Zambia, increase the water retention capacity of soils. As regards livestock, cattle and pigs are more susceptible to high temperatures and livestock diseases than sheep and goats which can survive with less water.

Farmers' perceptions on actions needed to adapt to climate change

Action	%
• Introducing irrigation	27.6
• Agricultural knowledge	26.0
• Growing drought resistant crops	16.6
• Market information	12.9
• Expanding the present use of irrigation	9.2
• Introducing flood management	3.9
• Expanding the present flood management	1.9
• Not sure	1.9

Source: Survey Data 2012.

SMEs in Zambia and in the sub-basins

The Zambia Business Survey 2010 (ZBS) observes that over 20% of Small and Medium Scale Enterprises (SME) claim lack of access to finance as a “very severe obstacle” to current operations of the business, while a further 29% rate it as a “major obstacle”. However, the survey is quick to note that “in the face of other significant barriers to business development, including low skills and limited access to information, markets and other factors of production, finance on its own is unlikely to engender growth.”

A study commissioned by the World Bank in 2007 found that only 16% of firms surveyed in Zambia had had access to a loan or line of credit. This was in comparison to 23% in the region and 35% of countries surveyed. Four years later in 2011, the situation is still worrying as bank lending to the SME sector was only 21% of total loans, up from 17% in 2010. High interest rates have been another impediment to accessing credit.

Source: Bank of Zambia Governor Speech on 31/12/2011 www.boz.zm

Sectors of SMEs registered under the Zambian Chamber of Small and Medium Business Association (ZCSMBA)

Sector	%
Agriculture (farming, processing)	54
Services	36
Manufacturing	6
Construction	1

Source: ZCSMBA

Data is not readily available and is often outdated, making it difficult to verify. This study had to rely on SME data that was generated almost ten years ago.

10% of households that were interviewed for this study in the sub-basins were involved in manufacturing, processing or trading of goods, such as groceries, fish, charcoal, furniture, crafts, and honey.

Source: Survey 2012.

Availability of microfinance products to SSFs and SMEs in the project area

According to statistics, the financial institutions serve less than 37% of the Zambian rural population. The survey indicated that only **15%** of respondents (both sub-basins) had access to financial services, mainly credits. SMEs and farmers who diversified livelihoods to businesses or vegetable growing had accessed credit more often than those focusing on more traditional crop or livestock production. Also, households along the line of rail (e.g. Mazabuka, Kafue, Chibombo) received credits more often than their counterparts in the more remote districts.

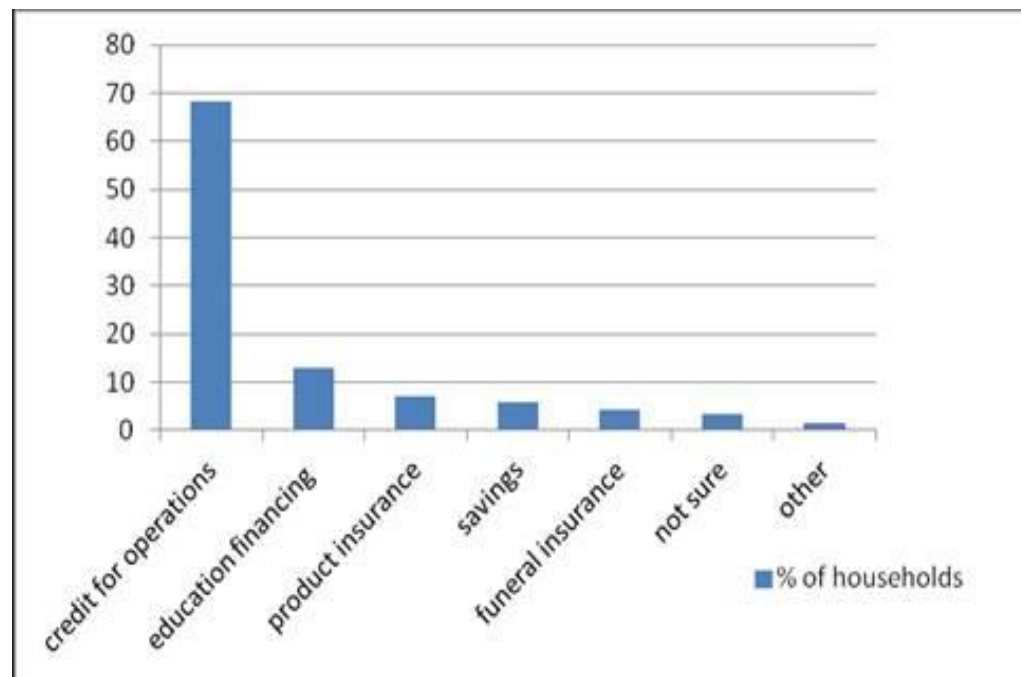
In a survey of 311 households for this project, 47 respondents confirmed having taken a loan and only 4 of those were from a commercial bank (Lima loans for maize cultivation). The rest accessed their loans from MFIs.

Interest in financing services

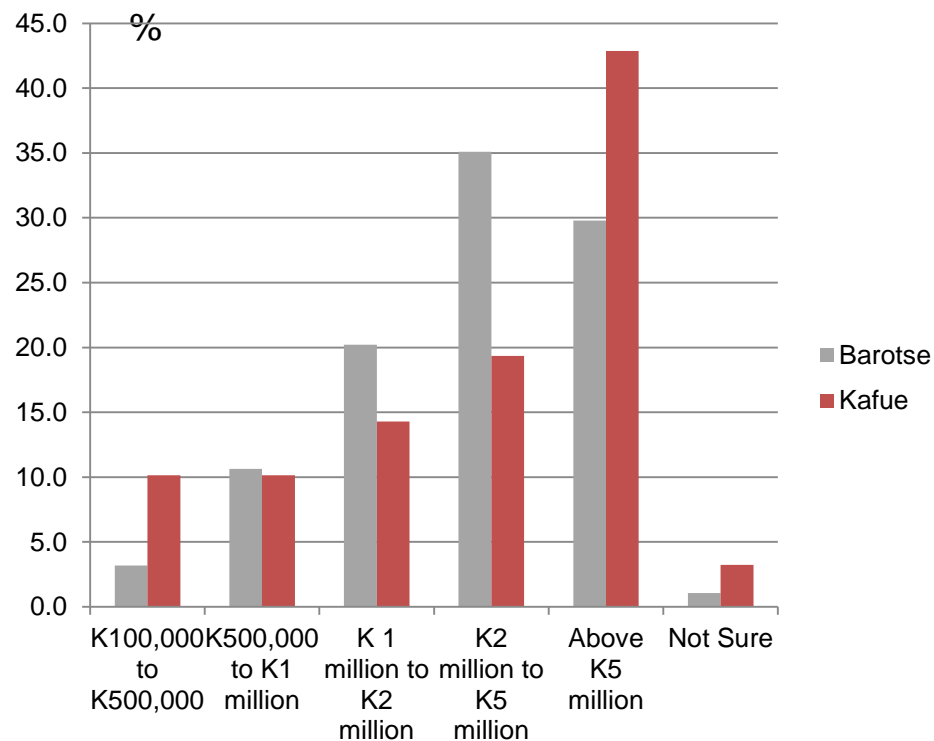
According to the survey, 91 per cent of the respondents were interested in microfinance products and services.

The results indicated that that credit for operations was preferred by 68,3% of the respondents, followed by education financing 9.3%, crop insurance 7.2% and savings 5.8%.

Some respondents, particularly carpenters, fishermen and other small-scale entrepreneurs expressed their interest also in longer-term credit to access machinery and equipment.



Desired loan sizes and interest rates



Manageable interest rate, both basins	%
less than 20%	76.8
21% to 50%	16.1
51% to 75%	2.3
75% to 100%	2.3
Above 100%	0.3
Not Sure	2.3

Source: Survey 2012

Demand for microfinance services

SPCR estimated the number of farming households at 245,000 in Kafue and 150,000 in Barotse sub-basin. According to the 2012 survey results, 91% of the respondents were interested in accessing financial services, of whom 68% prioritized credit for operations. Using these figures to estimate the number of potential credit clients of the MFIs, we ascertained that there were 157,000 households in Kafue and 92,000 in the Barotse sub-basin.

The size of loans the respondents desired varied from USD20 to USD1000, with an average of USD550, based on the number of respondents in each credit size category. The potential demand for credit in the Kafue sub-basin is approximately USD86 million and Barotse USD50 million. Assuming that 10 percent of the potential would materialise, the demand for credit in the two sub-basins would be **USD13,6 million**. If the share were 5%, the demand would be **USD6.8 million**, respectively.

	Number of farming households	Number of households interested in credit = potential clients	Potential market at USD550 credit size	Effective Market Size @ 10% funding	Effective Market Size @ 5% funding
Kafue	254,000	157,000	USD86 mill	USD8,6 mill	USD4.3 mill
Barotse	150,000	92,000	USD50 mill	USD5,0mill	USD2.5mill
TOTAL	404,000	249,000	USD136 mill	USD13,6mill	USD6.8mill

Increase of access to finance to 20-25%: The study revealed that only 15% of respondents had access to financial services. If 5 to 10% of the current demand is met, that will mean an increase in access to finance in the pilot period to the extent of between 20 and 25%. The question is whether this is a realistic expectation. Our study has revealed barriers to financial services on both the demand and supply side. It should follow therefore that once these barriers are addressed, access to finance would increase. However, the reality may have serious challenges. For example, this study presents a need for critical alignment in meeting the demand of clients, a major share of whom require loans in the range of K5million when MFI agricultural loan sizes are much lower. MFIs would have to grapple with the issue of the creditworthiness of each client. Especially where they do not already have a track record.

The MFI product range is very narrow and limits clients to loan related products. This means that penetration will be limited to those clients who meet MFI selection criteria. Encouraging savings for instance has the advantage of building those liquid assets that can still finance the building of climate resilience. The hope of increasing access to finance to the extent of 20-25% will therefore be contingent to targeted planning with selected MFIs, to understand the extent of their expansion. The financing proposition should therefore build in outreach targets and monitoring processes within the reporting regimes. Periodic evaluations will aim to ensure expansion towards meeting project goals.

Conclusions on demand for financing for climate resilience building activities

Understanding climate change is a huge challenge and the interaction with SSFs and SMEs in the sub-basins clearly demonstrates that, while they are aware of variations in climate and the changes that have occurred in the area, it is hard for them to see that there is a pattern behind these changes which require a systematic approach and coordinated responses. Mainstreaming climate change is a new approach for average Zambians, even those with college level education. In the rural areas, the highest level of education attained is usually Grade VII (primary school).

Production system in the sub-basins have adaptation deficits, which means that even under existing conditions these systems produce less and are also less efficient and less resilient to shocks than they could be. Therefore, the SSFs' primary short-term interest is to increase the present productivity and household's asset base and by doing so, reduce the vulnerability of their production systems and households to external shocks.

As pointed out by the interviews, the SSFs were also able to identify direct measures, such as irrigation, drought resilient crop varieties, flood control and agricultural knowledge, that help them adapt to climate variability and likely changes in the climatic conditions.

The majority of the small-scale farmers and rural SMEs expressed their interest in financial services, in particular, credit. Financing is desired for short-term operations as well as for longer-term investments in equipment and machinery. The financing would be directed to activities that increase productivity and asset base as well as to direct adaptation activities. They both contribute to climate resilience building of the production system as explained earlier.

In order to ensure the profitability of these investments, SSFs and SMEs need capacity development in technical issues and financial literacy, as well as improved access to market. They would also benefit from education on climate change-related issues and the rationale behind climate resilience building activities. The service providers, such as MFI Credit Officers, NGOs, government extension agents and input suppliers, play an important role in sensitizing the SSFs and SMEs in climate smart activities.

The final climate proofing of all loans given out under the IFC project rests with the MFIs.

MICROFINANCE IN ZAMBIA

Financial Landscape in Zambia, including in rural areas

❑ Zambia has a variety of financial intermediaries from very small village savings and loan associations to big commercial banks.

❑ It is believed that there are at least 300 such financial organizations in Zambia.

❑ The sector is dominated by commercial banks who account for almost 95% of total assets.

❑ The commercial banks are regulated by the Bank of Zambia under the Banking and Financial Services Act of the laws of Zambia.

❑ By the end of 2011, the number of commercial banks in Zambia was recorded at 19 with a total of 286 branches, and holding total assets of ZK27,764.7 billion.

❑ Specific microfinance regulations have been developed within the Banking and Financial Services Act.

❑ These regulate microfinance institutions as Non-Bank Financial Institutions.

❑ MFIs can be registered as deposit taking or non-deposit taking.

❑ Deposit-taking MFIs are allowed to provide credit facilities, linkage banking, in-country transfers, savings and any other products subject to Bank of Zambia for approval.

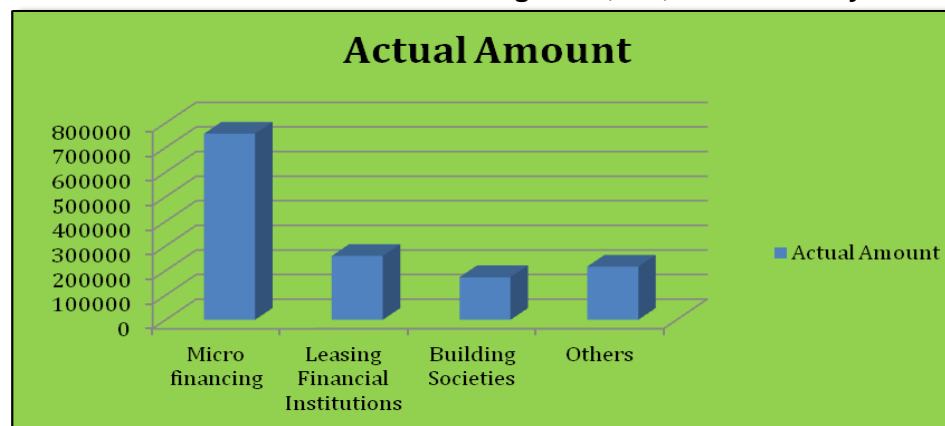
❑ On the other hand, Non-Deposit taking MFIs can only offer credit.

❑ Generally big banks serve the corporate and large clientele.

❑ There is a high incidence of financial exclusion especially in rural areas of Zambia.

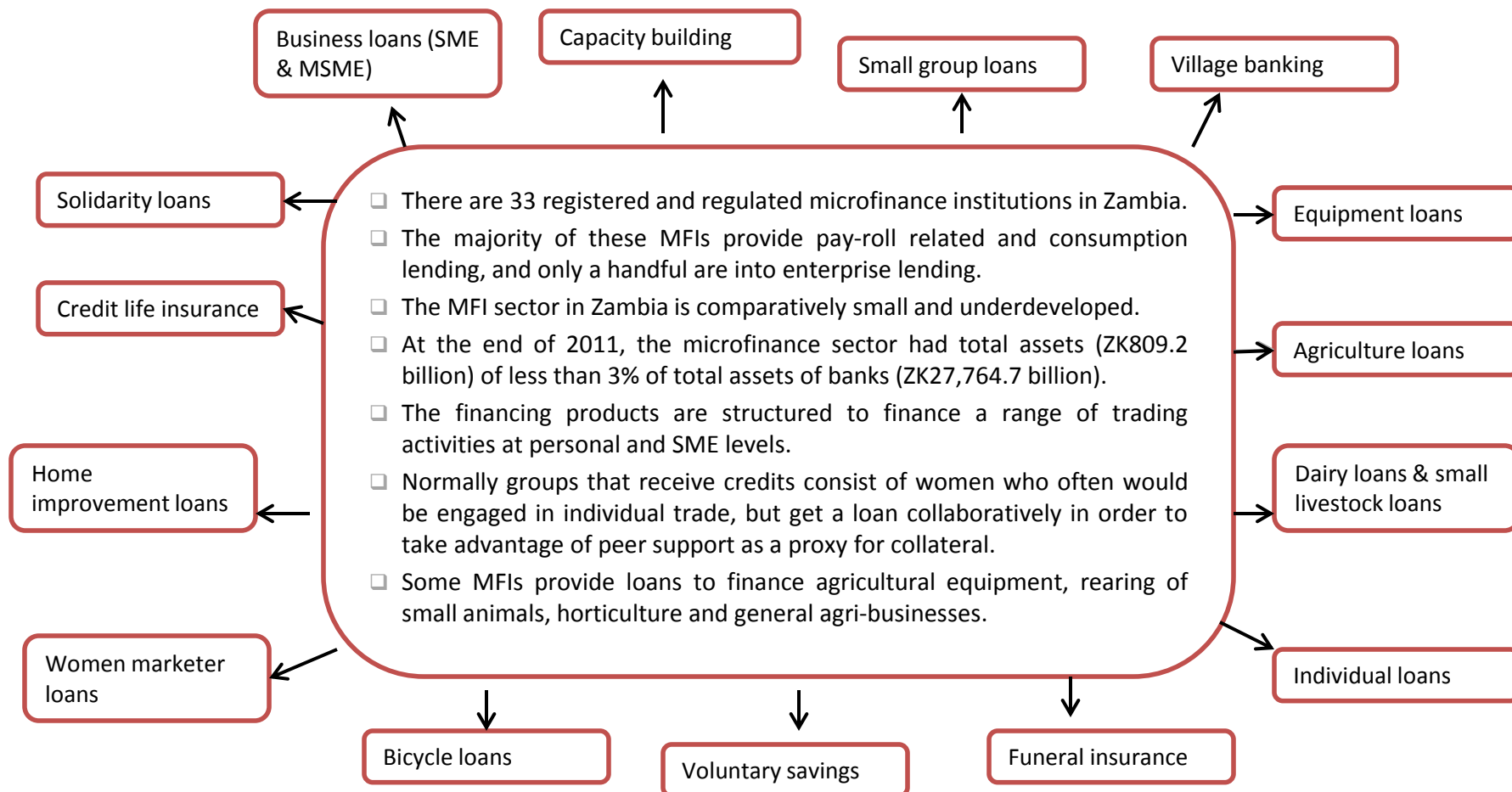
❑ The survey of the Zambia financial landscape confirmed that rural areas remained the most financially excluded areas in Zambia with available financial institutions serving less than 37.3% of the population.

Actual monetary value of interest charged by non-banking financial institutions for borrowing of K1,000,000 over one year



The Banking and Financial Services Act also regulates Non-Bank Financial Institutions which include: Leasing companies with ZK250.9 billion in total assets; Building societies with ZK364.9 billion in total assets; Bureaux de Changes with K48.3 billion in assets and Microfinance institutions with ZK809.2 billion in assets at the end of 2011.

Characteristics and services of the MFIs in Zambia

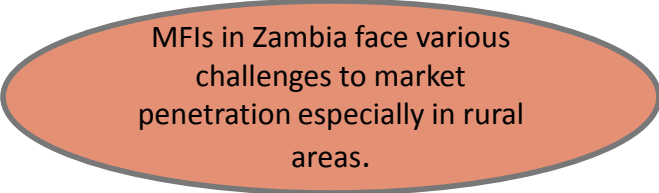


Challenges to MFI market expansion

Limited use of technology can also be a barrier to expansion. Internal systems and IT solutions to help manage key processes like loan tracking can only be available at huge cost, and the choices may force the MFI to remain small in order to manage the risks associated with growing the portfolio in the absence of automated systems. Distances can also pose a great challenge if alternatives rooted in technology are not exploited. The use of mobile banking technology is one in case.

Funding poses a barrier to expansion. The development MFIs can no longer rely on subsidized funds from donors. They have to borrow and taken on the full burden of costs of funds. MFIs have to qualify for these funds by meeting a range of expectations that include maintaining a good portfolio quality, ensuring operational and financial sustainability and general positive trends. Given the risky nature of lending to vulnerable communities, MFIs often struggle to keep up with these expectations.

Poor infrastructure. Zambia is a vast country and the rural areas tend to be remote, thus increasing the cost of delivering services. Generally, MFIs have failed to expand to rural areas due to massive infrastructural limitations. These include poor connectivity to enable portfolio management given the numerous small-size loans given out. The remoteness of some rural areas with high vulnerability makes it very costly for MFI to consider expanding into those areas. The cost of delivering a loan to these areas becomes very prohibitive on the clients.



MFIs in Zambia face various challenges to market penetration especially in rural areas.

Expansion prospects imply opportunity. Often MFIs do not have access to good information based on thorough research to determine and identify those opportunities. Data are not readily available and often dated, making it difficult to verify. Resource limitations make it difficult to invest in specific research that leads to identifying opportunities and best-fit products.

Weaknesses at governance and senior management level in MFIs remain generally high and have the potential to slow down or even reverse any gains. The capacity of staff has also been cited as a barrier to effective management of programs. Often MFIs train their staff only to see them lured away by better paying organizations. In this regard, one often cited situation in Zambia is that of commercial banks who are diversifying into the SME sector and find qualified staff in the MFI sector. In terms of capacity, new products or expansion into new areas require investment in staff capacity. Often MFIs may not have the resources to make those investments.

Low population distribution makes it very costly to build the critical mass for viable business. Zambia is a vast country with a low population of 13 million people. About 40% of these are in urban areas, leaving a very sparsely populated rural area. Economic activities are also done at subsistence level making it even less of an attractive investment destination for profitability.

MFIs contacted and their appetite for IFC loans

MFI	Appetite for IFC loan finance that focuses on climate resilience building	Amount
Company A	High. Already have presence in 11 of the sixteen districts in the Kafue basin. None in Barotse and saw this as an opportunity to revisit their expansion programme.	Between USD1.5 and USD3million over a six year period with expectation for debt/ equity negotiations. Capacity building grant
Company B	High - see possibility of expanding their existing office in Mongu (Barotse).	USD1million Capacity building grant
Company C	High - they can deepen their penetration in areas where they already have a presence in the pilot area (Kafue basin largely).	USD1million Capacity building grant
Company D	New MFI as offshoot of Company J which has a wide coverage in rural areas.	USD1million Capacity building grant
Company E	Medium to high but contingent on discussions with Company E H/Q	USD1million Capacity building grant
Company F	Unable to determine as there is a leadership transition.	USD250,000 -
Company G	Pending internal discussions.	-
Company H	Low - have no liquidity problem currently and want to pursue their own expansion goals	-
Company I	Low - cannot move into the pilot areas within their current plans. Company I's intention was to register as a commercial bank but start operations as a microfinance institution. They are now caught up with the fact that minimum capital requirement for banks has been increased from K12billion to K104billion for local banks and K540 for foreign banks. Thereby they might have to operate as an MFI.	-

Criteria for selecting the MFIs

MFIs were selected firstly on account of them being licensed and therefore regulated under the Banking and Financial Services Act Microfinance Regulations, and secondly because they are targeting SMEs and SSFs.

The following criteria were also used as a result of the meetings we had with the CEOs of individual MFIs:

- Readiness and willingness to be included in the IFC Project evidenced by an indication of IFC loan required.
- Existence in the pilot area and therefore knowledge of the risks and opportunities.
- Proven ability to exploit the opportunities and mitigating risks while ensuring profitability.
- Proven ability to innovate in partnership with others in lending for agricultural purposes.
- Connection to a parent company that has a presence in the pilot area and has similar objectives to build the coping strategies of very poor and vulnerable people in the pilot areas.

5 MFIs selected for further elaboration

Company A

- Agriculture loans
- Individual loans
- Solidarity loans
- Trust Bank loans
- "Ntula" Funeral Insurance
- Credit life Insurance

Company E

- Business loans
- Small group loans
- Village banking

Company C

- Agriculture loans
- Bicycle loans
 - Business loans

Company D

- SME Loans
- Agriculture Loans

Company B

- Agriculture loans
- Business loans
- Group Business loans

In-depth analysis of the MFIs - Company A

Company A is an independent microfinance institution affiliated to Opportunity International (OI).

With DFID support, Company A established Project A.

Lending started in 1998. Building on this success, DFID funded expansion of the programme to enable Company A become the first sustainable and regulated microfinance institution in Zambia on a national scale. However, this expansion was shelved in early 2003 due to poor performance. Company A has since been restructured for viability and is making headway in developing the portfolio. It has since registered as a deposit-taking non-bank financial institution.

Company A is present in 11 of the 16 districts of the Kafue Basin. They sense that they can increase their outreach in these areas through the IFC project.

The portfolio covers at risk is 9.2%. The portfolio to agriculture has proven to be the best performing with repayment rates of 94%. The portfolio agriculture clients dealing in short term crops like tomatoes, onions, vegetables, etc. Other clients deal in poultry, dairy and piggery.

[Confidential information on product profile has been removed.]

In-depth analysis of the MFIs - Company B

Company B offers an array of loan products that suit different lifestyle and livelihood patterns, engaging customers in their home villages. The MFI aims to expand product offerings into savings and other services by 2014, and to scale up to nationwide coverage in 3-5 years.

Company B partners with Concern Worldwide Zambia. Concern Worldwide is an international humanitarian charity that serves the poorest in various coping strategies including pre-operative support in social performance and microfinance. They have supported Company B through researching the livelihoods of poor people in the Barotse sub-basin and facilitating economic activities that Company B could finance.

Company B's lending is based on the client profile in relation to their business cash-flow. The loan is customised to the capacity of the client to repay without pressuring the business. An analysis of the cash-flow over a 12-month period enables determination of loan needs. Because of their lending methodology and their focus in the rural areas, their current portfolio already responds positively to climate change adaptation. They have, however, noted that not much diversification is happening. The IFC Project presents an opportunity for them to expand, with a view to ensuring capacity building support for the farmers to enhance adaptation strategies. To this effect, partnerships will be needed. In relation to the IFC Project, Company B see an opportunity to facilitate education to the farmers encouraging them to diversify and therefore stabilise their cash-flows which currently tend to be seasonal and prone to climate change effects.

Company B is keen to explore value chain financing to the extent that it supports climate change adaptation. Production among low-income people in the Barotse is often in far-flung areas where distance and lack of infrastructural support confines these communities to subsistence production. This problem is hard to resolve unless production is scaled up. Company B wishes to partner for full value chain financing which will culminate into scaled production to create a business case for markets to go into the basin for the produce. The model they have in mind identifies a market, conducts research towards scaled production, identifies small-scale farmers, provides extension services for well-managed production. There is a big possibility that they can partner again with Concern Worldwide to research for in-depth understanding of the pilot area. They see a possibility with rice and fish-farming in Western Province. The IFC Project could enable large scale production of rice and fish among the small-scale farmers, to enable a localised market hub so that those seeking these products in large quantities can actually go to the Barotse basin as opposed to small-scale farmers incurring costs as they search for markets.

In-depth analysis of the MFIs - Company C

Company C

This organization is a commercial company with the mandate of reaching poor isolated communities.

Company C is currently operating in seven (7) out of the ten (10) provinces and has 12 branches in Lusaka (Kafue), Kitwe (Lufwanyama), Kasama, Chongwe, Choma, Chipata, Chirundu, Mbala, Chingola, Monze, Sinazongwe and Solwezi. They plan to open a branch in Mongu in January 2013.

In relation to the pilot area, they see an overlap with where they already have offices and are keen to progress the discussion with a view to accessing the IFC facility.

[Confidential information on Company C's product profile has been removed.]

In-depth analysis of the MFIs - Company E Zambia

Company E International is a global microfinance organization whose mission is to provide financial services particularly micro credit and savings services to productive low income people, empowering them to enhance their economic and social standard of living through self-employment.

Company E Zambia's current challenges include serving a market with increasing levels of poverty worsened by concerns like the scourge of HIV/AIDS. Today **Company E Zambia** is a private for-profit company wholly owned by Company E Holdings in the USA.

Company E's mission is to provide financial services to the productive low-income people in Zambia empowering them to enhance their economic and social standard of living through self-employment. Many borrowers are single mothers; many care for orphans who have lost parents due to HIV/AIDS. Their businesses include selling food crops, groceries, second hand clothes, charcoal, poultry and other goods, running makeshift restaurants, and other small enterprises.

Company E Zambia operates in Zambia's capital city of Lusaka and the Central, Southern, and Copperbelt Provinces.

Company E works through the village banking method. Community members come together in financial support groups called "Village Banks." Individuals borrow working capital for their microenterprises, and because they have little to offer for collateral, the group guarantees those loans. As businesses grow, families earn more, purchase more nutritious foods, and parents are better able to send their children to school. After a year or more, many Village Bankers make significant improvements to their businesses, their homes, and their lives. Because neighbors support each other while growing their businesses, Village Banking helps invigorate entire communities. Village Banking is designed to reach the poorest of the working poor.

[Confidential information on Company C's product profile has been removed.]

In-depth analysis of the MFIs - Company D

Company D is part of a group of companies which comprise among them Company J. Company J has a wide coverage in Zambia including a presence in the IFC Project pilot area of Kafue and Barotse Basin.

They have a desire to provide SSF and SME loans. They do not need to necessarily build a 'brick and mortar' presence but they can operate out of the premises of Company J branches to flag off the lending.

Geographical outreach of the MFIs in the Kafue and Barotse sub-basins

Kafue Sub-Basin

Districts	Company A	Company B	Company C	Company E	Company D
Chibombo	X				
Choma	X		X	X	X
Itezhi-tezhi					
Kafue	X		X	X	
Kalomo	X				X
Kasempa					
Luanshya					X
Lufwanyama					
Masaiti					
Mazabuka	X			X	
Monze	X		X	X	X
Mpongwe					
Mufulira					X
Mumbwa	X	X			
Namwala					
Solwezi	X		X		X

Barotse Sub-Basin

Districts	Company A	Company B	Company C	Company E	Company D
Kalabo					
Kaoma		X			X
Kazungula					
Lukulu					
Mongu		x	x		
Senanga					
Sesheke					X
Shangombo					



MFIs' appetite for IFC loan finance that focuses on climate resilience

Company A are keen to expand their outreach into the pilot areas especially where they already have a presence. This is boosted by the good performance of the agricultural portfolio. They envisage that they would be able to apply for an amount between **USD1.5million to USD 3 million** depending on the conditions. Their preferences would be:

- Tenor- 6 years
- A loan denominated in local currency
- Interest- within what they are paying for local borrowings circa 12-14% pa
- Grace period- 2 years on principle while servicing interest payment on a quarterly basis
- A possibility of converting part of the debt into equity
- A possibility of Technical assistance/ capacity building grant of USD100,000.00. They are willing to front 10% of this amount so it becomes a matching grant
- Possibility of being connected to the weather-indexed insurance with the other IFC component

Company C showed a keen interest to access the IFC loan for expansion into the pilot area. They gave indicative conditions as follows:

Amount: **\$1 million** (combination of grant and loan)

Interest Rate: 8% p.a

Duration: 5 years

Collateral: Letter of support from VisionFund International

Capacity Building: \$200,000 (product development, staff training, mobile banking systems)

The Company C CEO stated that this process would be made easier if AMIZ was strengthened to enable it provide continued support to the climate resilience agenda. They propose a grant facility of \$100,000 be given to build capacity of AMIZ so that it can effectively coordinate and represent the sector.

Company B is fairly young and would only manage a loan of **USD1million** along with a capacity building grant. They would need the option to draw down on this loan in tranches so as to manage their cash-flow.

Company D indicated a desire to access **USD1million** to start with. They would increase the take-up rate as the outreach expands.

Company E sees an opportunity to strengthen their outreach. To counter the challenge of setting up office (brick and mortar) in the pilot area, they propose a solution to enhance their agent network using point-of-sale (POS) devices. They have already started using POS devices with client savings. This is important in order to deal with the cash-handling dilemma for the MFI, and to ensure service to clients beyond official working hours. Company E sees a possibility of creating a nation-wide network of agents that could fit into the climate resilient agenda if the technology was developed. The concessionary loan would go partly into that development and partly into the loan portfolio. The capacity building grant would then go into developing the capacity of the agents and expertise to manage them. To facilitate this, a loan in the region of **USD1million** might serve that need. Company E requests that IFC check for existing relations with IFC and commence the discussions at that level.

Barriers to effective microfinance utilization

Barriers on MFI side:

- ✓ Weaknesses in governance and senior management capacity
- ✓ Low population density
- ✓ Limited access to information on opportunities
- ✓ Poor infrastructure
- ✓ Limited funding
- ✓ Limited use of technology

Barriers on SSF/SME side:

- ✓ Limited access to extension and business advisory services
- ✓ Limited knowledge on climate change impact and adaptation options
- ✓ Small asset size
- ✓ Low financial literacy
- ✓ Limited value adding opportunities
- ✓ Poor market information and access to market

Barriers to the identified MFIs financing activities

Company A: The main limitation is financing the expansion. They have already started lending to the rural areas and their portfolio so far is performing to expectation. They would like to expand but have found it difficult due to funding restrictions. They have borrowed from the Development Bank of Zambia, MICROVEST, Cordaid and SIDI. The biggest challenge for them is that they have been limited to grow the portfolio especially during the periods when they need to pay back installments on loans. The other limitation is developing the capacity of field staff to go into the pilot area. Their experience is that they cannot use their regular field staff for agricultural lending. They would have to train agricultural experts in lending methodologies to serve for the expansion. For that they would need a capacity-building grant to which they would contribute 10%.

Company B and Company C: Their barrier is also funding to expand into the pilot areas. They both would similarly need working capital for the lending portfolio. Additionally, they would need to increase their internal capacities for the expansion. This will require a capacity building grant.

Company E Zambia: For Company E the barrier is to find an appropriate technologically-driven substitute for a 'brick and mortar' presence in the pilot area. They have an appetite for expansion and would like to explore the possibility of utilizing point-of-sale (POS) devices through a country-wide network of agents. They are currently using these devices for collection of savings among their clients. They lack funds to develop technology to include deeper penetration, which would include the pilot area.

[Sensitive information about AMIZ was removed.]

Company A risk analysis and risk mitigation as an example

The major risks are:

- Diversion of cash by client to other issues.
- Crop failure due to excess rains, flooding in some places and in the cold season some crops are affected.
- Lack of stable markets for clients and this affects their pricing. Clients also tend to grow same type of crops, hence markets get over-flooded with same crops, hence prices go down and this affects repayments.
- Clients are also affected by lack of water throughout the year for irrigation purposes.
- Sickness and death also have an effect and is risky.
- Lack of proper training on farm and garden management of farmers.

The risks are mitigated by:

- 90% of loan disbursements are in equipment or farm implements to avoid cash diversion, and also loan utilization visits are done.
- Management of crop failures is still a challenge although Credit Officers give guidance on good land areas to plant crops; like in the rain season clients are encouraged to plant in high land areas. Company A is currently exploring the possibility of crop insurance.
- Credit Officers advise the clients to supply their produce in groups to reduce chances of being taken advantage of by buyers. Through partners, Company A have enabled market linkages with supermarket chain stores like Pick-n-Pay.
- Through partnership, Company A is helping farmers. In one component the clients are encouraged to use different water harvesting methods such as digging wells, rope pumps, and creation of small dams, which they can use for watering their crops and also for keeping fish. A number of clients have obtained loans for these activities.
- All loans are insured and together with funeral cover to help clients cope in case of bereavement.
- Credit Officers are trained agronomists, hence they offer onsite technical support to clients in trying to improve on their crop yield.

PIPELINE OF ACTIVITIES

The activities suggested for financing (pipeline of activities)

The adaptation activities for the IFC program are based on

- a) the existing coping strategies in Zambia
- b) the national adaptation priorities
- c) the livelihood zoning of Zambia
- d) the farmers' and SMEs' views on appropriate adaptation actions
- e) the Team's understanding of the Zambian and the sub-basins' context

In a situation where localized projections of climate change impacts are not available, a **no-regrets approach** is necessary, which means taking adaptive actions that will be beneficial even if climate change threats do not occur exactly as anticipated. Adaptation can also be promoted through **prevention of maladaptive practices**. **Direct measures** make the present production more climate resilient, while the **indirect measures** improve household asset base and contribute to reduced vulnerability. The MFIs play an important role in assessing the climate relevance and **climate proofing** the loan applications under the IFC program.

Pipeline of activities: Income diversification

1. Fish farming

Given the natural conditions of Zambia, fish farming has tremendous potential in the country. Three years ago the number of fish farmers was estimated at 6 000 with an annual production of 5,000 mt per year, of which 75% from small-scale producers.¹ Most of the present ponds are found in Eastern, North-Western, Northern and Luapula provinces, while there is room for expansion also in the other parts of the country, including in the Barotse and Kafue sub-basins. Fish farming is not threatened by climate change, except in areas that are prone to floods.

¹WorldFishCentre (2009). Fisheries in Zambia. An undervalued contributor to poverty reduction.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Fish Pond (incl labour)	500	each	1	500
Harvesting labour	2	each	10	20
Fingerlings	0,1	each	5000	500
Feed	0,06	kg	2000	120
Operational Labor	100	each	2	200
Pump	577	each	1	577
Tank	510	each	1	510
Piping	12	meters	10	120
Nets	50	each	1	50
Total				2 597

Notes: The pond size is 1 000 sqm. Labor required for digging the pond. Harvesting every six months, estimated quantity 400kg/harvest. Casual labour needed for harvesting.

2. High Value Crops (Soya)

Both sub-basins experience short rain and irregular rain pattern. One of the challenges of the Zambian agriculture industry is the over-reliance on maize that receives Government subsidies at the expense of other crops. High-value crops, particularly drought-resilient soya beans can provide a promising alternative to maize, because it has a ready market, the producer price is better than maize, and oil can be processed on-farm or beans sold to processors.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Seeds	43	kg	1	43
Labor	4	Man days	30	120
Packaging	0,4	each	80	32
Total				195

Note: Estimate is for 1 ha, expected yield 4 tn/ha. Crop rotation is 4 months. Rain-fed production.

Pipeline of activities: Income diversification

3. Goats

Drought, floods, heat and livestock diseases have in the recent past decimated the stock of cattle particularly in the Southern and Western provinces. In response to this calamity, some NGO's have introduced goats to the area as an alternative to cattle. The results were impressive to the extent that a household that received 5 goats tripled production to between 12 and 16 goats in 2 years. In addition to goat meat, milk has been accepted as it is more nutritious than cow milk and a good supplement to children's diets.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Male goat	150	each	1	150
Female goat	60	each	10	600
Veterinary services	31	visit	4	124
Labor	100	month	6	600
Total				1474

Note: Based on free range feeding, every female produces 2 kids per year.

4. Nurseries

The Kafue basin suffers from high rate of deforestation due to charcoal production, agriculture activities and unplanned settlements. In the Barotse basin trees are being cut by legal and illegal logging. The public sector has been unable to curb deforestation, and private forestry is thereby gradually gaining ground in Zambia. The availability of planting material has been identified as a constraint to growing trees on farms. Small-private nurseries can answer to this call by producing seedlings of various species for different purposes, such as eucalyptus for poles, fuel wood and construction material, cashew nut and fruit tree seedlings for both domestic and commercial production, and nitrogen-fixing trees for conservation agriculture (agroforestry).

Description	Unit Cost	Unit	Quantity	Total Cost USD
Seeds	0,3	each	150	45
Fertilizers	41	kg	2	82
Watering cans	20	each	5	100
Borehole with handpump	2500	each	1	2 500
Labor	100	month	1	100
Total				2 827

Note: Based on production of Eucalyptus seedlings. Labor cost is based on three months of sowing and grafting. Area of 0.25 ha. The cost is high because of sinking and equipping of the borehole.

Pipeline of activities: Income diversification and land management

5. Beekeeping

Most of the Zambian honey is produced in North-Western Province, while production is slowly expanding also to Copperbelt (Kafue sub-basin). Most of the producers are small-scale farmers, but the sector provides employment also to processors and traders of bee-products. The export market for certified organic honey has been on increase during the past ten years. The yield from improved framed beehives is often 3-4 times higher than from traditional bark hives. The high cost of the improved hives has discouraged farmers to expand their production particularly because loans have been non-accessible.

Description	Unit Cost	Quantity	Total Cost USD
Frame beehives	30	20	600
Protective equipment with veil	75	1	75
Candle making molds	20	3	60
Packaging (jars)	0.20	200	40
Knife	10	1	10
Crapper	2	3	6
Settling tank	500	1	500
Honey extractor	1	500	500
Containers	12	20	240
Smoker	35	1	35
Gloves	10	2	20
Labor	100	4	400
Total			2 486

Note: The processing equipment is too big for one beekeeper. The idea is that someone would have a beekeeping out-grower scheme. The processor would buy the honey from beekeepers, process and market it. The beeswax will also be sold as a by-product. Harvesting twice a year, yield per hive 20 kg per harvest.

6. Conservation agriculture

Conservation agriculture as a farming method can build climate resilience through minimum tillage, retention of crop residue from prior harvest, planting and input application in fixed planting stations, and nitrogen fixing in the rotation. Use of fertilizers in the Barotse sub-basin is not encouraged as most of the soil is sandy and due to excess heat and leaching, crops wilt fast. The retention of crop residue reduces erosion, increases the level of humus and acts as a shield against evaporation. In the Kafue basin, where the rate of evaporation is not as high as in the Barotse basin, conservation agriculture can also be applied. One of the benefits of conservation agriculture is increased output which results in increased income and land and water conservation.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Seeds	2,4	kg	25	60
Fertilizers	0,8	kg	100	80
Musangu seedlings	1	each	200	200
Labor	2	man-day	42	84
Ox-drawn Ripper	300	each	1	300
Total				724

Note: Drought resistant maize variety under conservation farming using agroforestry with *Faldebia albebi*; area of 0,25 ha. Yield is expected to increase by 30% above normal; fertilizer use can be stopped after five years. The same field can also be intercropped with other crops.

Pipeline of activities: Water management

7. Vegetable production under drip irrigation

Drought is a real threat in agro-ecological zones I and II and can reduce small-scale farmers' income levels. Irrigation is not yet widely used in Zambia and particularly small-scale irrigation schemes are often inefficient. Improving the water use efficiency by introducing drip irrigation would enable vegetable growing during and off-rain season. Vegetables, especially cabbage, rape, tomato, green paper and egg-plant have a ready market in the urban areas. Purchasing and installing the equipment requires substantial investments, but the short rotation period generates a constant flow of income.

Description	Unit Cost(\$)	Unit	Quantity	Total Cost USD
Seeds	52	kg	1	52
Fertilizers	0,8	kg	200	160
Labor - 3 people	100	month	9	900
Overhead tank	480	each	1	480
In-field/ and tank	700	per set	1	700
Installation labor	300	each	1	300
Total				2 592

Note: All costs are for a quarter of a hectare. Crop rotation for tomato is 3 months.

8. Vegetable production under furrow irrigation

Water harvesting is one technique that has not been used extensively in both high and low rainfall areas. A lot of rain water goes to waste. As a conservation measure in places where there is low rainfall, furrow irrigation using earth dams can be introduced as a source of water for vegetable production. This is meant to be implemented as a community endeavor where up to 10 farmers will be served from the same dam. In addition to covering the costs of a 0,25 ha vegetable plot, each participant will contribute to the dam and furrow construction.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Vegetable seeds	43	each	1	43
Fertilizers	0,8	each	100	80
Farm labor (3 people)	100	monthly	9	900
Individual cost per 1/4 ha				1 023
Sub total for community (10 farmers)			10	10230
Cement	11,55	bag	20	231
Sand	230	Truck load	1	230
Labor for damming	2	man-day	280	560
Subtotal for dam constructing Total				1021
Grand Total				11251

Note: Community owned dam and furrows, group lending, each community member will have 0,25 ha for vegetable production (total 2,5 ha). Cement, sand and dam and furrow construction are community expenses. Seeds, fertilizer and farm labor are for individual farmers. Crop rotation for tomato is 3 months.

Pipeline of activities: Income diversification and land management

9. Smallholder Dairy Milk Production under Zero Grazing

The management of smallholder dairy farming under zero grazing (stall feeding) is a profitable farm enterprise in most parts of the Kafue Basin. Besides proximity to large population centers, most of these areas are already well-served by microfinance institutions.

Smallholder dairy farming under Zero Grazing requires less land with reduced usage of water, no overgrazing and soil erosion, reduces spreading of cattle diseases and promotes good herd health management. It facilitates the production of biogas which is a renewable source for heating and lighting, while the manure is used to fertilize fodder and other crops. Fodder crops are supplemented by crop residues and agro-processing by-products.

It is supported by well-established milk market linkages to milk cooperatives and to the country's largest processor of milk and milk products.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Fodder	350	Lima	1	350
Labor	150	Month	1	150
Feed supplements	1	Kg	900	900
Veterinary services	10	Animal	3	30
Total				4730

Note: Costs for capital inputs are required only at the beginning of the projects and can be used for a larger number of cows

Description	Unit Cost	Unit	Quantity	Total Cost USD
In-calf heifer	1000	Num.	2	2000
Housing	50	SqM	20	1000
Biogas digester	50	SqM	1	50
Land	200	Lima	1	200
Treadle pump/Drip irrigation system	1000	Unit	1	1000
Water harvesting & storage facilities	1050	50000L	1	1050
Milk urns	50	Num	3	150

Pipeline of activities: Processing

10. Fruit, vegetable and mushroom drying

A lot of fruits, mushroom and vegetables go to waste owing to poor post-harvest handling or lack of processing (value addition). Mushroom in Zambia grows mainly during rainy season almost in all parts of the country. As a seasonal crop it is not available beyond April, while demand is all year round. For the reason of increasing all-year-round income, drying of mushrooms, fruits (mango, papaya) and vegetables for off-season sale, solar driers have been used with considerable satisfaction.

Description	Unit Cost	Quantity	Total Cost USD
Solar drier	500	1	500
Building	2000	1	2000
Labor	100	3	300
Working capital	200	3	600
Total			3 400

Note: Products for drying include mushrooms, fruits and vegetables. Working capital is required for buying raw materials. The assumption is that the processor does not have a building.

11. Vegetable oil pressing

The demand for vegetable oil is on increase both in Zambia and abroad. The residues of the oil pressing process, soya and sunflower cakes are essential raw-material for the livestock feed industry. With the expanding livestock production in Zambia, the demand for feed is secured. An efficient electric expeller is expensive, but its yield is also much higher than from a manual expeller, such as Yenga press.

Description	Unit Cost	Unit	Quantity	Total Cost USD
Oil seed	0,6	kg	4000	2 400
Oil extractor	6000	each	1	6 000
Building	4000	each	1	4 000
Labor	100	month	3	300
Electricity	60	month	3	180
Packages	0,4	each	340	136
Total				13 016

Note: Financing needed for raw material for the first three months. After that, the processor will be able to finance operational costs from sales revenue. Processor may need working capital also for labor, packages and electricity. Oil extraction yield is estimated at 20% of input; oil yield per ha 675 liters. Estimation based on soya beans. The assumption is that the processor does not have a building.

I Summary of activities building climate resilience of SSFs and SMEs

Activity	Inputs, equipment	Cost USD
I Product/Income Diversification		
1. Fish farming	1000 sqm pond, labor, fingerlings, feed, pump, tank, piping, nets	2 597
2. Soya production	1 hectare, seeds, labor, packaging material	195
3. Goat rearing	1 male+10 female goats, veterinary services, labor	1 474
4. Smallholder dairy milk production under zero grazing	0,25ha land, in-calf heifers,rhodes,leucena and napier grass slips,Treadle pump/drip irrigation, housing, urns	4730
5. Nursery, tree seedlings ¹	0,25 ha, seeds, fertiliser, plastic bags, watering cans, borehole, handpump, labor	2 827
6. Beekeeping ²	20 framebeehives, equipment (clothing, smoker, knives) jars, honey extractor, settling tanks, labor etc	2 486

¹ High cost is due to sinking/equipping of the borehole

² The cost of the processing equipment is too high for one beekeeper. It would be ideal to have a beekeeping out-grower scheme. The processor would buy the honey from beekeepers, process and market it.

II Summary of activities building climate resilience of SSFs and SMEs

Activity	Inputs, equipment	Cost USD
II Soil/Land Management		
6. Conservation agriculture, with trees and drought resilient maize	0,25 ha maize seeds, Falbedia albedia seedlings, ox-drawn ripper, labor, fertilizer	724
III Water Management		
8. Vegetable production under drip irrigation	0,25 ha; seeds, fertilizer, farm labor, overhead tanks, pipes, installation labor	2 592
9. Vegetable production under furrow irrigation ¹	0,25 ha each, total 2,5 ha. Seeds, fertilizer, farm labor, cement, sand, labor for damming	Individual production cost:1020; total for a group of 10: 11 251
IV Processing/Value addition		
10.Mushroom/vegetable/fruit drying ²	Solar drier, building, packaging,labor, working capital	3 400
10.Vegetable oil pressing ²	Oil seed for 3 months, oil extractor, building, labor, electricity/month, packaging	13 016

¹ This is suggested for group lending (10 farmers). Cement, sand and damming are community expenses, while seeds, fertilizers and farm labor are for individual farmers.

² Assumption that the processor does not have a building. Oil extractor is run by electricity: manual extractors cost less (e.g. Yenga Oilpress) but have much smaller capacity.

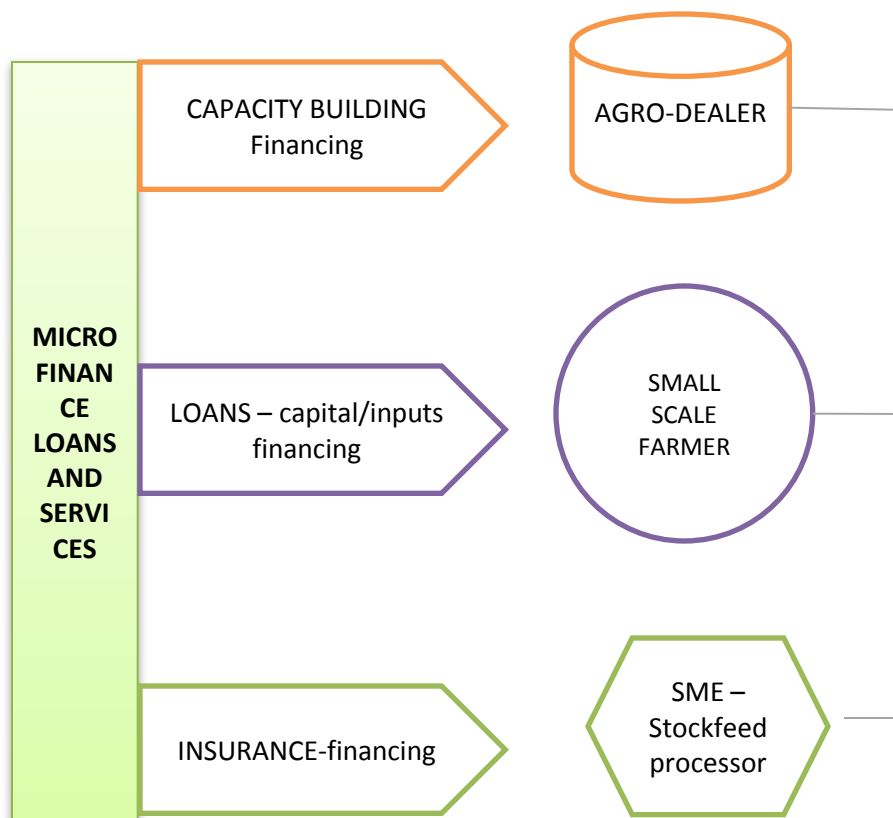
Activities vis-à-vis WB adaptation intervention criteria

Activity	Reducing the risk, exposure or sensitivity of human or natural systems to climate change and climate variability	Increasing the potential or capability of a system to adapt to the effects and impacts of climate change
Fish farming		X
Soya production		X
Goat rearing		X
Nurseries		X
Beekeeping		X
Conservation agr.	X	X
Small holder dairy	X	X
Drip irrigation	X	X
Furrow irrigation	X	X
Fruit drying		X
Oil processing		X

Value chain development and microfinancing

Climate resilience can also be addressed through value chain development, i.e. integrating climate resilient activities vertically and horizontally. The activities could encompass, e.g. small-scale livestock farming (goat, fish, chicken) and crop production, small-scale manufacturing of stock feed and small-scale agro dealership to support climate resilient farming. All these small-scale projects can be eligible for microfinance loans and related products, such as insurance. The activities build climate resilience through reduced vulnerability and sensitivity and increased capability of the system to adapt to the effects of climate change. Promoting this approach requires technical support to all stakeholders and the use of ICT in production and business communication and market linkages.

Most of the economic activities proposed are based on primary production of agricultural products. Value addition through processing is another market that should be explored. Processing not only adds value but also has a multiplier effect on the downstream income and supports or attracts other allied industries such as packaging, transportation and provision of banking services, in different value chains.



BUSINESS AND IMPLEMENTATION PLAN

Business plan

The Problem. Frequent floods, droughts and climate variability have greatly hampered Zambia's economic development. It is expected that over the next decade, rainfall variability alone will push an additional 300,000 Zambians below the poverty line.¹ Climate change is likely to exacerbate this situation with climate variability and extreme events such as droughts and floods becoming more frequent and intense. To mitigate adverse effects, investment opportunities need to be created to enable climate change adaptation interventions. The rural population in the Barotse and Kafue sub-basins comprise almost a third of Zambia's population, and are among the poorest and most vulnerable communities in Zambia. The prevailing climatic conditions compounded by the relative socio-economic conditions worsen the situation. It is therefore fundamental that climate resilience is built for the purposes of contributing towards food, water and energy security in the sub-basins.

The objective of the IFC Project is to promote private sector investment in climate change adaptation in a range of economic sectors (agriculture, water and energy) within the Kafue and Barotse sub-basins. This study relates to the microfinance component of the IFC Project. The focus of this component is to pilot a microfinance initiative that helps build the climate resilience of SSFs and SMEs in the pilot areas.

¹ Thurlow James, Tingju Zhu and Xinshu Diao 2009. The Impact of Climate Variability and Change on Economic Growth and Poverty in Zambia.

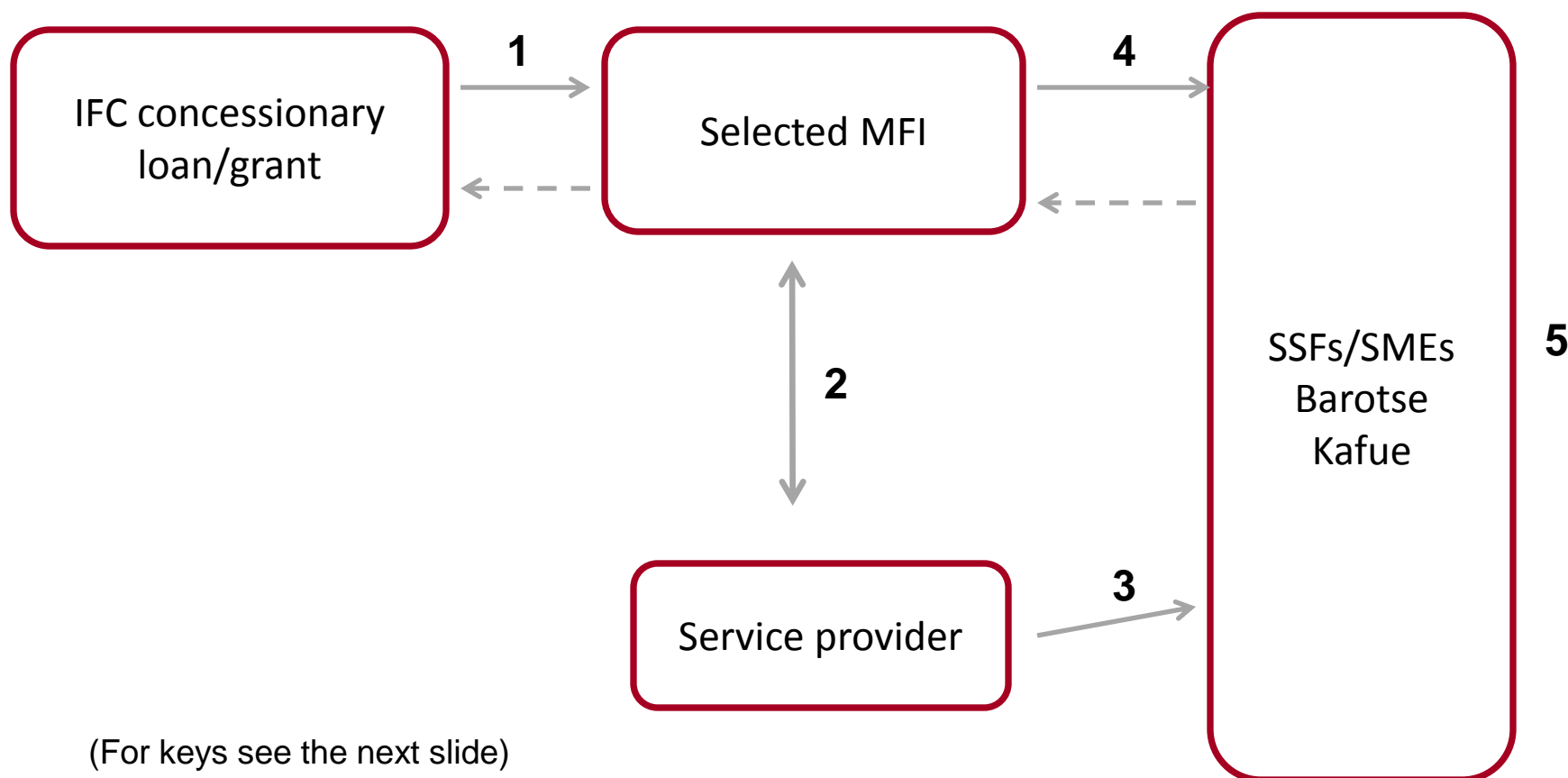
The Landscape. The study identified microfinance institutions that are ready and willing to increase/ expand to rural areas to finance activities that build the climate resilience of SSFs and SMEs. The study also identified the type of activities that would be financed that respond to climate change adaptation, along with the demand for financing among households in the pilot area. The study also revealed barriers that would need to be addressed for financial investments to profitably achieve the desired end. Notwithstanding these barriers, selected MFIs indicated a willingness to participate in the IFC Project.

The Business Opportunity. For the IFC Project, there is an opportunity to support a pilot in promoting microfinance to build climate resilience specifically in the Barotse and Kafue sub-basins. There is also an opportunity to support climate change adaptation activities by SSFs and SMEs so as to improve their food, water and energy security.

For selected MFIs the IFC Project affords an opportunity to participate in a pilot that enables them to be on the cutting edge of responding to climate change impacts through appropriate design and delivery of financial projects. It enables them to spread their coverage into the rural areas in line with their *raison d'être*. This participation also builds their capacity to scale-up after a successful pilot process, and support further expansion into high-risk areas.

For People in the Pilot Areas the IFC Project enables a renewed focus that is adequately resourced to help them build resilience to climate change while ensuring water, food and energy security towards more sustainable poverty reduction.

Business Case: Actors



Business case: Actions

Keys	
1	<p>IFC provides a concessionary loan to the MFI at agreed conditions.</p> <p>The MFI utilizes funds in the pilot area and pays back as per agreed conditions.</p> <p>The MFI provides periodic feedback on agreed parameters in relation to financing climate change adaptation activities.</p> <p>The MFI utilizes grant funds for building internal capacity as well as supporting partnerships with service providers.</p>
2	<p>The MFI partners with a service provider to support SSFs and SMEs for climate change adaptation activities. Support is continuous through extension services.</p>
3	<p>The Service Provider provides technical support to build the capacity of SSFs and SMEs to embrace climate change adaptation activities successfully.</p> <p>The Service Provider prepares SSFs and SMEs to access loan size needed for the activities to be supported.</p>
4	<p>The MFI assures appropriate financing products and delivery to the pilot area.</p> <p>The MFI ensures impact assessments with the clients.</p> <p>The Clients pay back loan as expected.</p>
5	<p>Sustainable, climate resilient activities, access to markets and increased incomes.</p> <p>Food, water and energy security.</p>

Service providers

According to the field study, one fourth of the SSFs and SMEs emphasized agricultural knowledge as a necessary tool for climate change adaptation. This indicates that many rural smallholders feel they have limited knowledge about the causes and consequences of climate change and also that the selection of appropriate climate resilience building actions is difficult for them without capacity development.

The MFI Credit Officers play an important role in sensitization of farmers on climate smart agriculture but their capacity is limited. There are also non-governmental organizations that already are in community work with SSF and SME to improve their lot. They are committed to this work and have their own sources of funding, often donors. Some of the MFIs have already established partnerships with such organizations. A prominent example is the collaboration between DAPP (Development from People to People), iDE and Company A. In addition, Company A works with Zambia Honey Council in honey value chain development and ASNAPP (Agribusiness in Sustainable Natural Africa Plant Products). Another example is Company B's partnership with Concern Worldwide which is an international humanitarian charity that serves the poorest in various coping strategies including pre-operative support in social performance and microfinance. They have supported Company B through researching the livelihoods of poor people in the Barotse sub-basin and facilitating economic activities that Company B could finance.

Other potential service providers are private sector input suppliers who can factor costs of the services into the price of inputs. Also private sector companies promoting out-grower schemes or contract farming can pay for technical support services to farmers and SMEs. This is perhaps more sustainable solution than relying on NGOs whose funding cannot be guaranteed over the long term. On the other hand, NGOs are increasingly becoming less philanthropic and beginning to charge fees for their services to build sustainability. There are also new innovations, such as iDE's Farm Business Advisers, i.e. lead farmers who are trained to become private sector extension agents.

Certainly, a combination of MFI Credit Officers, input suppliers, agro-dealers and agents, and NGOs could provide viable options for the provision of a range of services.

The recommendation for the IFC project is that at the point of due diligence, MFIs should demonstrate that there are service providers that are actually preparing SSFs and SMEs for climate resilient activities.

Identified potential MFIs suited to PPCR objectives

Total loan requirements
USD5.5- 7 million

The following MFIs have been identified as suited to the PPCR objectives of piloting a microfinance initiative to build the climate resilience of small-scale farmers and SMEs in the Barotse and Kafue sub-basins:

Company A
Company B
Company C
Company E Zambia
Company D

Company A have experience in entering the rural area and partnering with other service providers. They have an understanding of the risks and how to work around them. Their role in this project is to make a bold entry and provide lessons that can be replicated.

Company B are important to this project because they have a focus in the Barotse sub-basin. The Kafue sub-basin is more active economically and better represented by the selected MFIs. Company B has strong focus on the Barotse sub-basin via the commercial hub in Mongu. They already have within their plans a desire to expand in that area. We recommend that they be supported for that reason.

Company C bring to the project their strong commitment to serving poor communities as part of World Vision. They are already in the pilot area and want to see expansion.

Company E Zambia also have a very strong commitment to community transformation and especially working with women. They have the potential to increase financial access by using the envisaged Point-of-Sales. They bring to the project the possibility of piloting that technology.

Company D is a start-up with a desire to go into the rural area. This seems to echo the focus of its affiliate company Company J which has a wide presence in the rural area. This network is available to Microfinance Zambia for quick entry into the pilot area.

Types of financial products required to finance the pipeline of activities

MFI	Financial Products	Activities
Company A	Agriculture loans	Fish farming
	Individual loans	Soya production
	Solidarity loans	Goat rearing
	Trust Bank loans	Nurseries
	"Ntula" funeral insurance	Beekeeping
	Credit life insurance	
Company B	Agriculture loans	Conservation agriculture+maize
	Business loans	Drip irrigation + vegetables
	Group business loans	
Company C	Agriculture loans	Furrow irrigation + vegetables
	Bicycle loans	Mushroom/fruit drying
	Business loans	Vegetable oil pressing
Company E	Business loans	
	Small group loans	
	Village banking	
Company D	SME loans	
	Agriculture loans	

The tables on the left parallel the present MFI financial products and the climate resilience building activities. The same color indicates a potential match between the financial product and the activity. A further analysis is however needed at the point of due diligence.

The MFI product range is very narrow and limits clients to loan-related products. This means that only those clients who meet MFI selection criteria will be considered.

This study presents a need for critical alignment of MFI financial products in meeting the demand of clients, a substantial share of whom for example require loans in the range of K5million when MFI agricultural loan sizes are much lower. MFIs would have to grapple with the issue of the creditworthiness of each client, especially where they do not already have a track record.

Adequacy of MFI financial products

The study identified that fundamentally, MFIs will only design and deliver financial products that not only **meet the mission to serve poor people**, but **assure profitability for the MFI**. It is evident that maintaining this balance requires the right skills and planning at management level, in the back-office and in the field with clients. It was also evident that the capacity of the client to produce efficiently and generate surplus income serves both the client and the MFI in that they will be able to repay their loan within expectations, and have increasing disposable incomes. There is evidence that MFIs are willing and have successfully partnered to create an enabling environment where financing could then be done for the benefit of the client without detrimental effects on the MFI.

Thus a case can be made that generally MFI products will be profitable by design and that MFIs will have a calculated risk appetite where mitigating factors have been clarified either from within the MFI itself or in partnership with other service providers. This assumption however needs to be tested against the capacity of existing products to ably finance the pipeline of activities that this study has identified within the Kafue and Barotse sub-basins.

The testing of this assumption should culminate in:

I Reviewing existing programs to affect necessary design or positioning changes needed for climate resilient outcomes. We have in mind here how existing financing products are delivered in relation to recommended activities. Should the MFI consider differently qualified field staff? Should a partnership be enabled to be able to enter the pilot area and deliver to identified activities?

II Modification of existing financing modalities to accommodate climate resilient outcomes. This might include consideration on loan sizes (we note that selected MFIs have lower loan sizes than those demanded by clients in the pilot area), grace period before loan repayments start, repayment period, and whether to allow balloon repayment schemes at the point of selling produce instead of paying installments during the life of the loan, etc.

III Introduction of new financing activities and methodologies that promote climate change adaptation, and possibly enabling scale-up of any such new activities.

Conclusions on financing of climate resilience building activities and MFIs profitability

At least three of the selected MFIs already have products through which they will lend to the pilot area. These are **Company A, Company C and Company B**. Company E would like to develop the technology that will enable them to go into the pilot area without setting up a presence. Company D are in the process of developing their product range. The three MFIs have agriculture and business loan products through which they will lend to the pilot area. MFIs might need to make adjustments to their loan products only if the SSFs and SMEs opt for activities whose financing does not match the existing loan products. Our assessment is that MFIs are willing to take the IFC loan and utilize it in the pilot area. All the MFIs selected were provided with information regarding the IFC Project and the need to finance climate resilient activities. The lending arrangement however, requires contracts between the lender (MFI) and the borrower (SSF/SME) even if they are in a group. It will be important therefore that the demand side takes up climate resilient activities against which MFIs can lend.

The question of risk appetite is taken care of by the fact that MFIs have already ventured into the rural areas. They see that as the expansion horizon. However, they will exercise caution in financing activities that introduce new risks for them. It is possible that increased loan sizes and longer repayment periods might trigger a risk aversion that IFC need to be aware of. The partnerships that MFIs have with service providers would need to be engaged by MFIs to ensure that climate resilient objectives are met.

Regarding the profitability of financing products, MFI products are structured around factors that ensure profitability i.e. interest rates and administration costs. The World Bank body, CGAP, has been instrumental in providing guidelines for MFI profitability, which includes a good balance between cost of funds (in this case IFC interest charges), interest earned from clients and admin costs. MFIs also manage the cost of each loan given out by ensuring an optimum number of clients that each field staff carries.

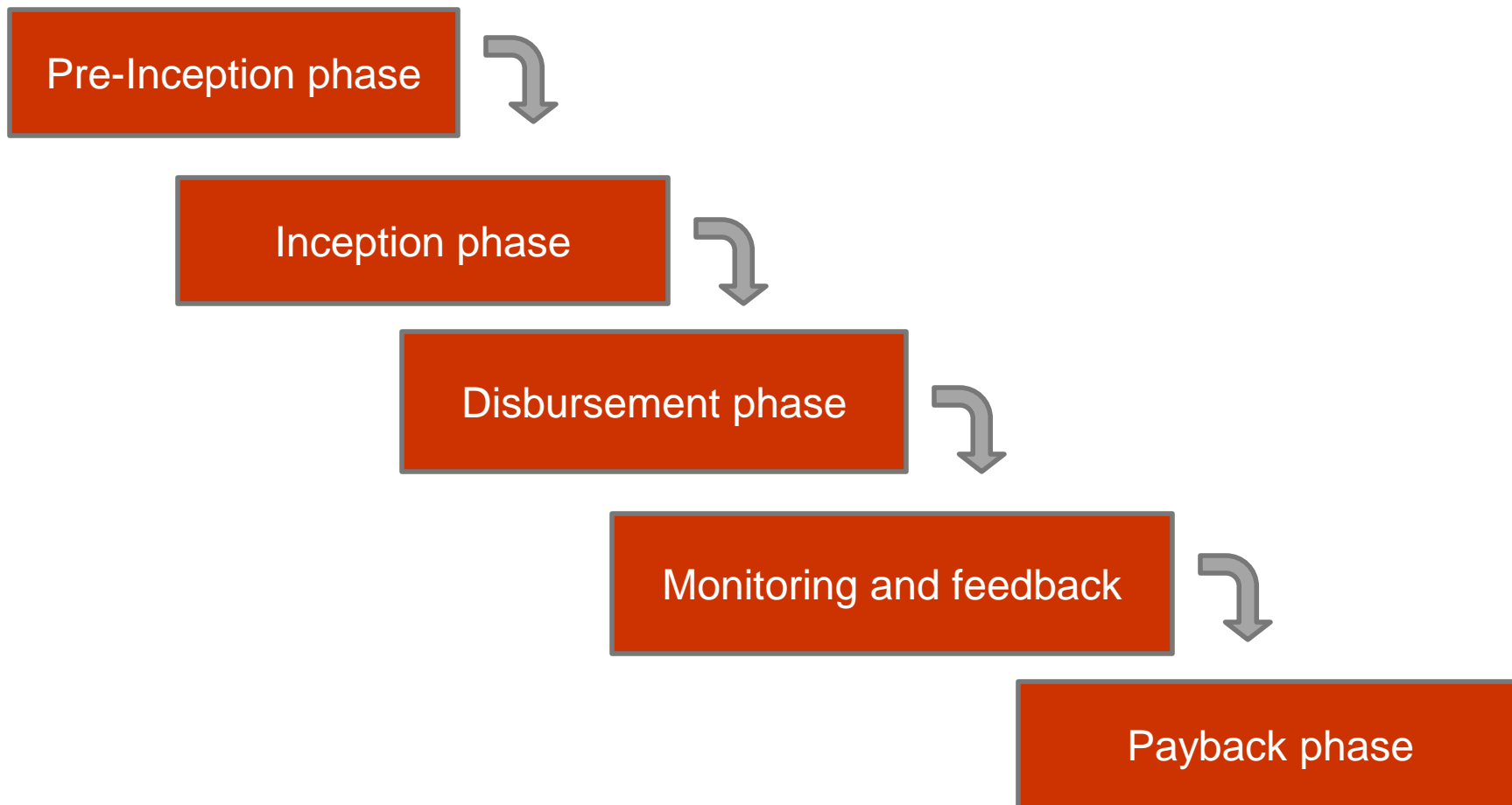
The regulator - Bank of Zambia - is keen to ensure that the financial sector is protected and therefore monitors these activities frequently.

More specifically, Company A has confirmed that their agricultural loans perform even better than their urban loans. Prompt payments of loans for an MFI mean that all interest income can be counted as received and not just accrued, and therefore confirms profitability within the scope of the MFIs profitability regime.

Should the MFIs be required to tweak existing financing products or introduce new ones to meet climate resilient outcomes, they will follow a pricing process that ensures profitability.

Recommendation: A further assessment to be made at the point of due diligence to identify 1) specific credit demand for climate resilient activities, 2) that MFIs can demonstrate appropriate financing, and 3) that MFIs have partnerships with service providers to ensure that climate resilience objectives are met.

Step-wise approach to implementing the microfinance initiative



Tentative timeline

	2013	2014	2015	2016	2017	2018
1. Pre-inception phase						
IFC internal planning on the basis of study	■	■				
Discussions with MFIs to define expectations and deals	■	■				
Background searches/ due diligence		■	■			
Review existing MF programs re: climate adaptation ideals- MFI agree to effect necessary design changes		■	■			
Identify and service providers/partners and design the structure and services to be provided		■	■			
2. Inception phase						
Setup IFC office to manage the Zambia microfinance portfolio	■	■				
Define structure of loan deals and expected performance targets/ standards	■	■	■			
Engage MFIs to produce business plans and financial projections on fund usage	■	■	■			
Agree on and design reporting protocols	■	■	■			
Sign-off on structure of deals and reporting protocols	■	■	■			
Establish and support partnership with service providers	■	■	■			
3. Disbursement phase						
Put in place disbursement structure			■			
Disburse in tranches		■	■	■	■	■
4. Monitoring and Feedback phase						
Quarterly loan tracking reports		■	■	■	■	■
Half-yearly performance reports			■	■	■	■
Annual performance reports			■	■	■	■
Business Plan for following year			■	■	■	■
5. Payback phase						
Grace period, MFI services interests, then quarterly instalments				■	■	■
6. Support to AMIZ						
One-off grant to strengthen AMIZ	■	■				
Evaluation of changes in the microfinance sector as a result of the IFC Project		■		■		■

Notes to timeline

We envisage bottle-necks in obtaining commitments regarding changes to existing financial products in order to finance climate change adaptation activities. MFIs might want to continue with their current product offering as they have developed competencies.

We envisage negotiations on loan conditions and reporting protocols. MFIs will be looking for local currency denominated loans so they do not have to suffer foreign exchange risks. They will also be looking for comparable interest rates to those charged locally. The Development Bank of Zambia lending to MFIs is a reference point.

We have factored in a 2-year grace period during which the MFI will only service interest and plough back the principle into lending. One MFI made this request. It is subject to negotiations.

We have included grant support to the Association for Micro-Finance Institutions in Zambia (AMIZ). This was a direct request from three MFIs with a view to locating some of the climate change activities with a local entity to ensure continuity even for those MFIs that may not be covered by this project. We, however, recommend that IFC consider locating some of the evaluation responsibilities with the association.

Potential synergy with other PPCR Components

Weather Index-based Insurance

Some MFIs have expressed a desire to be linked to providers of this product to help farmers manage weather-based risks. There's a huge risk to the financier when a farmer's produce is threatened by unpredictable weather. Climate change impacts make a weather index-based insurance a necessity.

Mobile Phone Platform

Similarly, MFIs have expressed interest in the use of technology to improve farmer communication and access to those in remote areas.

ANNEXES

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