

Microfinance, over-indebtedness and climate adaptation
New evidence from rural Cambodia



Research findings report

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This report is part of a larger research project funded by UK Research and Innovation's Global Challenges Research Fund entitled 'Depleted by Debt? Focusing a gendered lens on climate resilience, credit and nutrition in Cambodia and South India'. This Cambodia-focused report shows how microfinance loans are leading to an over-indebtedness emergency that undermines borrowers' long-term coping and adaptive capacity in a changing climate. A second Cambodia-focused report frames this debt crisis as a public health crisis, showing how both exacerbate each other and are leading to slow, chronic suffering over the longer term. Together, they offer new and compelling data on the multiple ways in which people's aspirations for transformative climate adaptation and good health are trapped by debt.

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Note

This report, its findings and recommendations, are based on the research and analyses of the authors only. It does not reflect the views of photographers and artists who participated in the study.



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Forewords

For many years, microfinance has been seen as a saviour for agricultural communities and other small-scale enterprises in the developing world. It has been supported by the UN Capital Development Fund, the Green Climate Fund and other multilateral and bilateral funding agencies. The World Bank touts microfinance as a way to fix credit markets and unleash the productive capacities of poor people who are dependent on self-employment. The microfinance sector has grown quickly since the 1990s, paving the way for other forms of social enterprise and social investment. For many, microfinance has helped small enterprises find the necessary financial liquidity to build productivity.

Microfinance was linked to the Clean Development Mechanism under the Kyoto Protocol. It was supported by various bilateral assistance agencies who assisted small scale entrepreneurs with start-up finance to tap into carbon markets through solar home systems and more efficient household cookstoves. It has been suggested that microfinance helps remove vulnerability to the impacts of climate change through livelihood diversification and savings and insurance.

Despite these claimed benefits, there is a dark side to microfinance which is highlighted in Microfinance, over indebtedness and climate adaptation: New evidence from rural Cambodia. This report is based on extensive research focussing on the impacts that microfinance has on the farming community in Cambodia. Microfinance levels in Cambodia have reached US\$4,213 per capita by the end of 2021 which equates to more than double GDP per capita. This is not simply a financial system for advancing profits, for many Cambodian farmers, microfinance is being used to cover the costs of crop losses due to climate change. This is a tragic story of indebtedness as farmers are bearing the costs of greenhouse gas pollution from the developed world. This is a losing battle as farmers are forced to confront the double burden of indebtedness and climate change.

This link between climate change and human rights is very evident in this report. The debt burden created by the nexus between climate change and microfinance creates enormous challenges for many individuals and

communities causing physical and emotional stress. This report clearly highlights the links between climate debt, climate vulnerability and climate adaptation and what this means for climate justice. The report makes a number of recommendations to pull Cambodians out of the microfinance debt trap. This includes establishing transformative relief programs including debt forgiveness and calling for the international development community to redirect its efforts away from microfinance institutions.

This is a clear example of the many tragedies playing out in the developing world due to the impacts of climate change. While Parties to the Paris Agreement incorporated a whole article on loss and damage, the international community has been very slow to realise the extent of losses suffered by many rural communities throughout the world as a consequence of climate change. This report provides a salutary lesson about the growing challenges that climate change imposes on poorer communities. Many lessons can be learnt from this report. It is time the international community, particularly the major greenhouse gas polluters stood up to their responsibility to address the losses and damages being faced by the many in the developing world. I encourage the international finance community to take strong heed of the recommendations found in this report and seriously rethink their approach to microfinance.

Dr Ian Fry

Un Special Rapporteur for the Promotion and Protection of Human Rights in the Context of Climate Change

Forewords

The presentation of microfinance as a tool for climate change adaptation is an unsurprising evolution within international policy-making. For over three decades, expanding microfinance initiatives – public and private – has been a central strategy of various international aid agencies and most notably within the World Bank. Underpinning this global scaling up of microfinance is the argument that poor households are typically excluded from the formal financial system. This ‘financial exclusion’ means that they are forced to rely upon informal risk-pooling strategies that are insufficient in scale and scope to deal with the risks and uncertainties they face. Connecting them to the formal financial sector through microfinance initiatives, therein, is paramount on both equity and efficiency grounds.

Presently, this same argument is being used to emphasise increased investment in microfinance as a form of climate change adaptation. Three core assumptions underpin the idea of microfinance as a tool of adaptation. First, it is argued that poor households do not have access to credit and other needed financial services, including savings and insurance. As such, initiatives to provide such services are a necessary form of ‘financial inclusion’ that has become more pressing as climate change impacts increase the depth and nature of risks households face. Second, once ‘financially included’, it is argued that poor households can use this credit as a productive tool. Access to small amounts of capital allows households to invest in either livelihood diversification to spread their income generating potentials to head off risks; or, it allows households to invest strategically in climate-smart technologies or other opportunities that can overcome barriers to productivity and resilience within agricultural production. Third, given that households can repay loans through their increased incomes, the roll out of microfinance is both sustainable and scalable.

The current report written by Guermond and collaborators shows that each of these convenient assumptions are highly questionable in the context of rural Cambodia. Through in-depth research that has produced unique and highly valuable insights into household livelihood dynamics, the report emphasises three key points that directly contradict the above assumptions. First, microfinance in rural

Cambodia is not connecting previously unbanked households to financial systems. Rather, it is being increasingly taken up by households that have significant outstanding credit/debt relations with a variety of formal and informal sources. As competing microfinance companies offer alternative lines of credit to households, the scale of microfinance indebtedness has been rising steadily. On these grounds, Cambodian households are highly ‘financially included’ and overlapping microfinance loans have become deeply embedded within active networks of credit provision and repayment requirements. Second, this escalation of debt levels means that households are taking microfinance loans not simply to use as productive investments or risk diversification strategies. Rather, they are using new debts to continue the chain of repayment on other loans. Gaining new loans to pay for previous debts is a major dynamic within the sector and one that is – for reasons laid out in detail below – highly problematic. Third, microfinance in rural Cambodia is increasingly complicit in the buildup of debt traps. While presented as a tool of climate change adaptation, farming households are facing growing pressures to sell assets to cover repayment shortfalls.

Many arguments against the simplistic assumptions of microfinance as a silver bullet tool for poverty alleviation have been present for several decades. What the present report does is provide an astounding level of granular detail to demonstrate precisely how and why such trends occur. Moreover, the report offers empirically grounded counter-strategies that show clearly how policymaking should proceed given the realities of credit and debt on the ground. On this basis, this report needs to be read and cited widely, particularly within policymaking circles and the NGO sector. It also paves the way for comparable studies in other locations so that a much fuller picture of climate change impacts and debt relations can be garnered across geographical locations and cultural contexts. For those of us researching this field, we have a shining example of a method to follow.

Dr. Marcus Taylor

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Forewords

Debt is back on the global agenda in a way that it has not been since the 1990s. Beginning with the COVID pandemic, Global South countries' struggles to repay lenders has been compounded by recession and rising interest rates. Perversely, the imperative to adapt to a changing climate continues to grow against this harsh macro-economic backdrop. Transformative, just adaptation appears to grow further from reach as spending is diverted to repay rich-world bankers, leaving Southern countries even more vulnerable to climate shocks that will, in turn, further weaken their economy. This may ultimately lead to a 'doom loop' of rising debts, falling income, and socio-environmental vulnerability that will drag millions – if not billions – of people into poverty.

While this story will be familiar to those of us who focus on the macro-economic dimensions of the climate crisis, we may miss the uncanny similarity of processes that are unfolding for individuals and households around the world. The authors of this report illustrate the human ramifications of applying the "Wall Street Consensus" to household finances in vivid detail. Making survival contingent on rising, often unpayable debt, is forcing farmers off the land and into precarious, dangerous wage labor; ultimately these crushing debts may lead people to liquidate assets, leading to the concentration of wealth and power– locally and globally.

The recommendations on reducing household debt and reining in microfinance made by the authors are a microcosm of reforms that are urgently needed for Global South countries in the international system. The authors of this study call to move beyond the failed premises 'financial inclusion' for development. Instead, they argue for debt justice: replacing bad debts with systems for good, fair credit; rejecting austerity in favor of substantial investment in climate-safe adaptation; and building a tax regime that can facilitate patient investments rather than encouraging short term profit taking. These reforms are as salient for households as they are for whole economies, and indeed the possibility for a vibrant, safer collective future in a warmer world depends on their uptake.

This report is an important contribution to the global debt justice movement. It helps us see the violence of predatory lending across scales. The data and analysis presented here underscores the need for new paradigms of climate finance that will empower, rather than indebt, the communities that are already experiencing the climate crisis most acutely.

Patrick Bigger

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Executive summary

Microfinance loans are leading to an over-indebtedness emergency that undermines borrowers' long-term coping and adaptive capacity in a changing climate.

Executive summary

As rising temperatures and unpredictable weather reshape the global environment, how to adapt to the changing climate is one of the foremost questions of our era.¹ One answer proposed in recent years has been scaling up microfinance to poorer and more environmentally vulnerable regions. This is a preeminent policy platform that has started to attract a significant level of investment from major donors such as the World Bank and the UN's Green Climate Fund, as well as private actors and institutions. Globally, the estimated microfinance institutions' gross loan portfolio has expanded from US\$5.5 billion in 2003 to US\$124 billion in 2019.² Yet as research data in this report attests, the vast increase in credit provision has not been associated with greater capacity to adapt to climate shocks.³ On the contrary, microfinance loans are leading to an over-indebtedness emergency as rural households are needing to adopt harmful coping strategies and make health sacrifices to repay these mounting debts.

Based on an original and extensive mixed-method data set, we evidence these findings in the context of Cambodia, one of the most microfinance indebted countries in the world. Microfinance levels in Cambodia have reached US\$4,213 per capita by the end of 2021, more than double GDP per capita.⁴ The country is also one of the world's most vulnerable countries to climate change. Vulnerability to the changing climate is high, as unpredictable rainfall, floods, and droughts undermine the viability of smallholder livelihoods.⁵ Amidst this change, rice farmers are especially vulnerable to the impacts of climate and environmental change by their dependence on fluctuating rainfall patterns. The last 10 years in Cambodia have seen flooding leading to the destruction of rice paddies, household residences, infrastructure, and even livestock, whilst droughts have proved similarly problematic. Many farmers are therefore being called upon to absorb considerable crop losses. The report foregrounds two key findings on the relationship between climate change, microfinance loans, and over-indebtedness in rural Cambodia.

Rather than resolving a short-term shock, microcredit is being incorporated into already stressed and vulnerable livelihoods, undermining long-term coping and, as a result, adaptive capacity.

The inescapability of microfinance debt

First, recent changes in the political economic landscape of farming in Cambodia – driven in part by the commodification and intensification of agricultural production and the impacts of climate and environmental change in the country – have turned formal borrowing, and micro-finance borrowing in particular, into an inescapable aspect of farming in a changing climate.

Over-indebtedness as coping strategy

Second, the research shows how these debts are, once taken, difficult if not impossible to repay in the long term, meaning that indebtedness persists and deepens over time. Rather than resolving a short-term shock, therefore, we show how microcredit is incorporated into already stressed and vulnerable livelihoods, undermining long-term coping and, as a result, adaptive capacity in many cases. Indebtedness, in turn, becomes over-indebtedness as borrowers face adverse consequences as the price of their financialised resilience. The report offers cautionary evidence on microfinance for climate adaptation and provides alternative ways forward to supporting Cambodia's mainly rural population.



Summary findings

The necessity of (micro)credit for farming in a changing climate

64%

of participants reported an increase in their use of chemicals and fertilisers compared to five years ago.

61%

of farming-only households increased their use of credit compared to 10 years ago.

12.5%

borrowed from a microfinance institution partly to repay another loan.

5%

of indebted households have sold agriculture land to repay loans over the last 10 years.

Market and ecological pressures combined with labour shortages led many farmers to shift to rice species which necessitate more debt-driven investment. Farmers therefore increasingly rely upon formal credit, and microcredit in particular, for agricultural production. In a changing climate, farming households are contending with unpredictable rainfall, floods, droughts, higher temperatures, and an increase in pest infestations. Farmers are making greater use of machinery and chemical inputs, and investment in irrigation. 64% of farmers reported an increase in their use of chemicals and fertilisers compared to five years ago. 45% even reported a major increase in their use of fertilisers compared to just one year ago.

Failed or bad harvests due to increasingly erratic weather patterns push many farmers into even more debt. Farming households were found to be significantly more indebted than non-farming households. 61% of participants in farming-only households reported a major increase in their use of credit for agriculture compared to 10 years ago.

Summary findings

Over-indebtedness as coping strategy

1

Borrow more

Struggles to repay loans due to poor or failed harvests led farmers to take out new loans to repay existing ones. 12.5% of indebted participants surveyed said the last time they borrowed from a microfinance institution was partly to repay another loan. Others turn to informal money lenders – at extremely high interest rates – to repay microfinance loans.

2

Work more

Household members, including urban migrants, are working longer hours, taking on multiple physically demanding jobs, and sometimes against medical advice.

3

Sacrifice food

'We have to pay the debt first' is a common reason given by indebted households who are reducing the amount, quality, and/or diversity of the food they eat to repay loans on time.

4

Sell assets

A large proportion of farming households have had to sell assets to repay microfinance loans in the event of a poor or failed harvest. 5.2% of all indebted households have sold agricultural land to repay loans over the last 10 years.

5

Quit farming

The risk associated with rice farming in a changing climate – the debts accrued to farm and those necessary to cope with a poor or failed harvest – has led some households to quit farming. Migration to brick kilns and to Thailand are typical migration paths taken alternatively.

Summary recommendations

1

Debt relief and climate debt repayment

Transformative relief programs, including debt forgiveness, should be established at the household level to allow borrowers to be better positioned to mitigate and adapt to the impacts of climate and environmental change. Such programs should go in tandem with the replacement of commercialised microfinance loans with unconditional cash transfers combined with the expansion of not only strong systems of social provisions but also community-owned and – controlled institutions for climate adaptation and a just ecological transition. These would be financed by the transfer of flows from the Global North (back) to the Global South at a much bigger magnitude than the current, insufficient, and unfulfilled pledges of US\$100 billion a year.

2

Reallocation of financial support

A large part, if not all, of the very significant international development community financial support, generously awarded to hugely profitable and largely foreign investor-owned microfinance institutions should be reallocated into support for credit unions, financial cooperatives, and community development banks, which are community-based institutions that are far more incentivised and also adept at introducing the measures required to address the climate emergency.

3

Taxation

The massive outflow of value from Cambodia generated by the leading foreign-owned microfinance institutions should be taxed and the proceeds used to endow a set of local and national funds specifically designed to address the climate emergency. This measure would also slow down the breakneck lending-driven growth of the microfinance sector in Cambodia.

4

Community-owned fintechs

Introduce a range of community-owned fintech (financial technology) platforms capable of exploiting this new technological breakthrough by helping facilitate at lower costs a range of more substantive local responses to the climate emergency.

Transformative relief programs, including debt forgiveness, should be established at the household level to allow borrowers to be better positioned to mitigate and adapt to the impacts of climate and environmental change.



Introduction

In Cambodia, a country hard hit by climate change, its Climate Change Strategic Plan includes an explicit objective to 'promote micro-financing to improve access to credits by local communities for climate change responses'.



Introduction

Microfinance has shot to prominence as a tool of adaptation to climate and environmental change in the last decade. In an abridged version of a 2009 report commissioned by the Grameen Foundation and Oxfam US, Dowla argues that ‘within the populations that will be most affected by global warming, the plight of many individuals is linked to the ability of microfinance institutions to adapt to the consequences of climate change.’⁶ With access to already-existing and newly adapted financial products and services, the argument goes that people and communities will be better placed to diversify their livelihoods, spread risk, and build assets.⁷ Microfinance would facilitate adaptation in two key ways: “by (1) improving ex-post [after the event] risk recovery by enhancing coping capacity; and (2) improving ex-ante [before the event] risk reduction by enhancing adaptive capacity.”⁸ Recommended strategies include improving access to microcredit for climate change responses as well as promoting insurance schemes to reduce the burden of climate risk on society.⁹ In Cambodia, a country hard hit by climate change, its Climate Change Strategic Plan (2014–2023) (CCCSP) also includes an explicit objective to ‘Promote micro-financing to improve access to credits by local communities for climate change responses.’¹⁰

Already between 2000 and 2020, the number of microfinance borrowers in Cambodia has increased from 175,000 to 2.6 million people.¹¹ The average size of a microfinance loan reached US\$4,213 in December 2021,¹² roughly twice the country’s annual GDP per person. And this breakneck growth is far from over. In 2020, it was reported that credit was still growing at a rate of 40% per year.¹³

The report focuses on three study villages in Cambodia, where rice-farming households represent between a quarter and a half of all surveyed households.¹⁴ In common with most of Cambodia, rice farming has become more expensive, more unpredictable, and increasingly vulnerable to floods, droughts, and rising temperatures.¹⁵ Shocks are common, and debt is their pre-eminent fix. Yet rather than being the end of the shock they are intended to improve, such loans are often the catalyst for other often harmful coping strategies to ensure repayment, pushing households to borrow more, work more, sacrifice food quality and quantity, erode and sell their assets, including land, and quit farming. The cost of financialised coping strategies can trap rural populaces in financial obligations which they struggle to service and which manifests ultimately as over-indebtedness.

The research in this report builds from a critical body of literature that has started to demonstrate with great clarity how financial products and services such as micro-insurance and micro-credit promote a particular form of climate adaptation: one that is individualised, incremental, and geared towards the further integration of populations into processes of capital accumulation.¹⁶ This form of adaptation is highly profitable. Indeed, each new climate-linked shock “opens up opportunities for the microfinance institutions and their clients.”¹⁷ Yet the corollary to this profitability is that the costs of such an adaptation tend to be borne by the poor,¹⁸ who find themselves exposed not only to the rigours of the environment but now the global market too.

From this standpoint, the report has two key findings on the relationship between climate and environmental change, microfinance, and over-indebtedness in rural Cambodia. First, recent changes in the political economic landscape of farming in Cambodia – driven in part by the commodification and intensification of agricultural production and the impacts of climate and environmental change in the country – have turned formal borrowing, and microfinance borrowing in particular, into an inescapable aspect of farming in a changing climate. Second, these farming-related debts are, once taken, difficult if not impossible to escape in the long term, meaning that indebtedness becomes over-indebtedness – when borrowers regularly experience high and adverse sacrifices related to repaying their debts.¹⁹ Rather than resolving a short-term shock, therefore, microcredit is being incorporated into already stressed and vulnerable livelihoods, leading to asset sales and undermining coping and, as a result, adaptive capacity in many cases. The burden of these overindebted livelihoods is borne by the bodies of borrowers, who face physical and mental depletion as the price of their financialised resilience.

Ultimately, we highlight the necessity to rethink what climate debt,²⁰ climate vulnerability, and climate adaptation should mean in the pursuit of climate justice for those who bear the brunt of the impacts of climate and environmental change. As a necessary

alternative to the ever-increasing need for microfinance debt to cope and adapt at the household level, we join calls for the establishment of relief programs, including debt forgiveness.²¹ Such calls should be understood as complementary to programs that advocate the cancellation and restructuring of public and private debt accrued by many countries in the Global South.²² We also urge the replacement of microfinance loans with unconditional cash transfers combined with the establishment,

maintenance, and expansion of not only strong systems of social provisions but also community-owned and – controlled financial and other institutions for climate adaptation and a just ecological transition. These would be financed by the reallocation of international development community financial support, the taxation and regulation of profits, dividends, and capital gains generated by microfinance institutions and, most importantly, the transfer of flows from the Global North (back) to the Global South. From this perspective, the burden of climate debt is not to be carried by the poor in the Global South but by those directly and disproportionately responsible for the effects of climate change.²³

The cost of financialised coping strategies can trap rural populaces in financial obligations which they struggle to service and which manifests ultimately as over-indebtedness.



Microfinance for climate adaptation

By being urged to become climate adaptable via microfinance debts in the face of climate-related shocks and disasters, people's capacity to navigate and survive ordinary climate crises are recast as profitable investment opportunities.

Microfinance for climate adaptation

Microfinance as climate finance

In 2009 at the 15th Conference of the Parties (COP15) of the UN Climate Change Conference (UNFCCC) in Copenhagen, developed nations agreed to mobilise US\$100 billion per year by 2020 to finance climate action in developing countries. The Green Climate Fund (GCF) was established a year later as the main instrument to provide climate finance under the UNFCCC.²⁴

Together with other dedicated multilateral climate funds such as the Global Environmental Facility (GEF), the Adaptation Fund (AF), and the Climate Investment Funds (CIF), they constitute “the main global pillars of multilateral public finance.”²⁵ The US\$100 billion per year climate finance goal was reiterated at COP16 in Cancun in 2010 and was then extended to 2025 at the COP21 in Paris in 2015. Yet, developed countries failed to meet their promises year after year. Worse even, it is estimated that developing countries need nearly US\$6 trillion by 2030 to finance less than half of the climate actions listed in their Nationally Determined Contributions (NDCs) and fight global warming.²⁶

In response to this immense climate financing gap and insufficient public climate finance, calls to bring in blended finance – that is, public funds pooled with private funds, mostly managed by private actors, and escorted into climate or Sustainable Development Goals asset classes – have become ever more prevalent. This represents what Professor Daniela Gabor, Professor of Economics and Macro-Finance, has called the ‘Wall Street consensus’²⁷. The ‘Wall Street consensus’ involves the state derisking, or ‘blending’, by using public financial resources (e.g., Official Development Aid) to create a safety net for institutional investors and accommodate the risk-return profile of those assets to their preferences or mandates.

The role of microfinance in this assemblage of public and private climate finance is increasingly significant and varied. While international funders committed US\$56 billion for financial inclusion in 2020,²⁸ a CGAP research shows that they consider green/climate finance as one of their main priorities for financial inclusion in the next five years.²⁹ In fact, microfinance investments are slowly emerging as a mechanism through which finance and climate change are brought together. First, and as Sarah Bracking, Professor of Climate and Society, shows, traditional development finance institutions such as the World Bank, the International Fund for Agricultural Development (IFAD), and UNDP have reframed their portfolio in order to gain access to public climate finance by “invoking the poor and needy within the new operational concept of resilience.”³⁰ For instance, a 2018 research brief, funded by the World Bank and exploring the results of its CIF-funded Pilot Program for Climate Resilience, makes the case that microfinance is a way to tackle the “lack of effective delivery mechanisms to channel climate finance resources at the sub-national level, particularly to target the poor.”³¹ Similarly, using its international implementing enti-

Traditional development finance institutions have reframed their portfolio in order to gain access to public climate finance by “invoking the poor and needy within the new operational concept of resilience”.

ty status at the GCF, the IFAD was approved a project in 2019 to build and scale up the resilience and adaptive capacity of smallholder farmers via inclusive green financing.³² This first GCF lending project to be implemented at scale in Niger will aim to remove key barriers to accessing financial services that support farmers in setting up climate change adaptation and mitigation best practices.

Second, microfinance institutions are also increasingly viewed as instrumental to the functioning of carbon offset schemes in countries of the Global South such as those implemented under the Clean Development Mechanisms (CDMs). Already in 2009, a study by DANIDA argued that the combination of CDMs with microfinance “can resolve some of the prevailing barriers for channeling CDM funds into LDCs [Least Developed Countries]”.³³ For instance, Microenergy Credit – an organisation that works with microfinance institutions across the African continent – taps into carbon markets by using the carbon offsets of small microfinance clean energy projects, such as solar home systems and efficient household cookstoves.³⁴ Microfinance institutions can then expand their activities using the supplementary revenue gained from earning emission reduction credits.

Third and finally, while blended finance has long supported financial inclusion, notably through blended microfinance investment vehicles,³⁵ agricultural finance has recently been identified as one of the new ‘frontiers’ of blended finance solutions.³⁶ Amongst the five catalytic initiatives announced at COP21 by the Glasgow Financial Alliance for Net Zero – a forum launched in 2021 by UN Special Envoy for Climate Action and Finance and former UK Prime Minister Johnson’s Finance Adviser for COP26 to lead the mobilisation of private capital – was the Innovative Finance for the Amazon, Cerrado, and Chaco (IFACC). Through blended finance mechanisms, one of the aims of this ‘Wall Street Consensus initiative’ is to provide microloan products to farming smallholders to foster deforestation-free farming.³⁷

The promises of microfinance for climate change adaptation

The promises made by proponents of microfinance are numerous and are geared towards both climate change mitigation and adaptation. At its most fundamental level, it is argued that microfinance, through the provision of credit and other financial products, could help the poor build and diversify assets, develop alternate livelihood opportunities, and spread risks.³⁸ This in turn would allow the reduction of vulnerability both before (e.g., livelihood diversification) and after (e.g., savings and insurance) a climate shock, and contribute to better coping (e.g., credit) and recovery from periods of hardship.³⁹ Microfinance is therefore considered well placed to fill what is commonly called the ‘adaptation deficit’ – that is, the “shortage of adaptive capacity that a household has because of its lack of capital in its various forms”.⁴⁰ Importantly, adaptation is understood in most of this body of literature to occur at the local level and consists of decentralised, autonomous, flexible, and private actions undertaken by individuals and households.⁴¹

In addition to its contribution to climate change adaptation, microfinance is also deemed key to efforts geared towards climate change mitigation. Through the financing of low-income households to gain access to cleaner and renewable energy and environmentally friendly products, it is argued that microfinance initiatives can help mitigate the effects of climate change and contribute to greenhouse gas reduction.⁴²

How concretely would microfinance institutions need to adjust their operations and products? For financial inclusion proponents, many of the existing actions of microfinance institutions do already “automatically reduce vulnerability to climate risk” even when they do not take active steps to take into consideration such risks.⁴³



For financial inclusion proponents, many of the existing actions of microfinance institutions do already “automatically reduce vulnerability to climate risk” even when they do not take active steps to take into consideration such risks.

Consequently, climate change constitutes another reason to scale up microfinance. By being urged to become climate adaptable via microfinance debts in the face of climate-related shocks and disasters, people's capacity to navigate and survive ordinary climate crises are recast as profitable investment opportunities.⁴⁴

In recent years however, a set of new or improved products, programs and strategies have been brought to the fore to allow microfinance institutions to both cope with climate impacts and optimise their adaptation potential. First among those is the idea of 'climate proofing' existing financial products. For loan products, for instance, this entails modifying the terms and delivery methods of credit – that is, making repayment systems more flexible and allowing the rescheduling of instalments in the event of a climate shock that impacts their capacity to repay. Loan contracts could also be changed as to allow borrowers to take out loans only if they commit to making active steps towards some forms of climate change adaptation (e.g., building a house that is less prone to floods or turning to crop varieties that are more tolerant to droughts). Micro-insurance products, as well as weather warning messages coupled with a broader dissemination of climate-change knowledge, are also deemed important to reduce the socio-economic impacts of adverse climate events.⁴⁵ For instance, Dowla argues that microfinance institutions should provide health insurance to help their clients to deal with climate change-related increases in medical expenses.⁴⁶

Alongside the climate proofing of existing financial products, new products, especially index-based insurance products, have been developed and are now sold by many microfinance institutions across the world.⁴⁷ In contrast to traditional insurance where payments are based on measured loss, index-based insurance links payments to environmental variables used as a proxy for likely damages, such as flood levels, cumulative temperature, and cumulative rainfall. If the index crosses a prespecified threshold, payouts are triggered to insured farmers.⁴⁸ Index-based insurance are heralded as promising products for reducing agrarian vulnerability, improving climate risk management and resilience, and boosting food security among smallholder farmers in developing countries.⁴⁹

Nevertheless, not everybody is convinced. Critical scholars have highlighted the infusion of microfinance policy with neoliberal ideas of maximum individual dependence on the market to cope and adapt to climate change impacts.⁵⁰ Simply put, adaptation in this mould must be achieved autonomously, and its costs borne individually: a decentralised and incremental policy position that is poorly equipped to address structural climate vulnerabilities but ideally suited to the further integration of populations into processes of capital accumulation. Microfinance thus contributes to the further extension of the market and can even lead to increased and/or new risks and maladaptive outcomes via, among other things, over-indebtedness and exposure to market fluctuations.⁵¹ The following report draws from and further evidences the need for this critical work. Importantly, as new adapted products are only slowly emerging in Cambodia,⁵² this study mostly focuses on the impacts of microcredit on households' coping and adaptive capacity in a context of increasingly unpredictable and erratic weather patterns.⁵³ Rather than helping farming households to better cope with and recover from climate-related shocks and periods of hardship such as bad or failed harvests, microfinance often contributes to reproducing and exacerbating socio-economic and climate precarity and harm at the household level.⁵⁴ Microfinance can lead to more dangerous, individualised, and depleting efforts to manage increasingly unsustainable debt repayment requirements.



Research methods

This report draws from field research carried out in 3 villages in the provinces of Prey Veng, Kampong Cham, and Battambang primarily between October 2020 and February 2022.

Research methods

This report draws from field research carried out in 3 villages in the provinces of Prey Veng, Kampong Cham, and Battambang primarily between October 2020 and February 2022, employing multiple methods, sites, and sources. To ensure anonymity for respondents, each village is referred to as Village A, B and C. Further information about the villages can be found in Appendix 1.

Quantitative Household Survey (October – November 2020)

621 quantitative household surveys complemented by 1220 individual questionnaires were carried out in 3 villages with differentiated vulnerabilities to droughts and floods, and distinctive reliance upon rice-based agriculture. Surveys examined demography, household occupations, migratory histories, household assets, and liabilities, saving, borrowing, and lending practices, as well as experiences of and capacity to adapt to the impacts of climate change. In each of these three villages, enumerators attempted to deliver the survey to every villager over the age of 18. However, due to a combination of migration patterns, agricultural schedules, and refusals, the final figure was lower than the total estimated population.

Environmental profiling of the study villages (January 2018 – December 2021)

Semi-structured interviews with villagers and local stakeholders were undertaken in addition to primary and secondary GIS data collection, secondary environmental, climate, and agricultural data collection, as well as landscape observation and documentary photography, allowing the analysis of annual and seasonal socio-ecological changes in all three villages. These included changes in rainfall patterns and intensity, temperatures, agricultural practices, land use, water usage, and irrigation systems at the provincial and sub-provincial levels.

Qualitative interviews with villagers (March – May 2021)

Semi-structured interviews were carried out in the three villages with 30 households (60 participants overall). For each household, two members were interviewed, often but not always comprised of the two spouses. A stratified sample of households was first drawn from the quantitative household survey, representing different levels of indebtedness. Four households in each of the five indebtedness strata were then purposively sampled based upon survey data on land ownership, sources of debt, as well as migration trajectories. Interviews with participants explored the links between debt, nutrition, physical and emotional health, and climate and environmental change and disasters. All participants' names in the report are pseudonyms.

Photo elicitation (March – May 2021)

Researchers provided cameras to 15 households (30 participants, i.e., half of the qualitative interview participants) for one week, asking them to photograph key elements of their daily livelihoods, relating to food and financial challenges in particular. After one week, two members of the research team returned to the research sites with a colour printer, collected memory cards from informants' cameras, and printed two copies of the images they had captured during the previous week. These images were then numbered, with one set returned to each participant and one identical set provided to the enumeration team. Using these identically numbered images, the research team then conducted interviews with informants by telephone, in which images and the rationale for taking them were discussed. All participants' names in the report are pseudonyms.

Local stakeholders interviews (December 2021 – February 2022)

39 interviews were conducted in the three villages with local authorities, microfinance institutions, informal credit providers, health professionals, religious figures, and local NGOs. Interviews discussed broad socio-economic changes in the villages, the impacts of climate and environmental change on the villagers, the role of formal and informal credit, and the various challenges that villagers face regarding debt repayment. For participants who did not wish to be identified, names and organisations were anonymised.

National stakeholders interviews (January – February 2022)

22 interviews were conducted in Phnom Penh with government ministries, central and regional development banks, microfinance institutions, academics, and international financial and development institutions. Interviews explored the links between microfinance and climate change adaptation, the impacts of Covid-19 on the microfinance sector, the emergence of digital financial inclusion as well as issues around over-indebtedness and land sales. For participants who did not wish to be identified, names and organisations were anonymised.

Microfinance in Cambodian life
Microfinance in Cambodia has grown into the world's largest on a per capita basis and most profitable privately-owned microfinance sector.



Microfinance in Cambodian life

Debt, especially microfinance debt, is prevalent and normalised in Cambodia today. From its beginnings in the early 1990s as a non-governmental institution-led post-conflict job creation intervention, microfinance in Cambodia has grown into the world's largest (on a per capita basis) and most profitable privately-owned microfinance sector. This part of the report turns to the significance of debt in Cambodian life, tracing a brief history of its microfinance sector, evidencing the prominence of microfinance debt in study villages, and the tactics used by credit officers to encourage borrowing and collect repayment. Given the commonplace use of agricultural or residential land for collateral, the findings raise the high stakes of default for borrowers and the mental stress that is experienced as a result.

A short history of microfinance in Cambodia

The microfinance sector is dominated by a small number of large institutions providing microcredit and other micro-financial services. ACLEDA, Hattha Bank, Sathapana, Amret, LOLC, and PRASAC hold around 75 percent of the country's microloans (see Box 1). These institutions include large conventional microfinance institutions, the largest being PRASAC, but also a growing number of commercial banks formed as a result of the conversion of a microfinance institution. ACLEDA is Cambodia's largest commercial bank, but it began its life as a microfinance institution before converting into a commercial bank in the early 2000s. Notwithstanding its changed legal format, it has retained a highly profitable microcredit portfolio (microcredit accounts for as much as 80-90% of its total loan portfolio). Importantly, foreign investors now own almost all of Cambodia's largest financial institutions providing microcredit and have injected a renewed emphasis upon maximising profit through extensive lending rather than responding to the genuine financial needs of the community.

By 2017, over-indebtedness among the poorest communities in Cambodia began to create real concern. Such was the rapid growth that real fears emerged that an eventual 'meltdown', perhaps even along the lines of the hugely damaging 'boom to bust' that took place in Andhra Pradesh state of India in 2010,⁵⁵ was just around the corner. Moreover, given that a large percentage of Cambodia's microloans are collateralised with a land title, the prospect loomed large that many over-indebted clients would lose their land; either formally through due legal process or, more usually, through an informal sale brokered by the microfinance institution in conjunction with other local parties (e.g., the village chief).⁵⁶ Fearing a backlash from the poor and political problems, the Cambodian government stepped in with a number of emergency measures. Principally this involved introducing an interest rate cap (set at 18 percent) which was designed to temper the fast growth of the microfinance sector by making it less profitable to lend. This measure had no effect, however: in fact, growth actually *accelerated*.⁵⁷ More recently, the arrival of 'fintech' (financial technology) has allowed many existing microfinance institutions, plus several fintech newcomers, to announce that they can now very profitably supply even more microcredit to the poorest in Cambodia, thus potentially adding to the problem of over-indebtedness.

The Sri Lankan family-owned LOLC is one of Sri Lanka's most profitable companies. Much of its wealth in recent years has been generated from its purchase in 2007 of the microfinance institution, PRASAC, for just over US\$200 million, which was then sold off in two tranches (in 2020 and 2022) to a major South Korean bank for a combined total of just over US\$900 million, making a profit from LOLC of around US\$700 million. Even during the COVID-19 pandemic when Cambodia's poor were in deep distress, LOLC was able to post a record net profit in 2020 of US\$45 million, which was a rise of 3 per cent on the previous year.⁵⁸ As a result, LOLC has been turned into Sri Lanka's sixth most valuable company, and its Group Deputy Chairman and 80 per cent shareholder in LOLC, Ishara Nanayakkara, became Sri Lanka's richest individual.⁵⁹ Pointedly, LOLC has been helped into this position by various development banks that have provided it with upwards of US\$500 million in loans and guarantees that have been used to expand its portfolio. This largesse included around US\$25 million from development banks in France and Norway even though there were many reports circulating of abusive practises at LOLC.⁶⁰

Box 1: Microfinance is a hugely profitable business area in Cambodia for the largest units

Finally, as elsewhere, the COVID-19 pandemic hit Cambodia hard and the clients of many microfinance institutions were thrown into serious difficulty.⁶¹ Repayments slowed down and various loan moratoria were introduced on the instruction of the government in order to help clients manage their way through the crisis. Nonetheless, not least by ignoring the governments instructions in many cases, several of the largest microfinance institutions still went on to amass record profits during the pandemic. Meanwhile, the international development community, especially the IFC, provided even *more* discounted financial support to assist the leading microfinance institutions to expand their hugely profitable operations.⁶² Given the almost complete lack of real evidence that Cambodia's microfinance sector has made a net positive impact on the poor in the run up to the COVID-19 crisis,⁶³ investing considerable sums of international financial support in supporting many of the most profitable microfinance institutions during the COVID-19 crisis might legitimately be viewed as a textbook example of 'throwing good money after bad!'⁶⁴

45%
of surveyed households are indebted to a microfinance institution or a bank.

64%
share of these households' indebtedness is to a microfinance institution or bank.

Villages in debt

With regard to the three study villages, the research found that almost 45% of surveyed households are indebted to a microfinance institution or a bank, with MFI/bank debt amounting on average to 64% of these households' indebtedness (see Table 1). While this report explores how and why many farming households borrow from microfinance institutions both to farm rice and cope with climate-related shocks, it is important to note that microfinance loans are also taken out to finance other income-generating activities as well as daily costs of food, health, and home improvements.⁶⁵ Moreover, the same microfinance loan can often be used for various ends.

Sources	Debt from source (%)	Average debt (US\$)	Share of total debt (%)
No debt	34.8	–	–
Microfinance institutions and banks	44.6	3,638	64
Relatives and friends	24.3	724	24.3
Money lenders	8.4	964	7.1

Table 1: Debt sources and average outstanding loans among households in the three study villages

Driving factors of debt-taking in rural Cambodia

1

Decades-long withdrawal of state support in the agriculture sector and in all realms of socio-economic life.

2

Commodification of agricultural production and increased dependence on market fluctuations.

3

Intensification of rice production through extensive mechanisation and greater reliance on chemical inputs.

4

Gradual disappearance of informal and exchange labour arrangements (known as *pravâs dai*).

5

Necessity to adopt coping and adaptation strategies to deal with worsening natural environment and ever more erratic weather patterns.⁶⁶

It is within this context that microfinance institutions have been extremely effective at nurturing and consolidating farmers' dependence on formal credit in rural Cambodia. Through a mix of financial, marketing and on-field techniques, microfinance institutions ensure that debt never really leaves borrowers. The latter are not repaying debt but continually paying debt.⁶⁷

Living in the presence of Credit Officers

Taking some of these techniques in turn that contribute to the ever-growing importance of formal debt in people's lives, the reported constant physical presence of Credit Officers (COs) in the study villages was felt strongly by many study participants. More broadly, and as acknowledged by several microfinance institutions executives interviewed in the study, Cambodia's microfinance market is over-saturated. As the CEO of a major micro-finance institution said:

Here, when a farmer or a household in Cambodia wants a loan, you have 20 outlets and that's a good thing. That was the idea, right? Financial inclusion. So, financial inclusion is pretty much achieved. From a household, low-income level, generally if you want a loan, you can get one through the formal sector (...) And I think the flip side is that presence; it's overly saturated, debt is extremely easy to access, both from formal and informal sectors.

In the three villages, participants talked about how they could regularly see and hear sometimes up to eight COs at a time riding their motorbikes, going from one house to another. Not only do COs regularly visit borrowers even when the latter are not late on their repayment, they also carry out aggressive marketing strategies, trying to enrol new customers or re-enrol previous ones:

The CO always comes and visits us before Covid-19, but now he never comes here again! Before Covid-19, every 4-10 days, he always comes and visits. And I always ask him why he always comes across my house; I always pay the fee on time! He said that because our family is on his list, he has to take care of it and keep updating any data. (Samphy, Village A)

They [COs] normally come and talk to me and try to persuade me to get more loans, but I usually say no as I want to clear the old loan first. (Amar, Village B)

In addition, COs either visit borrowers every month or rent out a small office in the village for a short period of time in order to collect repayment. When borrowers are late, COs may give them a couple of days to find the money but will start chasing them soon thereafter.

A lot of bank staff will arrive at our houses to ask for repayment. [They would come] almost every day, every morning and evening. There would be 5 or 6 motorbikes around our house. (Boupha, Village B)



“They [Credit Officers] normally come and talk to me and try to persuade me to get more loans, but I usually say no as I want to clear the old loan first.”

Amar, Village B

In some instance, villagers reported that Credit Officers even go to farmers' rice field to find them:

I saw Credit Officers coming to other villagers' houses and waiting there for the whole morning to demand the payment. If the villagers were at their farms, Credit Officers would even chase them there and asked for the payment. I don't know whether they received their payments or not, but I saw them chasing the villagers wherever they were and asking for payments all the time. (Seda, Village C)

While repaying loans can be difficult for many farmers, the latter emphasised how easy the process for getting and renewing microfinance loans is. The survey shows that microfinance loans are the 'preferred sources of borrowing' for 22% of households – just after friends and relatives (25%). The qualitative interviews also reveal that one of the main reasons is related to how quickly borrowers can access microfinance loans, especially for those who are not first-time borrowers:

The loan procedure is easy, and the credit officers complete everything for us. I get money straight away at the bank, I don't need to wait for them to bring me the money at home. They just come to our house and ask us if we want to borrow more money (...) I cooperate with them well, so they know us and our characters well. ACLEDA is the same, if I want to get money, they'll offer more. They trust us and we also trust them. For ACLEDA, if the officers come to work early at 7am, we'll get the money at 8 or 9 am. (Amar, Village B)

It's good like it's easy to borrow as they don't advise us about anything. It's so easy; when they arrive, they just ask what I use the money for. I said I use it for my business, to buy stuff for sale at home and to look after my grandchildren. They did not say anything, just noted and gave me the money. When it's time for paying back they just come and get the money without saying anything. (Champey, Village B)

This constant presence of COs in villages allows microfinance institutions to collect repayment and enrol new customers. More fundamentally, it is a way for them to monitor the behaviours of each and every single element of their portfolios, hence facilitating the assessment of risk upstream in the investment chain.

The high stakes of land collateral

When Heng, a villager, was asked if microfinance institutions also provided loans to those who don't necessarily want to use it for business purposes, he responded as follows:

They still can be offered loans if they put their land as collateral; they [microfinance institutions] don't care what we use the money for! (Heng, Village A)

Heng's statement is partly echoed by the CEO of the microfinance institution mentioned earlier which, in contrast to most other microfinance institutions, is trying to get away from collaterals, with 80% of their accounts being uncollateralised already:

Leveraging your land to set up or improve a business, or improve your livelihood, it's a good idea. But... the first thing, it can lead to microfinance institutions lending based on loan to value ratio instead of looking at the merit of the business, looking at the other issues, and loans and other incomes and expenses that the family has. The microfinance institution cannot just say: how much is your land? US\$10,000? OK, I'll give you a US\$7,000 loan. That's bad. The act of taking land and/or asset as collateral for the loan needs to go along with a good assessment of the situation. And the problem with collaterals is that it can move away from that process of due diligence and understanding and risk assessment.

Currently, most borrowers in Cambodia who want to borrow from microfinance institutions as individuals and not as part of a group must own a plot of agricultural or residential land they can use as collateral. Many informal lenders also request some form of collateral before providing relatively large loans. More generally, among the surveyed households holding any type of debt, 14.3% and 19% said they are currently using or used to have their agricultural land and residential land respectively as collateral. Taken together, 28% of indebted households are using or used to have their agricultural or residential land as collateral. In Village A, one quarter of indebted households are currently using or used to have their agricultural land as collateral. As for housing, 21% of indebted households are currently using or used to have their house as collateral. In Village B, where fewer people own land, it amounts to 26.5%.

While we will see below that a concerning number of indebted households end up having to sell their land to repay loans, it is important to emphasise that even for those who do not face such enormous pressure, the emotional toll that debt, especially microfinance debt, takes is significant and constitutes one of the most salient, if maybe unsurprising, findings in the study.

28%
**of indebted households are using
or have used their agricultural or
residential land as collateral.**

The stress, anxiety, and sleeplessness of debt

Kunthea's household income mostly comes from her and her husband farming rice three times a year. Following an illness that took her to hospital as well as a bad harvest due to the combined destructive efforts of pests and hot temperatures, she had to take out a micro-finance loan to pay back her supplier who provided her with farming equipment and fertilisers. While she intended to rely on her daughter in Phnom Penh to work overtime to help her reimburse the loan, she stopped receiving remittances when Covid-19 hit and prevented her daughter from earning as much income. Kunthea then had to borrow from local money lenders to be able to repay her MFI loan:

Every time when the loan fee date is coming, I am so worried. I cannot fall asleep; I cannot eat anything. (...) When I am awake, I think too much about every other thing, I don't have money to pay the loan fee, my daughter cannot earn money either, and I am afraid that my children will get sick. Look at me, I am also sick, and I have to be responsible for the loan, so I think a lot. (Kunthea, Village A)

In Kunthea's case as in many others', stress and anxiety can hardly be thought of as the result of a sole factor. Yet, monthly debt instalments often are one of the main sources of worry. As Bona (Village C) emphatically remarks: 'Most people said that they are afraid of Covid-19, but they are afraid of the banks even more!'

Debt, and struggling to repay them, contribute to not only high levels of stress and anxiety but also sleeping problems for members of farming households. Among them are Amara, Chan, and Seda who, like many others, borrow from multiple sources, including microfinance institutions, partly to cover farming-related expenses:

It's very often [that I lack money]. I work to earn money to repay my debts. We don't have all the money to pay off all our debts. If we owe 10, we will repay 2 to this lender and the other 2 to another lender, something like that. (...) Sometimes, when I go to bed, there are many things appearing in my head and it is so hard to fall asleep. I always think that I am the pillar of the family, so I have to work harder for my children. (Amara, Village A)

If the paddy rice is not yieldless, we can make some money to return the money. But if it is yieldless, I am worried that I don't have money to return to the money-lender. (...) Because I owe the moneylender, I cannot sleep well. (Chan, Village C)

Every time I wake up, the loan settlement is always in my head. I don't know what to do to be able to pay for it. It causes me sleeplessness and a lot of thoughts. (Seda, Village C)

"Every time I wake up, the loan settlement is always in my head. I don't know what to do to be able to pay for it. It causes me sleeplessness and a lot of thoughts."

Seda, Village C

While farmers often linked their physical and emotional stress to the next loan instalment, they also emphasised that the shame and reputational damage of having credit officers to come and visit their home to claim late payments was to be avoided at all costs.⁶⁸ In fact, repaying debt on time and in full is essential to remain creditworthy – that is, to be able to continue taking out loans in the future. The necessity of creditworthiness comes however, as this study will expand below, at an extremely high cost for many and at a time when the need to borrow to keep farming has never been so acute.

(Micro)credit in a changing climate

The now-dominant role of microfinance as an instrument to finance both households' production and social reproduction has combined Cambodia's worsening ecological pressures with issues of formal debt and indebtedness.



The necessity of (micro) credit for farming in a changing climate

The intensification of rice agriculture has made the costs of production not only fluctuate but also increase considerably. Shifts to commercial rice species, greater use of machinery and chemical inputs, and investments in irrigation have led many farming households to take on ever more debt to finance their livelihood activities.⁶⁹ While credit has always played a role in agriculture production, the now-dominant role of microfinance as an instrument to finance both households' production and social reproduction has combined Cambodia's worsening ecological pressures with issues of formal debt and indebtedness. Increasingly frequent failed harvests due to unpredictable and erratic weather patterns have become as much of a socio-ecological as a socio-economic phenomenon.

Climate vulnerability

Cambodia is a country that remains dependent on rain-fed agriculture, with a tropical climate that is characterised by high temperatures and two separate seasons: a rainy season, from May to October, when 80-90% of annual participation falls, and a dry season, from November to April, with cooler temperatures.⁷⁰ In recent years, however, Cambodia has been recognised as one of the most climate insecure nations globally,⁷¹ with climate change routinely described as 'a major threat' to the economy and society of Cambodia.⁷²

Environmental data shows that temperatures have risen considerably,⁷³ long-standing rain patterns have shifted,⁷⁴ and the incidences of extreme weather events have increased.⁷⁵ From 1960 to 2005, Cambodia witnessed an increase of 0.8°C in the mean temperature.⁷⁶ Models estimate further increases from 0.3°C to 0.6°C by 2025, and another 1.4°C to 4.3°C by 2090.⁷⁷

For most Cambodians, the practical implications of these changes are an excess or a deficit of water. Over the last century, rainfall patterns have shifted significantly, undermining the viability of smallholder agriculture by increasing its risk and unpredictability.⁷⁸ Variability in rainfall patterns in Cambodia are reflected in regional data, which indicates that a historically bi-modal rainfall distribution, previously peaking in July and September, has shifted towards a mono-modal pattern, now peaking in September alone. Models also predict a dryer dry season and an increasingly wet rainy season, with a larger proportion of total rain in the rainy season resulting from extreme weather events.⁷⁹ Fluctuations to the South-East Asian Monsoon – a subsystem of the East Asian Monsoon – creates high levels of variability in climatic conditions.⁸⁰ The incidences of flood and drought have steadily increased, with the early 2000s exhibiting a pattern of 'alternating floods and droughts' for five years consecutively.⁸¹ The 2016 drought was declared by the Cambodia Prime Minister to be the 'worst natural disaster to hit Cambodia in 100 years.'⁸²

61%

of farming-only households reported a major increase in their use of credit for agriculture compared to 10 years ago.

35%

of households that farm alongside other economic activities reported a major increase in their use of agriculture credit.

Agricultural production in Cambodia relies heavily on smallholder farmers.⁸³ The majority of these smallholders engage in rice production, which contributes considerably to national exports and economic growth.⁸⁴ In 2018, 10.8 million tons of rice were produced, with exports ranging between 4 and 5 million tons.⁸⁵ Rice farmers are especially vulnerable to the impacts of climate and environmental change, as increased temperatures and fluctuations in rainfall affect production yields. Occurrences of flooding, resulting from a combination of flash flooding and fluvial flooding, have negative impacts resulting in the destruction of rice paddies, household residences, infrastructure and even killing livestock.⁸⁶ Impacts of drought are similarly disastrous, with the potential for severe cases to destroy up to 82% of the potential rice harvest.⁸⁷ Consequently, many farmers frequently absorb considerable crop losses.⁸⁸ Insufficient irrigation systems leave farmers individually responsible for adaptation to such climate shocks, often demanding private investments in irrigation infrastructure.⁸⁹

At the same time, the need for rural labour has decreased due to the widespread transition from the labor-intensive transplanting method of rice cropping to a broadcasting system requiring only one fifteenth of the labour.⁹⁰ The cumulative impact of these trends and events is evident in patterns of rural-urban migration, as many subsistence farmers are forced to diversify income sources to sustain their livelihoods in an increasingly unpredictable climate.⁹¹ Over a third of Cambodians have lived in more than one province in their lifetime, with almost 10 percent of the population living abroad, predominantly for work.⁹²

While these trends and dynamics are important to grasp at the national level, it is also vital to understand how these play out at a more regional and even local level. The impacts of environmental and climate change are felt differently and unevenly across provinces and villages, as well as within villages themselves: “changes to the climate are not experienced directly, but via the articulated geography of livelihoods and resources”⁹³

On this front, the research shows the disproportionate impact that these impacts are having on farming households in the study villages.⁹⁴ 61% of participants in farming-only households reported a major increase in their use of credit for agriculture compared to 10 years ago. 35% of participants in households that do farming alongside other types of economic activities reported a major increase in their use of agriculture credit. Overall, the household survey indicates that farming households are significantly more indebted than non-farming households.

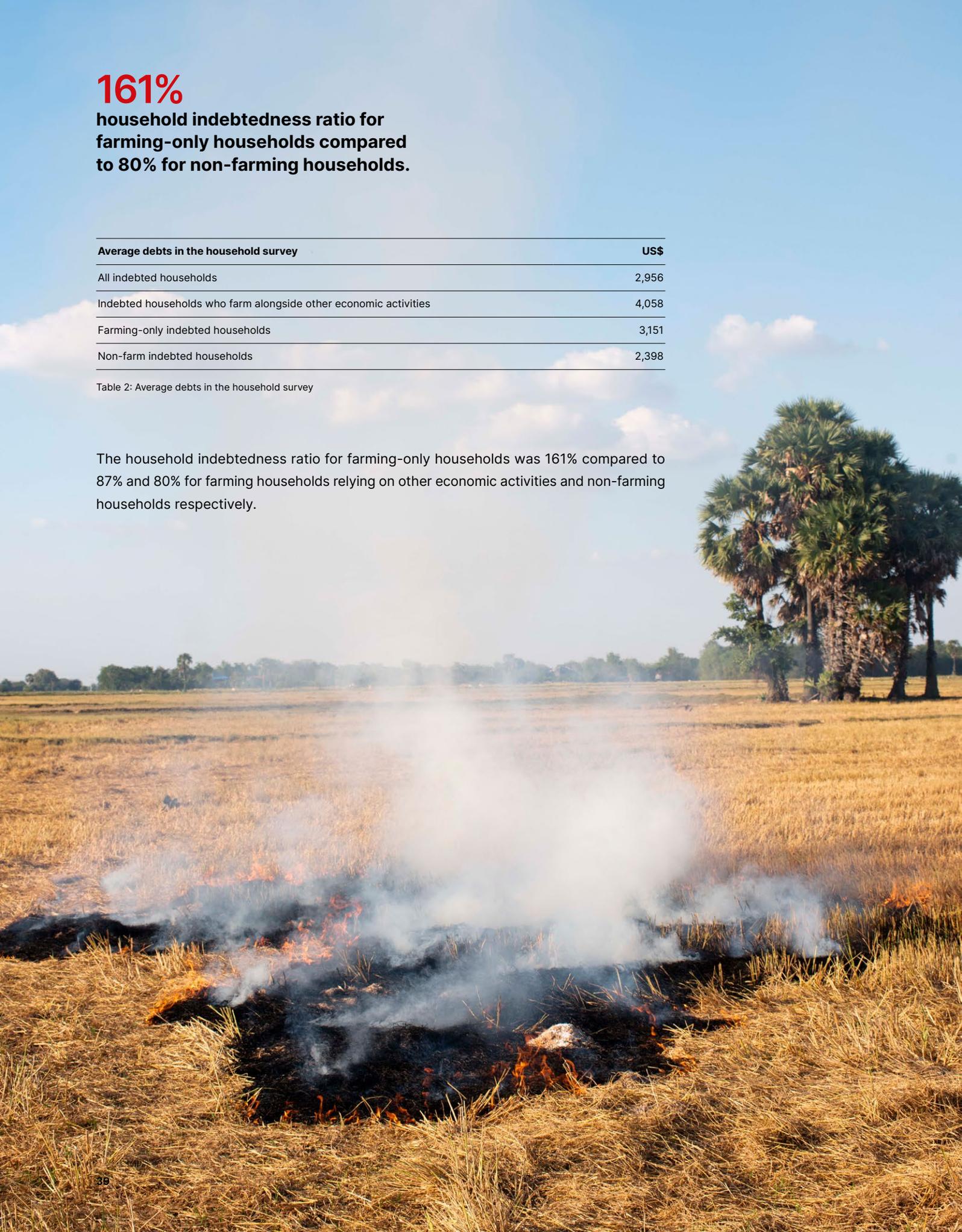
161%

household indebtedness ratio for farming-only households compared to 80% for non-farming households.

Average debts in the household survey	US\$
All indebted households	2,956
Indebted households who farm alongside other economic activities	4,058
Farming-only indebted households	3,151
Non-farm indebted households	2,398

Table 2: Average debts in the household survey

The household indebtedness ratio for farming-only households was 161% compared to 87% and 80% for farming households relying on other economic activities and non-farming households respectively.



The shift to commercial rice species and the need for microfinance borrowing

Responding to a combination of market pressures, labour shortages, and ecological changes,⁹⁵ many farmers in all three villages have shifted from locally-adapted rice varieties (*Srov Vosa*)⁹⁶ to commercial rice species (*Srov Prang*)⁹⁷ which require highly-regulated water, an extensive amount of fertilisers and pesticides, as well as intensive care to optimise the outputs.⁹⁸ Traditionally, farmers located on the Mekong and Tonle Sap flood pulse grew various types of rice that were adapted to the local environment.⁹⁹ In contrast, new varieties – primarily imported from Vietnam and Thailand – are not bred to adapt to specific ecological conditions but to increase productivity and shorten the growing period. In fact, with these new varieties, farmers can produce more yield and cultivate multiple times per year from the same plot of land. On average, the native varieties produce fewer than 2.5 tons/ha from a 4 to 6-month harvest whereas the modern varieties can produce up to 7 tons/ha in 3 months. In Village A, where irrigated water is available all year round, some farmers cultivate rice 3 times per year.

However, in order to cultivate *Srov Prang*, farmers have to invest significantly more in chemical supplies, machineries, and irrigation systems.

Farmers also must spend more on seeds when cultivating *Srov Prang*. With local rice species, farmers can keep the seeds and pass them on from household to household and from generation to generation. Interviews with seed sellers and farmers suggest that with modern varieties, on the other hand, the yields usually drop after three seasons. For each hectare of paddy, farmers have to spend on average US\$250 for 250kg of seeds. After three seasons however, farmers and seed suppliers suggested that productivity starts to decline.

The household survey indicates that farming households are significantly more indebted than non-farming households.

Increased need to buy fertilisers and pesticides

In all three villages, 34% and 30% of surveyed participants reported a major and minor increase respectively in the use of chemicals and fertilisers compared to five years ago. 45% even reported a major increase in their use of fertilisers compared to just one year ago. Farmers said they use at least 5 sacks of fertilisers per hectare of land for Srov Prang while Srov Vosa requires fewer than 2 sacks per hectare. Additionally, although the required amount of pesticides and herbicides being used per cultivation remains unpredictable, most farmers suggested that they have to spend more money on pesticides as the intensive cultivation practice of Srov Prang makes the latter more exposed to pest outbreaks, including snails and insects. In fact, 62% of participants in all three villages reported either a minor or a major increase in attacks by pests compared to five years ago. In Village A and Village B in particular, farmers noticed that a new species of snails emerged after they started cultivating Srov Prang. Many farmers have to apply pesticides to combat pests immediately after broadcasting the seeds. Farmers complained that the more pesticides they use, the more pests there are and the stronger they become. Ratha, a farmer in Village A, said: "I think the pesticides create pests. The more people spray, the more pests there are in the fields."

Villagers complained that if they don't apply pesticides, snails would eat the seeds and the sprouts before they turn into plants. Snails tend to grow and spread extremely fast. Eggs hatch overnight and become mature within a week. Ratha said that they can destroy an entire field in one of two nights. An interview with a pesticide shop owner confirmed that farmers could spend up to US\$25 per hectare of rice multiple times a

year. A farmer the study team spoke to in Village A said that following the broadcasting of the seeds, he usually spends about US\$15 for a mix of pesticides and herbicides for less than a hectare of paddy field. Fertilisers constitute an even more significant financial burden, with farmers having to spend several hundred dollars per cultivation - that is, between five and eight sacks (250-400kg). Furthermore, in all three villages, input (e.g. fertilisers, pesticides, and petrol) and output prices fluctuate drastically and often are out of farmers' control. For instance, in 2021, the price of fertilisers increased from US\$20 to US\$40 a sack of 50kg within a month. Having started their cultivation before the price of fertilisers doubled up, some farmers we spoke to regretted that they did not have a choice but to continue growing the rice.

64%

of participants reported an increase in the use of chemicals and fertilisers compared to five years ago.

45%

even reported a major increase in their use of fertilisers compared to just one year ago.

62%

of participants reported an increase in attacks by pests compared to five years ago.

Machinery costs

In recent years, traditional agricultural practices have rapidly been replaced by machinery for broadcasting, ploughing, and harvesting, all of which contribute to the high cost of production. Reflecting the situation nationally, a key reason for this is the shortage of labour. Most farmers have divided their household labour between migration and farming, meaning that many depend on machinery and have given up manual cultivation processes. Those remaining in rural villages tend to be older than those who migrate. In all three study villages, rice production involves machinery in all stages from broadcasting to harvesting. While farmers in Village A traditionally broadcasted rice manually, many now employ broadcasting machines that speed up and improve the cultivation process (see Figure 1). Although the cost of a broadcasting machine amounts to around US\$100, farmers said that it also allows them to save up to 50kg of seeds per hectare. Nevertheless, a broadcasting machine only lasts a few years, and farmers must either replace it or spend money fixing it.



Figure 1. Farmers planting rice with a broadcasting machine, photo by Sopheak Chann

Harvesting rice is one of the most critical stages of the process as the rice needs to be harvested in a very short period of time. In fact, rice needs to be dried soon after reaping or else becomes spoiled within a few days. Due to the high yield of the modern rice varieties as well as a structural shortage of labour, most farmers are not able to dry their rice manually and do not have access to storage facilities. This renders farmers dependent on production systems beyond their control; most of them must ensure that their rice ripens at the same time as other farms and when buyers are available to purchase it. In fact, many farmers sell their rice immediately after harvesting. After the harvesting machines reap and thresh the rice, the rice is then ready to be bagged up and shipped out (see Figure 2). A rice harvesting machine costs between US\$40,000 to US\$80,000, which means that most of them are not owned by farmers but by wealthy outsiders, some of whom have connections with rice buyers or brokers. Some farmers the study spoke

to complained that they did not have much choice but to sell their rice at undesirable market rates. People in Village A said they could only make a profit if the selling price was higher than Riel 1000/kg (US\$0.25). Yet, in late 2021, the reported price was around Riel 800/kg (US\$0.20). Farmers could barely pay back the money they had borrowed to buy fertilisers, pesticides, petrol, and rent the harvesting machines. What this means is that farmers have been pushed further into a market system in which their ability to choose what to grow, how to cultivate their rice, and when to sell it, is decreasing significantly.



Figure 2. Farmers collecting rice from a harvesting machine, photo by Sopheak Chann

Irrigation and drainage

With *Srov Prang* requiring highly-regulated water and thus being more sensitive to floods and droughts, irrigation systems – when available – are needed and extra costs occur. More often than not, farmers are the ones shouldering the burden. In Village A, where irrigation systems and groundwater wells are present, the costs of irrigation can be high. A farmer in the study had to pay US\$60/ha per season in order to access openly irrigated water. In turn, the establishment of a groundwater well that can supply between 2 to 5 hectares of land costs between US\$700 to US\$1,000, including US\$150 for the drilling, US\$400 for renting the machine, US\$100 for pipes, and the rest for other pumping gears. To access water from drilled wells, a farmer would usually spend between US\$50 to US\$150 per harvest depending on the depth of the well and rain availability. In Village B and Village C, access to water is much less reliable as irrigation infrastructures are either not available or dysfunctional, and mediated by power relations.¹⁰⁰ As a result, many farmers tend to cultivate *Srov Prang* during the wet season, thus running the risk to see heavy rains or small droughts damaging their rice.

In addition to unreliable access to water, the study villages also experienced extensive changes in land topography due to infrastructure developments that led to drainage system issues. In Village A for instance, while irrigation is currently extensively available,

most farms cannot access drainage canals. In 2020, unusually heavy rains in December – when it is usually time for farmers to harvest – caused severe damage because rainwater could not be drained out of the fields. Similarly, in Village B, new irrigation canals – made of concrete and positioned higher than the paddy fields – prevented water from flowing out of the field (see Figure 3). In Village C, the rehabilitation and extension of the national road 5 also blocked the water flowing from the upstream of the local river into the Tonle Sap. In 2021, farmers complained that their crops had been heavily damaged because of the seasonal floods from the local river. While floods would usually only last for several days before the roads were rebuilt, floods last year lasted for more than 2 weeks.



Figure 3. Canal dike that farmers broke to release water from their paddy fields, photo by Sopheak Chann



Over-indebtedness as coping strategy

To repay their loans, many farmers have no choice but to adopt coping strategies that require significant sacrifice or are harmful to their health and well-being. This is leading to an over-indebtedness emergency in the country.

Over-indebtedness as coping strategy

Following a poor or failed harvest, many farmers the research spoke to said they struggled to repay their loans. Two or three bad yields in a row could lead to even more dire consequences. While farmers who borrow from friends, relatives, and neighbours to cultivate rice might be – though not necessarily – in a position to renegotiate the terms of their loans, it is much more complicated when loans are taken out from suppliers, ‘informal’ money lenders and, to a greater extent, microfinance institutions. With microfinance institutions, repayment requirements often are much stricter, with interest having to be repaid every month, and the principal in lump sums, between two or three times a year, usually after the harvest.

Given the extent of indebtedness experienced by farming households, and the acute pressures this puts on their mental health, many have no choice but to adopt coping strategies that require significant sacrifice and/or are harmful to their health and well-being in the short or longer term. This is leading to an over-indebtedness emergency which greatly undermines borrowers’ adaptive capacity in the longer term.

Coping strategy

Borrow more

The main challenge they are facing, I think, is debt. Most farmers take loans for farming. As we know in our country as a whole, our agriculture depends on rain-fed farming. The problem is rice yield is not stable from year to year. The second point, when the rice yield is low, farmers cannot settle their debts. Farmers pay back the interest monthly while they pay the principal back once they harvest. [When they cannot settle the debt], they sometimes get a loan from other institutions to pay back the current one. (MFI Branch Manager, Village C)

12.5%
of indebted participants said the last time they borrowed from a microfinance institution was partly to repay another loan.

When struggling to repay their loans due to a bad harvest, farmers often have no choice but to take out further loans to reimburse what they owe the initial lender. When the original lenders are friends/neighbours or suppliers of farming equipment (e.g., fertilisers, diesel, and pesticides), microfinance loans sometimes are taken out to fill the gaps. Loans from a microfinance institution can also be taken partly to repay loans from other microfinance institutions. In fact, 12.5% of surveyed indebted participants said the last time they borrowed from a microfinance institution was partly to repay another loan. Conversely, we spoke to several farmers like Dara who had to go to so-called 'informal' money lenders to pay back their microfinance loans:

Sometimes, I could not earn enough to pay the bank loan. (...) I was looking for a private loan to pay my bank loan. (Dara, Village C)

Some people who are overwhelmed with a debt crisis often borrowed money without realising their abilities to repay...Eventually, some of them borrowed money from private money lenders to repay the old ones...They decided to get high-interest loans to settle the low ones...They had to do so because they could not earn any to repay the old debts. (Local Authority representative, Village C)

Overall, repaying a loan was the third most common reason (9%) for borrowing from money lenders, after feeding household members (54.5%) and covering health expenses (20.7%).

The share of debt that Cambodian people in the countryside owe money lenders declined from 11.8% in 2014 to 4.4% in 2019/20.¹⁰¹ However, the decline is likely to be attributed to the dramatic growth of microfinance loans. In fact, the average amount of outstanding loans from money lenders grew by 60% in the same time period, from US\$592 to US\$960.¹⁰² Senior executives of some of the microfinance institutions interviewed in the study called for the regulation or even ban of such money lenders. The CEO of ACLEDA, Dr. In Channy, remarked that ACLEDA and other financial institutions were the actual 'victims' of loan sharks. However, what our research shows is that rather than being mutually exclusive, private money lenders and microfinance institutions feed off each other.¹⁰³ As a Researcher in a local NGO in Phnom Penh said:

They [microfinance institutions] created a space for them [money lenders] (...) And it's obvious when you spend time in the villages, you see how there is a space for it. If you can't repay your microfinance loan, you get a private loan. If you can't repay your private loan, you wait, you get a larger microfinance loan.

This reliance of microfinance institutions on private money lenders to keep their Non-Performing Loan (NPL) ratio as low as possible was somehow acknowledged by a senior executive of a major bank who wished to remain anonymous:

Respondent: I think one of the weaknesses, at least in my bank, is the integrity of the staff. Now I've heard of some horror stories where some loan officers resort to bad behaviours. It is not a policy of the microfinance institution, but it is a question of the lending officers. So, if the management of the companies is not able to rein in on bad behaviours, then it gives the microfinance institution a bad name. In general, all it takes is just one or two, and the whole industry gets punished.

Interviewer: When you say bad behaviours, what do you mean by that?

Respondent: Bad behaviours... If you're a borrower, you pay up in advance. Instead of paying back the microfinance institution three months in advance, I pay back one month, and I pocket the two months. The other one is adding pressure on the borrower. If they were to add pressure on the borrower, forcing them to sell the motorbike or whatever, then, it gives microfinance institutions a bad name. It is a pressure that is given and exerted by the lending officers. Sometimes it's the bank or microfinance institution policies that they don't want any borrowers to turn NPL. So, if I were a loan officer, by hook or by crook, I'd pressurize the borrower to repay. I'd tell you: borrow from a money lender. The minute a borrower goes to a money lender, that's it, there's no hope.

When converted to an annual percentage rate – the true cost of loans – interest rates from private money lenders can amount to up to 250%.

Microfinance institutions, therefore, do not tend to contribute to the eradication of what they call 'predatory' or 'usurious' money lenders. Rather, they can sometimes be the reason why farmers borrow from them, despite being the source of borrowing villagers want to avoid

the most in our three study villages. In fact, interest rates from money lenders tend to be much higher than from any other type of lender. On average in the three villages, interest rates offered by private money lenders are five times higher than those offered by microfinance institutions. When converted to an annual percentage rate – the true cost of loans – interest rates from private money lenders can amount to up to 250%. Rather than supporting farmers during or following a shock, microfinance debts often act, as we show in greater detail below, as a catalyst for harmful and depleting coping strategies to ensure repayment, undermining borrowers' future capacity to adapt to a changing climate.

Coping strategy

Work more

Following a bad harvest caused by pests and hot temperatures, Kunthea and her husband Bunroeun, residents of Village A, decided to take out a microfinance loan partly to repay other debts. They explained that the extra income that was required to repay their debt every month meant that their daughter in Phnom Penh had to work longer shifts in a garment factory:

It is difficult for my daughter; she does not have enough time to rest as she needs to work overtime at the factory until 10 pm. It is challenging for her too. (Kunthea, Village A)

Several participants said that they or other members of their household had to take up additional – often physically demanding – jobs to be able to repay their debts whereas others had to continue working against their doctors' recommendations due to debt they owed microfinance institutions. As Kun Tharo, the Coordinator for the Centre for Alliance of Labor and Human Rights (CENTRAL), highlighted:

This is the experience that we are having when we meet with workers at the grassroots level, in different places, in different sectors, when we are talking about what is the problem that you are facing nowadays? Just talking outside of work. And this is about indebtedness. I think that is clear that workers really pressure themselves to work harder, trying to find jobs and some have to undertake overtime jobs to get extra money. Vulnerability in terms of they don't have so much time to relax. They don't have so much time with their families. They have to get up early in the morning, travel, and do extra work for 12 hours, but then when they come back, they don't have enough sleep. They don't have anything to eat. They don't have spare time with their families. So, those are really indicative of how it creates anxiety and depression. It's not just about work, but, at the end of the day, what their mental focus is about.

Coping strategy

Sacrifice food

Following a bad yield caused by floods and a rice-related disease, Seda and her household were unable to produce their usual harvest but still had to repay the debt they acquired to farm. This significantly affected the type of food they were able to afford. As she explained:

We didn't have much money. We ate what we had and what we could find by ourselves. Sometimes, we ate steamed fish paste, marinated-steamed fish in banana leaf, and other basic foods (...) My food conditions were so poor. I needed to minimize my expenses as much as I could to save money to pay the loan (...) We ate crabs, snails, and other basic and non-nutritional foods that we had. We were used to eating good and healthy foods. Instead, we had to eat those tasteless and non-nutritional foods. (Seda, Village C)

Many farmers we spoke to had to show flexibility regarding the food they could or could not eat. "We have to pay the debt first", Kunthea said. "I'd rather eat less to make sure I have enough money to repay the loan", Amar remarked. This necessity to pay back loans first sometimes came at the expense of food preferences, food diversity and nutritional quality as well as – though to a much lesser extent – entire meals altogether.

These dynamics are to be understood in a broader context in which 55.6% of all surveyed participants reported that in the last four weeks they or any other household member were not able to eat the kinds of foods they preferred because of a lack of resources, and 21.2% said they or any other household member had to eat a smaller meal than they felt they needed because there was not enough food (see Table 3).¹⁰⁴ The Household Food Insecurity Access Scale (HFIAS) – which is a measure of the degree of food insecurity (access) in the household in the past four weeks – indicates that among the 1,150 respondents of the household survey the HFIAS rating was 4.6, indicating that households were suffering from mild food insecurity. This was especially the case for members of non-farming households who had a higher score of 5.4. Members of households involved in farming only (3.6) and mixed activities that included farming (3.8) had lower HFIAS scores.

21%
of respondents said they or any other household member had to eat smaller meals than they felt they needed because there was not enough food.

Household types	Farming only	Farming/non-farming	Non-farming only	All
	n=280	n=270	n=600	n=1150
In the past four weeks, did you worry that your household would not have enough food?	59.3%	63.3%	70.8%	66.3%
In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	45.6%	50%	58.9%	55.6%
Did you or any household member have to eat a limited variety of foods due to a lack of resources?	33.1%	36.8%	45.9%	40.7%
Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	26.3%	24.8%	38.6%	32.4%
Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	15.2%	14.9%	26.7%	21.2%
Did you or any other household member have to eat fewer meals in a day because there was not enough food?	7.8%	9.3%	13.5%	11.1%

Table 3: Household Food Insecurity Access Scale, by household livelihood activities

As income tends to be low and often unpredictable for many, the types of food that farming households can afford change throughout the year, from 'delicious' to 'simple' food (Bourey, Village C), from food people 'prefer' to other 'tasteless' food (Choum, Village A), and from 'nutrient-rich' to 'non-nutritional' foods (Seda, Village C). For others such as Ponlok, food consumption must at times be reduced to repay debt:

We have to think carefully about the food that we consume in order to save money for the debt payment...Actually, I stay home all day, so I feel hungry a little bit but that's ok for me. The problem is that my husband is the most affected because he is working all day. Sometimes, he would only have eggs for his meal. He really thinks carefully about the food he eats. (Ponlok, Village A)



As a result, some participants talked about feeling tired and not having much energy due to the kind of food they were eating. For instance, Choum and Amara cultivate rice three times a year and sell part of the harvest to pay back their loan. After their field got flooded one year, they had to prioritise the repayment of their debt:

“We didn’t have much money. We ate what we had and what we could find by ourselves. Sometimes, we ate steamed fish paste and other basic foods. My food conditions were so poor.”

I did not want them [Credit Officers] to come over to my house...When I have less money, I keep it for my debt...I was tired because I did not have enough food. When I have nice and enough food, I have energy and don't feel tired at all. (Amara, Village A)

Lack of food or nutrient intake may lead to major health issues for household members, especially for pregnant women, the elderly and children aged under 5:

It is due to their family's livelihood being poor so there is not enough nutrition to support the baby. After a baby is born, a mother may not have enough breastmilk or even milk to feed the baby...Relating to the elderly, when they lack nutrition, their health tends to be at risk, being exposed to infectious diseases, quickly deteriorating and skin colour disease. (Health Professional, Village A)

Coping strategy

Sell assets

A large proportion of farming households we spoke to reported they had to sell some of their assets in order to repay loans in the event of a bad or failed harvest. The selling of productive assets is widely considered a harmful coping strategy in households' management of risk.¹⁰⁵ Key among those assets that had to be sold were livestock and, importantly, land. In fact, 15% of surveyed households have sold at least one plot of agricultural land over the past 10 years. 31% of those households did it to repay loans (see Table 4).¹⁰⁶

Reasons why households have sold their agricultural land in the last 10 years	%
Health expenses	34
To repay loans	31
Daily needs	15
Agricultural investment	12
Marriage/ceremony	7
Business Investment	6
Funeral	3
Education	3

Table 4: Reasons why households have sold their agricultural land in the last 10 years

In other words, 5.2% (21 out of 405) of all indebted households have had to sell their agricultural land to repay a loan over the past 10 years. Given the prevalence of microfinance loans and their much bigger size compared to any other types of loans in all three villages, it is safe to assume that a large proportion of these loans that are the source of land sales are microfinance loans. While 5.2% might not seem significant, it is important to recognise that the loss of land is one of the main reasons why the poor in the Global South fall into irretrievable poverty.¹⁰⁷ Given that microfinance is a sector of over 2 million borrowers in Cambodia (out of a total population of 16.7 million) this one development alone could suggest a very sizeable increase in irretrievable poverty.¹⁰⁸ Moreover, and as a Researcher in a local NGO said:

What is the threshold? How many need to suffer human rights abuses before it becomes a serious issue? (...) Is it one thousand? Is it 1%? I've had this actor say: "1% of borrowers suffering human rights abuses would be catastrophic." And I'm sure it's above 1%, I'm absolutely sure. Because I walk into the villages and I find them all over the place.

15%
of households have sold at least one plot of agricultural land over the past 10 years.

31%
of those households who sold their land did so to repay loans.

In the study, farming households were more susceptible to having to sell assets to repay loans than non-farming households, with 14% of farming-only households and 11% of farming (but not only) households having had to sell assets to repay loans compared to 7% for non-farming households. Farming households were also twice as likely to sell their land to repay a loan than non-farming households. The issue of unwanted or coerced land sales linked to indebtedness was partially acknowledged by some of the microfinance institutions and Ministries we interviewed, not without caveats, however. For instance, a representative interviewed from the Ministry of Rural Development was aware of farmers having to sell their land and lose their livelihoods due to microfinance indebtedness. He was however quick to state that this was because people usually borrow “without a business plan”, hence individualising responsibility for investment successes and failures and shifting the blame onto farmers themselves.¹⁰⁹

To be sure, the impacts of asset loss were unevenly felt among farmers. For instance, while Kunthea felt ‘empty’ after having to sell her one and only cow to be able to partially repay her microfinance loan, Amar said he did not regret selling some of his cows as he still had many left. What this shows nonetheless is that microfinance loans in the context of unpredictable weather patterns and climate shocks often lead to asset erosion for many, directly contradicting claims of financial inclusion proponents that microfinance facilitates the accumulation of assets and the spreading of (climate) risks.

Coping strategy

Quit farming

Several participants in the study decided to quit farming altogether. Rice farming was considered too risky and no longer worth it. For instance, Ponlok (Village A) struggled to pay their family's supplier due a bad harvest and had to take another loan to pay back their initial debt. They decided to quit farming, and now rent the field to other villagers. Ponlok's husband then migrated to a brick kiln, and the household now relies on the remittances he sends.¹¹⁰ In a similar vein, this is what Rachana had to say about farming after 3 years of flooding and droughts:

I quit farming. I quit taking loans. I survive on my own [now]. My children work [in another province], and I work here. I live based on what I can earn. I have taken risks for two or three years already, but it did not turn out very well. We couldn't develop. (Rachana, Village C)

Giving up on farming and migrating to be able to earn more income and repay their debt was also the decision that Devi and his household made. When asked why he decided to go and work in Thailand, Devi answered as follows:

I did not have money for the daily expenses. I had borrowed money from two microfinance institutions at the time, so I had to go there...My wife didn't want me to work in Thailand, but I was committed to leaving Cambodia. (Devi, Village C)

The reason why Devi's wife was worried when he left Cambodia was because he decided to cross the border without any documents. She was afraid he could be arrested by the police. Devi, however, was determined to leave. He had hoped the microfinance loan would have helped him earn enough money from growing sweet potatoes. However, "it did not turn out as expected", Devi lamented. After spending a few challenging months working in a brick kiln, Devi realised that the income he earned would not be enough to solve his debt issues. Migrating to Thailand was, in his view, the only solution. While domestic and international migrations can be framed as adaptations, what the case of Devi's household highlights is how microfinance indebtedness exacerbates not only the everyday financial challenges at home but also the fragility of coping and adaptive strategies that migrant households employ across space.¹¹¹

"I quit farming. I quit taking loans. I have taken risks for two or three years already, but it did not turn out very well."

Rachana, Village C





Conclusion

Not only should climate debt be acknowledged by industrialised countries, international development and financial organisations, and transnational corporations, but it should also be repaid.

Conclusion

The operations of microfinance in rural Cambodia have become ubiquitous over the past three decades. While its general positive impacts have now been seriously called into question, a discourse that sees microfinance as an instrument of climate change adaptation has recently arisen in many countries of the Global South, including Cambodia. The form taken by this adaptation, we argue, is of a neoliberal nature, with adaptation not referring to collective and social transformations of external and structural constraints, but rather to a transformation of individuals themselves to better cope and adapt to environmental destructions in an entrepreneurial and autonomous manner.

Microfinance has long operated in an environment increasingly vulnerable to ecological pressures. The findings from this project show that microfinance debts, while helping farming households to cope with periods of hardship in some cases, contribute to reproducing and exacerbating socio-economic and ecological precarity and harm for many. Facing not only increasingly frequent failed harvests but also debt repayment problems, farming households are pushed to take on individualised, depleting, and sometimes dangerous strategies to manage worsening conditions at home. Such repertoire of strategic sacrifices – which rely upon the physical and emotional depletion of so many borrowers – range from cross-borrowing and overworking, to the reduction of food consumption and diversity, to unwanted migrations and asset loss, including land. This ultimately reduces borrowers' adaptive capacity in the longer term.

While new adapted financial products are emerging in many parts of the world as well as in Cambodia, their implementation and effects have been the source of many criticisms already.¹¹² More fundamentally, such products are most likely to offer only tweaks to a development agenda that individualises risk management, leaves intact the root causes of poverty and inequalities at the local, national and global scales, and, perhaps most importantly, evades any questions of responsibilities to the world's ecological crises.

As this report has demonstrated, the burdens of environmental precarity, adaptation and household debt are currently being placed on poor borrowers in the Global South. To address this, policymakers and development practitioners' attention should turn to another type of debt: the climate debt the Global North owes the Global South for its historical and on-going appropriation of the planet's capacity to absorb greenhouse gases and its disproportionate contribution to the effects of climate change.¹¹³ Not only should climate debt be acknowledged by industrialised countries, international development and financial organisations, and transnational corporations, it should also be repaid.¹¹⁴ While it is beyond the scope of this report to explore in detail how this could take place in practice,¹¹⁵ a set of foundational principles can be offered in relation to microfinance as a form of climate finance.

Foundational principles for microfinance as climate finance

1

Farming but also non-farming households experiencing the consequences of climate change in countries of the Global South should not have to get into unsustainable debt to mitigate or adapt to changing conditions. For those already struggling with debt repayments, we join calls of local Human Rights Organisations such as LICADHO for the establishment of relief and debt forgiveness programs.¹¹⁶

2

In place of microfinance loans geared towards the further integration of populations into processes of capital accumulation, unconditional cash transfers – that is, simply giving people money directly – should be prioritised. This echoes current demands that climate finance should not be distributed as debt – as is the case for 80% of the climate finance that donor countries mobilised in 2018 – but in the form of grants.¹¹⁷

3

Unconditional cash transfers to individuals are however not enough on their own and should be complemented by the maintenance and expansion of a strong system of social provisions and democratic mediating units that represent and implement the collective needs for adaptation and a just ecological transition.¹¹⁸ These would be financed by the transfer of flows from the Global North (back) to the Global South at a much bigger magnitude than the current, insufficient and unfulfilled pledges of US\$100 billion a year.¹¹⁹ To do so, existing funds such as the Green Climate Fund could be used but it is possible that whole new institutions, such as what Keston Perry has called a Global Climate Stabilization Fund and Resilience Fund Programmes for Loss and Damage, would need to be created.¹²⁰

If the impacts of climate change on vulnerable Global South populations are to be meaningfully improved, these principles must underpin a new direction in the financing of adaptation. Rather than extending and individualising the impact of shocks into a hidden burden on health and livelihoods, adaptation must instead be reimagined as a responsibility borne by those who have benefitted most from the emissions of atmospheric carbon. Unless climate change adaptation at the household level is rooted in these principles of redistributive climate justice, then those people and populations most vulnerable to environmental pressures will continue to be trapped, rather than freed, by adaptation.





Recommendations

As a necessary alternative to the ever-increasing provision of ‘micro climate debts’ at the household level, we join calls for the establishment of transformative relief programs, including debt forgiveness.

Recommendations

1

Debt relief and climate debt repayment

As a necessary alternative to the ever-increasing reliance on microfinance loans at the household level, we join calls for the establishment of transformative relief programs, including debt forgiveness.¹²¹ Such calls should be understood as complementary to programs that advocate the cancellation and restructuring of public and private debt accrued by many countries in the Global South.¹²² We also urge the replacement of commercialised microfinance loans with unconditional cash transfers combined with the establishment, maintenance, and expansion of not only strong systems of social provisions but also community-owned and – controlled financial and other institutions for climate adaptation and a just ecological transition.¹²³

2

Reallocation of financial support

Financial support provided by the international development community should be redirected away from microfinance institutions – especially the most profitable ones – and redirected into building the local collectively-organised financial institutions that have a much better track record of promoting sustainable and ecologically-friendly economic and social development trajectories. Key institutions to favour in this regard include (a) member-owned credit unions, (b) community-owned financial cooperatives, and (c) publicly-owned community development banks. Training and other forms of educational programs will be required for future members of all three institutions and, in the case of the first two institutions, for local government institutions charged with correctly regulating and supervising all three institutions. While there are already some small examples of such institutions across Cambodia helped into operation with donor funds, a larger national program to restructure the financial sector towards the real needs of Cambodia's poor is urgently required. One practical possibility is for the large amount of financial support provided to the microfinance sector in Cambodia currently being provided on a 'no strings' basis to be henceforth made conditional on all or part of the existing equity held by the current owners of a microfinance institution being swapped for an agreed amount of debt, which should be repaid over time. This would effect the desired change in ownership with a minimum of disruption.

Recommendations

3

Taxation

More robust taxation and regulation of profits, dividends, and capital gains generated by the foreign owners of Cambodian microfinance institutions is required to minimise the level of 'extraction' that has been taking place since the early 2010s. Consideration should be given to imposing a tax on the massive outflow of value.

This could then be used to create local wealth funds to provide ongoing support for projects related to the climate emergency. Naturally, such an intervention would also play a role in slowing down the dangerous and unsustainable lending-driven growth of the microfinance sector in Cambodia seen in recent years.

4

Community-owned fintechs

The increasing spread of digital solutions across all manner of institutions, very much including in Cambodia, is leading to the rapid displacement of 'brick-and-mortar' microfinance institutions by fintech lending bodies capable and incentivised to pump out even more microcredit into already-saturated poor communities.

There is therefore an urgent need for forms of community-based digital credit platforms that can ensure the gains from technological advances are not lost or privatised but can be used to provide a range of important digitalised services in the community.

These digitalised services include the provision of lower-cost 'patient' capital to support suitable adaptation projects.¹²⁴

Appendix

Study sites

Village A

Situated in a highly flood-prone area on the Mekong River floodplain, Village A is home to 1341 people, living in 334 households. In addition to residential areas located on artificial hills built over many generations, the landscape of the village consists of paddy fields, creeks, and lakes connected to the Mekong tributary Tonle Touch. The lakes are filled each year by the seasonal Mekong floods between August and October, making this a highly flood-prone area in which upper and lower land are used and inhabited differently. For example, there are two different forms of paddy fields: the village fields, *Srear Phum*, and the low-lying fields, *Srear Kroum* or *Sreak Bueng*. Traditionally, farmers grew rice varieties that are susceptible to seasonal floods: 6-month varieties usually grown at the beginning of the rainy season, from late May or early June to November or December. While some farming households still cultivate these varieties primarily for household consumption, most farmers now cultivate dry-season rice two to three times per year, starting from September until June.

Given its regular propensity to flood, as well as the presence of irrigation systems and groundwater wells, droughts have not been a critical issue in Village A in recent years. Floods, by contrast, can be understood in two ways: seasonal floods linked to the Mekong and floods due to heavy and repeated rainfall. The impact of the Mekong floods depends on the location and topography of the land. In most years, the lowland *Srear Kroum* is flooded during the wet season. Major Mekong floods can also flood the upland *Srear Phum* paddy fields, but major floods from the Mekong have not occurred in over 10 years. Nevertheless, given the risks of being affected by the Mekong major floods, those farmers possessing upland *Srear Phum* avoid cultivating short-term dry-season rice during the most flood-prone period, between July and September. Lowland paddy fields by contrast are more prone to seasonal floods as well as pests and rats, meaning that farmers don't cultivate rice during the wet season and Mekong flooding season. Despite these precautions, rainfall and flooding patterns have become the key issues leading to crop losses in Village A. Dry-season rice – with stems that are less than one meter high – is highly sensitive to irregular climate variations such as rainfall and excess heat. At the same time, 57% and 58% of participants reported a major increase in the intensity of rainfall and the overall temperature respectively compared to 10 years ago. In addition, the successful cultivation of dry-season rice is also dependent upon market prices which tend to fluctuate significantly.



Figure 3. Rice land in the Srear Kroum (December 2021) Photo by Sopheak Chann

Village B

Village B contains a population of 1,222 people, living in 254 households. Located in the outskirts of Phnom Penh, the village is relatively urbanised and its population density is much higher than that of Village A. The village's total area of paddy fields encompasses 30 hectares of land, whilst alternative crops, including both seasonal (sesame, corn, and beans) and long-term (fruit trees such as mango and monkey apples) crops, cover approximately 15 hectares of land. The major livelihoods in the village remain farming and out-migration work. However, given the relatively small amount of land possessed by villagers, people in Village B depend to a greater extent on non-farm activities than the other two study villages.

Located on the Mekong floodplain, agriculture in Village B is largely defined by seasonal wetland lakes, Mekong tributaries, and irrigation systems. Three types of land forms can be observed, low-lying *Srear Kroum* rice land near lakes, higher *Srear Phum* rice land, and cash-cropping *Chamkar* land along the creek. *Srear Phum* covers the majority of the Village B land area, extending from the Northeast to the Southeast while *Srear Kroum* is located in the low-lying seasonally flooded area, Southwest of the village.

Irrigation systems in Village B are generally unreliable. The system was built during the Khmer Rouge and abandoned until the early 2000s. The pumping station and the major canals have been rebuilt multiple times but have remained largely non-functional due to uncoordinated water governance and the extensive cost of pumping the water from the Mekong River into the canals (see Figure X). Consequently, only a small proportion of farmers in Village B are able to reliably access irrigation. While only 9% of participants in Village B reported a minor increase in the size of the irrigated area they hold compared to five years ago, just 1 out of 301 reported a major increase. Inspired by some successful stories of other farmers despite these challenges, many farmers in Village B have recently turned to practice dry-season rice, leaving them prone to environmental variations and market fluctuations in rice prices as well as agricultural inputs such as fertilisers.



Figure 4. Pumping water from the largely non-functioning canal (January 2021), photo by Sopheak Chann

Village C

Home to 1458 people living in 369 households, Village C is located at the intersection of the Tonle Sap flood plains and a local river catchment, generating a dual pattern of land use. Similar to the other two villages, there are two forms of land, the low-laying Tonle Sap flood plains *Srear Kroum* and the *Srear Phum* village land. Most upland *Srear Phum* land is used for wet-season and a little dry-season rice. Farmers cultivate different varieties of wet-season rice, partly depending on the geographical location of their land plots and water access. Lowland *Srear Kroum*, on the other hand, has a more complex history. Traditionally, farmers of this land grew floating rice in which farmers start casting their rice at the beginning of the rainy season and harvest when the flood has ended in November and December. However, the diminished prominence of seasonal floods has induced some farmers to grow short-term, dry season rice, starting during the period when floods recess in October or November.

Yet, very limited farmland in Village C has access to irrigation systems, with most paddy fields depending wholly on rainfall. Only 5% of participants in Village C reported a minor increase in the irrigated area they hold compared to 5 years ago. None reported a major increase. In recent years, farmers have been faced with drastic environmental changes, particularly linked to changes in land uses, flooding dynamics, and severe droughts. While records indicate that in the last decade the village faced frequent and severe droughts which have damaged rice on more than one occasion, in the last three years, rice production has also been damaged by floods due to unseasonal flooding of the river.

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References

- Adkins, L. (2017) Speculative futures in the time of debt. *The Sociological Review*, 65(3), pp.448-462.
- AFI (2019) *Inclusive green finance: A survey of the policy landscape. Malaysia: Alliance for Financial Inclusion*. [Online] Available from: <https://www.afi-global.org/publications/inclusive-green-finance-a-survey-of-the-policy-landscape-2/#:~:text=Inclusive%20green%20finance%20is%20a,economic%20effects%20of%20climate%20change>. (Accessed 28 April 2022).
- Agrawala, S., and Carraro, M. (2010) *Assessing the Role of Microfinance in Fostering Adaptation to Climate Change*. OECD Environmental Working Paper No. 15. [Online] Available from: <https://www.oecd.org/environment/cc/44844835.pdf>. (Accessed 28 April 2022).
- Aiba, D., Samreth, S., Oeur, S., and Vat, V. (2021) *Impact of Interest Rate Cap Policies on the Lending Behavior of Microfinance Institutions: Evidence from Millions of Observations in the Credit Registry Database*. JICA Ogata Research Institute Working Paper No.224. [Online] Available from: https://www.jica.go.jp/jica-ri/publication/workingpaper/wp_224.html. (Accessed 28 April 2022).
- Aitken, R. (2015) *Fringe Finance: Crossing and Contesting the Borders of Global Capital*. New York: Routledge.
- Ajl, M. (2021) *A people's green new deal*. London: Pluto Press.
- Bateman, M. (2012) How Lending to the Poor Began, Grew, and Almost Destroyed a Generation in India, *Development and Change*, 43(6), pp.1385-1402.
- Bateman, M. (2017) Don't Fear the Rate Cap: Why Cambodia's Microcredit Regulations Aren't Such a Bad Thing, *Next Billion*, April 5. [Online] Available from: <https://nextbillion.net/dont-fear-the-rate-cap-why-cambodias-microcredit-regulations-arent-such-a-bad-thing/> (Accessed 16 June 2022).
- Bateman, M. (2019) Cambodia: the next domino to fall? In M. Bateman, Blankenburg, S. and Kozul-Wright, R. (Eds) *The Rise and Fall of Global Microcredit: Development, debt, and disillusion*. Abingdon: Routledge.
- Bateman, M. (2020) The COVID-19 crisis as an opportunity to break with the failing global microcredit industry. In McDonald, D., Marois, T., and Barrowclough, D. (Eds) *Public Banks and Covid-19: Combatting the Pandemic with public finance*. Kingston: Municipal Services Project, Geneva: UNCTAD and Brussels: Eurodad.
- Bateman, M., Blankenburg, S., and Kozul-Wright, R. (2019) *The rise and fall of global microcredit: Development, debt, and disillusion*. Abingdon: Routledge.
- Bateman, M., and Amorim Teixeira, F. (2022) *The promises and perils of investor-driven Fintech: Forging people-centered alternatives*. Amsterdam: Transnational Institute (TNI). [Online] Available from: <https://www.tni.org/en/publication/the-promises-and-perils-of-investor-driven-fintech> (Accessed 16 June 2022).
- Beban, A. and Gorman, T. (2017) From land grab to agrarian transition? Hybrid trajectories of accumulation and environmental change on the Cambodia-Vietnam border. *The Journal of Peasant Studies*, 44(4), pp.748-768.
- Bernards, N (2020) Centring labour in financialization. *Globalizations*, 17(4), pp. 714-729.
- Bernards, N. (2022) Waiting for the market? Microinsurance and development as anticipatory marketization. *Environment and Planning A: Economy and Space*. Online before print.
- Bracking, S. (2018) Financialisation, climate finance, and the calculative challenges of managing environmental change. *Antipode*, 51(3), pp.709-729.
- Bracking, S., and Leffel, B. (2021) Climate finance governance: Fit for purpose. *WIREs Climate Change*, 12(4), pp.1-18.
- Brickell, K., Parsons, L., Natarajan, N., and Chann, S. (2019) *Blood Bricks: Untold stories of modern slavery and climate change from Cambodia*. London: Royal Holloway, University of London. [Online] Available from: <https://static1.squarespace.com/static/596df9f8d1758e3b451e0fb2/t/5bc4d7cdc83025e41e7b10a0/1539627177544/Blood+bricks+high+res+v2.pdf>. (Accessed 28 April 2022).
- Brickell, K., Picchioni, P., Natarajan, N., Guermond, v., Parsons, L., Zanello, Z., and Bateman, M. (2020) Compounding crises of social reproduction: Microfinance, over-indebtedness and the COVID-19 pandemic. *World Development*, 136, 105087.
- Brickell, K., Lawreniuk, S., Chhom, T., Mony R., So, H., and McCarthy L. (2022) 'Worn out': debt discipline, hunger, and the gendered contingencies of the COVID-19 pandemic amongst Cambodian garment workers. *Social & Cultural Geography*. Online before print. <https://doi.org/10.1080/14649365.2022.2055778>
- Brooks, J. (2022) Report details abuses in Cambodian microfinance. *South East Asia Globe*, July 11. [Online] Available from <https://southeastasiaglobe.com/report-details-abuses-in-cambodian-microfinance/> (Accessed 12 June 2022).
- Bylander, M. (2014) Borrowing Across Borders: Migration and Microcredit in Rural Cambodia. *Development and Change*, 45(2), pp. 284 – 307.
- Cassim, N. (2020) Ishara shuns 'richest man' tag; says 'acolade, but not goal', *Daily FT*, January 8. [Online] Available from <https://www.ft.lk/top-story/Ishara-shuns-richest-man-tag-says-accolade-but-not-goal/26-693278> (Accessed 16 June 2022).
- CCKP (2022) *Climate Data: Historical*. Washington, D.C.: World Bank Climate Change Knowledge Portal. [Online] Available from: <https://climateknowledgeportal.worldbank.org/country/cambodia/climate-data-historical> (Accessed 26 February 2022).
- CGAP (2018) *Navigating the next wave of blended finance for financial inclusion*. Washington, D.C.: Consultative Group to Assist the Poor. [Online] Available from: <https://www.cgap.org/sites/default/files/researches/documents/Brief-Navigating-the-Next-Wave-of-Blended-Finance-Aug-2018.pdf>. (Accessed 28 April 2022).
- Chhinh, N. and Millington, A. (2015) Drought monitoring for rice production in Cambodia. *Climate*, 3(4), pp.792-811.
- CIF (2018) *Microfinance for climate resilience and adaptation*. PPCR Research Brief. Washington, D.C.: Climate Investment Funds. [Online] Available from: https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/micro-finance_research_brief.pdf. (Accessed 28 April 2022).
- Collins, D., Morduch, J., Rutherford, S. and Ruthven, O. (2009) *Portfolios of the Poor: How the World's Poor Live on \$2 a Day*. Cape Town: Cape Town University Press.
- Convergences (2019) *Microfinance barometer 2019*. Paris: Convergences. [Online] Available from: <http://www.convergences.org/en/104906-2/> (Accessed 17 June 2022).
- DANIDA (2009) *Study on the potential use of microfinancing in support of CDM projects in LDC countries*. Allerød: Danish Ministry of Foreign Affairs. [Online] Available from: <http://christianafigueroes.com/publications/study.pdf>. (Accessed 28 April 2022).
- Doch, S., Diepart, J. – C. and Heng, C. (2015). Learning for social-ecological resilience: Conceptual overview and key findings. In: Diepart, J. – C. (eds) *Learning for resilience: Insights from Cambodia's rural communities*. Phnom Penh: Cambodia. The Learning Institute. pp.1-16.
- Dowla, A. (2017) Climate change and microfinance. *Business Strategy and Development*, 1(2), pp.78-87.
- Evans, S. (2021) Global Parametrics links climate risk transfer to micro-finance funding. *Artemis*. 10 September. [Online] Available from: <https://www.artemis.bm/news/global-parametrics-links-climate-risk-trans>

fer-to-microfinance-funding/. (Accessed 28 April 2022).

Felli, R. (2021) *The great adaptation: Climate, capitalism, and catastrophe*. London: Verso.

Finch, G., and Kocieniewski, D. (2022) Big money backs tiny loans that lead to debt, despair and even suicide', *Bloomberg* (Europe Edition), May 3. [Online] Available from: <https://www.bloomberg.com/graphics/2022-microfinance-banks-profit-off-developing-world/>. (Accessed 28 April 2022).

Fox, J., and Ledgerwood, J. (1999). Dry-season flood-recession rice in the Mekong Delta: two thousand years of sustainable agriculture? *Asian Perspectives*, 38(1), pp.37-50.

Fenton, A., Paavola, J., and Tallontire, A. (2016) The role of microfinance in household livelihood adaptation in Satkhira district, Southwest Bangladesh. *World Development*, 92, pp.192-202.

Gabor, D (2021a) The Wall Street consensus. *Development and Change*, 52(3), pp. 429-459.

Gabor, D (2021b) The Wall Street consensus at COP26. *Phenomenal World*. 18 November. [Online] Available from: <https://www.phenomenal-world.org/analysis/cop26/> (Accessed 28 April 2019).

GCF (2019) *SAP012: Inclusive Green Financing for Climate Resilient and Low Emission Smallholder Agriculture*. Incheon: Green Climate Fund. [Online] Available from: <https://www.greenclimate.fund/project/sap012>. (Accessed 28 April 2022).

Green, W. N. (2020) Financial landscapes of agrarian change in Cambodia. *Geoforum*, Online before print.

Green, W. N. (2021) Placing Cambodia's agrarian transition in an emerging Chinese food regime. *The Journal of Peasant Studies*, Online before print.

Green, W. N., and Bylander, M (2021) The exclusionary power of microfinance: Over-indebtedness and land dispossession in Cambodia. *Sociology of Development*, 7(2), pp.202-29.

Green, W. N. and Estes, J. (2022) Translocal Precarity: Labor and Social Reproduction in Cambodia. *Annals of the American Association of Geographers*. Online before print. <https://doi.org/10.1080/24694452.2021.2015280>

Guérin, I., Morvant-Roux, S., and Villarreal, M. (2014) *Microfinance, Debt and Over Indebtedness: Juggling with Money*. London, New York: Routledge.

Hammill, A., Matthew, R., and McCarter, E. (2008) Microfinance and Climate Change Adaptation. *IDS Bulletin*, 39(4). pp.113-122.

Helwig, K., Hill-O'Connor, C., Mikulewicz, M., Mugiraneza, P., and Christensen, E. (2020) *The Role of Microfinance in Climate Change Adaptation: Evidence from Rural Rwanda*. Glasgow: Glasgow Caledonian University. [Online] Available from: https://researchonline.gcu.ac.uk/ws/portalfiles/portal/39929625/Microfinance_and_Climate_Change_in_Rwanda_Final_report_April_2020.pdf. (Accessed 28 April 2022).

Human Rights Watch (2020) Cambodia: Micro-Loan Borrowers Face Covid-19 Crisis. *Human Rights Watch*. 14 July. [Online] Available from: <https://www.hrw.org/news/2020/07/14/cambodia-micro-loan-borrowers-face-covid-19-crisis>. (Accessed 28 April 2022).

Hulme, D., Moore, K., and Shepherd, A. (2001) *Chronic Poverty: Meanings and Analytical Frameworks*. CPRC Working Paper No. 2. [Online] Available from: https://www.chronicpoverty.org/uploads/publication_files/WP02_Hulme_et_al.pdf (Accessed 16 June 2022).

ILO (2019) *Towards Universal Social Protection and achieving SDG 1.3*. Briefing note. Geneva: International Labour Organization [Online] Available from: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/briefingnote/wcms_732720.pdf (Accessed 1 July 2022).

IPCC (2014) Annex II: Glossary. In: Mach, K.J., S. Planton and C. von Stechow (eds) *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva: IPCC, pp.117-130.

Isakson, S. R. (2015) Derivatives for Development? Small-Farmer Vulnerability and the Financialization of Climate Risk Management. *Journal*

of Agrarian Change, 15(4), pp.569-580.

Iskander, D., and Picchioni, F. Long, L.V., Parsons, L., Guermond, V., Michiels, S, Brickell, K., Zanello, G., Natarajan, N. (2022) Trapped in the Service of Debt: How the Burdens of Repayment are Fuelling the Health Poverty Trap in Rural Cambodia. Royal Holloway, University of London.

Jäger, A., and Zamora, D. (2020) Free Money for Surfers: A Genealogy of the Idea of Universal Basic Income. *Los Angeles Review of Books*. 17 April. [Online] Available from: <https://lareviewofbooks.org/article/free-money-for-surfers-a-genealogy-of-the-idea-of-universal-basic-income/>. (Accessed 28 April 2022).

Johnson, L. (2013) Index insurance and the articulation of risk-bearing subjects. *Environment and Planning A: Economy and Space*, 45, pp.2663-2681.

Johnston, D., Smit, H. H., Bronkhorst, E., Van Dorth Tot Medler, M., Adjaffon, I., Cavallo, E. (2018) *Innovative replanting financing models for oil palm smallholder farmers in Indonesia*. Geneva: Tropical Forest Alliance. [Online] Available from: <https://www.tropicalforestalliance.org/assets/Uploads/TFA2020-Innovative-Replanting-Models-2018-online.pdf>. (Accessed 28 April 2022).

Jones, I., Sweeny, E., and Borja, C. (2022) *AMRU Rice: A case study on responsible investment into rice in Cambodia*, Phnom Penh: Grow Asia. [Online] Available from: <https://www.fao.org/3/cb9580en/cb9580en.pdf>. (Accessed 16 June 2022).

Jordan, J.C. (2020) Climate shocks and adaptation strategies in coastal Bangladesh: does microcredit have a part to play? *Climate and Development*, 13(5), pp.454-466.

Joseph, J. (2013) Resilience as Embedded Neoliberalism: A Governmentality Approach. *Resilience*, 1(1), pp.38-52.

Kangogo, D., Dentoni, D., and Bijman, J. (2020) Determinants of Farm Resilience to Climate Change: The Role of Farmer Entrepreneurship and Value Chain Collaborations, *Sustainability*, 12(3), 868.

Kar, S. (2018) *Financializing poverty: Labor and risk in Indian microfinance*. Stanford: Stanford University Press.

Khut, C. (2017) *Statement to COP23 By His Excellency Khut Chandara, Head of the Cambodian Delegation, Under Secretary of State, Ministry of Environment*. Bonn: Germany. [Online] Available from <https://unfccc.int/>. (Accessed 28 April 2022).

Kumari, T. (2020) *Client perspectives on consumer protection: Analysis of a client survey in Cambodia*. Washington, D.C.: Center for Financial Inclusion Accion. [Online] Available from: https://content.centerforfinancialinclusion.org/wp-content/uploads/sites/2/2020/08/CFI60-Survey_Cambodia_FINAL2.pdf. (Accessed 28 April 2022).

LICADHO and STT (2019) *Collateral damage: Land loss and abuses in Cambodia's microfinance sector*. Phnom Penh: LICADHO and STT. [Online] Available from: https://www.licadho-cambodia.org/reports/files/228Report_Collateral_Damage_LICADHO_STT_Eng_07082019.pdf. (Accessed 28 April 2022).

LICADHO (2020) *Driven out: One village's experience with MFIs and cross-border migration*. Phnom Penh: LICADHO. [Online] Available from: https://www.licadho-cambodia.org/reports/files/229DrivenOut_Briefing_ENG.pdf. (Accessed 28 April 2022).

Liese, B., S., Isvilalonda, K., Nguyen Tri, L., Nguyen Ngoc, P., Pananurak, R., Pech, et al. (2014) *Economics of Southeast Asian rice production agri-benchmark working*. Paper 2014/1. [Online] Available from: <http://www.agribenchmark.org/fileadmin/Dateiablage/B-CashCrop/Reports/Report-2014-1-rice-FAO.pdf>. (Accessed 28 April 2022).

Mader, P. (2015) *The Political Economy of Microfinance: Financializing Poverty*. London: Palgrave Macmillan.

Mader, P. (2018) Contesting Financial Inclusion. *Development and Change*, 49(2), pp.461-483.

Mak, S., and Grundy-Warr, C. (2013). *Floating lives of the Tonle Sap*. Chaing Mai: RCSD.

Marschke, M. (2017) Exploring Rural Livelihoods Through the Lens of Coastal Fishers. In: Brickell, K., and Springer, S. (eds) *The Handbook of*

Contemporary Cambodia, Abingdon: Routledge, pp.101-111.

Mekong River Commission (2022). *Climate*. [Online] Available from <https://www.mrcmekong.org/about/mekong-basin/climate/>. (Accessed 26 April 2022).

Marx, K. (1991) *Capital*, vol. 3. London: Penguin.

Montgomerie, J. (2022) Debt relief can finance prosperity: making the case for reducing the repayment burden on households. In Harker, C. and Horton, A. (Eds) *Financing prosperity by dealing with debt*, London: UCL Press, pp.75-88.

MoWRAM (2020) *Climate Resilient Design Guidelines for Structural Flood & Drought Control Measures*. Phnom Penh: Ministry of Water, Resources and Meteorology. [Online] Available from [http://www.dhrw-cam.org/asset/Reports/Design%20Guidelines%20with%20EbA%20Chapter-Book\(all%20combine\)_Jan2020.pdf](http://www.dhrw-cam.org/asset/Reports/Design%20Guidelines%20with%20EbA%20Chapter-Book(all%20combine)_Jan2020.pdf). (Accessed 26 February 2022).

Mueller, B., Johnson, L., and Kreuer, D. (2017) Maladaptive outcomes of climate insurance in agriculture. *Global Environmental Change*, 46, pp.23-33.

Natarajan, N., Brickell, K., and Parsons, L. (2019) Climate change adaptation and precarity across the rural-urban divide in Cambodia: Towards a 'climate precarity' approach. *Environment and Planning E: Nature and Space*, (2)4, pp.899-921.

NCCC, 2013. *Cambodia Climate Change Strategic Plan (2014-2023)*. Phnom Penh: National Climate Change Committee, Royal Government of Cambodia. [Online] Available from: https://www.cambodiaip.gov.kh/DocResources/ab9455cf-9eea-4adc-ae93-95d149c6d78c_007729c5-60a9-47f0-83ac-7f70420b9a34-en.pdf. (Accessed 26 February 2022).

NIS (2020) *Report of Cambodia Socio-Economic Survey 2019/20*. Phnom Penh: National Institute of Statistics – Ministry of Planning. [Online] Available from: https://www.nis.gov.kh/nis/CSES/Final%20Report%20of%20Cambodia%20Socio-Economic%20Survey%202019-20_EN.pdf. (Accessed 28 April 2022).

Oeur, I. L., Sopha, A. and McAndrew, J. (2012) Understanding social capital in response to flood and drought: A study of five villages in two ecological zones in Kampong Thom province. In Pellini, A. (Eds) *Engaging for the Environment*, Phnom Penh: The Learning Institute. pp.60-83.

Ostrom, E. (1990) *Governing the commons: the evolution of institutions for collective action*, Cambridge: Cambridge University Press.

Ovesen, J., and Trankell, I. (2014) Symbiosis of Microcredit and Private Moneylending in Cambodia. *The Asia Pacific Journal of Anthropology*, 15(2), pp.178-196.

Parsons, L. (2017) Under pressure: Environmental risk and contemporary resilience strategies in rural Cambodia. In: Brickell, K., and Springer, S. (eds) *The Handbook of Contemporary Cambodia*, Abingdon: Routledge, pp.146-156.

Parsons, L., and Chann, S. (2019) Mobilising hydrosocial power: Climate perception, migration and the small scale geography of water in Cambodia. *Political Geography*, 75, 102055.

Perry, K. (2020) *Realising Climate Reparations: Towards a Global Climate Stabilization Fund and Resilience Fund Programme for Loss and Damage in Marginalised and Former Colonised Societies*. [Online] Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3561121. (Accessed 28 April 2022).

Rippey, P. (2009) Microfinance and climate change: Threats and opportunities. In: Köhn, D. (eds) *Greening the Financial Sector: How to Mainstream Environmental Finance in Developing Countries*, Heidelberg: Springer, pp.215-239.

Save the Children (2016). *El Niño-induced Drought in Cambodia: Rapid assessment report*. [Online] Available from: <https://resourcecentre.savethechildren.net/>. (Accessed 28 April 2022).

Scheyvens, H. (2015) *The role of microfinance and microfinance institutions in climate change adaptation: Learning from experiences in Bangladesh*. Kanagawa: Institute for Global Environmental Strategies. [Online] Available from: <https://www.jstor.org/stable/resrep00725>. (Accessed 28 April 2022).

Schicks, J. (2013) The sacrifices of micro-borrowers in Ghana: A customer protection perspective on measuring over-indebtedness. *The Journal of Development Studies*, 49(9), pp.1238-1255.

Sealey-Huggins, L. (2017) '1.5°C to stay alive': climate change, imperialism, and justice for the Caribbean. *Third World Quarterly*. 38(11), pp.2444-2463.

Seng, K. (2018) Revisiting microcredit's poverty-reducing promise: Evidence from Cambodia. *Journal of International Development*, 30(4), pp. 615-642.

Sok, S., Chhinh, N., Hor, S. and Nguonphan, P. (2021) Climate Change Impacts on Rice Cultivation: A Comparative Study of the Tonle Sap and Mekong River. *Sustainability*, 13(16), p.8979.

Táiwò, O. O. (2022) *Reconsidering reparations*. Oxford: Oxford University Press.

Táiwò, O. O., and Bigger, P. (2022) *Debt justice for climate reparations*. Climate and Community Project. [Online] Available from: <https://www.climateandcommunity.org/debt-justice-for-climate-reparations>. (Accessed 28 April 2022).

Taylor, M. (2012) The Antinomies of 'Financial Inclusion': Debt, Distress and the Workings of Indian Microfinance. *Journal of Agrarian Change*, 12(4), pp.601-610.

Taylor, T. (2017) *The political ecology of climate change adaptation: Livelihoods, agrarian change and the conflicts of development*. Abingdon: Routledge.

The Economist (2020) *Cambodians are bingeing on microfinance loans*. 13 August, [Online] Available from: <https://www.economist.com/asia/2020/08/13/cambodians-are-bingeing-on-microfinance-loans> (Accessed 16 June 2022).

Tolzmann, M. (2022) CGAP Funder Survey 2020: *Trends in International Funding for Financial Inclusion*. Focus Note. Washington, D.C.: CGAP. [Online] Available from: https://www.cgap.org/sites/default/files/publications/2022_01_Focus_Note_2020_Funder_Survey.pdf. (Accessed 28 April 2022).

Tong, K., and Sry, B. (2011) *Poverty and environment links: The case of rural Cambodia*. Working Paper Series No. 64, CDRI, Phnom Penh.

Torkelson, E. (2020) Collateral damages: Cash transfer and debt transfer in South Africa. *World Development*, 126. <https://doi.org/10.1016/j.worlddev.2019.104711>

UNFCC (2021a) *Report of the Standing Committee on Finance*. Rio de Janeiro, New York: United Nations Framework Convention on Climate Change. [Online] Available from: https://unfccc.int/sites/default/files/resource/cp2021_10a02_cma2021_07a02.pdf. (Accessed 28 April 2022).

UNFCC (2021b) *MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa. Programme of activities design document form*. Rio de Janeiro, New York: United Nations Framework Convention on Climate Change. [Online] Available from: https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/RW5G5VNH10YCFU3XM9QB7EPJKD68/view. (Accessed 28 April 2022).

United Nations Educational, Scientific and Cultural Organisation (2018) *Overview of Internal Migration in Cambodia*. Bangkok: UNESCO. [Online] Available from: <https://bangkok.unesco.org/sites/default/files/assets/article/Social%20and%20Human%20Sciences/publications/Policy-brief-internal-migration-cambodia.pdf>. (Accessed 28 April 2022).

Van der Linden, M., and Gautam R. K. (2010) *Carbon projects and potential sources of revenue for microfinance institutions to accelerate renewable energy lending in Nepal*. FinDev Gateway Paper. Washington, D.C.: CGAP. [Online] Available from: <https://www.findevgateway.org/paper/2010/02/carbon-projects-and-potential-source-revenue-microfinance-institutions-accelerate>. (Accessed 28 April 2022).

Walkerius, R. (2018) Decolonizing the Atmosphere: The Climate justice movement on climate debt. *Journal of Environment and Development*, 27(2), pp.131-155.

World Bank (2021) *Climate risk country profile – Cambodia*. Washington, D.C.: World Bank. [Online] Available from: <https://reliefweb.int/sites/>

reliefweb.int/files/resources/climate-risk-country-profile-cambodia.pdf.
(Accessed 28 April 2022).

Endnotes

- 1 Adaptation is defined as 'the process of adjustment to actual or expected climate and its effects' (IPCC, 2014).
- 2 Convergences (2019) *Microfinance barometer 2019*. Paris: Convergences. [Online] Available from: <http://www.convergences.org/en/104906-2/> (Accessed 17 June 2022).
- 3 Resilience is defined as the 'capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing the ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation' (IPCC, 2014).
- 4 Interview with a senior representative of the Cambodia Microfinance Association (February 2022).
- 5 Vulnerability is the 'propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt' (IPCC, 2014).
- 6 Dowla, A. (2017) Climate change and microfinance. *Business Strategy and Development*, 1(2), pp.78-87.
- 7 Scheyvens, H. (2015) *The role of microfinance and microfinance institutions in climate change adaptation: Learning from experiences in Bangladesh*. Kanagawa: Institute for Global Environmental Strategies. [Online] Available from: <https://www.jstor.org/stable/resrep00725>. (Accessed 28 April 2022); Rippey, P. (2009) Microfinance and climate change: Threats and opportunities. In: Köhn, D. (eds) *Greening the Financial Sector: How to Mainstream Environmental Finance in Developing Countries*, Heidelberg: Springer, pp.215-239.
- 8 Fenton, A., Paavola, J., and Tallontire, A. (2016) The role of microfinance in household livelihood adaptation in Satkhira district, South-west Bangladesh. *World Development*, 92, pp.192-202.
- 9 NCCC (2013) *Cambodia Climate Change Strategic Plan (2014-2023)*. Phnom Penh: National Climate Change Committee, Royal Government of Cambodia. [Online] Available from: https://www.cambodi-aip.gov.kh/DocResources/ab9455cf-9eea-4adc-ae93-95d149c6d-78c_007729c5-60a9-47f0-83ac-7f70420b9a34-en.pdf. (Accessed 26 February 2022).
- 10 NCCC (2013).
- 11 Kumari, T. (2020) *Client perspectives on consumer protection: Analysis of a client survey in Cambodia*. Washington, D.C.: Center for Financial Inclusion Accion. [Online] Available from: https://content.centerforfinancialinclusion.org/wp-content/uploads/sites/2/2020/08/CFI60-Survey_Cambodia_FINAL2.pdf. (Accessed 28 April 2022).
- 12 As Aiba and colleagues (2021) show, the average size of microfinance loans significantly increased after the implementation of the interest rate cap policy in 2017. Smaller-sized loans, group loans and non-collateral loans were particularly affected as microfinance institutions sought to maintain their profits per loan in response to a decrease in the interest rate.
- 13 The Economist (2020) *Cambodians are bingeing on microfinance loans*. 13 August, [Online] Available from: <https://www.economist.com/asia/2020/08/13/cambodians-are-bingeing-on-microfinance-loans> (Accessed 16 June 2022).
- 14 Here, rice-farming households include both households for which rice agriculture is the only livelihood strategy and households involved in agriculture alongside other income-generating activities in various sectors including transport, construction and manufacturing.
- 15 Chhinh, N. and Millington, A. (2015) Drought monitoring for rice production in Cambodia. *Climate*, 3(4), pp.792-811; Green, W. N. (2021) Placing Cambodia's agrarian transition in an emerging Chinese food regime. *The Journal of Peasant Studies*, Online before print; Natara-
- jan, N., Brickell, K., and Parsons, L. (2019) Climate change adaptation and precarity across the rural-urban divide in Cambodia: Towards a 'climate precarity' approach. *Environment and Planning E: Nature and Space*, 2(4), pp.899-921; Parsons, L. (2017) Under pressure: Environmental risk and contemporary resilience strategies in rural Cambodia. In: Brickell, K., and Springer, S. (eds) *The Handbook of Contemporary Cambodia*, Abingdon: Routledge, pp.146-156.
- 16 Felli, R. (2021) *The great adaptation: Climate, capitalism, and catastrophe*. London: Verso; Johnson, L. (2013) Index insurance and the articulation of risk-bearing subjects. *Environment and Planning A: Economy and Space*, 45, pp.2663-2681.
- 17 Dowla, A. (2017).
- 18 Isakson, S. R. (2015) Derivatives for Development? Small-Farmer Vulnerability and the Financialization of Climate Risk Management. *Journal of Agrarian Change*, 15(4), pp.569-580; Mueller, B., Johnson, L., and Kreuer, D. (2017) Maladaptive outcomes of climate insurance in agriculture. *Global Environmental Change*, 46, pp.23-33.
- 19 Schicks, J. (2013) The sacrifices of micro-borrowers in Ghana: A customer protection perspective on measuring over-indebtedness. *The Journal of Development Studies*, 49(9), pp.1238-1255.
- 20 Climate debt refers to the idea that 'climate change is caused by rich people while mainly harming people that are poor, and therefore, the former should take the burden of mitigation and adaptation costs' (Walkerius, 2018:132).
- 21 LICADHO (2020) *Driven out: One village's experience with MFIs and cross-border migration*. Phnom Penh: LICADHO. [Online] Available from: https://www.licadho-cambodia.org/reports/files/229DrivenOut_Briefing_ENG.pdf. (Accessed 28 April 2022).
- 22 Táiwò, O. O., and Bigger, P. (2022) *Debt justice for climate reparations*. Climate and Community Project. [Online] Available from: <https://www.climateandcommunity.org/debt-justice-for-climate-reparations>. (Accessed 28 April 2022).
- 23 Aji, M. (2021) *A people's green new deal*. London: Pluto Press; Walk-erius, R. (2018) Decolonizing the Atmosphere: The Climate justice movement on climate debt. *Journal of Environment and Development*, 27(2), pp.131-155.
- 24 The term climate finance 'is applied both to the financial resources devoted to addressing climate change global and to financial flows to developing countries to assist them in addressing climate change' (IPCC, 2014).
- 25 Bracking, S., and Leffel, B. (2021) Climate finance governance: Fit for purpose. *WIREs Climate Change*, 12(4), pp.1-18.
- 26 UNFCCC (2021a) *Report of the Standing Committee on Finance*. Rio de Janeiro, New York: United Nations Framework Convention on Climate Change. [Online] Available from: https://unfccc.int/sites/default/files/resource/cp2021_10a02_cma2021_07a02.pdf. (Accessed 28 April 2022).
- 27 Gabor, D (2021a) The Wall Street consensus. *Development and Change*, 52(3), pp. 429-459.
- 28 Tolzmann, M. (2022) *CGAP Funder Survey 2020: Trends in International Funding for Financial Inclusion*. Focus Note. Washington, D.C.: CGAP. [Online] Available from: https://www.cgap.org/sites/default/files/publications/2022_01_Focus_Note_2020_Funder_Survey.pdf. (Accessed 28 April 2022).
- 29 Financial inclusion refers to the provision of a wide range of financial services and products to low-income people. While financial inclusion includes savings, insurance and remittance products and services, Mader (2018) argues that much of today's financial inclusion activity is still microfinance – that is, the provision of small,

- short-term, and high-interest loans.
- 30 Bracking, S. (2018) Financialisation, climate finance, and the calculative challenges of managing environmental change. *Antipode*, 51(3), pp.709-729.
 - 31 CIF (2018) *Microfinance for climate resilience and adaptation*. PPCR Research Brief. Washington, D.C.: Climate Investment Funds. [Online] Available from: https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/micro-finance_research_brief.pdf. (Accessed 28 April 2022).
 - 32 GCF (2019) *SAP012: Inclusive Green Financing for Climate Resilient and Low Emission Smallholder Agriculture*. Incheon: Green Climate Fund. [Online] Available from: <https://www.greenclimate.fund/project/sap012>. (Accessed 28 April 2022).
 - 33 DANIDA (2009) *Study on the potential use of microfinancing in support of CDM projects in LDC countries*. Allerød: Danish Ministry of Foreign Affairs. [Online] Available from: <http://christianafiguere.com/publications/study.pdf>. (Accessed 28 April 2022). See also: Van der Linden, M., and Gautam R. K. (2010) *Carbon projects and potential source of revenue for microfinance institutions to accelerate renewable energy lending in Nepal*. FinDev Gateway Paper. Washington, D.C.: CGAP. [Online] Available from: <https://www.findevgateway.org/paper/2010/02/carbon-projects-and-potential-source-revenue-microfinance-institutions-accelerate>. (Accessed 28 April 2022).
 - 34 UNFCCC (2021b) *MicroEnergy Credits – Microfinance for Clean Energy Product Lines – Africa. Programme of activities design document form*. Rio de Janeiro, New York: United Nations Framework Convention on Climate Change. [Online] Available from: https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/RW5GSVNH10OYCFU3XM9QB-7EPJTKD68/view. (Accessed 28 April 2022).
 - 35 Aitken, R. (2015) *Fringe Finance: Crossing and Contesting the Borders of Global Capital*. New York: Routledge.
 - 36 CGAP (2018) *Navigating the next wave of blended finance for financial inclusion*. Washington, D.C.: Consultative Group to Assist the Poor. [Online] Available from: <https://www.cgap.org/sites/default/files/researches/documents/Brief-Navigating-the-Next-Wave-of-Blended-Finance-Aug-2018.pdf>. (Accessed 28 April 2022).
 - 37 Gabor, D (2021b) The Wall Street consensus at COP26. *Phenomenal World*. 18 November. [Online] Available from: <https://www.phenomenalworld.org/analysis/cop26/> (Accessed 28 April 2019); Johnston, D., Smit, H. H., Bronkhorst, E., Van Dorth Tot Medler, M., Adjaffon, I., Cavallo, E. (2018) *Innovative replanting financing models for oil palm smallholder farmers in Indonesia*. Geneva: Tropical Forest Alliance. [Online] Available from: <https://www.tropicalforestalliance.org/assets/Uploads/TFA2020-Innovative-Replanting-Models-2018-online.pdf>. (Accessed 28 April 2022).
 - 38 Scheyvens, H. (2015); Rippey, P. (2009).
 - 39 Collins, D., Morduch, J., Rutherford, S. and Ruthven, O. (2009) *Portfolios of the Poor: How the World's Poor Live on \$2 a Day*. Cape Town: Cape Town University Press; Hammill, A., Matthew, R., and McCarter, E. (2008) Microfinance and Climate Change Adaptation. *IDS Bulletin*, 39(4). pp.113-122.
 - 40 Scheyvens, H. (2015).
 - 41 See for instance Fenton, A., Paavola, J., and Tallontire, A. (2016).
 - 42 AFI (2019) *Inclusive green finance: A survey of the policy landscape*. Malaysia: Alliance for Financial Inclusion. [Online] Available from: <https://www.afi-global.org/publications/inclusive-green-finance-a-survey-of-the-policy-landscape2/#:~:text=Inclusive%20green%20finance%20is%20a,economic%20effects%20of%20climate%20change>. (Accessed 28 April 2022).
 - 43 Agrawala, S., and Carraro, M. (2010) *Assessing the Role of Microfinance in Fostering Adaptation to Climate Change*. OECD Environmental Working Paper No. 15. [Online] Available from: <https://www.oecd.org/environment/cc/44844835.pdf>. (Accessed 28 April 2022).
 - 44 Joseph, J. (2013) Resilience as Embedded Neoliberalism: A Governmentality Approach. *Resilience*, 1(1), pp.38-52; Sealey-Huggins, L. (2017) '1.5°C to stay alive': climate change, imperialism and justice for the Caribbean. *Third World Quarterly*. 38(11), pp.2444-2463.
 - 45 Helwig, K., Hill-O'Connor, C., Mikulewicz, M., Mugiraneza, P., and Christensen, E. (2020) *The Role of Microfinance in Climate Change Adaptation: Evidence from Rural Rwanda*. Glasgow: Glasgow Caledonian University. [Online] Available from: https://researchonline.gcu.ac.uk/ws/portalfiles/portal/39929625/Microfinance_and_Climate_Change_in_Rwanda_Final_report_April_2020.pdf. (Accessed 28 April 2022).
 - 46 Dowla, A. (2017).
 - 47 Although see Bernards (2022) for an analysis of why markets for index-based insurance have mostly failed to materialise at scale so far.
 - 48 Johnson, L. (2013).
 - 49 Mueller, B., Johnson, L., and Kreuer, D. (2017).
 - 50 Felli, R. (2021).
 - 51 Taylor, T. (2017) *The political ecology of climate change adaptation: Livelihoods, agrarian change and the conflicts of development*. Abingdon: Routledge; Isakson, S. R. (2015); Jordan, J.C. (2020); Fenton, A., Paavola, J., and Tallontire, A. (2016); Mueller, B., Johnson, L., and Kreuer, D. (2017).
 - 52 Chamroeun and AMK are probably the most active MFIs on that front in Cambodia. For instance, Chamroeun works in partnership with UN-Habitat on a program which aims to make vulnerable housing more resilient to climate events. In addition, Chamroeun has access to emergency risk capital after a climate event occurs via their Climate Resilience Enhanced Debt product. Developed by Global Parametrics and Enabling Capital, an impact investor, the product is supposed to enable Chamroeun "to help its borrowers continue operating after weather or climate events, driving more resilient communities in Cambodia" (Evans, 2021).
 - 53 To be sure, the study focuses on both microfinance loans taken before a climate-related shock and loans taken after a shock to cope.
 - 54 In this report, precarity is understood as both "an issue of the labour market and a concept that is broader in scope in capturing lived experiences" (Natarajan et al, 2019: 900).
 - 55 The Andhra Pradesh 'meltdown' remains today one of the largest crashes to have affected the global microfinance sector. It was a product of an unprecedented episode of reckless lending adopted by the 'big six' microfinance institutions from the early 2000s onwards, driven forward by their respective CEOs each pushing for their own microfinance institution to become as large as possible and as quickly as possible in order to be well-placed to launch an Initial Public Offering (IPO). Forced to 'do something' to halt the exponential increase in the supply of microcredit, much of which went into simple consumption spending and speculation, the state government belatedly intervened in late 2010 with an ordinance that effectively prohibited further lending in the state. See Bateman, M. (2012) How Lending to the Poor Began, Grew, and Almost Destroyed a Generation in India, *Development and Change*, 43(6), pp.1385-1402.
 - 56 Licadho and STT (2019) *Collateral Damage: Land Loss and Abuses in Cambodia's Microfinance Sector*, Phnom Penh: Licadho and STT.
 - 57 Bateman, M. (2017) Don't Fear the Rate Cap: Why Cambodia's Microcredit Regulations Aren't Such a Bad Thing, *Next Billion*, April 5. [Online] Available from: <https://nextbillion.net/dont-fear-the-rate-cap-why-cambodias-microcredit-regulations-arent-such-a-bad-thing/> (Accessed 16 June 2022).
 - 58 Finch, G. and Kocieniewski, D. (2022) Big money backs tiny loans that lead to debt, despair and even suicide', *Bloomberg* (Europe Edition), May 3. [Online] Available from: <https://www.bloomberg.com/graphics/2022-microfinance-banks-profit-off-developing-world/>. (Accessed 28 April 2022).
 - 59 Cassim, N. (2020) Ishara shuns 'richest man' tag; says 'accolade, but

- not goal, *Daily FT*, January 8. [Online] Available from <https://www.ft.com/top-story/Ishara-shuns-richest-man-tag-says-accolade-but-not-goal/26-693278> (Accessed 16 June 2022)
- 60 Finch, G and Kocieniewski, D. (2022).
- 61 Brickell, K., Lawreniuk, S., Chhom, T., Mony R., So, H., and McCarthy L. (2022) 'Worn out': debt discipline, hunger, and the gendered contingencies of the COVID-19 pandemic amongst Cambodian garment workers. *Social & Cultural Geography*. Online before print. <https://doi.org/10.1080/14649365.2022.2055778>; Brickell, K., Picchioni, P., Natarajan, N., Guermond, v., Parsons, L., Zanello, Z., and Bateman, M. (2020) Compounding crises of social reproduction: Microfinance, over-indebtedness and the COVID-19 pandemic. *World Development*, 136, 105087.
- 62 The International Finance Corporation (IFC) is the World Bank's investment arm.
- 63 Bateman, M. (2019) Cambodia: the next domino to fall?, in M. Bateman, Blankenburg, S. and Kozul-Wright, R. (Eds) *The Rise and Fall of Global Microcredit: Development, debt and disillusion*. Abingdon: Routledge; Seng, K. (2018) Revisiting microcredit's poverty-reducing promise: Evidence from Cambodia. *Journal of International Development*, 30(4), pp. 615-642.
- 64 Bateman, M. (2020) The COVID-19 crisis as an opportunity to break with the failing global microcredit industry. In McDonald, D., Marois, T., and Barrowclough, D. (Eds) *Public Banks and Covid-19: Combating the Pandemic with public finance*, Kingston: Municipal Services Project, Geneva: UNCTAD and Brussels: Eurodad.
- 65 See the second Cambodia-focused report of this project: Iskander, D., and Picchioni, F. Long, L.V., Parsons, L., Guermond, V., Michiels, S, Brickell, K., Zanello, G., Natarajan, N. (2022) *Trapped in the Service of Debt: How the Burdens of Repayment are Fuelling the Health Poverty Trap in Rural Cambodia*. Royal Holloway, University of London.
- 66 Green, W. N. (2021); Natarajan, N., Brickell, K., and Parsons, L. (2019).
- 67 Adkins, L. (2017) Speculative futures in the time of debt. *The Sociological Review*, 65(3), pp.448-462. See also the report of Iskander, D., Picchioni, F., et al. (2022).
- 68 Green, W. N., and Bylander, M (2021) The exclusionary power of microfinance: Over-indebtedness and land dispossession in Cambodia. *Sociology of Development*, 7(2), pp.202-29.
- 69 It is essential to note that these changes have been beneficial to some farming households, largely determined by class relations (e.g., owners of machinery, big landholders). For such households, credit does not necessarily constitute a burden but rather facilitates the financing of their production. In this report, the focus is on those for whom debt reproduces and exacerbates socio-economic and climate precarity, specifically households that rely on labour incomes to reproduce themselves. Over-indebtedness, and the reduction of coping and adaptive capacity, should therefore be understood as shaped by class relations (see also Taylor, 2017).
- 70 CCKP (2022) *Climate Data: Historical*. Washington, D.C.: World Bank Climate Change Knowledge Portal. [Online] Available from: <https://climateknowledgeportal.worldbank.org/country/cambodia/climate-data-historical> (Accessed 26 February 2022).
- 71 World Bank (2021) *Climate risk country profile – Cambodia*. Washington, D.C.: World Bank. [Online] Available from: <https://reliefweb.int/sites/reliefweb.int/files/resources/climate-risk-country-profile-cambodia.pdf>. (Accessed 28 April 2022).
- 72 Khut, C. (2017) *Statement to COP23 By His Excellency Khut Chandara, Head of the Cambodian Delegation, Under Secretary of State, Ministry of Environment*. Bonn: Germany. [Online] Available from <https://unfccc.int/>. (Accessed 28 April 2022).
- 73 MoWRAM (2020) *Climate Resilient Design Guidelines for Structural Flood & Drought Control Measures*. Phnom Penh: Ministry of Water, Resources and Meteorology. [Online] Available from [http://www.dhrw-cam.org/asset/Reports/Design%20Guidelines%20with%20EbA%20Chapter-Book\(all%20combine\)_Jan2020.pdf](http://www.dhrw-cam.org/asset/Reports/Design%20Guidelines%20with%20EbA%20Chapter-Book(all%20combine)_Jan2020.pdf). (Accessed 26 February 2022); CCKP (2022).
- 74 Natarajan, N., Brickell, K., and Parsons, L. (2019).
- 75 Sok, S., Chhinh, N., Hor, S. and Nguonphan, P. (2021) Climate Change Impacts on Rice Cultivation: A Comparative Study of the Tonle Sap and Mekong River. *Sustainability*, 13(16), p.8979; Tong, K., and Sry, B. (2011) *Poverty and environment links: The case of rural Cambodia*. Working Paper Series No. 64, CDRI, Phnom Penh.
- 76 Parsons, L (2017).
- 77 Mekong River Commission (2022). *Climate*. [Online] Available from <https://www.mrcmekong.org/about/mekong-basin/climate/>. (Accessed 26 April 2022).
- 78 Doch, S., Diepart, J. – C. and Heng, C. (2015). Learning for social-ecological resilience: Conceptual overview and key findings. In: Diepart, J. – C. (eds) *Learning for resilience: Insights from Cambodia's rural communities*. Phnom Penh: Cambodia. The Learning Institute. pp.1-16.
- 79 MoWRAM (2020).
- 80 Chhinh, N. and Millington, A. (2015).
- 81 Oeur, I. L., Sopha, A. and McAndrew, J. (2012) Understanding social capital in response to flood and drought: A study of five villages in two ecological zones in Kampong Thom province. In Pellini, A. (Eds) *Engaging for the Environment*, Phnom Penh: The Learning Institute. pp.60-83.
- 82 Save the Children (2016). *El Niño-induced Drought in Cambodia: Rapid assessment report*. [Online] Available from: <https://resourcecentre.savethechildren.net/>. (Accessed 28 April 2022).
- 83 Beban, A. and Gorman, T. (2017) From land grab to agrarian transition? Hybrid trajectories of accumulation and environmental change on the Cambodia-Vietnam border. *The Journal of Peasant Studies*, 44(4), pp.748-768.
- 84 Chhinh, N. and Millington, A. (2015).
- 85 Sok, S., Chhinh, N., Hor, S. and Nguonphan, P. (2021).
- 86 Sok, S., Chhinh, N., Hor, S. and Nguonphan, P. (2021).
- 87 Chhinh, N. and Millington, A. (2015).
- 88 Parsons, L (2017).
- 89 Sok, S., Chhinh, N., Hor, S. and Nguonphan, P. (2021).
- 90 Liese, B., S., Isvilalonda, K., Nguyen Tri, L., Nguyen Ngoc, P., Pananurak, R., Pech, et al. (2014) *Economics of Southeast Asian rice production agri-benchmark working*. Paper 2014/1. [Online] Available from: [http://www.agribenchmark.org/fileadmin/Dateiablage/B-CashCrop/Reports/ Report-2014-1-rice-FAO.pdf](http://www.agribenchmark.org/fileadmin/Dateiablage/B-CashCrop/Reports/Report-2014-1-rice-FAO.pdf). (Accessed 28 April 2022).
- 91 Natarajan, N., Brickell, K., and Parsons, L. (2019).
- 92 United Nations Educational, Scientific and Cultural Organisation (2018) *Overview of Internal Migration in Cambodia*. Bangkok: UNE-SCO. [Online] Available from: <https://bangkok.unesco.org/sites/default/files/assets/article/Social%20and%20Human%20Sciences/publications/Policy-brief-internal-migration-cambodia.pdf>. (Accessed 28 April 2022).
- 93 Parsons, L., and Chann, S. (2019) Mobilising hydrosocial power: Climate perception, migration and the small scale geography of water in Cambodia. *Political Geography*, 75, 102055. See also Taylor (2017).
- 94 Research findings show that 44% of farming households have to rent the land on which they cultivate rice for an average of US\$353 a year. They do so by borrowing from various sources, including friends/families, suppliers as well as, and importantly, microfinance institutions.
- 95 In Village A for instance, due to unpredictable rainfall patterns and irregular floods during the rainy season, many farmers shifted from wet – to dry-season rice.
- 96 Known as *Srov Vosa*, native varieties are grown during the wet season.
- 97 Modern rice varieties are known as *Srov Prang* (i.e., dry-season rice)

- because they are usually cultivated during the dry season where irrigation is accessible. Farmers use the term *Srov Prang* (dry season rice) to refer to commercial/modern rice. When *Srov Prang* was initially introduced, farmers cultivated it after *Srov Vosa* (wet season rice). In Village B and Village C however, many farmers cultivate *Srov Prang* during the rainy season (because they do not have access to reliable irrigation systems) as well as flood-recession rice in floodplain (Fox & Ledgerwood, 1999).
- 98 Many *Srov Vosa* varieties also benefit from fertilisers and pesticides.
- 99 Mak, S., and Grundy-Warr, C. (2013). *Floating lives of the Tonle Sap*. Chaing Mai: RCSD.
- 100 Parsons, L., and Chann, S. (2019).
- 101 NIS (2020) *Report of Cambodia Socio-Economic Survey 2019/20*. Phnom Penh: National Institute of Statistics – Ministry of Planning. [Online] Available from: https://www.nis.gov.kh/nis/CSSES/Final%20Report%20of%20Cambodia%20Socio-Economic%20Survey%202019-20_EN.pdf. (Accessed 28 April 2022).
- 102 NIS (2020).
- 103 Ovesen, J., and Trankell, I. (2014) Symbiosis of Microcredit and Private Moneylending in Cambodia. *The Asia Pacific Journal of Anthropology*, 15(2), pp.178-196.
- 104 For a more detailed analysis on this theme, see Iskander, D., and Picchioni, F. Long, L.V., Parsons, L., Guermond, V., Michiels, S, Brickell, K., Zanello, G., Natarajan, N. (2022) *Trapped in the Service of Debt: How the Burdens of Repayment are Fuelling the Health Poverty Trap in Rural Cambodia*. Royal Holloway, University of London.
- 105 ILO (2019) *Towards Universal Social Protection and achieving SDG 1.3*. Briefing note. Geneva: International Labour Organization [Online] Available from: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/briefingnote/wcms_732720.pdf (Accessed 1 July 2022).
- 106 See also Green, W. N., and Bylander, M (2021) for a review of previous studies on this topic.
- 107 Hulme, D., Moore, K., and Shepherd, A. (2001) *Chronic Poverty: Meanings and Analytical Frameworks*. CPRC Working Paper No. 2. [Online] Available from: https://www.chronicpoverty.org/uploads/publication_files/WP02_Hulme_et_al.pdf (Accessed 16 June 2022).
- 108 See also a recent quantitative study by the German government - a large industry investor - which has detailed the extent of land sales in Cambodia caused by microfinance institutions. The study estimates more than 167,000 Cambodian families were forced to sell land to repay debt in the past five years (Brooks, 2022).
- 109 See also Bylander, M., Res, P., Jacoby, L., Bradley, P., and Pérez A.B. (2019) Over-indebtedness and microcredit in Cambodia: moving beyond borrower-centric frames. *Development Policy Review*, 37(52), pp. O140-O160.
- 110 Brick kilns in Cambodia can be dangerous places to live and work, with risk of injury from the machinery and the breathing in of smoke.
- 111 Green, W. N. and Estes, J. (2022) Translocal Precarity: Labor and Social Reproduction in Cambodia. *Annals of the American Association of Geographers*. Online before print.
- 112 See for instance Johnson (2013) and Bernards (2022) on index-based insurance.
- 113 Aji, M. (2021).
- 114 Walkerius, R. (2018).
- 115 For more on this, see for instance Aji (2021), Perry (2020), Táiwò and Bigger (2022) and Táiwò (2022).
- 116 See the proposition of Johnna Montgomerie on how debt relief can finance prosperity and ensure overall economic stability: Montgomerie, J. (2022) Debt relief can finance prosperity: Making the case for reducing the repayment burden on households. In Harker, C. and Horton, A. (Eds) *Financing prosperity by dealing with debt*, London: UCL Press, pp.75-88.
- 117 Táiwò, O. O., and Bigger, P. (2022).
- 118 Jäger, A., and Zamora, D. (2020) Free Money for Surfers: A Genealogy of the Idea of Universal Basic Income. *Los Angeles Review of Books*. 17 April. [Online] Available from: <https://lareviewofbooks.org/article/free-money-for-surfers-a-genealogy-of-the-idea-of-universal-basic-income/>. (Accessed 28 April 2022).
- 119 Emerging from the Cochabamba climate conference in Bolivia in 2009, the People's Agreement proposed that climate debt reparations total at least 6% of the Gross National Product of OECD countries. In 2020, the US GNP stood at US\$21 trillion. 6% would be US\$1.26 trillion.
- 120 Perry, K. (2020) Realising Climate Reparations: Towards a Global Climate Stabilization Fund and Resilience Fund Programme for Loss and Damage in Marginalised and Former Colonised Societies. [Online] Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3561121. (Accessed 28 April 2022).
- 121 LICADHO (2020) *Driven out: One village's experience with MFIs and cross-border migration*. Phnom Penh: LICADHO. [Online] Available from: https://www.licadho-cambodia.org/reports/files/229DrivenOut_Briefing_ENG.pdf. (Accessed 28 April 2022).
- 122 Táiwò, O. O., and Bigger, P. (2022) *Debt justice for climate reparations*. Climate and Community Project. [Online] Available from: <https://www.climateandcommunity.org/debt-justice-for-climate-reparations>. (Accessed 28 April 2022).
- 123 As Torkelson (2019) shows however, cash transfers in countries such as South Africa have been transformed into collateral for credit. To be sure, this report does not call for a combination of cash transfer with financial inclusion but rather the replacement of commercialised microfinance loans with unconditional cash transfers.
- 124 One of the most interesting experiments of this kind of 'people-centered' fintech platform is in the city of Maricá in southeastern Brazil. See Bateman, M. and Amorim Teixeira, F. (2022) *The Promises and Perils of Investor-Driven Fintech: Forging People-Centered alternatives*. Amsterdam: Transnational Institute (TNI). [Online] Available from: <https://www.tni.org/en/publication/the-promises-and-perils-of-investor-driven-fintech> (Accessed 16 June 2022).

